

Introduction to General Linguistics: A Reader

2016/2017

Alexandra Bagasheva, course leader

INTRODUCTION TO GENERAL LINGUISTICS

(Fall semester 2016-2017)

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I. STRUCTURE

1. The course *Introduction to General Linguistics* is a one-semester, introductory course which ends in a final written exam. The exam is not the only instrument of assessment. The final grade is a combination of continuous assessment and the exam score.
2. The course is conducted in the form of lectures and seminars. The students are required to read a pre-assigned text for all the seminars (except the first one).

II. ASSESSMENT

The final mark for the course is a sum of:

- a) continuous assessment (CA) – 40%
CA is made up of pop-up quiz scores – 40% and midterm test – 60%
- b) end-of-term exam – 60%

NB! Unless you are expressly instructed otherwise, you are required to do your own work on all coursework and examinations. Collaboration with other students or with anyone else at exams and during quizzes and tests constitutes collusion. Submitting someone else’s work as your own, regardless of the source of that work, is plagiarism. Both collusion and plagiarism are serious offences; anyone found guilty of either offence will face very serious penalties. When you cite someone else’s work, including in an oral presentation, be sure to make it clear that you are doing so, and be sure to identify both the work cited and the source of that work. Your reading habits and note-taking should enable you to report accurately other people’s ideas and studies, and to distinguish them clearly from your own commentary and evaluation of them.

III. SYLLABUS FOR THE LECTURES

1. What is language? Where is language?
2. What and how does linguistics study? The scientific method. Linguistics as a science.
3. Major contemporary models and schools in the study of language – Structuralism, Functionalism, Chomskyan linguistics, Cognitive linguistics. Levels and units of linguistic analysis in the structural-functional paradigm (E. Benveniste). The concept of “rank”.
4. Language and Communication. Design features of language. Functions of language. The typology of signs (Pierce).
5. Phonetics and Phonology.
6. Morphology. Types of morphemes. Inflectional vs. Derivational Morphology. Parts of speech. Grammatical categories.
7. The Lexicon and Word-formation. Basic WF patterns in English.

8. Syntax I and II
9. Semantics and Pragmatics. Types of meaning – grammatical vs. lexical meaning; word meaning vs. sentence meaning (compositionality); denotative vs. connotative meaning. Meaning vs. reference. Basic approaches to the study of meaning. Types of semantic (sense) relations.
10. Historical Linguistics I
11. Historical linguistics II. History of the English language.
12. Universalism and Relativism. Whorfianism in the 21st c – Slobin’s “thinking for speaking”.
13. Language universals. Types of universals. Approaches to their study. Principles for the classification of languages – areal, genetic and typological.
14. Psycholinguistics.
15. Sociolinguistics.

IV. SYLLABUS FOR THE SEMINARS

1. Language and Linguistics. General overview. Scope and basic issues.
 - a) object-language vs. metalanguage
 - b) type vs. token
2. General Linguistics. Branches in the study of language.
 - a) school vs. branch
 - b) basic branches of internal and external linguistics
 - c) levels and units of linguistic analysis
3. The four basic schools. Structural Saussurean linguistics
 - a) basic notions
 - b) the dichotomies
 - c) system and structure
4. The cognitive basis of language. Language as a semiotic system
 - a) linguistic units and conceptual categories
 - b) words, meanings and concepts
 - c) grammatical encoding vs. lexical encoding
5. Phonetics and Phonology.
 - a) the speech organs, articulatory phonetics
 - b) consonants and vowels; phonemes and phonemic inventories (functional opposition)
 - c) visualizing sounds – transcription
 - d) the syllable, phonotactics.
6. Meaningful building blocks: morphology.
 - a) types of morphemes and allomorphs
 - b) derivational vs. inflectional morphology
 - c) parts of speech; function words.
 - d) grammatical categories; parts of speech membership and sensitivity to grammatical categories
 - e) grammatical markers/exponents (means of encoding grammatical meanings)
7. The lexicon and word-formation.
8. Putting concepts together: syntax.
 - a. words, phrases, clauses and sentences

- b. hierarchicity, linearity, constituency
 - c. types of sentences and types of clauses
 - d. event schemas
 - e. grounding elements
9. Semantics and Pragmatics.
 - a. meaning in language: compositionality and idiomaticity;
 - b. meaning in interaction: inferencing.
 10. Synchrony vs. Diachrony.
 - a. basic types of sound changes;
 - b. basic types of lexical and semantic changes.
 11. Historical linguistics.
 - a. basic types of morphological and syntactic changes;
 - b. history of the English language.
 12. Language, culture, thought and meaning. Linguistic relativity.
 13. Language Universals. Classifications of languages.
 14. Psycholinguistics.
 15. Sociolinguistics.

V. MANDATORY READING

For each of the seminars (to the exception of the first one) you will be asked to read something before coming to class. Pop-up quizzes are based on these reading assignments.

The readings are based on the mandatory reading materials compiled for ease of access and clarity in a pdf file, the access to which is provided by the instructors. They constitute CM (course materials).

CM=Course materials (in alphabetical order):

1. Bauer, L. (2007) *The Linguistics Student's Handbook*. Edinburgh University Press. (= HB)
2. Brinton, L. and Brinton, D. (2010) *The Linguistic Structure of Modern English*. Amsterdam/Philadelphia: John Benjamin Publishing House. (= LSME)
3. Downing, A. and Ph. Locke (2005) *A University Course in English Grammar*. Routledge. (= UCEG)
4. Dirven, R. and Verspoor, M. (2004) *Cognitive Explorations of Language and Linguistics*. John Benjamins. (= CELL)
5. Jeffries, L. (2006) *Discovering Language. The Structure of Modern English*. Plagrave Macmillan. (= DSML)
6. Mair, Ch. (2008) *English Linguistics: An Introduction*. Teubingen: Gunter Narr Verlag. (= ELI)
7. McGregor, W. (2015) *Linguistics: An Introduction*. Continuum. (= LINGINT)
NB! The textbook is accompanied by a very useful supplementary site:
<http://mcgregor.continuumbooks.net/>
8. Wolff, Phillip and Kevin Holmes (2011) "Linguistic Relativity." In *Advanced Review 2*: 253–265.

READING ASSIGNMENTS PER WEEK

Seminar	Dates	Topic	Assignment
One	3-7 October 2016	<i>Language and Linguistics</i>	No reading assignment.
Two	10-14 October 2016	<i>Branches of Linguistics Levels and units of linguistic analysis</i>	HB (pp. 11–18); LINGINT (pp. 2–6); UCEG (pp. 9–20)
Three	17-21 October 2016	<i>Basic schools. Structuralism.</i>	HB (pp. 41–46); DSML (pp.195–199); LINGINT (pp. 15–19)
Four	24-28 October 2016	<i>Design features. Structuring principles in language</i>	CELL (pp. 1-21); LINGINT (pp. 6–10; 11–15)
Five	31 October - 4 November 2016	<i>Phonetics and phonology</i>	CELL (pp. 101–123); LSME (pp. 50–78)
Six	7-11 November 2016	<i>Morphology. Types of morphemes and allomorphy</i>	LINGINT (pp. 56–68); LSME (pp. 113–142)
Seven	14-18 November 2016	<i>The Lexicon and Word-formation</i>	LINGINT (pp. 80–98); CELL (pp. 25–44)
Eight	21-25 November 2016	<i>Syntax</i>	UCEG (pp. 3–8); LINGINT (pp. 104–122); CELL (pp. 75–97)
Nine	28 November – 2 December 2016	<i>Semantics and Pragmatics</i>	LINGINT (pp. 130–149); CELL (pp. 149–174)
Ten	5-9 December 2016	<i>Synchrony and Diachrony. Language change</i>	LINGINT (pp. 356–375)
Eleven	12-16 December 2016	<i>Changes in languages. The history of English.</i>	ELI (pp. 187–202)
Twelve	19-23 December 2016	<i>Language, culture, thought and meaning</i>	<i>Linguistic relativity</i>, Phillip Wolff and Kevin Holmes
Thirteen	3-6 January 2017	<i>Language Universals. Classifications of languages</i>	LINGINT (pp. 329–350; 382–404)
Fourteen	9-13 January 2017	<i>Psycholinguistics</i>	LINGINT (pp. 205–223)
Fifteen	16-20 January 2017	<i>Sociolinguistics</i>	LINGINT (pp. 156–174)

N.B. Official holidays (no classes): 25.11.2016 – St. Kliment Ohridski's Day; 08.12.2016 – Student's Day; 24.12.2016 - 02.01.2017 – Christmas break

Semester: 03.10. 2016 – 20.01.2017; Exam session: 23.01. 2017 – 17.02. 2017

VI. RECOMMENDED READING

1. Aitchison, J. (1998) *The Articulate Mammal: An Introduction to Psycholinguistics*. Routledge, London

2. Akmajian, A., Demers, R., Farmer, A., and Harnish, R. (2001) *Linguistics: An Introduction to Language and Communication*. The MIT Press, Cambridge, Massachusetts
3. Bauer, L. (2007) *The Linguistics Student's Handbook*. Edinburgh University Press.
4. Bolinger, D. and D. Sears (1981) *Aspects of Language*. Harcourt Brace Jovanovich
5. Crowley, T. (1992) *An Introduction to Historical Linguistics*. Oxford University Press
6. Crystal, D. (1995) *Linguistics*. Cambridge University Press
7. De Beaugrande and W. Dressler (1981) *Introduction to Text Linguistics*. Longman
8. Dirven, R. and Verspoor, M. (eds.) (2004) *Cognitive Explorations of Language and Linguistics*. John Benjamins Publishing House
9. Evans, V. and M. Green (2006) *Cognitive Linguistics: An Introduction*. Edinburgh: Edinburgh University Press.
10. Fasold, R. and J. Connor-Linton (2006) *An Introduction to Language and Linguistics*. Cambridge University Press
11. Fromkin, V., and R. Rodman (1993) *An Introduction to Language*. New York: Harcourt Brace Jovanovich College Publishers.
12. Fromkin, V. (ed.) (2000) *Linguistics: An Introduction to Linguistic Theory*. Blackwell Publishing
13. Fromkin, V., Rodman, R. and Hyams, N. (2010/2007) [*An Introduction to Language*](#). Thomson/Heinle, Boston, Mass
14. Harris, R. and T. Taylor (1997) *Landmarks In Linguistic Thought Volume I: The Western Tradition From Socrates To Saussure* (History of Linguistic Thought) (Vol 1). Routledge
15. Hurford, J., Heasley, B. and M. Smith (2007) *Semantics: A Coursebook*. CUP
16. Joseph, J., Love, N. and T. Taylor (2001) *Landmarks in Linguistic Thought Volume II: The Western Tradition in the Twentieth Century* (History of Linguistic Thought) (Vol 2). Routledge
17. Leech, G. (1985) *Semantics*. Penguin
18. Lyons, J. (1977) *Semantics*, Vol. I. & II CUP
19. McGregor, W. (2009) *Linguistics: An Introduction*. Continuum.
20. O'Grady, W., Dobrovsky, M. and F. Katamba (2001) (2nd edition) *Contemporary Linguistics: An Introduction*. Pearson
21. Parkvall, M. (2006) *Limits of Language: Almost everything you didn't know about language and languages*. London: Battlebridge.
22. Pinker, S. (1995) *The Language Instinct: How the Mind Creates Language*. HarperPerennial, New York
23. Robins, R. H. (1989) *General Linguistics: An Introductory Survey*. Longman
24. Seuren, P. (1998) *Western Linguistics: An Historical Introduction*. Wiley-Blackwell
25. Smith, N. and D. Wilson (1988) *Modern Linguistics: The Result of Chomsky's Revolution*. Penguin
26. Stamenov et al. (eds.) (1992) *Readings in Theoretical Grammar. Basic Concepts*, Sofia University Press
27. Tallerman, M. (2005) [*Understanding Syntax*](#). Hodder Arnold, London
28. Trask, R. (1994/2000) *Language Change*. Routledge
29. Wardhaugh, R. (1977) *Introduction to Linguistics*. McGraw-Hill Book Company
30. Москов, М. (2000) *Език и езиковзнание*. Спела
31. Бенвенист, Е. (1993) *Езикът и човекът*. Наука и изкуство

32. Сосюр, Ф. дьо (1992) *Курс по обща лингвистика*. Наука и изкуство
 33. Бояджиев, Ж.. (2001) *Увод в езиковнанието*. Сиела

N.B. Helpful but not essential is Manning, A. (2008) English for Language and Linguistics in Higher Education, Garnet (This is an ESAP course)

VII. REFERENCE MATERIALS

- Asher, R.E., Simpson, J.M.V. (eds) (1994) *The Encyclopedia of Linguistics*, 10 vols. Pergamon.
- Bauer, L. (2007) *The Linguistics Student's Handbook*. Edinburgh University Press
- Frawley, W. (ed.) (2003) *The Oxford International Encyclopedia of Linguistics*. 4 vols. OUP, (1st edn, ed. W. Bright, 1991)
- Crystal, D. (1997) *A Dictionary of Linguistics and Phonetics*. 4th edition. Blackwell.
- Matthews, P. (1997) *The Oxford Dictionary of Linguistics*. OUP.
- Newmeyer, F.J. (ed.) (1988) *Linguistics: The Cambridge Survey*. 4 vols. CUP.
- Trask, R.L. (1993) *A Dictionary of Grammatical Terms in Linguistics*. Routledge.
- Crystal, D. (1987) *The Cambridge Encyclopedia of Language*
- *Longman's Dictionary of Applied Linguistics*
- Trask, R. (1999) *Key Concepts in Linguistics*
- Collinge, N. (ed.) (1990) *An Encyclopedia of Language*
- *The Encyclopaedia of Language and Linguistics* (1994) Vol. I – X. Pergamon.

VIII. LINGUISTICS ON THE WEB

1. IPA – International Phonetic Association: <http://www.arts.gla.ac.uk/ipa/ipa.html>
2. “Semiotics for Beginners” by Daniel Chandler:
<http://www.aber.ac.uk/media/Documents/S4B/semiotic.html>
3. Stanford Encyclopedia of Philosophy: <http://plato.stanford.edu/>
4. Ethnologue Languages of the World: <http://www.ethnologue.com/>
5. The Web Journal of Modern Language and Linguistics ISSN 1461-4499:
<http://wjml.ncl.ac.uk/>
6. [UCLA Academic Departments and Units](#)
7. [The Applied Linguistics WWW Virtual Library](#)
8. [Indo-European Home Page](#) (UC Berkeley)
9. [The iLove Languages Page](#) (formerly Human Languages)
10. [Linguist List](#) Includes the *World-Wide Web Virtual Library on Linguistics*.
11. [Scholarly Societies Project: Language & Linguistics](#) (From the University of Waterloo (Electronic Library). Facilitates access to web pages and gophers maintained by or for scholarly societies across the world.)
12. [Summer Institute of Linguistics \(SIL\)](#)
13. [University of Rochester Department of Linguistics](#)
14. [Yahoo! - Social Science: Linguistics and Human Languages](#)
15. [University Linguistics Departments, Programs and Centers](#) (Extensive list maintained by Linguist/East Michigan University).

16. [UCLA Linguistics Department](#)
17. [MIT Linguistics Home Page](#) (Includes MIT Dissertations awarded in Linguistics, 1964-1994 and MIT Working Papers in Linguistics.)
18. [The Ohio State University, Department of Linguistics](#)
19. [University of California at Berkeley Department of Linguistics](#) (Includes links to the Berkeley Linguistics Society, Berkeley Women and Language Group, the Comparative Bantu Online Dictionary Project.)
20. [Center for the Study of Language and Information \(CSLI\) at Stanford University](#)
21. [Haskins Laboratories, Yale University](#)

IX. SAMPLE EXAM

Exam in Introduction to General Linguistics

Name..... Group..... Faculty No.....

Choose four of the six topics/questions listed below and write concise answers to the chosen four. Use your own paper, if needed. You have three astronomical hours to finish your answers. Please, write coherent paragraphs, not bullet-point plans. Good luck!

1. Define and illustrate *5 types of word-formation* in English.
2. Define and illustrate four different *types of grammatical marking*.
3. Discuss the structuring principle of *iconicity* in language.
4. What do we include in a description of the *phonotactics* of a language? Provide an example from English.
5. Describe the basic *Saussurean dichotomies*.
6. How do the *code* model and the *ostensive-inferential* model of language and communication differ?

WEEK TWO

**Bauer, L. (2007) *The Linguistics Student's Handbook*. Edinburgh University Press. (HB)
pp. 11 - 18**

Linguistics

A typical dictionary definition of linguistics is something like 'the science of language'. Unfortunately, such a definition is not always helpful, for a number of reasons:

- Such a definition does not make clear in what respects linguistics is scientific, or what is meant by *science* in this context.
- Such a definition masks the fact that it is, for some linguists, controversial to term their subject a science.
- Such a definition fails to distinguish linguistics from related fields such as philology.
- The word 'science' may carry with some misleading connotations. A rather looser definition, such as 'linguistics is the study of all the phenomena involved with language: its structure, its use and the implications of these', might be more helpful, even if it seems vaguer.

What does linguistics cover?

Linguistics deals with human language. This includes deaf sign-languages, but usually excludes what is often termed BODY LANGUAGE (a term which itself covers a number of different aspects of the conscious and unconscious ways in which physiological actions and reactions display emotions and attitudes).

Human language is just one way in which people communicate with each other, or gather information about the world around them. The wider study of informative signs is called SEMIOTICS, and many linguists have made contributions to this wider field. One obvious way of studying language is to consider what its elements are, how they are combined to make larger bits, and how these bits help us to convey messages. The first part of this, discovering what the elements are, is sometimes rather dismissively termed TAXONOMICS or classificatory linguistics. But given how much argument there is about what the categories involved in linguistic description are, this is clearly an important part of linguistics, and is certainly a prerequisite for any deeper study of language.

The study of the elements of language and their function is usually split up into a number of different subfields.

1. PHONETICS deals with the sounds of spoken language: how they are made, how they are classified, how they are combined with each other and how they interact with each other when they are combined, how they are perceived. It is sometimes suggested that phonetics is not really a part of linguistics proper, but a sub-part of physics, physiology, psychology or engineering (as in attempts to mimic human speech using computers). Accordingly, the label LINGUISTIC PHONETICS is sometimes used to specify that part of phonetics which is directly relevant for the study of human language.
2. PHONOLOGY also deals with speech sounds, but at a rather more abstract level. While phonetics deals with individual speech sounds, phonology deals with the systems which incorporate the sounds. It also considers the structures the sounds can enter into (for example, syllables and intonational phrases), and the generalisations that can be made about sound structures in individual languages or across languages.
3. MORPHOLOGY deals with the internal structure of words – not with their structure in terms of the sounds that make them up, but their structure where form and meaning seem inextricably entwined. So the word *cover* is morphologically simple, and its only structure is phonological, while *lover* contains the smaller element *love* and some extra meaning which is related to the final <r> in the spelling. Another way of talking about this is to say that morphology deals with words and their meaningful parts.
4. SYNTAX is currently often seen as the core of any language, although such a prioritising of syntax is relatively new. Syntax is concerned with the ways in which words can be organised into sentences and the ways in which sentences are understood. Why do apparently parallel sentences such as *Pat is easy to please* and *Pat is eager to please* have such different interpretations (think about who gets pleased in each case)?
5. SEMANTICS deals with the meaning of language. This is divided into two parts, LEXICAL SEMANTICS, which is concerned with the relationships between words, and SENTENCE SEMANTICS, which is concerned with the way in which the meanings of sentences can be built up from the meanings of their constituent words. Sentence semantics often makes use of the tools and

notions developed by philosophers; for example, logical notation and notions of implication and denotation.

6. PRAGMATICS deals with the way the meaning of an utterance may be influenced by its speakers or hearers interpret it in context. For example, if someone asked you *Could you close the window?*, you would be thought to be uncooperative if you simply answered *Yes*. Yet if someone asked *When you first went to France, could you speak French?* *Yes* would be considered a perfectly helpful response, but doing something like talking back to them in French would not be considered useful. Pragmatics also deals with matters such as what the difference is between a set of isolated sentences and a text, how a word like *this* is interpreted in context, and how a conversation is managed so that the participants feel comfortable with the interaction.

7. LEXICOLOGY deals with the established words of a language and the fixed expressions whose meanings cannot be derived from their components: idioms, clichés, proverbs, etc. Lexicology is sometimes dealt with as part of semantics, since in both cases word-like objects are studied. In principle, any one of these levels of linguistic analysis can be studied in a number of different ways.

- They can be studied as facets of a particular language, or they can be studied across languages, looking for generalisations which apply ideally to all languages, but more often to a large section of languages. The latter type of study is usually called the study of LANGUAGE UNIVERSALS, or LANGUAGE TYPOLOGY if the focus is on particular patterns of recurrence of features across languages.

- They can be studied as they exist at some particular time in history (e.g. the study of the morphology of fifteenth-century French, the study of the syntax of American English in 2006, the phonetics of the languages of the Indian subcontinent in the eighteenth century) or they can be studied looking at the way the patterns change and develop over time. The first approach is called the SYNCHRONIC approach, the second the DIACHRONIC or historical approach.

- They can be studied with the aim of giving a description of the system of a particular language or set of languages, or they can be studied with the aim of developing a theory of how languages are most efficiently described or how languages are produced by speakers. The first of these approaches is usually called DESCRIPTIVE LINGUISTICS, the second is often called THEORETICAL LINGUISTICS.

- They can be treated as isolated systems, at though all speakers talk in the same way as each other at all times, or they can be treated as systems with built-in variability, variability which can be exploited by the language user to mark in-group versus out-group, or to show power relations, or to show things as diverse as different styles and personality traits of the speaker. The latter types are dealt with as part of SOCIOLINGUISTICS, including matters such as DIALECTOLOGY.

- We can study these topics as they present in the adult human, or we can study the way they develop in children, in which case we will study LANGUAGE ACQUISITION. Perhaps more generally, we can view the development of any of these in the individual human, that is we can take the ONTOGENETIC point of view, or we can consider the way each has developed for the species, taking the PHYLOGENETIC point of view.

- Finally, most of these facets of linguistics can be studied as formal systems (how elements of different classes interact with each other, and how the system must be arranged to provide the outputs that we find in everyday language use). Alternatively, they can be studied in terms of how the use to which language is put in communication and the cognitive functions of the human mind shape the way in which language works (iconicity, the notion that language form follows from meaning to a certain extent, is thus a relevant principle in such studies). This is the difference between FORMAL and FUNCTIONAL approaches to language.

In principle, each of these choices is independent, giving a huge range of possible approaches to the subject matter of linguistics.

Many people are less interested in the precise workings of, say, phonology than they are in solving problems which language produces for humans. This study of language problems can be called APPLIED LINGUISTICS, though a word of warning about this label is required. Although there are people who use the term *applied linguistics* this broadly, for others it almost exclusively means dealing with the problems of language learning and teaching. Language learning (as opposed to language acquisition by infants) and teaching is clearly something which intimately involves language, but often it seems to deal with matters of educational psychology and pedagogical practice which are

independent of the particular skill being taught. Other applications of linguistics may seem more centrally relevant. These include:

- **ARTIFICIAL INTELLIGENCE:** Turing (1950) suggested that a machine should be termed intelligent when humans could interact with it without realising they were not interacting with another human.

Among many other problems, this involves the machine being able to produce something akin to human language.

- **FORENSIC LINGUISTICS:** this deals with the use of language in legal contexts, including matters such as the linguistic techniques of cross-examination, the identification of speakers from tape-recordings, and the identification of authorship of disputed documents.

- **LANGUAGE POLICY:** some large organisations and nations have language policies to provide guidelines on how to deal with multilingualism within the organisation.

- **LEXICOGRAPHY:** the creation of dictionaries; although some people claim that this is not specifically to do with linguistics, it is a linguistic study in that it creates vocabulary lists for individual languages, including lists of things like idioms, and in translating dictionaries provides equivalents in another language.

- **MACHINE TRANSLATION:** the use of computers to translate a written text from one language to another.

- **SPEECH AND LANGUAGE THERAPY:** speech and language therapists deal with people who, for some reason, have not acquired their first language in such a way that they can speak it clearly, or with the re-education of speakers who have lost language skills, e.g. as the result of a stroke. The linguistic aspects of this are sometimes called **CLINICAL LINGUISTICS**.

- **SPEECH RECOGNITION:** the use of computers to decode spoken language in some way; this may include computers which can write texts from dictation, phone systems which can make airline bookings for you without the presence of any human, or computers which can accept commands in the form of human language.

More specifically, **VOICE RECOGNITION** can be used for security purposes so that only recognised individuals can access particular areas.

- **SPEECH SYNTHESIS:** the use of computers to produce sound waves which can be interpreted as speech.

- **TEACHING:** it is clear that second- and foreign-language teaching involve, among other things, linguistic skills, but so does much mother-language teaching, including imparting the ability to read and to write. At more advanced levels, teaching students to write clearly and effectively may involve some linguistic analysis.

Another way of looking at what linguistics covers is by taking the list of topics given at the head of this section as being some kind of core, and then thinking of all the types of 'hyphenated' linguistics that are found.

- **AREAL LINGUISTICS** deals with the features of linguistic structure that tend to characterise a particular geographical area, such as the use of retroflex consonants in unrelated languages of the Indian subcontinent.

- **COMPARATIVE LINGUISTICS** deals with the reconstruction of earlier stages of a language by comparing the languages which have derived from that earlier stage.

- **COMPUTATIONAL LINGUISTICS** deals with the replication of linguistic behaviour by computers, and the use of computers in the analysis of linguistic behaviour. This may include **CORPUS LINGUISTICS**, the use of large bodies of representative text as a tool for language description.

- **EDUCATIONAL LINGUISTICS** investigates how children deal with the language required to cope with the educational system.

- **ETHNOLINGUISTICS** deals with the study of language in its cultural context. It can also be called **ANTHROPOLOGICAL LINGUISTICS**.

- **MATHEMATICAL LINGUISTICS** deals with the mathematical properties of languages or the grammars used to describe those languages.

- **NEUROLINGUISTICS** deals with the way in which linguistic structures and processes are dealt with in the brain.

- **PSYCHOLINGUISTICS** deals with the way in which the mind deals with language, including matters such as how language is stored in the mind, how language is understood and produced in real time, how children acquire their first language, and so on.
- **SOCIOLINGUISTICS** deals with the way in which societies exploit the linguistic choices open to them, and the ways in which language reflects social factors, including social context.

We can finish by pointing out that the history of linguistic thought is itself a fascinating area of study, since ideas about language are closely related to the philosophical fashions at different periods of history, and often reflect other things that were occurring in society at the time. Even this overview is not complete. It indicates, though, just how broad a subject linguistics is.

Is linguistics a science?

In the 1950s and 1960s there was a lot of money for scientific research, but very little for research in the humanities. There was thus more than just a political point to be made by terming linguistics a science. A great deal of linguistic research was funded through the American National Science Foundation, for example. Today things are not greatly different, and a great deal of linguistic research gets funded as applications of computer-related work. But calling linguistics a science was not simply a political stance aimed at gaining prestige and funding for the subject. There are good reasons for calling linguistics a science.

Like the biological sciences, linguistics is concerned with observing and classifying naturally occurring phenomena. The phenomena to be classified are speech sounds, words, languages and ways of using language to interact rather than organs, mating behaviours and plant species, but the general principles of classification do not change.

Because language is manifested in human behaviour, it can be studied in the same way that other human behaviour is studied in psychology and medical science.

As in many sciences, the argument in linguistics runs from the observed data to the potentially explanatory theories to provide an account of the data. In physics you move from the observation of falling objects through to theories of gravity; in linguistics you move from the observation of particular kinds of linguistic behaviour through to theories on how linguistic behaviour is constrained. Like many scientists, linguists construct hypotheses about the structure of language and then test those hypotheses by experimentation (the experimentation taking a number of different forms, of course).

These days most linguists would agree that linguistics is a science, and very few would wish to query such a suggestion. Those that do query the suggestion tend to view linguistics as a branch of philosophy, a metaphysics (see e.g. Lass 1976: 213-20). It is not clear how important any such distinction is. What we call *physics* today was once called *natural philosophy*, and philosophers construct hypotheses, carry out thought experiments and base their conclusions on arguing from what can be observed as well.

For the beginning linguist, saying that linguistics is a science can be interpreted as implying careful observation of the relevant real-world phenomena, classification of those phenomena, and the search for useful patterns in the phenomena observed and classified. For the more advanced linguist, saying that linguistics is a science is a matter of seeking explanations for the phenomena of language and building theories which will help explain why observed phenomena occur while phenomena which are not observed should not occur.

What is not linguistics?

Are there aspects of the study of language which are not encompassed within linguistics? To a certain extent this is a matter of definition. It is perfectly possible to define linguistics very narrowly (usually to include only phonology, morphology, syntax and perhaps semantics) and to exclude all the rest by that act of definition. But while this is clearly the core of linguistic study in the sense that any other facet of language that is studied will make reference to some of this material, this very narrow definition would not be widely accepted.

Perhaps the most general exclusion from linguistics is the study of the literary use of language in order to provide emotional effect. While linguists are frequently happy to study particular figures of speech such as metaphors or metonymy, they do not do this to relate it to the building up of an atmosphere or the development of characterisation. Such matters are left to literary scholars.

So although linguistics and literature may both deal with language production as their basic material, there is often little if any overlap between the two fields.

Similarly, although linguists deal with matters of formality and informality in language use, and matters of what language is appropriate in what circumstances, there is an area of literary stylistics which seems to be beyond what most linguists see as being the proper domain of linguistics.

The difference between linguistics and philology is either a matter of history or a matter of method. What we would now call historical or diachronic linguistics was in the nineteenth and early twentieth centuries (and to a certain extent still) covered under the title of PHILOLOGY. Philology was usually based on the close reading of older texts (often, but not exclusively, literary texts).

Linguists use such texts as evidence, but are more concerned with giving a systematic account of the language system: the focus is on the language description rather than on the texts from which the system is deduced.

References

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Key terms

arbitrariness	icon	sign languages
auditory-vocal medium	paradigmatic relation	speech
cultural transmission	productivity	structuralism
design features	reflexivity	symbol
displacement	relation	syntagmatic
duality	Saussure	visual-gestural medium
formalism	scientific method	visual-inscribed medium
functionalism	sign	writing

1.1 What is linguistics?

David Crystal's *Dictionary of Linguistics and Phonetics* begins the entry for linguistics with the words '[t]he scientific study of **language**' (Crystal 2003: 272). He goes on to say that it is also called *linguistic science*, and refers to it as an academic discipline. Ask any linguist what linguistics is and you are likely to be given a similar answer mentioning both its scientific character and its subject matter – language.

Linguistics as a science

What does it mean to say that linguistics is a science or scientific field of study? To begin with, it says something about the approach taken to the subject matter. A scientific approach to the study of language involves a critical and enquiring attitude, and refusal to accept uncritically, on faith, or on authority, ideas or ways of thinking about language. It strives for objectivity, for developing hypotheses and putting them to the test by confronting them with observations. This means that linguistics is empirically grounded: it is based on actual language data, including observations of language use by speakers, and their intuitions about their language.

Linguistics is thus descriptive rather than prescriptive: its primary goal is to describe languages as they are actually spoken, indicating what they are like and how they are used, rather than prescribe how they ought to be spoken. Many people are concerned about how their language ought to be spoken, as a glance in a newspaper is likely to reveal: people often comment on 'wrong' grammar or pronunciation that people (usually others!) use.¹ At school you may have learnt that you should say *That is the child whom the dog bit* and not *That is the child who the dog bit*. But in modern English (Indo-European, England),² most people say the latter, and few could use the

school rule consistently and appropriately without consciously thinking about it. Linguistics is concerned with what people actually say, not with what they should say.

A scientific approach is not purely empirical in the sense of merely collecting observations. It involves formulation and testing of hypotheses and generalizations, as well as theory development, development of ways of understanding language. This calls for rigorous and explicit formulation of ideas, as well as rigour in testing them. Linguistics as a scientific endeavour is as much a theoretical enterprise as an empirical one: whatever observations one makes are useful and make sense only in relation to hypotheses and theories.

As a science, linguistics is concerned with developing theories that account for and explain the phenomena of language and language use. Doing linguistics is concerned with theory development and testing, and with making generalizations about language – with uncovering regularities and repeated general characteristics. *Exceptions* play a crucial role: they challenge the generalizations, and force the investigator to rethink matters, and refine or revise their ideas. We will see in this book places where exceptions loom large in scientific thinking about language, and have resulted in significant new developments.

An important skill to develop is the ability to recognize the significance of observed phenomena as exceptional or unexpected. Linguistics is a relatively new science, and it is possible for beginners to observe new things about their language (even as well studied a language as English), including things that challenge existing theories. While reading this book you should be constantly thinking about and observing the language in use around you, and linking your observations to the discussion and generalizations we make.

Linguistics is often regarded as a humanities (or arts) subject, though in many ways it straddles the boundaries between humanities and sciences, with a foot in both camps. Links to humanities include to language history and philosophy, as well as to ancient and modern 'language' subjects taught in universities, such as English, French (Indo-European, France), German (Indo-European, Germany), Ancient Greek (Indo-European, Greece), Sanskrit (Indo-European, India) and so on; links to social sciences include to sociology, psychology, anthropology and archaeology. But there are also links to the 'hard' sciences such as biology, physiology, physics and mathematics, most obviously in the production and perception of speech.

The human side of linguistics is as central as its scientific face. Language is a human artefact, and many types of linguistic research involve interaction between the linguist and other human beings, speakers of languages. Their work thus not infrequently confronts linguists with human considerations, such as provision of professional expertise or services.

The subject matter of linguistics

Being a scientific subject, linguistics is in principle concerned with all aspects of language. This immediately raises the question: What is language? The term has many senses. People talk of the

language of bees, the language of the genetic code, the language of science, the language of mathematics, the language of flowers, the language of love, body language, computer language(s), the English language, the American language and so on. Here we use the term specifically in reference to natural human languages, such as French, Mandarin Chinese (Sino-Tibetan, People's Republic of China), Basque (Isolate, Spain and France) and Hausa (Afroasiatic, Nigeria). This is of course not a definition of the term; to provide one now would be premature, as it would presuppose much of the content of this book. In §1.3 we make a beginning by discussing some features that characterize human language and distinguish it from other communication systems, including those of other animals. The question is returned to a number of times in subsequent sections of the book, not always explicitly – so keep awake! By the time you have finished reading the book, you should have a clearer notion of what linguists mean by the terms *language* and *languages*, and an appreciation of some of the difficulties in defining them.

Perhaps the best way to begin is to shelve the terminological question, and outline the main branches of the subject. (There are of course many other less-central fields and subfields in linguistics.) If you do a degree in linguistics, you are likely to study many of these branches, some of which will be covered in their own course.

- **Phonetics** and **phonology** deal with the sounds of languages. Phonetics is concerned with the ways speech sounds are produced, their nature (the physics of sound waves) and how they are perceived. Phonology is concerned with the ways sounds are patterned in a language, with those characteristics that are significant in the sound system of the language. These two branches are dealt with in Chapter 2.
- **Morphology** deals with the way the words of a language are structured, how they are made up of smaller meaningful parts. For example, *reads* is made up of *read* and the ending *s*, which tells you that the reading is being done by one person (who is not the speaker or hearer) at the present time or generally. Morphology is treated in Chapters 3 and 4.
- **Syntax** is concerned with the ways words go together to form sentences, and how the words are related to one another. For instance, *The boy reads comics* consists of a subject or doer of the action *the boy*, a verb representing an event *reads* and an object or patient of the action *comics*. Sometimes words go together to make up constructions of intermediate size – larger than words, but smaller than sentences. An example is *the boy* in our previous sentence. Syntax is the topic of Chapter 5. Syntax and morphology together make up the core of **grammar**.
- **Semantics** and **pragmatics** deal with meaning. Semantics is concerned with the aspects of meaning that are encoded by words and grammar. Pragmatics handles the aspects of meaning of an utterance that come from its use in a particular context. The sentence *Come again!* is made up of two words each of which has a meaning, as does the whole sentence (it is an instruction to the hearer to do something); these matters are the concern of semantics. But you can use this sentence in different circumstances and in different ways to mean different things. If said when farewelling a visitor it could be interpreted as an invitation to return at a later time. In other contexts it could be interpreted as an expression of disbelief, or a request that the hearer repeat what they have just said. Such interpretations are the concern of pragmatics. Chapter 6 treats semantics and pragmatics.

- **Psycholinguistics** and **neurolinguistics** are concerned with the processes involved in language production (e.g. speaking and writing) and comprehension (e.g. listening and reading). Psycholinguistics investigates the mental processes underlying language processing, while neurolinguistics is biologically oriented, focusing on the brain's language processing activities. Psycholinguistics tends to adopt methods of psychology; neurolinguistics, medical methods and technology. These topics are treated in Chapter 9.
- **Language acquisition** is the field of linguistics that investigates processes of attaining comprehension and production of a language. It is concerned with how children acquire their first language (native language or mother tongue) and how adults learn second or later languages. Chapter 10 discusses processes of language acquisition.
- **Typology** and **universals** are concerned with the range and limitations on structural variation among languages. Typology seeks to discover and account for the variation by classifying languages into types according to some structural feature (for instance, the order of subject, verb and object), and classifying linguistic structures according to their similarities and differences (e.g. whether possession is expressed by a 'have' verb, or a verb 'be at'). The study of language universals is concerned with identifying features common to all of the world's languages. These matters are the concern of Chapter 14.
- **Historical linguistics** studies how languages change over time. Languages never remain static for long; indeed they change rapidly. Historical linguistics has methods for working out what changes are likely to have happened over time to a language or group of languages. It is also concerned with establishing genetic relations amongst languages: that is, with showing that certain languages are related by having evolved from the same ancestor language. The comparative method is a technique devised for this purpose. Chapter 15 deals with historical linguistics.
- **Sociolinguistics** is concerned with language in its social context, with the relations between language and society. It explores the variation in languages associated with social phenomena such as the social group to which speakers and/or hearers belong (for instance, differences in speech according to class in Western societies). Other topics of interest in sociolinguistics are multilingualism, language choice (what motivates language choice in multilingual settings), attitudes to languages and language variation, and standard and non-standard varieties of a language. **Anthropological linguistics** has basically the same range of concerns as sociolinguistics, but takes inspiration more from anthropology than sociology, and usually deals with small-scale non-Western cultures. Sociolinguistics is dealt with mainly in Chapter 7.
- **Discourse analysis** examines stretches of language, both spoken and written, larger than the sentence. It attempts to find regularities in the formation of these stretches, and correlations with grammatical, phonological, lexical and semantic phenomena. Among the issues that have attracted interest are: how sentences are connected; how texts are made coherent; and the use of words like *well*, *like* and so on. **Conversation analysis** focuses attention on the properties of everyday conversation, including turn-taking (how conversation partners organize the exchange of speaker and hearer roles), negotiation of interactive expectations and goals, use of discourse markers and conversational coherence. Discourse analysis is the topic of Chapter 8.

- **Evolutionary linguistics** is concerned with the origins of language, with how we came to speak. Perhaps the basic question is why are we the only species with language? Is language a part of our genetic make-up as human beings, or does biology merely permit us to speak? Some ideas about language origins and evolution are discussed in Chapter 11.

LINGUISTIC FORMS AND SYNTACTIC FUNCTIONS

MODULE 2

2.1 SYNTACTIC CATEGORIES AND RELATIONSHIPS

In this module we shall outline the basic syntactic concepts on which our structural analysis is based. These include the structural **units** which can be arranged by **rank**, **the classes** into which these units can be divided, and the **elements** of which they are composed. We shall also consider the ways units of one rank are related to those above or below them. This is explained on pages 19 and 20, and in chapters 2 and 3.

2.2 TESTING FOR CONSTITUENTS

Before attempting to see how a stretch of language can be broken down into units, it is useful to be able to reinforce our intuitions as to where boundaries lie. This can be done by applying certain tests in order to identify whether a particular sequence of words is functioning as a constituent of a higher unit or not.

For instance, the following sequence, which constitutes a grammatical clause or simple sentence, is ambiguous:

Muriel saw the man in the service station

Two interpretations are possible, according to how the units that make up the clause are grouped into constituents, expressed graphically as follows:

1 || Muriel | saw | the man in the service station ||

2 || Muriel | saw | the man || in the service station ||

In version 1, the prepositional phrase *in the service station* forms part of the constituent whose head-word is *man* (*the man in the service station*) and tells us something about the man; whereas in version 2 the same prepositional phrase functions separately as a constituent of the clause and tells us where Muriel saw the man.

Evidence for this analysis can be sought by such operations as (a) coordination, (b) *wh*-questions, (c) clefting, (d) passivisation and (e) fronting. Tests (b) to (e) involve moving the stretch of language around and observing its syntactic behaviour. Testing

by coordination involves adding a conjoin that realises the same function; only stretches of language that realise the same function can be conjoined:

- (a) It can be seen that different types of conjoin are required according to the function of *in the service station*:
 - (i) Muriel saw *the man in the service station* and *the woman in the shop*.
 - (ii) Muriel saw the man *in the service station* and *in the shop*.
- (b) The *wh*-question form and the appropriate response will be different for the two versions:
 - (i) *Who* did Muriel see? – *The man in the service station*.
 - (ii) *Where* did Muriel see the man? – *In the service station*.
- (c) Clefting by means of *it + that*-clause highlights a clause constituent (see 30.2) and thus yields two different results:
 - (i) It was *the man in the service station* that Muriel saw.
 - (ii) It was *in the service station* that Muriel saw the man.

Wh-clefting (see 30.2) gives the same result:

- (i) The one Muriel saw was the *man in the service station*.
- (ii) Where Muriel saw the man was *in the service station*.

The form *the one (that . . .)* is used in this construction since English does not admit *who* in this context (**Who Muriel saw was the man in the service station*).

- (d) Passivisation (see 4.2.3 and 30.3) likewise keeps together those units or bits of language that form a constituent. The passive counterpart of an active clause usually contains a form of *be* and a past participle:
 - (i) *The man in the service station* was seen by Muriel.
 - (ii) The man was seen by Muriel *in the service station*.
- (e) A constituent can sometimes be fronted, that is, brought to initial position:
 - (i) *The man in the service station* Muriel saw.
 - (ii) *In the service station* Muriel saw the man.

It is not always the case that a sequence responds equally well to all five types of test. Certain types of unit may resist one or more of these operations: for instance, frequency adverbs such as *often* and *usually*, and modal adverbs like *probably*, resist clefting (**It's often/usually/probably that Muriel saw the man in the service station*), resulting in a sentence that is ungrammatical. Unlike some languages, in English the finite verbal element of a clause normally resists fronting (**Saw Muriel the man in the service station*). Nevertheless, if two or more of the operations can be carried out satisfactorily, we can be reasonably sure that the sequence in question is a constituent of a larger unit.

We now turn to the description of units, their classes and the relationship holding between them.

2.3 UNITS AND RANK OF UNITS

The moving-around of bits of language, as carried out in 2.2, suggests that language is not a series of words strung together like beads on a string. Language is patterned, that is, certain regularities can be distinguished throughout every linguistic manifestation in discourse. A **unit** will be defined as any sequence that constitutes a semantic whole and which has a recognised pattern that is repeated regularly in speech and writing. For instance, the previous sentence is a unit containing other units such as *a recognised pattern* and *in speech and writing*. Sequences such as *defined as any* and *repeated regularly in*, which also occur in the same sentence, do not constitute units since they have no semantic whole and no syntactic pattern. The following sequence, which comments on the effects of a nuclear accident, constitutes one syntactic unit which is composed of further units:

The effects of the accident are very serious.

In English, it is useful to recognise four structural units which can be arranged in a relationship of compenence on what is called a **rank-scale**:

Unit	Boundary marker	Example
Clause:		the effects of the accident are very serious
Group:		the effects of the accident are very serious
Word:	a space	the effects of the accident are very serious
Morpheme:	+	{EFFECT} + {PLURAL}, realised by the morphs <i>effect</i> and <i>-s</i>

For the initial stages of analysis it may be helpful to mark off the boundaries of each unit by a symbol, such as those adopted in the example. The symbol for 'clause boundary' is a double vertical line ||, that for 'group boundary' is a single vertical line |, and that for 'word boundary' is simply a space, as is conventionally used in the written language. The independent clause is the equivalent of the traditional 'simple sentence'. Combinations of clauses, the boundaries symbolised by |||, are illustrated in 2.4.1 and treated more fully in Chapter 7.

The relationship between the units is, in principle, as follows. Looking downwards, each unit **consists of** one or more units of the rank below it. Thus, a clause consists of one or more groups, a group consists of one or more words and a word consists of one or more morphemes. For instance, *Wait!* consists of one clause, which consists of one group, which consists of one word, which consists of one morpheme. More exactly, we shall say that the elements of structure of each unit are realised by units of the rank below.

Looking upwards, each unit fulfils a function in the unit above it. However, as we shall see in 3.6.3 and in later chapters, units may be 'embedded' within other units, such

as the clause *who live in the north* within the nominal group *people who live in the north*. Similarly, the prepositional phrase *of the accident* is embedded in the nominal group *the effects of the accident*.

We shall be concerned in this book mainly with two units: clause and group. The structure and constituents of these units will be described in later sections, together with their functions and meanings.

2.4 CLASSES OF UNITS

At each rank of linguistic unit mentioned in 2.3, there are various classes of unit.

2.4.1 Classes of clauses

A. Finite and non-finite clauses

At the rank of 'clause', a first distinction to be made is that between **finite and non-finite** clauses. As clauses have as their central element the verbal group, their status as finite or non-finite depends on the form of the verb chosen. Finite verbs, and therefore also finite clauses, are marked for either tense or modality, but not both. Their function is to relate the verb to the speech event. **Tensed** forms distinguish the present tense (*lock, locks*) from the past tense (*locked*) in regular verbs and many irregular verbs also, as in *eat, ate, go, went*. This distinction is not made on all irregular verbs, for example *shut*, which has the same form for the present and past tenses. Person and number are marked only on the third person singular of the present tense (*locks, shuts*) – except for the verb *be*, which has further forms (see 3.1.1).

Tense is carried not only by lexical verbs but also by the finite operators. Modality is marked by the modal verbs, which also function as operators (see 3.1.1). If the speaker wishes to express tense or modality, together with person and number, a 'finite' form of the verb is chosen, therefore, such as *is, eats, locked, went, will stay* and the clause is then called a **finite clause (fin.cl)**. For example, in the following paragraph all the verbs – and therefore all the clauses (marked ^{1, 2} etc.) – are finite:

||| *I had a farm in Africa, at the foot of the Ngong hills.* ||¹ ||| *The Equator runs across these highlands a hundred miles to the north,* ||² *and the farm lay at an altitude of over six thousand feet.* ||³ ||| *In the daytime you felt that you had got high up, near to the sun,* ||⁴ *but the early mornings and evenings were limpid and restful.* ||⁵ *and the nights were cold.* ||⁶ |||

(Karen Blixen, *Out of Africa*)

If the verb-form does not signal either tense or modality, the verb and the clause are classified as **non-finite (V-non-fin; non-fin.cl)**. The non-finite verb forms are:

- the **infinitive** (inf.) (*be, eat, lock, go*) sometimes called the 'bare' infinitive;
- the **to-infinitive** (*to-inf*);
- the participial **-ing** form (*-ing*) (*being, eating, locking, going*); and
- the past participial form, symbolised in this book as **-en** (*been, eaten, locked, gone*).

These forms are said to be **non-tensed**. Non-finite clauses are illustrated by the following examples:

- | | | |
|---|---|--------------------------------|
| 1 | They want <i>to hire a caravan.</i> | <i>to</i> -infinitive clause |
| 2 | Tim helped her <i>carry her bags upstairs.</i> | bare infinitive clause |
| 3 | We found Ann <i>sitting in the garden.</i> | <i>-ing</i> participial clause |
| 4 | The invitations were sent <i>written by hand.</i> | <i>-en</i> participial clause |

Most of these non-finite verb forms occur in the following passage from A. J. Cronin's *The Citadel*. (Note that the same form serves for both the finite and non-finite status of many English verbs; *locked* and *shut*, for instance, each function both as a tensed (past) form and as a non-finite *-en* participle.)

Three men, *cramped*¹ together on their bellies in a dead end, were doing their best to *revive*² another man who lay in a huddled attitude, his body *slewed*³ sideways, one shoulder *pointing*⁴ backwards, *lost*⁵ seemingly, in the mass of rock behind him.

¹non-finite, *-en*; ²non-finite, *to*-infinitive; ³non-finite, *-en*; ⁴non-finite, *-ing*;
⁵non-finite, *-en*.

B Independent and dependent clauses

A further necessary distinction to be made is that between **independent and dependent** clauses. An independent clause (indep.cl) is complete in itself, that is, it does not form part of a larger structure, whereas a dependent clause (dep.cl) is typically related to an independent clause. This is illustrated in the following sentence:

They locked up the house (**indep.cl**), before they went on holiday (**dep.cl**).

All grammatically independent clauses are finite. Dependent clauses may be finite or non-finite. In the previous example, the finite dependent clause *before they went on holiday* can be replaced by a non-finite clause *before going on holiday*. The dependent status of non-finite clauses is signalled by the form itself.

Only independent clauses have the variations in clause structure that make for the different clause types: declarative, interrogative, imperative and exclamative (see Module 23):

- | | |
|---|-----------------|
| <i>Jack's flat is in Hammersmith.</i> | (declarative) |
| <i>Is his address 20 Finchley Road?</i> | (interrogative) |
| <i>Give me Jack's telephone number.</i> | (imperative) |
| <i>What a large apartment he has!</i> | (exclamative) |

Dependent clauses, even when finite, do not have these possibilities.

C. Finite dependent clauses

Seven kinds of finite dependent clause are illustrated in this section, along with three important sub-types of the nominal clause.

The subordinate status of a finite dependent clause is normally signalled by means of subordinating conjunctions ('subordinators') such as *when, if, before, as soon as* in **circumstantial clauses**, as in 1 below (see also 35.2), or by 'relativisers' such as *which, that* in **relative clauses** as in 2 (see 49.3):

- 1 *As soon as she got home*, Ann switched on the television.
- 2 Paul took one of the red apples *that his wife had bought that morning*.

Nominal clauses fulfil the functions of Subject, Object and Complement in clause structure. In a sentence such as *He saw that the bottles were empty*, the clause [*that the bottles were empty*] is **embedded** as a constituent (in this case as Object) of the **superordinate** clause *he saw x*. The part without the embedded clause is sometimes called the **matrix** clause.

The main types of nominal clause are the **that-clause 3**, the **wh-nominal relative clause 4** and the dependent **wh-interrogative clause 4** and 5. The **dependent exclamative 6** is a further type of *wh*-clause:

- 3 He saw *that the bottles were empty.* (*that*-clause)
- 4 *What I don't understand is why you have come here.* (nominal relative clause + dependent *wh*-interrogative)
- 5 I'll ask *where the nearest Underground station is.* (dependent *wh*-interrogative)
- 6 She said *how comfortable it was.* (dependent exclamative clause)

Embedded clauses are discussed and illustrated in chapters 2 and 3.

Comparative clauses occur following the comparative forms of adjectives and adverbs. The comparative clause, introduced by *than*, provides the basis of comparison:

- 7 The results are much better *than we expected.*

Supplementive units are not integrated into the main clause, as embedded units are, but add supplementary information. They are subordinate but not embedded. They are set off from the main clause by commas, or by a dash, and have their own intonation contour. Here is an example of a supplementive non-finite *-en* clause:

Built of cypress, brick and glass, the house exhibits many of the significant contributions that Wright made to contemporary architecture.

In spoken discourse, and in written texts that imitate spoken language, such as fictional dialogue, we can often come across supplementives that are freestanding, despite their subordinate form, as in the following italicised example (see also chapters 5, 7 and 10):

The large size doesn't seem to be available. *Which is a pity.*

Not only clauses, but other units can have the status of 'supplementives' (see 49.2).

A subsidiary type of clause is the **verbless** clause. This is a clause which lacks a verb and often a subject also. The omitted verb is typically a form of *be* and is recoverable from the situational or linguistic context, as in:

Book your tickets well in advance, *whenever possible.* (= whenever it is possible)

(See also Chapter 5.) The following extract from Elaine Morgan's, *The Descent of Woman* illustrates this type very well:

Man, apes and monkeys can all be observed to cry out *when in pain*, flush *when enraged*, yawn *when tired*, glare *when defiant*, grin *when tickled*, tremble *when afraid*, embrace *when affectionate*, bare their teeth *when hostile*, raise their eyebrows *when surprised*, and turn their heads away *when offended*.

We shall also classify as verbless clauses many irregular constructions such as the following:

<i>Wh</i> -questions without a finite verb:	Why not sell your car and get a new one?
Adjuncts with the force of a command, sometimes with a vocative:	Hands off! Into the shelter, everybody!
Ellipted interrogative and exclamative clauses:	Sure? (Are you sure?) Fantastic! (That/It is fantastic)
Proverbs of the type:	<i>Out of sight, out of mind.</i>

Finally, we shall call **abbreviated clauses** those such as *can you? I won't, has she?* which consist of the Subject + Finite operator alone, with the rest of the clause ellipted because it is known. These clauses typically occur as responses in conversational exchanges and as tags (see 22.4), but can also express such speech acts as reprimand (*Must you?*), given an appropriate social context.

2.4.2 Classes of groups

Groups are classified according to the class of the word operating as the main or 'head' element. Headed by a noun, an adjective, an adverb and a verb respectively, we can identify the following classes:

Nominal Groups (NG)	<i>films,</i>	wonderful <i>films</i> by Fellini
Verbal Groups (VG)	<i>return,</i>	will <i>return</i>
Adjectival Groups (AdjG)	<i>good,</i>	quite <i>good</i> at languages
Adverbial Groups (AdvG)	<i>fluently,</i>	very <i>fluently</i> indeed

Units such as these centre round one main element, which prototypically cannot be omitted. Furthermore, the main element can replace the whole structure: *films, return, good* and *fluently* can have the same syntactic functions as the whole group of which each is head, or, in the case of *return*, as lexical verb. By contrast, the unit formed by a preposition and its complement, such as *on the floor*, is rather different. The preposition can't function alone as a unit. Both elements are obligatory. This unit will therefore be called the 'Prepositional Phrase' (PP).

2.4.3 Classes of words

Words are classified grammatically according to the traditional terminology, which includes **noun, verb, adjective, adverb, preposition, pronoun, article and conjunction**. These 'parts of speech' are divided into two main classes, the open and the closed. The open classes are those that freely admit new members into the vocabulary. They comprise noun, verb, adjective and adverb. The closed classes (preposition, pronoun and article) do not easily admit new members. Prepositions have gradually expanded their membership somewhat by admitting participles such as *including, concerning*, but the remaining classes are very resistant to the introduction of new items. This has been noticeable in recent years when attempts have been made to find gender-neutral pronouns.

2.4.4 Classes of morphemes

Words are made up of morphemes. We shall consider the morpheme to be an abstract category that has either a lexical or a grammatical meaning. We have already indicated in 2.3 that a word such as *effects* can be considered as formed from the lexical morpheme {EFFECT} + the {PLURAL} morpheme. These abstract categories are realised by **morphs** such as *effect* and *-s* or /ifekt/ and /s/, the actual segments of written and spoken language, respectively.

Since the study of words and morphemes takes us out of syntax, and into morphology and phonology, the scope of this book does not allow for further treatment of these units.

2.5 THE CONCEPT OF UNIT STRUCTURE

The term 'structure' refers to the relationships that exist between the small units that make up a larger unit. For example, the basic components of a table are a flat board and four long thin pieces of wood or metal, but these elements do not constitute a structure until they are related to each other as a horizontal top supported at the corners by four vertical legs. In this way, each 'element' is given its position and its 'function', which together we may call the 'grammar' of all those members of the general class of objects called 'table'.

Everything in our lives has structure. A house may be built of bricks, but its structure consists of rooms having different formal, functional and distributional characteristics. Tables, chairs, cars, all objects are composed of functionally related 'formal items'; and the same applies to activities such as speeches, plays, concerts and football matches. It is natural that languages, which are the spoken and written representation of our experience of all these things, are also manifested in structured forms. Linguistic structures are described in terms of the semantic functions of their various elements and the syntactic forms and relationships which express them.

We have seen in 1.3.1 a brief preview of the main semantic elements of the clause, together with some of the possible configurations produced by the combinations of these elements. Groups, whose function it is to express the things, processes, qualities and circumstances of our experience, also have semantic elements and structures. These are different for each type of group and are treated in the relevant chapter on each of these classes of unit. Here we shall briefly present the syntactic elements of all ranks of unit.

2.5.1 Syntactic elements of clauses

Clauses have the greatest number of syntactic elements or functions of all classes of unit. The criteria for their identification, the syntactic features and the realisations of each are discussed in Chapter 2. Here we simply list and exemplify the clause elements within common clause structures. The type of structure used in order to express a 'situation' or 'state of affairs' depends to a great extent on the verb chosen. Verb complementation types are treated in Chapter 3.

Subject (S)	<i>Jupiter is the largest planet.</i>	SPCs
Predicator (P)	<i>The election campaign has ended.</i>	SP
Direct Object (Od)	<i>Ted has bought a new motorbike.</i>	SPOd
Indirect Object (Oi)	<i>They sent their friends postcards.</i>	SPOiOd
Prepositional Object (Op)	<i>You must allow for price increases.</i>	SPOp
Subject Complement (Cs)	<i>He is powerless to make any changes.</i>	SPCs
Object Complement (Co)	<i>We consider the situation alarming.</i>	SPOdCo
Locative/Goal Complement (C _{loc})	<i>We flew to Moscow.</i>	SPC _{loc}
Circumstantial Adjunct (A)	<i>The news reached us on Tuesday.</i>	SPOdA
Stance Adjunct (A)	<i>Unfortunately, we could not reach York in time.</i>	ASPOdA
Connective Adjunct (A)	<i>However, other friends were present.</i>	ASPCs

It will be seen that for interrogative and negative clauses we use an additional function, the Finite (see 3.1 and 23.3).

2.5.2 Syntactic elements of groups

Nominal groups, adjectival groups and adverbial groups are composed of three primary elements or functions: a head (**h**) preceded by a pre-modifier (**m**) and followed by a post-modifier (**m**). This last element is sometimes called a 'qualifier'. In the chapters devoted to these groups we also distinguish 'complement' (**c**) as a special type of post-head element. Complements of nouns and adjectives are introduced by a preposition or by a *that*-clause which is controlled by the head-word of the group. For example, the adjective *good* controls a complement introduced by *at*: *good at chess*. The noun *belief* controls a *that*-clause: *the belief that he is always right*. In the case of **nominal groups**, we also distinguish between 'modifiers', which describe or classify the head, and 'determiners' (**d**), which specify it in terms of definiteness, quantity, possessiveness, etc. Thus, we give the determiner and the pre- and post-modifiers equal syntactic status as primary elements of nominal groups (see 45.2). The following are examples of these group structures:

NG: dmhm: those | beautiful | paintings | by Goya
 AdjG: mhc: extremely | difficult | to translate
 AdvG: mhm: very | carefully | indeed

In **Verbal Groups**, the lexical verb is regarded as the main element (**v**), which either functions alone, whether in finite or non-finite form, as in the example *Walking along the street, I met a friend of mine*, or is preceded by auxiliaries (**x**), as in *will go or has been reading*. The first auxiliary (or the auxiliary, if there is only one) is called the 'finite operator' (**o**). It is the element that contributes information about tense, modality, number and person, and so helps to make the VG finite and fully 'operative'. It is also the element that operates in the syntactic structure to make the clause interrogative and/ or negative (see 3.1), and to make ellipted responses:

Have you been driving for many years? – Yes, I *have*.

Do you enjoy driving? – Yes, I *do*.

In the more complex verbal groups, each element is telescoped into the following one (see 38.7):

v: plays
 ov: has | played [have + -en]
 oxv: will | be | playing [will + [be + -ing]]
 oxvx: must | have | been | played [must + [have + -en] [be + -en]]

The lexical verb is sometimes followed by an adverbial particle (symbolised by 'p') as in *ring up, break out, take over*. Many such combinations form integrated semantic units

which are idiomatic. Although the particle frequently forms an integral part of the meaning of the lexical verb, and in fact can often be replaced by a simple verb form (*ring up* = *telephone*; *break out* = *escape, erupt*), transitive combinations can be discontinuous as in *I'll ring you up*, *They've taken it over*.

However, most particles are not otherwise moveable (see the constituency tests in 2.2); we can't say *Up I'll ring you or *Out broke an epidemic. The only exception is in 'free combinations' where the particle has a directional meaning, and in such cases we classify them as directional complements with special uses: *Down came the rain and up went the umbrellas*. However, grammars differ in this respect. The syntax of phrasal verbs and other multi-word combinations is discussed in 6.4 and the semantics (in terms of Source, Path and Goal) in 40.2.

In **Prepositional Phrases (PP)** there are two obligatory elements: the prepositional head (**h**) and the complement (**c**). There is also an optional modifier (**m**), which is typically realised by an adverb of degree (e.g. *right*, *quite*). The structure of PPs is illustrated as follows:

mhc: right | across | the road
 quite | out of | practice

Prepositional phrases appear as realisations of many functions throughout this book. The structure and grammatical functions of the prepositional phrase are treated in Chapter 12, together with prepositional meanings, which are described in terms of locative, metaphorical and abstract uses.

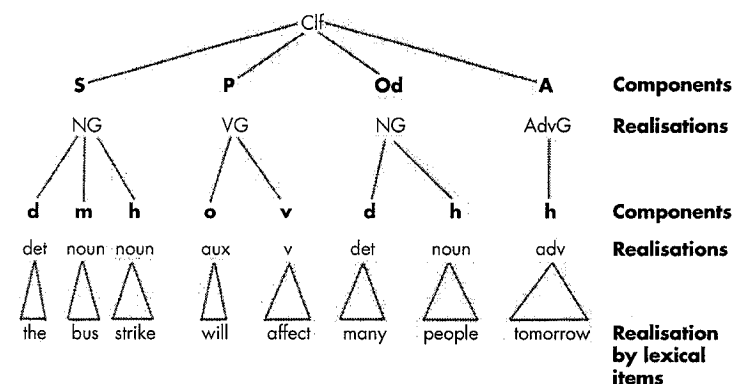
2.5.3 Competence, realisation and function

Any structure can be considered to be composed of elements which form a configuration of 'functions', whether semantic functions such as Agent-Process-Affected or syntactic functions such as the clause configuration Subject-Predicator-Direct Object or the modifier-head-modifier structure of the nominal group.

Each of these functions is in turn realised by a unit which is itself, at least potentially, a configuration of functions, and these in turn are realised by others until the final stage is reached and abstract categories such as subject, head, modifier, etc., are finally realised by the segments of the spoken or written language. The 'structural tree' on page 20 diagrams this model of analysis at the three unit ranks of clause, group and word, to illustrate the clause *The bus strike will affect many people tomorrow*:

An important property of language is the fact that there is no one-to-one correspondence between the class of unit and its function. While it is true that certain classes of unit typically realise certain functions, Nominal Groups at Subject and Object functions, for instance, it is nevertheless also true that many classes of unit can fulfil many different functions, and different functions are realised by many different classes of unit. For instance, the NG *next time* can fulfil the following clause functions, among others:

Subject: *Next time* will be better.
 Adjunct: I'll know better *next time*.
 Direct Object: We'll enjoy *next time*.



The nearest to a one-to-one relationship in the grammar is that between the process and the verbal group that realises it.

This many-to-many relationship is fundamental for understanding the relationship of the grammar of English to discourse. By this it is not implied that discourse (or even a text) is a kind of super-sentence, a grammatical unit that is simply 'larger' than a sentence and with the same kind of relationship holding between its parts as that which holds between grammatical units. A piece of discourse is quite different in kind from a grammatical unit. Rather than grammatical, it is a pragmatic-semantic unit of whatever length, spoken or written, and which forms a unified whole, with respect both to its internal properties and to the social context in which it is produced.

To take a minimal instance, a pragmatic act such as 'leavetaking' may be realised by a modalised declarative clause (*I'll be seeing you*) or by the formulaic expression *Goodbye*, among others. Typically, a discourse is made up of various types of pragmatic acts, which in turn are realised semantically and syntactically. In this book, although we start from the grammar rather than from the text, the relationship between the two is of primary interest.

WEEK THREE

STRUCTURALISM AND THE SAUSSUREAN DICHOTOMIES

Bauer, Laurie (2007) *The Linguistics Student's Handbook*. Edinburgh University Press (pp. 41-46)

The Swiss linguist Ferdinand de Saussure is sometimes thought of as the father of modern linguistics. Although Saussure was well known in his lifetime for his work in the history of Indo-European, his most influential work was not published until after his death, when some of his students got together and, on the basis of their lecture notes, reconstructed the course in linguistics that he had taught in Geneva. The *Cours de linguistique générale* (Saussure 1969 [1916]) became one of the key texts in linguistics, and ushered in the era of structuralism which we might argue continues today.

In the *Cours*, among a number of important statements and illuminating comparisons, Saussure made a number of fundamental distinctions which are still basic to linguistic thinking. These are outlined below.

Langue versus parole

Saussure says there are two sides to language: *langue* and *parole*. While the French terms are generally used in English, they are sometimes translated as 'language' and 'speech' respectively, though not without some danger of ambiguity. *Langue* is that part of language which 'is not complete in any individual, but exists only in the collectivity' (Saussure 1969 [1916]: 30, my translation, see the footnote for the original French). *Parole*, on the other hand, is observable in the behaviour of the individual. According to Saussure, it is not homogeneous.

Saussure believes that linguistics is fundamentally the study of *langue*, linguistics of *parole*. Had corpus linguistics been a concept with which Saussure was familiar, he would no doubt have dismissed it as dealing with *parole* rather than with *langue*. In one of his celebrated images (Saussure 1969 [1916]: 36), he suggests that when an orchestra plays a symphony, the symphony

exists externally to the way in which it is performed: that existence is comparable to *langue* in language study. The actual performance, which may contain idiosyncrasies or errors, is to be compared to *parole*.

The distinction between *langue* and *parole* has suffered two major changes in subsequent scholarship. First, a third level has been added, that of the NORM (see especially Coseriu 1962 [1952]). Our *langue* would allow us to say what the time is by saying *It is ten minutes before four o'clock*, or *It wants ten minutes to be four o'clock*, or *In ten minutes it will be four o'clock*, or *It is five minutes after a quarter to four*. We do not find such utterances attested in *parole*. Rather, we find multiple utterances of *It is ten (minutes) to four*. This cannot be related to vagaries of *parole*, because it is extremely homogeneous within relevant speech communities. Neither can it be a matter of *langue*, because *langue* allows us to say the same thing in many different ways. It is a matter of norm that we say *It is ten to four* rather than one of the alternatives. Note that different dialects may have different norms. There are also varieties of English in which the expression is *It is ten of four*.

The second thing that has happened to the *langue/parole* distinction is that it has been overtaken by other, similar distinctions. Chomsky (1965: 4) introduces the distinction between competence and performance. PERFORMANCE is very like Saussure's *parole*. It is prone to error, to memory lapse and the like. COMPETENCE, however, is unlike Saussure's *langue* in that it has no social side to it; it is a mental construct in the individual. Although Saussure concedes that 'It [*langue*] is something which exists in each individual', he also adds 'yet is common to all of them'² (Saussure 1969 [1916]: 38).

Chomsky (1965: 4) also points out that for Saussure *langue* is 'a system of signs' (Saussure 1969 [1916]: 32), while for Chomsky competence is a generative system. This is an accurate description of *langue*, but does not seem to be fundamental to the notion of it in the way that its social aspect is. In more recent work (Chomsky 1986), competence and performance have given way to a third distinction, that between I-language and E-language (where I and E are to be interpreted as 'internalised' and 'externalised' – see section 8). For Saussure, linguistics deals with *langue*; for Chomsky linguistics deals with I-language. Thus, for Saussure, linguistics involves studying the language of the community, while for Chomsky it involves studying the language potential of the individual. Yet both agree that if we use an analogy with a game of chess, the particular moves made in any given game are not what is to be studied; rather it is the rules of the game which allow for an infinite number of different actual games. For Saussure the rules correspond to *langue*; for Chomsky they correspond to I-language (Saussure 1969 [1916]: 43; Chomsky 1986: 31).

Synchrony versus diachrony

We can study a given language in two ways, Saussure maintains. The first is that we can look at the language as it is (or was) at any particular point in time. Thus we might study the syntax of American English in the early twenty-first century, or the phonology of seventeenth-century French or the patterns of compounding in Classical Chinese. These are all SYNCHRONIC studies (*syn-* 'alike', *chronos* 'time').

The alternative is to look at the way in which a language develops or changes over time. In this way we might consider the development of the English verb system, or changes in Arabic phonology from the classical period until today. These are DIACHRONIC studies (*dia-* 'through', *chronos* 'time').

Saussure was reacting to an environment in which the only linguistic study that was seen as being scientific was the study of the development of languages.

By putting the synchronic side of language studies back on the linguistic map, he expanded the scope of linguistics. Yet by the late twentieth century, there were some linguists complaining that this strict distinction between synchronic and diachronic linguistics had become a major problem in dealing with language. All living languages are in a continuous state of change. Much of the complaint tradition, which is a social factor affecting many languages including English, is a reaction to recent changes. For example, people who complain that some speakers do not distinguish between *imply* and *infer* are caught up in a change whereby the two used to mean different things and now are less likely to be semantically distinct, especially in less formal contexts. This is evidence that aspects of language change are reflected in the synchronic structure of any given language or variety. This is the subject matter of variationist linguistics, as developed by William Labov. Any linguistic change progresses gradually through a speech community. Some speakers adopt the change more quickly than others, and some speakers use both the conservative and the innovative form for some period during the change. Thus any synchronic description of a variety, if it is detailed enough, can make sense only if aspects of diachrony are taken into account. Furthermore, language change leaves relics behind whose structure can be understood only with reference to their history. Why is blackmail called *blackmail*, for example? Why is it black and why is it mail? The synchronic structure of twenty-first-century English does not provide an answer for this. *Blackmail* has become an unmotivated word, even though we can see the elements *black* and *mail* within it. Despite such problems, the distinction between synchronic and diachronic studies is generally maintained today.

Paradigmatic versus syntagmatic

When we speak, language is produced in time, so that some bits of our utterance precede or follow other bits. When we write, this temporal aspect of language is replaced by a spatial aspect: the words are set out on the page in a conventional way such that linear order corresponds to the temporal order in speech. Thus English is written from left to right, with elements further to the left corresponding to elements produced earlier than elements further to the right. So in (1) *cat* precedes *mat* in linear order, corresponding to temporal structure in speech: we would say *cat* before we would say *mat*. (1) The cat sat on the mat

The elements in (1) are said to be related to each other syntagmatically.

Together they form a SYNTAGM or construction. We can say that the verb *sit* (or *sat* in this particular sentence) determines what it will be related to syntagmatically in that it demands something in the position of the cat in (1) and allows, but does not demand, an equivalent phrase after it (as in *They sat the dog on the mat*).

However, language is also structured in terms of the words (or other elements) which are not there but which could have been. Each of the words in (1) could have been replaced by a number of other possible words. Some examples are given in (2).

(2) The	cat	sat	on the mat	
	This	girl	sits	across your bed
	That	student	walked	over her car
	My	frog	ran	by their lap

The words in each of the columns in (2) are related to each other paradigmatically.

They are related by being alternative possible choices at a position in the syntagm. While elements which are related syntagmatically are all present, elements which are related paradigmatically are mostly absent: they are relationships of potential.

Each of the columns in (2) can be called a PARADIGM, although that name is more usually reserved for a particular type of paradigmatic relationships, those holding between different forms of the same word (or, more technically, lexeme). Thus (3) illustrates a Latin noun paradigm.

(3) 'lord' *singular plural*

nominative dominus domini

vocative domine domini

accusative dominum domino s

genitive domini domino rum

dative domino domini s

ablative domino domini s

In (3) we see a number of suffixes, each of which has a syntagmatic relationship with the stem *domin-*. The endings themselves are in a paradigmatic relationship. Note that elements in paradigmatic relationships share common features. All the words in the first column in (2) are determiners, all those in the second column are nouns and so on. Word classes can be thought of as being derived from sets of paradigmatic relationships. Very specific syntagms can also show semantically related words in relevant paradigms. Thus, consider (4), where the verb – except in figurative uses – demands the word *cat* or a closely related word.

(4) The cat miaowed.

kitten

tom

moggy

Signifier (*signifiant*) and signified (*signifié*)

Saussure insisted that the linguistic sign has two aspects to it: a sound side and a meaning side. The two are tightly linked within a speech community, and can be seen as being the two sides of the same playing card, but we must nevertheless keep these two aspects of the sign separate from each other in our technical understanding of the way in which language functions. The concept of a PET may be carried by the sounds /pet/, but that concept is not to be equated with that series of sounds. The sign unites the physical set of sounds (the signifier, or *signifiant*) with a particular mental image (the signified or *signifié*). Note that real-world pigs do not feature here. The sign links our mental image of a pig with a particular set of sounds, not a real pig. The real pet has a very indirect relationship with the sound sequence /pet/. The same argument could be repeated for the series of hand-shapes and gestures in sign-languages and their link to a particular meaning. become accepted, although they had not always been seen as obvious prior to Saussure. Perhaps the most important of these is the fact that the linguistic sign is arbitrary. There is no natural link between the sound sequence /pet/ and particular animals. If there were, how could the same or very similar animals be easily associated with the word *pig* in English, *cochon* in French, *gris* in Danish, *Schwein* in German, and so on? Even onomatopoeic signs are to a large extent conventional. We only have to think about the words we use to represent animal noises in a number of languages to see that. Without knowing, it is hard to guess what animal says *gav-gav* in Russian, or what animal says *chu-chu* in Japanese. While the signs of sign-languages are often said to be iconic and resemble some feature of what is denoted, it can be difficult there to guess what a particular sign means if it has not been explained.

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CHOMSKY AND HIS REVOLUTION

Bauer, Laurie (2007) *The Linguistics Student's Handbook*. Edinburgh University Press (pp. 47-56)

Noam Chomsky is the world's most influential linguist. His influence can be seen in many ways, from the expansion of linguistics as an academic subject in the wake of his early work on the nature of grammars to the way in which even linguists who do not agree with him define their position in relation to his. His ideas have attracted many brilliant people to take up linguistics and contribute to the study of language. It has become common to talk of a 'Chomskyan revolution' in linguistics beginning in the late 1950s or early 1960s as the influence of his teaching permeated the way in which language was viewed and was discussed.

If the term 'revolution' may be a little over-dramatic, linguistics certainly took what Kasher (1991: viii) calls a 'Chomskyan Turn' at that point. In this section we look at some of the major features of Chomskyan linguistics which distinguish it from earlier approaches.

Chomsky is also a renowned political philosopher and activist, but while his views in the political field have been argued to be congruent with his views about language, this part of his work will not be considered here (this is covered in works such as McGilvray 2005; Smith 1999). Furthermore, since Chomsky's ideas about language have implications for the workings of the human mind, Chomsky's work is also regularly cited by psychologists. Again, that aspect of his work will receive very little attention here.

The centrality of syntax

Traditional European grammar usually gives syntax a rather minor role. To a certain extent, of course, this depends on the language being described, with descriptions of more analytic languages perforce devoting more space to syntactic matters. But descriptions of highly inflecting European languages typically have a brief section on the phonology of the language concerned, a lot of information on the inflectional morphology of the language concerned, and some relatively brief sections with headings such as 'Uses of the dative' or 'Sequence of tenses' which considered the interface between morphology and syntax.

For Chomsky, this is entirely back to front. A language is a set of sentences, and what allows a speaker to produce and a hearer to understand these sentences is the ability to manipulate syntactic structure. Chomsky focuses on that part of grammar which most previous commentators had simply presupposed or ignored: the ability to produce and understand sentences such as (1) (Chomsky 1965: ch. 2), to understand the ambiguity of sentences like (2) (Chomsky 1957: 88), to understand sentences like (3) even though some information is missing from them (Chomsky 1957: 66), and to perceive the relatedness of pairs of sentences like those in (4).

(1) Sincerity may frighten the boy.

(2) The shooting of the hunters frightened the boy.

(3) John has arrived and so have I.

(4) The girl has eaten the peach.

The peach has been eaten by the girl.

For Chomsky, phonology and semantics are dependent on syntax, and these other components of the grammar take the output of the syntactic component and turn it into a spoken utterance or a semantic representation. In early work, morphology is dealt with as part of the syntax, in later work it is dealt with as part of the lexicon, but in neither case is it central to the workings of the grammar. In many ways this is Chomsky's most successful innovation, and is now taken as axiomatic by many linguists.

Idealisation of data

Chomsky points out that researchers in the hard sciences such as chemistry and physics standardly discount factors which might confound their experimental results: the effect of air resistance on the effect of gravity on falling bodies, for example. The kinds of factors that Chomsky wants to exclude in the study of language are those that divert attention from the underlying generalisations, just as would be the case in chemistry or physics. These factors are not well defined, but in principle the idea of idealisation of data seems uncontroversial, and has probably always been part of the business of a linguist or grammarian, who would otherwise be faced with too much variability to be able to produce a coherent description. What is different about Chomsky, in this regard, is that he is quite open about his procedure.

The ideal speaker-listener

Perhaps the most important statement about the idealisation of data is made in a passage which has become famous or infamous (depending on one's point of view): "Linguistic theory is concerned primarily with an ideal speaker-listener, in a completely homogeneous speech-community, who knows its language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention and interest, and errors (random or characteristic) in applying his knowledge of the language in actual performance". (Chomsky 1965: 3)

This statement has been attacked on many sides, not least by variationist sociolinguists who have pointed out the unnaturalness of a homogeneous speechcommunity, and who have built a whole branch of linguistics devoted to examining precisely the lack of homogeneity in speechcommunities. While it would be preposterous to deny the value of the variationist programme, the success of this branch of linguistics is not a criticism of Chomsky's proposal in the passage cited. Any syntactician who tried to write a grammar of standard English so that it would account for the sentence *How come is the Wellington gas twice the price of the Hutt Valley's?* (heard on the radio) would be mocked as much as a lexicographer who tried to list a word *anenome* meaning 'anemone' on the grounds that many people are heard to say that. We all make errors in our production from time to time, and we would not expect any linguist to use them as primary data for creating a theory of language. (Of course, speech errors are sometimes used as evidence to support theories of how the mind accesses stored material and manipulates linguistic strings, but that is a separate matter.)

Competence and performance, I-language and E-language

Chomsky also distinguishes between the speakers' actual knowledge of the language, which is termed COMPETENCE, and the use of that knowledge, which is termed PERFORMANCE. The errors listed above are presumably performance errors. Any piece of text (spoken or written)

represents a performance of language, which will match the speaker's competence more or less inaccurately.

Thus performance is often taken as a poor guide to competence, but competence is the object of study for the linguist. As with so many of the claims Chomsky makes, this one has been the subject of criticism, some focusing on the structured nature of variation within performance and the correspondingly variable nature of competence, some focusing on the performance as a body of evidence whose close analysis can lead to a more sophisticated appreciation of how the speaker-listener's competence might be structured (the first of these criticisms comes from sociolinguists, the second from corpus linguists and psycholinguists). It also seems that it can be difficult to tell whether a particular phenomenon is best seen as a matter of competence or a matter of performance, despite the apparently clear-cut division between the two (see e.g. Bauer 2001: 29-32).

In later versions of Chomsky's theory, the distinction between competence and performance is replaced by the distinction between I-language and E-language.

I-LANGUAGE (and the *I* is deliberately ambiguous between 'internalised' and 'intensional' – and others add 'individual' and 'idiolectal' as well, e.g. Lyons 1991: 170) corresponds more or less to the old competence. It is what is held in the head of a single individual speaker-listener. E-language (where the *E* stands for 'externalised' and 'extensional') is not like performance, though. E-LANGUAGE includes languages viewed as a set of sentences, it includes the material actually produced by a speaker, it includes 'languages' like French and Mandarin, and it includes the objects of study of sociolinguistics and corpus linguistics. Lyons (1991: 170, 193) calls this concept 'ill-defined and confusing', and Chomsky himself (1991: 9) says that 'it is doubtful that there is such an entity'.

Generativism and transformationalism

Chomskyan grammar in the early days was regularly termed 'generativetransformational', and while the label is less used today, the principles remain unchanged.

The term 'generate' in *generative* is to be understood in a mathematical sense, whereby the number one and the notion of addition can be used to generate the set of integers or where $2n$ can be used to generate the sequence 2, 4, 8, 16.... In linguistics a generative grammar is one which contains a series of rules (see section 6) which simultaneously (a) confirm (or otherwise) that a particular string of elements belongs to the set of strings compatible with the grammar and (b) provide at least one grammatical description of the string (if there is more than one description, the string is ambiguous) (see Lyons 1968: 156).

The first thing to notice about this is that a generative grammar is a FORMAL grammar. It is explicit about what is compatible with it. This is in direct contrast to most pedagogical grammars, which leave a great deal of what is and is not possible up to the intuition of the learner. In practice, this often leads to disputes about how much the grammar is expected to account for. To use a famous example of Chomsky's (1957: 15), is *Colourless green ideas sleep furiously* to be accepted as a sentence generated by the grammar, on a par with *Fearless green colourless*, which the grammar should not generate)? If so, its oddness must be due to some semantic or pragmatic compatibility problems which are not part of the syntax. Alternatively, should the grammar specify that *sleep* is not compatible with *furiously* and that abstract nouns cannot be modified by colour adjectives (although, having said that, I have seen the expression *green ideas* in use, where *green* meant 'ecologically sound')? In 1957 Chomsky was clear that the grammar would and should generate this sentence, despite its superficial oddity. McCawley

(1971: 219) supports this view, claiming that ‘A person who utters [*My toothbrush is alive and is trying to kill me*] should be referred to a psychiatric clinic, not to a remedial English course.’ Despite such problems, the explicitness of Chomskyan grammar is one of its great strengths. It has led to computational approaches to linguistics in which (partial) grammars are tested by implementing them on computer, and such approaches have implications for the eventual use of natural languages by computer systems. The second thing to notice is that although the rules in linguistics are usually stated as operations which look as though they are instructions to produce a particular string, in principle they are neutral between the speaker and the listener, merely stating that the string in question does or does not have a coherent parse.

Grammaticality and acceptability

In principle, something is GRAMMATICAL if it is generated by the grammar, and ungrammatical if it is not. Since we do not have complete generative grammars of English (or any other language) easily available, this is generally interpreted as meaning that a string is grammatical if some linguist believes it should be generated by the grammar, and ungrammatical otherwise. Given what was said above, it should be clear that there is a distinction to be drawn between strings which are grammatical and those which are ACCEPTABLE, that is, judged by native speakers to be part of their language. *Colourless green ideas sleep furiously* is possibly grammatical, but may not be acceptable in English (though poems have been written using the string). *There’s lots of people here today* is certainly acceptable, but it might not be grammatical if the grammar in question requires the verb to agree with the *lots* (compare *Lots of people are/*is here today*).

Although the asterisk is conventionally used to mark ungrammatical sequences (this generalises on its meaning in historical linguistics, where it indicates ‘unattested’), it is sometimes used to mark unacceptable ones.

Deep structure and surface structure

Chomsky (1957) argues that context-free phrase structure rules (see section 6) are not sufficient to generate natural languages. This claim has been vigorously refuted, e.g. by Gazdar et al. (1985), but was generally accepted for many years.

It seemed, however, that separate rules would be required to move constituents in pairs like (5) and (6) if the relationships holding between these pairs was to be recognised by the grammar. These movement rules are different in type from the phrase-structure rules (also known as rewrite rules), and are called TRANSFORMATIONAL RULES. The form and nature of movement rules have changed considerably over the various versions of Chomskyan grammar, but we still have an underlying order of elements created by phrase-structure rules, and transformational or movement rules which produce the actually occurring sentence structure. The underlying order of elements was originally called DEEP STRUCTURE, and the observable output of the full set of rules was called the SURFACE STRUCTURE. The term *deep structure* was often used informally to mean any level more abstract than the actually occurring surface form. In later versions this was reformulated in terms of D-structure and S-structure, where D-STRUCTURE is equivalent to deep structure, but S-structure differs from surface structure. Surface structure is the immediate input into the rules which provide a pronunciation of the sentence under consideration, while S-STRUCTURE is the input to the semantic component, and still contains some empty elements such as traces, which are not pronounced at all.

- (5) a. I can put up Kim
b. I can put Kim up.

(6) a. I can't stand olives.

b. Olives, I can't stand.

The evaluation of grammars

According to Chomsky (1964), grammars can hope to achieve one of three (actually he formulated 6 criteria for adequacy but these can be combined into fewer levels) levels of adequacy. A grammar that is **OBSERVATIONALLY ADEQUATE** contains sufficient information to reproduce just the data on which it is based. A grammar is **DESCRIPTIVELY ADEQUATE** if it contains sufficient information not only to account for the input data, but to assign a structure which reflects precisely those patterns in the data that are captured by the intuitions of the native speaker. Finally, a grammar is **EXPLANATORILY ADEQUATE** if it derives from a linguistic theory which allows the selection of the best possible descriptively adequate grammar from those which are compatible with the data. Chomsky has consistently sought explanatory adequacy. However we may phrase this requirement, what it translates as is a push to find out why particular patterns should occur in individual languages, why languages should differ in the observed patterns, and what fundamental principles govern the kinds of pattern that are observed. Examples are provided by the pairs in (7) and (8), where one language allows a pattern which a neighbouring language does not allow, and Chomskyan grammar seeks the principles by which these languages differ that will predict that precisely these differences will emerge.

(7) a. English:

Jean speaks French fluently.

*Jean speaks fluently French.

b. French:

Jean parle le français couramment.

Jean parle couramment le français.

(8) a. German:

Ich glaube, daß der Lehrer ein Buch gesehen hat.

I believe that the teacher a book seen has.

b. Dutch:

Ik geloof dat de leraar een boek heeft gezien.

I believe that the teacher a book has seen.

[Note the contrasting order of the words meaning 'has' and 'seen'.]

Realism and mentalism

A particularly strong formulation of the realist (sometimes called God's Truth: Householder 1966) position in linguistics is given by Lightner (1983: 276): 'In linguistics, there is an overriding principle – an arbiter – to judge correctness or incorrectness of theoretical constructs: if the construct corresponds to the human brain's treatment of language, it is correct; if not, incorrect'. Even with such a strong statement, it can be difficult to say whether some construct is, as the jargon has it, psychologically real. Does it mean that the human mind deals with the data in a manner which is essentially parallel to the way in which it is treated in the linguistic theory, or does it mean that the individual constructs of the theory (for example, the individual rules, movements, components) have counterparts in the human mind?

Language as a mental 'organ'

Chomsky and his followers talk about language as a mental organ, a figure which makes one think about gall-bladders and hearts, and which is misleading in the sense that the language

'organ' does not appear to have any locational unity which would differentiate it from the brain: the functions of language appear to be distributed through the brain (see Everett 2006). The reasons for calling it an 'organ' are thus of some interest. They include (see Smith 2005: 84-5) the following:

- Except in pathological cases it is universally present in humans.
- Faults in the language faculty may be inherited.
- It is present only in humans.
- Language is learned extraordinarily quickly, and probably with critical periods (i.e. the faculty stops operating properly if not employed at the right period of maturation).
- We appear to learn far more than we have evidence for in our linguistic surroundings – this is often referred to, following Chomsky, as PLATO'S PROBLEM or as the problem of the POVERTY OF THE STIMULUS PROBLEM.
- Despite different inputs, speakers of the same variety seem to end up with very closely matching grammars.

These factors, it is suggested, make the language faculty seem much more like something with which we are biologically endowed, like the facility for sight, than like something which we learn, like the ability to do arithmetic. It should be said that many of these reasons have been challenged, with a greater or lesser degree of success. There is, for example, a large literature devoted to the idea that some animals other than humans have linguistic abilities. My personal judgement about this literature is that it is ultimately not convincing, and that the astonishing abilities demonstrated by some of the animals that have been studied still do not approach the even more astonishing abilities demonstrated by human children. Similarly, the notion of critical period has been questioned, as has the notion of the poverty of the stimulus, that is, the idea that we are presented with insufficient data from which to deduce the form of a linguistic system. In the end, though, the crunch question here is to what extent humans are specifically pre-programmed for language, and how far language is a by-product of other things for which humans are hard-wired. The Chomskyan answer is that there is a specific language faculty. Yet when we look at the evidence from the FOXP2 gene, fancifully dubbed by the popular press a 'gene of speech', and important because it is the first time it has been shown that a fault in an individual gene can cause lack of ability to use language fully, it turns out that the gene affects, among other things, the ability to articulate smoothly. While this may be a necessary facility for the efficient exploitation of spoken language, in itself it does not provide any evidence for the hard-wiring of anything as specific as language.

Universal Grammar

If we accept that the language faculty is hard-wired into humans in an organ-like way, we must nevertheless accept that what humans have is a facility to acquire language, rather than the facility to acquire a particular language. Orphans whose parents spoke one language and who are adopted at an early age by speakers of a different language in a different country end up speaking the language of their adoptive community, and do not have any built-in benefit if, at some later stage, they wish to learn the language of their biological parents. So what is universal to humans is the ability, in the appropriate conditions, to learn a language, any language. If we accept the points made in the last section, though, children will not be given enough input to allow them to construct the linguistic system of English or Sierra Miwok for themselves. Thus, the argument runs, they must have, at birth, certain specifically linguistic expectations in order for them to develop a language from the impoverished data they will actually be provided with. This set of

expectations or pre-programmed knowledge is Universal Grammar (often abbreviated as UG). If linguists knew the contents of UG, they would be able to work out how children learn languages so quickly, and how languages must pattern in order to fulfil the requirements of UG, and thus why a particular descriptively adequate grammar might be better than another descriptively adequate grammar of the same language. Unfortunately, UG is not available for perusal, and its form must be deduced from the actual languages we can observe. We can see the main thrust of the Chomskyan research enterprise as being the uncovering of UG on the basis of data from natural languages.

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THE IMPORTANT DIMENSIONS OF LANGUAGE (AND ITS STUDY)

Jeffries, Lesley (2006) *Discovering Language. The Structure of Modern English*. Plagrave Macmillan. (pp.195-199)

There are two important sets of dimensions of language that all linguists find the need to refer to at times. The first of these, the paradigmatic and syntagmatic dimensions, refers to relationships

between linguistic items themselves. The second, diachronic and synchronic perspectives, considers two ways of approaching language study.

7.6.1 Paradigmatic and syntagmatic relationships

The distinction between the **paradigmatic** and **syntagmatic** dimensions of language is related to the difference between units and structures as discussed in the Introduction to this book. The units of language, from a structuralist viewpoint at least, are defined by the relationships they hold with other units of the language. Some of these relationships are to do with the fact that two or more units can fulfil similar functions in a structure, and some of them are concerned with the combination of units in a structure.

Paradigmatic relationship refers to relationships between similar items that could replace each other in the same slot in a structure. Thus the nouns *cake*, *biscuit* and *sandwich* have a paradigmatic relationship with regard to the gap in the utterance *Who's going to eat the last . . . ?* In other words the functions we have explored when examining phrase structure and clause structure have a large number of potential forms that could fulfil them. The head of a noun phrase, for example, could be any noun in English, and a few adjectives too. These are all said to be in a paradigmatic relationship with each other with regard to this function. By contrast the items occurring alongside each other in a structure are said to be in a **syntagmatic relationship**. Thus the verb *eat* in the above utterance has a syntagmatic relationship with its object, be it the word *cake*, *biscuit* or *sandwich*. Similarly the determiner that precedes a head noun has a syntagmatic relationship with it.

The terms paradigmatic and syntagmatic can be used at many points in the process of describing English. Their contribution here is to demonstrate that linguistic items such as words can enter into two different kinds of relationship, and that both are part of the meaning of that item. Thus the meaning of *eat* in English is defined partly by its paradigmatic relationship with other verbs, including *consume* and *drink* and partly by its syntagmatic relationship with *beef*, *chicken*, *cakes* and *chocolate*, which can occur as its Object and with *me*, *Judy* and *everyone*, which can occur as its subject.

7.6.2 Diachronic and synchronic dimensions of study

In addition to looking at the dimensions in which linguistic items relate to each other, we can also look at language itself from different perspectives. One of the most important developments of twentieth-century linguistics was the recognition that we could study language from either of two viewpoints: synchronically or diachronically.

The history and tradition in linguistic study before the twentieth century was largely **diachronic**; that is, it took a historical and developmental view of language, with changes in the sound system, lexis and structure being the main object of study. In the early twentieth century there was a shift in this outlook, with linguists increasingly seeing the study of a language at a single point in history as their main object, and the history of how the language got to be that way as being of secondary interest. This **synchronic** approach was based on the idea that theoretically treating language as stable at a single point in time and space was the best way of explaining the regularities and patterns in the language, with historical shifts being ironed out. There was also the view that speakers at any one period of a language's history would not be particularly aware of, or concerned about, the historical development of the language, and would treat it as though it were the stable system described in the synchronic approach.

In recent decades there has been a refocusing on the changes that happen across time, and diachronic study, which often focuses on fairly recent changes, has been recognised as having an

equal, but different, value to synchronic study. What has not changed is the recognition that it is very difficult, if not theoretically impossible, to do both kinds of study at once. This book takes a largely synchronic view of language, making the convenient assumption that English is a stable system that works pretty well without major changes during a speaker's lifetime. However should students wish to study aspects of diachronic change (for example in youth culture and vocabulary), the descriptive terminology and categories introduced here will serve the purpose.

7.7.1 Langue and parole, competence and performance

The first distinction we shall consider is between **langue** and **parole**. These French terms, first proposed by Saussure, refer to the language as a complete system (**langue**) and its use in real situations (**parole**) respectively. **Langue**, then, is a somewhat idealised form of the language, where people do not hesitate, use incomplete sentences or make up new or surprising structures. **Parole** is where they do all of those things and more. One of the problems with this distinction is that it appears to suggest that there is something complete and perfect about **langue**, and something messy and imperfect about its use (**parole**).

In fact, as linguists have looked in detail at more and more contextualized examples of language, through fields such as dialectology, sociolinguistics, stylistics and pragmatics, it has become evident that what appear to be messy, creative or mistaken uses of the **langue** have their own regularities and patterning that simply differ from the idealised general language. This presents a theoretical problem for linguistics but does not invalidate the **langue-parole** distinction for the purposes of this book. While the coded version of English presented here is not identical in every detail to the real versions that readers will encounter in their everyday lives, it does capture a version of English that at some level we all draw upon when using both subtly and also radically different varieties. There is a similar distinction between **competence** and **performance**. This has arisen from the work of transformational-generative linguists and was first introduced by Chomsky. **Competence**, in this theory, refers to the language ability and knowledge that speakers of any language have available to them, and that are in some sense stored in the brain of the speaker.

Performance is therefore; like **parole**, a poorer version of the internal language system; one in which the brain fails to retrieve the appropriate words and structures, breaks down half way through an utterance and so on. The distinction between these two sets of terms is one of emphasis. The Saussurean distinction between **langue** and **parole** focuses on the social use of language, and draws upon the idea of commonality between speakers to theorise an idealised form of the language. The Chomskyan distinction reflects an underlying difference of theoretical outlook. The **competence-performance** distinction arises from a language theory that views language primarily as the cognitive ability of the individual speaker, rather than an abstract but socially based, self-defining and independent system that speakers draw upon.

7.7.2 Reference and sense

A significant distinction that relates to the bridge between language and life is that between 'reference' and 'sense'. We have already hinted at this when discussing the importance of relationships between linguistic items in the language system.

As we have seen, structuralists have argued that language is not simply a naming system and they have focused on the interrelations between linguistic units as the most important aspect of language to be described. This distinction is sometimes called the distinction between **reference**, which connects language to the world, and **sense**, which connects linguistic items to each other.

Whilst sense has been crucial to all developments in language description in recent times, reference cannot be discounted entirely. The word *house*, for example, can be used specifically to refer to a particular house, as in *that house over there*, or it can refer to a class of houses, as in *terraced houses in Leeds*. It is also possible to discuss the range of all buildings that could be referred to in general by the word *house*, though the boundaries of that referential pool might be difficult to draw. Is, for example, a ramshackle hut in a refugee camp part of the pool of referents of the word *house*? Philosophers of language have raised these issues for many generations, and they remain of abiding interest.

Nevertheless linguistic structuralism has also made us look at language from the perspective of its internal form and structure, and this has led to great developments in the description of all human languages, including English.

7.7.3 Sign, signifier and signified

There are many terms in linguistics that refer to very similar concepts, and they sometimes overlap each other in ways that are interesting for theories of language but can be confusing for students. For example you may come across the terms ‘**sign**’, ‘**signifier**’ and ‘**signified**’ in your studies. These are Saussurean terms that have gained great currency in fields related to linguistics, such as literary criticism and cultural studies, but also encapsulate ideas that are fundamental to the way that linguists see human language as working.

Their linguistic meaning is relatively simple and not unrelated to reference and sense, which we considered in the previous section. Saussure’s contention was that the linguistic sign was not just the letters or the word you see on the page (or the sounds you hear). Instead he argued that the sign was made up of two parts; the signifier, which is the physical manifestation of the linguistic unit in sounds or words (or hand signals in British sign language), and the signified, which is the potential range of referents of the signifier in that language. He emphasised that you could not really separate the two, and that human language depends on this unifying of the arbitrary symbol with its referents.

1.4 Outline of modern linguistics from a historical perspective

People everywhere talk about language: they have ideas about its nature, uses, origins, acquisition, structure and so on. Some of these notions are enshrined in mythology (e.g. the Tower of Babel story). In some sense the things people say and believe about language could qualify as linguistics, perhaps folk linguistics. But, as we are using it, the term linguistics refers to a scientific system of knowledge. Before we go deeper into the subject, it is useful to overview the main trends, situating them in a broad historical perspective.

The earliest concrete evidence of discourse about language dates to about 4,000 years ago, when scribes in ancient Mesopotamia listed forms of Sumerian nouns and verbs on clay tablets. They did

this because Sumerian, the language of religion and the law, was no longer in everyday use, and it had to be taught as a foreign language. For similar reasons, traditions of linguistics also emerged in ancient India, Greece and Rome.

The study of linguistics intensified in the Middle Ages. Subsequently, with the advent of European colonialism in the 15th century, Europeans came into contact with an unexpected diversity of languages and peoples. From information gathered by travellers, missionaries and others, it became apparent that some languages are related to one another. Procedures for establishing these relationships were gradually honed, until the late 19th century, by which time the comparative method (see §15.2) had been largely perfected.

Modern linguistics emerged soon after, with a change of focus from historical concerns to the notion of language as a system, the basis of **structuralism**, which still permeates the subject. The Swiss linguist Ferdinand de Saussure (1857–1913) was a key figure in this refocusing of interest, and is regarded as the founding father of modern linguistics. His *Cours de linguistique générale* [*Course in general linguistics*] was published posthumously in 1916, reconstructed from his students' lecture notes.

As we have already noted, modern linguistics is an empirical endeavour, concerned with describing and accounting for patterns of speech and language, and that to account for the patterns means to explain them, and for this theory is essential. As in other social sciences, there is considerable theoretical diversity. However, theories tend to cluster into two main types, **formal** and **functional**, according to whether the primary emphasis is on language as an algebraic system of symbols put together according to rules, or on language as a system that has developed in particular ways in order to serve functions in human life. We discuss these two approaches in the following subsections.

Formal linguistics

In America, from the 1930s onwards, mainstream structuralism became increasingly algebraic in orientation and focused increasingly on syntax. In 1957 this tradition suffered a major blow with the publication of Noam Chomsky's (1928–) *Syntactic structures*. Influenced by developments in mathematical logic, Chomsky's programme explicitly rejected some of the dominant preoccupations of American structuralism, including its empiricist philosophy (that knowledge derives from sense experiences). Instead, Chomsky advocated a rationalist philosophy (that knowledge is based on reason).

Chomsky's thought quickly became dominant, not just in America but also in Europe and elsewhere; it has effectively defined mainstream linguistics ever since. Grammar is considered as a formal system making explicit the mechanisms – first in terms of rules, later by other means – by which the grammatical sentences of a language can be generated; and for this reason the tradition is called Generative Grammar.

Generative theory developed rapidly, and mainstream Chomskian generative grammar has undergone numerous substantial changes and renovations. Alternative generative theories were also developed by others.

Functional linguistics

The late 1950s also saw new developments in linguistics in Europe that took off in functional directions, stressing both the meaning side of the Saussurean sign and the idea that language developed the way it did because of the uses it is put to. Key figures were André Martinet (1908–1999) and Michael Halliday (1925–). The functionalist schools they initiated continue to this day as minor but significant forces on the linguistic landscape.

Later, other functionally oriented schools emerged, mainly in opposition to generative linguistics. One was Functional Grammar, developed from the late 1960s by the Dutch linguist Simon Dik (1940–95). A rather amorphous tradition, West Coast Functional Grammar, arose in the USA around the same time. Prominent in this tradition was the idea that grammatical categories are functional, that they arose to serve a purpose. More recently, two more coherent schools arose in the USA largely replacing West Coast Functional Grammar: Cognitive Grammar (associated with Ronald Langacker [1942–]) and Construction Grammar (Charles Fillmore [1929–] and associates). Both assign a prominent place to the Saussurean sign.

Scope of modern linguistics

Contemporary linguistics is a richly diversified field, with so many specializations that no scholar can cover them all. Many branches acquired their separate identities and methodologies in the second half of the 20th century, although most had been investigated previously. Generative Grammar remains a major force determining the orientations and goals of most branches, although other theories have had some impact.

The majority of the approximately 7,000 languages spoken in the world today and in the recent past have yet to be adequately documented and described. Many linguists are engaged in gathering data on the poorly documented languages, normally by doing fieldwork in remote locations, and describing them by writing grammars and compiling dictionaries and collections of texts. Missionary linguists, many working under the umbrella of SIL International, a missionary organization established in the USA in 1934, continue to play a prominent role. Over 1,000 languages are currently under investigation by SIL linguists. Speakers of poorly documented languages are increasingly playing prominent roles, both as gatekeepers determining access to speech communities and controlling the direction of research and its applications, and in describing and documenting their languages.

The need for this descriptive work is underlined by the fact that many of the world's languages are endangered, and unlikely to survive into the next century (see §7.5). Despite the political rhetoric, this field does not occupy a prominent or powerful position in linguistics, or on the agenda of many research funding bodies, and a relatively small proportion of linguists are active in it.

Like other sciences, linguistics has applications, including to language learning, literacy and translation. In fact, many branches of linguistics have contributed to **applied linguistics**, the field concerned with applications of linguistics, for example descriptive linguistics to maintaining and strengthening endangered languages; psycholinguistics to assisting individuals with language

difficulties (e.g. resulting from strokes); pragmatics and conversation analysis to cross-cultural communication; and sociolinguistics to the educational field. Recent years have seen linguists increasingly called on for expert advice in the legal domain, including speaker identification and land-rights for indigenous peoples. Another major area of application is in the computational field, including to machine generation and recognition of speech, automatic parsing of texts, translation, and building and maintaining large corpora (collections of texts).

Forensic linguistics – the branch of linguistics concerned with applications to the legal domain – does not have quite the popular appeal of forensic anthropology or archaeology, and I am not aware of any popular mystery fiction with a forensic linguist in a lead role, comparable with Simon Beckett's series with forensic anthropologist Dr David Hunter. Nevertheless, it is not uncommon for something spoken or written to provide a critical clue in crime fiction. Here is an example from Agatha Christie's *The Mysterious Affair at Styles*:

'One might take that with a grain of salt,' I remarked sceptically. 'All these wills are very confusing. Tell me, how did those scribbled words on the envelope help you to discover that a will was made yesterday afternoon?'

Poirot smiled.

'Mon ami, have you ever, when writing a letter, been arrested by the fact that you did not know how to spell a certain word?'

'Yes, often. I suppose everyone has.'

'Exactly. And have you not, in such a case, tried the word once or twice on the edge of the blotting-paper, or a spare scrap of paper, to see if it looked right? Well, that is what Mrs Inglethorp did. You will notice that the word "possessed" is spelt first with one "s" and subsequently with two – correctly. To make sure, she had further tried it in a sentence, thus: "I am possessed." Now, what did that tell me? It told me that Mrs Inglethorp had been writing the word "possessed" that afternoon, and, having the fragment of paper found in the grate fresh in my mind, the possibility of a will – a document almost certain to contain that word – occurred to me at once. (Christie 1954/1920: 73–4)

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Summing up

Linguistics, the **scientific study of language**, has its roots in our everyday knowledge of, thinking about and talking about language. This everyday thought is often prescriptive. By contrast, modern

linguistics has a **descriptive** orientation: it is an empirical endeavour, concerned with describing and accounting for patterns in speech and language. To do this, theory is essential. Modern linguistics is dominated by two opposing theoretical orientations – **formal** and **functional**.

One of the most fundamental notions of modern linguistics is the **sign**, a unit made up of a **form** paired with a **meaning**. Most linguistic signs are arbitrary, the connection between the form and the meaning being established purely by convention. Such signs are **symbols**. Some linguistic signs, however, display likeness between their form and meaning: these are **icons**.

The signs of a language form a **system**, a primary characteristic of which is the relationships amongst the signs, which are either **paradigmatic** or **syntagmatic**.

To distinguish language from other systems of communication, Hockett proposed a set of **design features** of human language, including: arbitrariness, displacement, cultural transmission, duality, productivity and reflexivity.

Speech is the primary medium of human languages. It is historically prior to writing, which is a recent invention, dating back just a few thousand years. Most languages are virtually exclusively spoken; many writing systems have emerged only in the last century, and many are used quite rarely. Another medium for the representation of languages is gesture, and in many deaf communities **sign languages** are used in which words are represented by gestures. These are full languages satisfying Hockett's design features.

Guide to further reading

Of the enormous range of introductory textbooks on linguistics, my recommendations are: Bolinger (1975); Fromkin and Rodman (1974), which has subsequently appeared in many editions (e.g. Fromkin et al. 2005); Hudson (2000); Jackson and Stockwell (2011); and Yule (2006). Five other introductory books, not intended as textbooks, make excellent reading: Hudson (1984); Matthews (2003); Parkvall (2006); Rickerson and Hilton (2012); and Trask (1999).

It is advisable to have a good dictionary of linguistics, such as Crystal (1980/2003); Matthews (2007); or Trask (1998). Encyclopaedias such as Frawley (2003) and Crystal (1987) are also worth digging into. Aronoff and Rees-Miller's *The Handbook of Linguistics* (2001) contains 32 articles covering most fields of modern linguistics.

Design features of human language were first proposed by Charles Hockett (1960); the list has been subsequently modified and expanded. Kaplan (2002) gives an indication of the scope of applied linguistics, while Oaks (2001) is an excellent collection of articles illustrating the applications of linguistics to education, law, medicine, the film industry, business, etc. Olsson (2009) provides fascinating accounts of a number of cases in which he was involved as a forensic linguist, and reveals some of the techniques and uncertainties in the field.

On the nature of science and the scientific method, see Chalmers (1999); Riggs (1992); Okasha (2002); and Godfrey-Smith (2003). Horgan (1996) contains interviews with leading scientists on the limitations of science, and gives insights into the lives and work of scientists. The best introduction to the history of linguistics is Robins (1984); for a brief overview see the website for this book.



WEEK FOUR

1 The cognitive basis of language

Language and thought

1.0 Overview

This first chapter introduces the reader to some fundamental aspects of language and linguistics. First it will look at language as a system of communication. Like all communication systems, language makes use of signs. The systematic study of signs is included in the field of semiotics, which analyzes verbal and non-verbal systems of human communication as well as animal communication.

Semiotics distinguishes between three types of signs: indices, icons and symbols. These three types of signs represent three different structural principles relating form and content. Human language stands out among sign systems in using all three structuring principles, but especially symbolic signs.

Secondly, this chapter will look at how language not only enables communication, but also reflects mankind's conceptual world. The conceptual world consists, amongst others, of conceptual categories, which are far richer than the system of linguistic signs. A great many, but by no means all, of the conceptual categories give rise to linguistic categories. Linguistic categories not only enable us to communicate, but also impose a certain way of understanding the world.

1.1 Introduction: Sign systems

As humans, we are social beings and want to share information with others about what goes on in our minds: What we see, believe, know, feel, want to do or are doing now. We can achieve this in many ways. We express our surprise by raising our eyebrows, we can draw the outline of a woman by using our hands, and we can express our thoughts by speaking. All these methods of

expression are meaningful to us as “signs” of something. In its widest sense, a sign may be defined as a form which stands for something else, which we understand as its meaning. For example, raising one’s eyebrows is understood as a sign of surprise, whereas blowing one’s nose is usually not taken to be a meaningful sign, but it may become one if it is intended as an expression of protest. The three examples given above are illustrations of three possible different types of signs, i.e. indexical, iconic and symbolic signs.

An **indexical sign**, or **index**, points to something in its immediate vicinity, as is suggested by the etymology of the Latin word *index* ‘pointing finger’. The clearest case of an indexical sign is a signpost for traffic pointing in the direction of the next town such as Bath. The signpost has the meaning: “Go in this direction to get to Bath.” But facial expressions such as raising one’s eyebrows or frowning one’s brows are also indexical signs: They “point” to a person’s internal emotional states of surprise or anger.

An **iconic sign**, or **icon**, (from Greek *eikon* ‘replica’) provides a visual, auditory or any other perceptual image of the thing it stands for. An iconic sign is similar to the thing it represents. The road sign that warns drivers to look out for children near a school pictures two or three children crossing the road on a zebra crossing. The image is of course only vaguely similar to reality since, at a particular moment, only one or any number of children may be running across the street, but its general meaning is very clear nevertheless. The idea of danger caused by animals on roads is also pictured by iconic signs such as images of cows, deer, geese, horses, toads, etc. Pictures of lorries, cars, tractors, cycles, cycling paths, rivers, bridges, falling rocks, bends in the road, hairpin bends, etc. are usually represented iconically. The above-mentioned gestural drawing of a woman’s shape with one’s hands or the tracing of a spiral staircase with one’s finger are, of course, also iconic signs.

Unlike indexical and iconic signs, a **symbolic sign**, or **symbol**, does not have a natural link between the form and the thing represented, but only has a conventional link. The traffic sign of an inverted triangle is one such symbol: It does not have a natural link between its form and its meaning “give right of way”. The link between its form and meaning is purely conventional. The same applies to military emblems, the pound sign £, almost all flags and, of course, most of language. Thus, there is no natural link at all between the word form *surprise* and its meaning. The term *symbolic* as used in linguistics is understood in the sense that, by general consent, people have “agreed” upon the pairing of a particular form with a particular meaning. This sense of *symbolic* goes back to the original meaning of the Greek word *symbolon* ‘a token of recognition’ used

between two guests or friends, e.g. a ring broken into two halves, which allowed them to identify each other after a long time by matching the two parts and checking whether they fit together. The two halves of the ring are inseparable, just like the form of a word and its meaning.

The scholarly discipline that studies systems of signs in all their manifestations is **semiotics** (from Greek *semeion* 'sign'). Human language is, of course, the most elaborate system of signs to be studied, but semiotics also looks at other forms of human and non-human communicative behaviour such as gestures, clothing, keeping distances, baring one's teeth, etc. Animals have very sophisticated sign systems, too. For example, bees communicate by complex patterns of dances signalling to other bees the direction, the distance and the quantity of a source of nectar; monkeys make use of a system of nine different cries to express how far and how big a possible danger is; whales use a system of songs, although biologists have not yet been able to decode their signs. These systems of communication are almost exclusively indexical. For example, a honey bee can indexically communicate to another bee about nectar sources that are in its proximity, and signalling the quantity of the nectar occurs by iconic knocking on a surface: the more knocking, the more nectar. But there is no flexibility in the system: the bees' indexical range of signs is limited to the horizontal dimension. An experiment in Pisa has shown that bees were not able to inform other bees at the bottom of the tower of Pisa about the nectar source that had been put at the top.

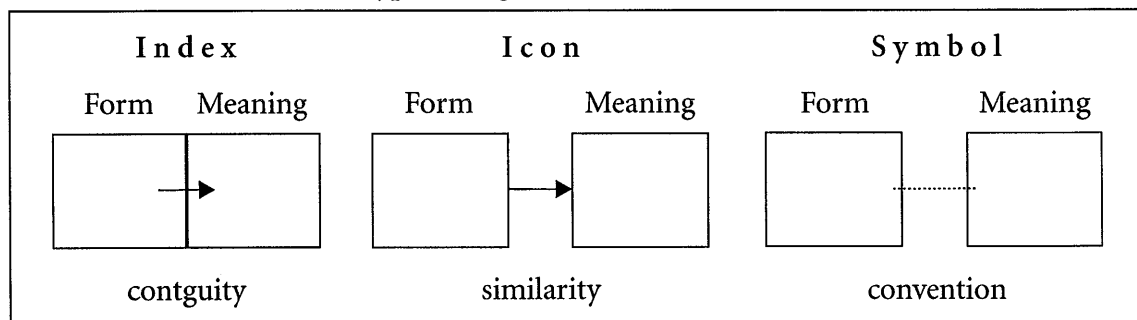
There is a hierarchy of abstraction amongst the three types of signs. Indexical signs are the most "primitive" and the most limited signs in that they are restricted to the "here" and "now". Yet, indexical signs are very wide-spread in human communication, for example in body language, traffic and other signs and areas such as advertizing. Most commercial products are too prosaic to be attractive in themselves; they need to be associated with more attractive surroundings. For example, Marlboro cigarettes are indexically related to the adventurous life of the American cowboy.

Iconic signs are more complex in that their understanding requires the recognition of similarity. The iconic link of similarity needs to be consciously established by the observer. The image may be fairly similar as with ikons, which are pictures of a holy person venerated in the Russian or Greek Orthodox Church, or they may be fairly abstract as in stylized pictures of men and women on toilet doors, or of cars or planes in road signs. Icons are probably not found in the animal kingdom.

Symbolic signs are the exclusive prerogative of humans. People have more communicative needs than pointing to things and replicating things; we also want to talk about things which are more abstract in nature such as events in the past or future, objects which are distant from us, hopes about peace, etc. This can only be achieved by means of symbols, which humans all over the world have created for the purpose of communicating all possible thoughts. The most elaborate system of symbolic signs is natural language in all its forms: The most universal form is spoken language; at a certain phase of civilization and intellectual development a written form of language develops; and people who are deaf have developed a sign language, which is largely based on conventionalized links between gestures and meanings.

The three types of signs may be represented as in Table 1 and reflect general principles of coping with forms and meanings.

Table 1. Links in the three types of signs



Indexical signs reflect a more general principle, whereby things that are contiguous can stand for each other. For example, we strongly associate a piece of art with the artist and, hence, can say things like *I am curious to see the Turners*. Iconic signs reflect the more general principle of using an image for the real thing. Farmers have applied this strategy for centuries by putting up scarecrows in their fields, which the birds take for real enemies. Symbolic signs allow the human mind to go beyond the limitations of contiguity and similarity and establish symbolic links between any form and any meaning. Thus, a rose can stand for love and the owl for wisdom. These three principles of indexicality, iconicity and symbolicity underlie the structuring of language, which will be the subject of the next section.

1.2 Structuring principles in language

As we saw in the previous section there are three types of signs: indexical, iconic, and symbolic. Almost all language is symbolic as the relationship between words and their meanings is not based on contiguity or similarity (except perhaps in words for animal sounds), but on convention. However, within this complex system of symbols, called language, we can also recognize indexal, iconic and symbolic principles. For example, we can recognize words whose sole function it is “to point”. Some sentence patterns iconically show “similarity” with the order of things in reality. And finally, once arbitrarily chosen word forms (symbols) may be put together to form new words whose meaning is transparent.

1.2.1 The principle of indexicality in language

The principle of indexicality means that we can “point” to things in our scope of attention. We consider ourselves to be at the centre of the universe, and everything around us is seen from our point of view. This egocentric view of the world also shows in our use of language. When we speak, our position in space and time serves as the reference point for the location of other entities in space and time. The place where we are is referred to as *here*, and the time when we speak is *now*. If I said, *My neighbour is here now*, my listener would know that “here” is the place where I am, and “now” is the time when I am speaking. This would even hold true for a transatlantic telephone conversation, in which the speaker’s, and not the hearer’s, place and time are meant. Spaces other than ours are described as *there* or, when they are even further from us, as *over there*. Similarly, times other than our present time are referred to as *then*, which may be either past time as in *Then they got married* or future time as in *Then they will have children*.

Words such as *here*, *there*, *now*, *then*, *today*, *tomorrow*, *this*, *that*, *come* and *go* as well as the personal pronouns *I*, *you* and *we* are described as deictic expressions. Deictic expressions (from Greek *deiktis* of *deiknumi* ‘show’) relate to the speaking EGO, who imposes his perspective on the world. Deictic expressions depend for their interpretation on the situation in which they are used. Without knowing the situational context, the request for joining a demonstration printed on a leaflet found on a train *Massive demonstration tomorrow at ten; meet here!* is rather meaningless.

The EGO also serves as the “deictic centre” for locating things in space as in *The house is in front of me*. Far bigger things than oneself may be located with respect to the speaking ego. In saying *The Empire State Building is right in front of me*, we pretend that the person speaking, rather than the skyscraper, is the stable reference point of this world. It is also possible to take the hearer’s perspective while looking at things. This is what guides on sight-seeing buses do all the time when they say for example *As we approach St. Paul’s now, the Tower is to your left*.

The ego furthermore serves as the deictic centre for locating things with respect to other things. Thus, when the speaker says, *The bicycle is behind the tree*, he draws an imaginary line from himself to the tree and locates the bicycle behind the tree, as shown in Figure 1a. When the speaker moves to the other side of the street, his **deictic orientation** changes too and the bicycle is now in front of the tree, as shown in Figure 1b. Trees are different from artefacts such as buildings and cars, whose fronts and backs are easily identifiable due to their inherent nature. Therefore, the position of the bicycle with respect to the car does not change with the speaker’s perspective, as shown in Figures 1c and 1d on the next page. Whatever the speaker does in Figure 1c, the bicycle remains behind the car, because we associate that area of the car as ‘the back’.

The **inherent orientation** that we give artifacts such as the car in Figures 1c and 1d is an extension of our human body: The front of the car coincides with the driver’s front side as does the back, the left and right hand side. Just as we speak of our bodily front and back, top and bottom, left and right side we conceive of shirts, chairs, cars, houses and other artefacts as having intrinsic fronts and backs, tops and bottoms and left and right sides.

At a more general level, we transpose our egocentric orientation onto the human being as such. Our psychological proximity to fellow humans leads to an anthropocentric perspective (from Greek *anthropos* ‘man’). Our **anthropocentric perspective** of the world follows from the fact that we are foremost interested in humans like ourselves: Their actions, their thoughts, their experiences, their possessions, their movements, etc. We, as human beings, always occupy a privileged position in the description of events. If a human being is involved in an event, he or she tends to be named first, as the subject of the sentence. The examples with a human subject in 1 illustrate the normal way of expressing events or states.

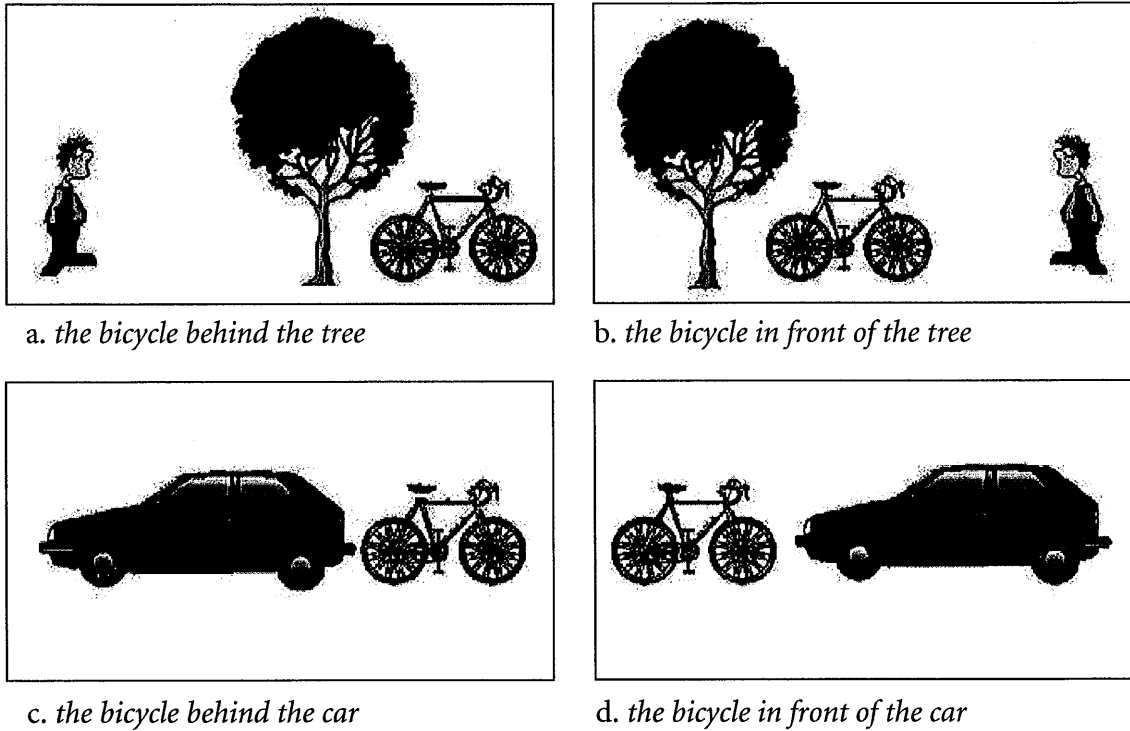


Figure 1. Deictic orientation (a, b) and inherent orientation (c, d)

- (1) a. *She* knows the poem by heart.
 b. *He* would like some more milk in his coffee.
 c. *I* lost my contact lenses.

It is only with special focus on an object that a non-human entity is preferred over a human entity and becomes the subject of the sentence. Thus, when a teacher takes a mental distance from her students, she might say *By tomorrow this poem must be known by heart by everybody*, but since it is not likely that we take distance from ourselves, we are unlikely to say **This poem is known by heart by me* (note: An asterisk before a linguistic expression means that it is not correct).

The human being is given special prominence in other areas of grammar, too. English has special personal pronouns for males and females (*he* and *she* as opposed to *it*), special interrogative and relative pronouns that refer to humans as opposed to things (*who*, *whose*, and *whom*, as opposed to *which*) and a special possessive form for humans (*the man's coat* but not **the house's roof*).

The following sentences illustrate a less conspicuous instance of anthropocentricity:

- (2) a. His house got broken into.
 b. [?]The house got broken into.
 c. ^{??}The house got burnt down.

These sentences with the *get*-passive display a scale of acceptability: The *get*-passive is fully acceptable in (2a) but, as the question marks in front of a sentence suggest, less acceptable in (2b) and hardly acceptable in (2c). What determines our judgement of acceptability of the *get*-passive is the degree of human involvement in the event.

1.2.2 The principle of iconicity in language

The principle of iconicity in language means that we conceive a similarity between a form of language and the thing it stands for, e.g. the name of a bird may imitate the sounds it seems to make, i.e. *cuckoo*. Iconicity may manifest itself in three sub-principles, i.e. those of linguistic expressions related to sequential order, distance and quantity.

The principle of sequential order is a phenomenon of both temporal events and the linear arrangement of elements in a linguistic construction. In its simplest manifestation, the principle of iconicity determines the order of two or more clauses as in Julius Caesar's historic words, *Veni, vidi, vici* 'I came, I saw, I conquered' or in the advertizing slogan *Eye it, try it, buy it*. Here reversing the order would produce nonsense. But in other contexts this is perfectly possible. By changing the linear arrangement of the co-ordinated clauses of (3a), we automatically get a different sequence of events (3b):

- (3) a. Virginia got married and had a baby.
- b. Virginia had a baby and got married.

The conjunction *and* itself does not tell us anything about the sequence of events; it is only due to the arrangement of the two clauses that the natural order of the events is mirrored. But if, instead of *and*, we used the temporal conjunction *before* or *after*, we may describe the event either in an iconic way (4), where the linear order is related to the order of events, or in a non-iconic way (5), where the linear order is unrelated to the order of events:

- (4) a. Virginia got married *before* she had a baby.
- b. *After* she had the baby, Virginia got married.
- (5) a. *Before* she had a baby, Virginia got married.
- b. Virginia had a baby *after* she got married.

Sequential-order iconicity is also found within the structure of a sentence. Thus, the sentences below have the same words but convey different meanings

because of the different order of the adjective *green*:

- (6) a. Bill painted the *green* door.
 b. Bill painted the door *green*.

In (6a), the door was already green and then painted over again, but we do not know what colour it was painted. In (6b), we do not know the original colour of the door but we know that it came out green. The normal position of adjectives in English is in front of the noun they modify as in (6a); the position after the noun in (6b) iconically reflects a resulting and, hence, later state in the door's colour.

The iconic principle also determines the sequential order of the elements in "binary" expressions which reflect temporal succession:

- (7) a. now and then, now or never, sooner or later, day and night
 b. cause and effect, hit and run, trial and error, give and take, wait and see, pick and mix, cash and carry, park and ride.

All these binary expressions are irreversible. As a rule, we do not speak of **then and now* or **effect and cause*; such reversals would only occur for special communicative effects, e.g. drawing attention to the expression. The first group of these binary expressions refers to purely temporal sequences; the second group describes events which routinely occur in the order in which they are expressed.

Further evidence of this iconic principle is also found in the **word order** of subject, verb and object in a sentence. In almost all the languages of the world, the subject precedes the object. The subject (S), the verb (V) and the object (O) of a sentence can theoretically be ordered in six different ways: SVO, SOV, VSO, OSV, OVS, VOS. The first three patterns establish the most widely used orders (note: The English sentences in (8b, c) are word-for-word translations of the non-English sentences):

- (8) a. SVO: The lawyer wrote the letter.
 b. SOV: (*Er weiß, daß*) *der Anwalt den Brief schrieb.*
 He knows that the lawyer the letter wrote.
 c. VSO: (*Endlich*) *schrieb der Anwalt den Brief.*
 Finally wrote the lawyer the letter.

English and the Romance languages have fixed word order and only allow SVO. German, Dutch and the Scandinavian languages also have the two other word order possibilities: they have SVO in main clauses (8a), SOV in subordinate

clauses (8b), and VSO after adverbs or adverbial clauses (8c). The overwhelming occurrence of the subject before the object in the world's languages is motivated by the way humans perceive the internal structure of events: Events typically describe actions in which one entity acts upon another. The acting entity is expressed as the subject of the sentence; its action occurs before its effect, the object, is realized.

The principle of distance accounts for the fact that things which belong together conceptually tend to be put together linguistically, and things that do not belong together are put at a distance. This principle explains the grammatical contrast in the following pair of sentences:

- (9) a. A noisy group *was* hanging around the bar.
b. A group of noisy youngsters *were* hanging around the bar.

In sentence (9a), the singular noun *group* agrees with the singular verb immediately following it. In sentence (9b), the noun *group* is put at some distance from the verb, which now agrees with the plural noun *youngsters* adjacent to it. With certain quantifying expressions as in *a number of students* and *a lot of people*, plural agreement has become the grammatical norm.

The principle of distance also accounts for the various types of subordinate clauses following the verb of a main clause. English has, amongst others, three types of clauses after a main verb: A clause without *to* (10a), a clause with *to* (10b), and a clause with *that* (10c):

- (10) a. I made *her* leave.
b. I wanted *her to* leave.
c. I hoped *that she would* leave.

In (10a), the subject *I* has direct influence on the other person and, therefore, there is minimal distance between the two verbs. In (10b), the subject's desire may have some indirect impact on the other person and, therefore, the distance between the verbs is greater. In (10c), there is no impact whatsoever on the other person and, hence, the distance between the verbs is greatest.

As a final example of iconic distance let us consider the choice between the indirect object construction and the *to*-phrase in English, which is known as "dative alternation", as in:

- (11) a. Romeo sent *his girlfriend* a Valentine card.
b. Romeo sent a Valentine card *to his girlfriend*.

The smaller linguistic distance between *sent* and *his girlfriend* in (11a) means that she actually received the Valentine's Day card, while the greater distance between the verb and the *to*-phrase in (11b) leaves the meaning unclear as to whether she ever received the card.

The iconic principle of quantity accounts for our tendency to associate more form with more meaning and, conversely, less form with less meaning. By stretching the o-sound of *long* as in *That's a loooooong story* we iconically express the idea of an "extremely long" story. The same principle is applied by young children, who express the notion of plurality as in *trees* by repeating the word *tree* several times: *Look, daddy, a tree and another tree and another tree.*

This repetition strategy is systematically exploited in many languages: Thus in the pidgin language *Tok Pisin*, *cow-cow* means 'cows', *wilwil* (wheel-wheel) means 'bicycle', and in Afrikaans, *plek-plek* (place-place) means 'in various places'. This iconic device of repetition is known as **reduplication**. Reduplication is, of course, not a very economical way of expressing the idea of "more quantity". Most languages have developed more efficient symbolic ways of expressing plurality.

The quantity principle also shows up in politeness strategies, according to the motto "being polite is saying a bit more". Thus, the increasing quantities of language forms in the following examples are meant to convey increasing respect for the hearer:

- (12) a. No smoking.
 b. Don't smoke, will you?
 c. Would you mind not smoking here, please.
 d. Customers are requested to refrain from smoking if they can.
 (notice at Harrods)
 e. We would appreciate if you could refrain from smoking cigars and pipes as it can be disturbing to other diners. Thank you.
 (notice at Clos du Roi, Bath)

The use of wordy phrases also illustrates the way in which people try to attach more importance to a subject matter:

- (13) a. I obtained the privilege of his acquaintance.
 b. In my opinion it is a not unjustified assumption that ...

Pretentious diction and "meaningless wordings" such as these have repeatedly been criticized by literary critics and purists of language. Orwell, who in his essay

on “Politics and the English language” cites sentence (13b) as an illustration of language abuse, says that it is easier to say such sentences than to say *I think*.

The quantity principle also implies that less meaning requires less form. This is precisely what happens with information that is felt to be redundant. Thus, we use the less explicit form (14a) rather than the more explicit version (14b):

- (14) a. Charles said that he was short of money and *so did* his girl-friend.
b. Charles said that he was short of money and his girl-friend *said that she was short of money, too*.

The form *so did* in (14a) replaces the whole verbal expression following the subject *girl-friend*. A number of syntactic phenomena such as the use of pronouns and the reduction of full sentences are due to the operation of the quantity principle. Conversely, if such redundant sentences are used as in (14b), they express the same idea as the shorter form, but on top of that they tend to express emphasis, irony or a negative attitude.

1.2.3 The principle of symbolicity in language

The principle of symbolicity refers to the conventional pairing of form and meaning, as is typically found in the word stock of a language. The concept of “house” is rendered as *house* in English, *Haus* in German, *huis* in Dutch, *casa* in Italian and Spanish, *maison* in French, *talo* in Finnish, *dom* in Russian, etc. There is, of course, nothing in the forms of these words that makes them suitable to express the concept of “house”. They might even express something quite different in another language: for example, the form *kaas* in Dutch, which sounds like Italian *casa*, means “cheese”, and the German word *Dom* does not mean “Haus”, but “church of a bishop”. This is one of the reasons why the link between the form and the meaning of symbolic signs was called arbitrary by the founding father of modern linguistics, Ferdinand de Saussure. Often signs which originally made sense have become arbitrary in the course of time: Telephones no longer have dials for selecting telephone numbers but key-pads in which we “punch” a number, and receivers are no longer hung up but put down, but without giving these changes any thought we still speak of *dialling a phone number* and *hanging up the phone*.

However, while the notion of arbitrariness certainly holds true for most of the simple words of a language, it is at odds with our general human disposition of seeing meaning in forms. If we look at the whole range of new words or new senses of existing words, we find that almost all of them are motivated. New

words are, as a rule, built on existing linguistic material and, as such, are meaningful to us. For example, the newly coined word *software* was formed by analogy to the existing word *hardware*. The compound sign *hardware* consists of two simple words, *hard* and *ware*, which are both arbitrary. But the compound is no longer arbitrary because the combination of the two parts leads to a more or less transparent meaning. The original meaning of *hardware* is 'equipment and tools for the home and the garden'. This meaning was extended to refer to the machinery and equipment of a computer, and by analogy, the programmes running the computer were called *software*. The word *software* is still a symbolic sign in that there is only a conventionalized connection between the form and its meaning, but it is not arbitrary, since the pairing of its form and meaning is motivated. As a linguistic term, *motivation* refers to non-arbitrary links between a form and the meaning of linguistic expressions. The factor of motivation is at work both in the hearer and the speaker. The hearer wants to make sense of linguistic expressions, particularly the new ones. In some cases, he will even overuse his search for meaning and create "folk etymologies". Thus the English word *crayfish* is a folk-etymological interpretation of the French word *écrevisse*, which in its turn goes back to Germanic *krebiz* (German *Krebs*). Similarly, the opaque Spanish-Caribbean word *hamaca* 'hanging bed' was borrowed and assimilated in English as *hammock*, but in Dutch it was made transparent by folk etymology as *hangmat* 'hanging carpet', and from there it was borrowed into German as *Hängematte*.

1.3 Linguistic and conceptual categories

1.3.1 Conceptual categories

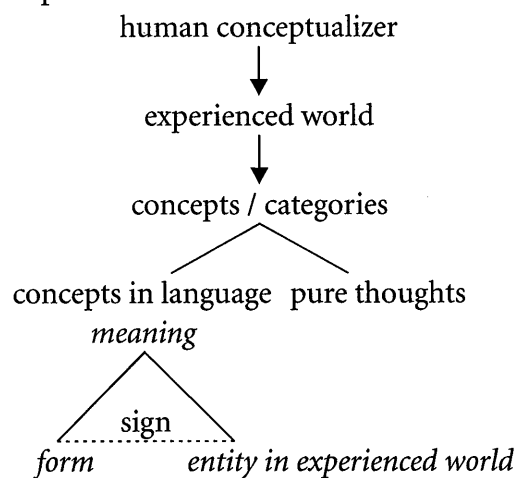
The semiotic framework developed so far has concentrated on the link between the form and meaning of signs as they are realized in words. Language resides, not in dictionaries, but in the minds of the speakers of that language. Therefore, in order to understand the nature of language, we will also have to look at our conceptual world and how it has shaped the signs. Language only covers part of the world of concepts which humans have or may have.

The notion of *concept* may be understood as "a person's idea of what something in the world is like". More specifically, concepts can relate to single entities such as the concept I have of my mother or they can relate to a whole set of entities, such as the concept "vegetable". This type of concept has structure,

in that it includes certain entities such as carrots, cabbages, lettuce, etc and excludes others such as apples and pears. Such concepts which slice reality into relevant units are called categories. **Conceptual categories** are concepts of a set as a whole. Whenever we perceive something, we automatically tend to categorize it. For example, when we hear a piece of music, we automatically categorize it as rock or as classical music or as something else. Thus, the world is not some kind of objective reality existing in and for itself but is always shaped by our categorizing activity, i.e., by our human perception, knowledge, attitude, in short, by our human experience. This does not mean that we create a subjective reality, but as a community we agree about our intersubjective experiences.

Conceptual categories which are laid down in a language are **linguistic categories**, or, linguistic signs. Any linguistic sign has a form and a meaning, which roughly speaking is identical with a concept. A meaning or concept relates to some entity in our experienced world. A more comprehensive view of language as a system of signs must also include the human “conceptualizer” and the world as it is experienced by him. The human conceptualizer, conceptual categories and linguistic signs are interlinked as shown in Table 2.

Table 2. Model of the conceptual world



As illustrated in Table 2, a sign consists of a form and a meaning, which reflects a conceptual category, which is ultimately based on a human conceptualizer and his/her experience of the world; the meaning thus relates to an entity in the experienced world. This model of the conceptual and linguistic worlds also accounts for the possibility that different people may categorize the same thing in the world differently and even the same person may do so at different times. One person may describe a half-filled glass of wine as *half full* and another person may describe the same thing as *half empty*. Each person's choice between

various alternatives is called **construal**. The notion of construal becomes even more evident, if we compare the names for the same object in various languages. Thus what English construes as *horseshoe* (i.e. ‘shoe for horse’) is construed in French as *fer à cheval* ‘iron for horse’, and as *Hufeisen* ‘hoof iron’ in German. All these signs are motivated: English and French see a relationship between the animal as a whole and the protecting device, while German relates the protecting device to the relevant body part of the horse. Moreover, French and German highlight the material the protecting device is made of, whereas English by using *shoe* takes an anthropocentric view of the scene. These various ways of construing the same thing are reflected in Figure 2.

Some other examples of the ubiquitous difference in construal are *grand piano* and *pavement*. English *grand piano* focuses on the size, while in French *piano à queue* ‘tail piano’ and German *Flügel* ‘wing (piano)’ a metaphorical similarity with animal parts is construed. In English *pavement* the focus is on the material, whereas its French equivalent *trottoir* ‘pavement’, derived from *trotter* ‘to rush, to trot’ focuses on the function and German *Bürgersteig* ‘part of the road for civilians’ stresses the people who use it.

So far we have looked at conceptual categories as they are laid down in words, or technically, as lexical categories. Conceptual categories may also show up as grammatical categories. The different ways of saying more or less the same thing in the following sentences result from using different grammatical categories:

- (15) a. Look at that rain!
 b. It’s raining again.
 c. And the rain, it raineth every day.

In all three sentences we have chosen the same lexical category *rain*, but it is construed as two different word classes, as a noun in (15a), as a verb in (15b) and both as a noun and a verb according to Shakespeare in (15c). Word classes are

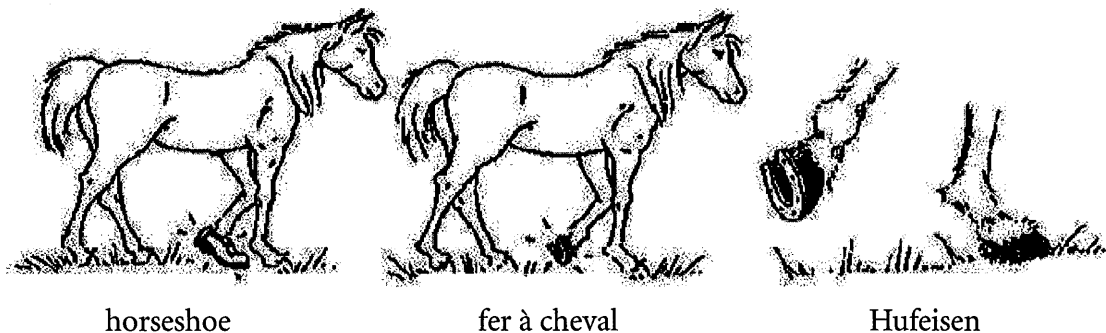
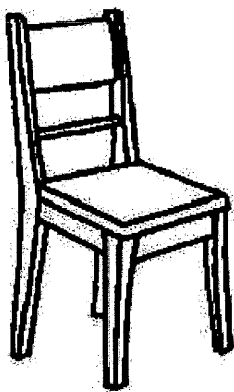


Figure 2. Different construals of the concept “horseshoe”

grammatical categories. These examples show another important fact of language: In the structure of a sentence, each lexical category is at the same time a grammatical category. Lexical categories are defined by their specific content, while grammatical categories provide the structural framework for the lexical material. Thus, the lexical category *rain* can either be framed into the grammatical category of a noun or a verb. For clarity's sake, lexical and grammatical categories will be discussed separately.

1.3.2 Lexical categories

The conceptual content of a lexical category tends to cover a wide range of instances. Think of the many different types and functions of vases. They may vary greatly in height or in width, but as long as we can put flowers in them, we are willing to categorize them as vases. Chairs also come in a variety of types as illustrated in Figure 3.



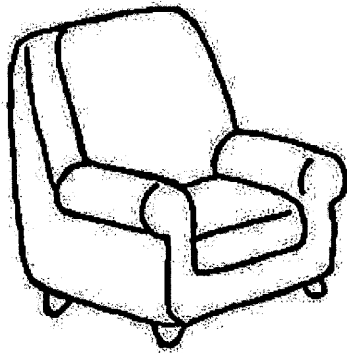
a. kitchen chair



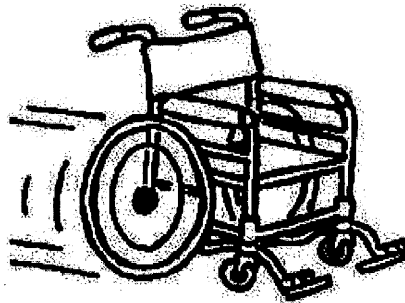
b. rocking chair



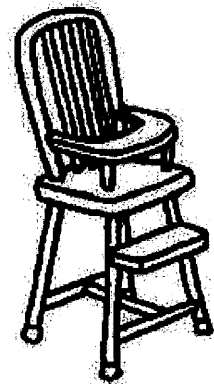
c. swivel chair



d. armchair



e. wheelchair



f. highchair

Figure 3. Some members of the lexical category “chair”

The best member, called the **prototypical member** or most prominent member of a category, is the subtype that first comes to mind when we think of that category. When we are asked to draw a picture of a chair, we are most likely to draw a picture of a kitchen chair and not an armchair. The choice of a prototypical chair also relates to its functions: It is a type of chair which we sit on, not one we lie on. Also the shape and the material plays a part. Therefore a prototypical chair has four legs, a seat and a back so as to be able to sit on it firmly and comfortably. A rocking chair or a swivel chair is somewhat less prototypical than a kitchen chair. However, all the items in Figure 3 are chairs, so that alongside prototypical members of a category and less prototypical ones, we also have more **peripheral** or **marginal members** such as the armchair or wheelchair, and even dubious cases such as the highchair. A stool is definitely not a member of the category of chairs: It lacks most of the properties of a kitchen chair: It has no back, it does not have four legs, it is higher than a usual chair and it is usually not made of wood. But the boundaries between a chair and a stool are far from absolute, and what some people call a stool is a chair for others. In general we find that the center of a lexical category is firmly established and clear, while its boundaries are **fuzzy** and tend to overlap with the boundaries of other lexical categories.

If lexical categories were not firmly established but ad hoc or haphazard, they might look like the category of “animals” as jokingly put together in the following quotation from an imaginary Chinese encyclopaedia:

- (16) On those remote pages it is written that animals are divided into (a) those that belong to the Emperor, (b) embalmed ones, (c) those that are trained, (d) sucking pigs, (e) mermaids, (f) fabulous ones, (g) stray dogs, (h) those that are included in this classification, (i) those that tremble as if they were mad, (j) innumerable ones, (k) those drawn with a very fine camel’s hair brush, (l) others, (m) those that have just broken a flower vase, (n) those that resemble flies from the distance.

(J.L. Borges. 1966. *Other Inquisitions*. New York: Washington Square Press, p. 108).

This category of “animals” with its imaginary members makes no sense because it lacks systematicity. We can still imagine that there is some cultural reason for putting together the members (a), (b) and (c), but we would certainly not expect to find (d) as a specific member and even less so the remaining imaginary members.

1.3.3 Grammatical categories

The structural frameworks provided by **grammatical categories** include abstract distinctions which are made by means of word classes, number (singular and plural), tense, etc. Here we will only look at the grammatical category of word classes. Each **word class** is a category in itself. Depending on definitions used for each word class, English can be said to have eight or ten different word classes, as shown in the following list:

- (17) Word classes
- | | |
|------------------------|-----------------------------|
| a. <i>noun</i> | mother, bird, pleasure |
| b. <i>pronoun</i> | I, you, she, someone, which |
| c. <i>determiner</i> | the, a, this, two |
| d. <i>verb</i> | say, cry, consider |
| e. <i>adjective</i> | big, rich, happy |
| f. <i>adverb</i> | happily, merely, very |
| g. <i>preposition</i> | at, on, during, amongst |
| h. <i>particle</i> | (hang) up, (hand) in |
| i. <i>conjunction</i> | and, because, after, before |
| j. <i>interjection</i> | alas!, oops!, wow! |

Most of the word classes were first introduced and defined by Greek and Roman grammarians. They gave them the name *partes orationis*, which was literally translated into English as *parts of speech* and also gave rise to the verb *to parse* ‘to analyze a sentence into its parts’. The grammatical category of word classes is still used today, but the notional definitions given to them by traditional grammars are often at odds with linguistic evidence. Even modern dictionaries still rely on traditional definitions and would define a noun as “a word or group of words that refers to a person, place or thing”, a pronoun as “one of a class of words that serves to replace a noun or noun phrase”, etc. (*Collins Dictionary*). It is easy to find counterexamples which disprove these definitions: For example, in the sentence *Someone has stolen my wallet*, the pronouns *someone* and *my* cannot be said to “replace” a noun or a noun phrase.

Traditional definitions of word classes were based on the erroneous assumption that the word classes are clearly definable in the first place and that all the words of a language can be neatly grouped into one of them. In the same way that prototypical and peripheral types of chairs are subsumed under the lexical category “chair”, different types of words are subsumed under a grammatical category.

Thus, the category “noun” subsumes, amongst others, the following disparate types of nouns:

- (18) a. We needed a new *telephone*.
 b. We called the telephone *company*.
 c. They installed it in the *afternoon*.
 d. But they did a lousy *job*.
 e. I am still amazed at their *stupidity*.

A word such as *telephone* is a prototypical noun: It denotes a concrete, physical, three-dimensional thing. The noun *company* is less prototypical: It denotes a non-concrete entity, i.e. an institution which, however, has some kind of concrete existence. The temporal noun *afternoon* has no concrete existence and is an even less prototypical member of nouns. The noun *job* refers to an action and, hence, is more verb-like in its meaning, while the noun *stupidity* refers to a property and is more adjective-like in meaning.

The meanings traditionally associated with word classes only apply to prototypical members; the meanings of peripheral members run over into each other. Yet, there is, after all, a good reason for having word classes in language. Prototypical nouns denote time-stable phenomena, while verbs, adjectives and adverbs denote more temporary phenomena. In using *job* and *stupidity* in (18d,e) as nouns rather than verbs or adjectives, the speaker “construes” actions and properties as time-stable, thing-like phenomena and, in saying the sentences (18d) and (18e), lends greater weight to his expression of discontent.

A lot of confusion about Latin-inspired word classes arose because the single word classes may have a different status as a grammatical category in a particular language. All languages have nouns and verbs, most languages also have adjectives, but the remaining word classes may not be represented overtly. For example, English and the Romance languages mark the difference between adjectives and adverbs, but the other Germanic languages do not:

- (19) a. *adjective*: She is *beautiful*. –Sie ist *schön*.
 b. *adverb*: She sings *beautifully*. –Sie singt *schön*.

The word class of particles plays an important role in English, but is not found in the Romance languages. For example, whereas French has a one-word verb to express the action of “taking” and the resulting place of this taking, English expresses these two concepts with two words, a verb and a particle.

- (20) a. He picked up the paper.
 b. Il ramassait le journal.

The English particles are very similar to prepositions, but they behave differently: Particles (21a) may be moved after a noun (21a'), but prepositions (21b) may not (21b').

- (21) a. He picked up the paper.
a'. He picked the paper up.
b. He climbed up the tree.
b'. *He climbed the tree up.

What this brief discussion has shown is that grammatical categories are not as clear-cut as traditionally has been assumed. Also, grammatical categories may be very language-specific.

1.4 Summary

Any communication, whether it is between animals or humans, takes place by means of signs and is studied in semiotics. Signs always stand for something else, which we call their meaning. The relation between a sign and its meaning can be of three different kinds. **Indexical signs** or **indices** “point” to what they stand for; **iconic signs** or **icons** provide images of what they stand for; and **symbolic signs** or **symbols** involve a purely conventional relationship between the form of the sign and its meaning. This set of signs results from cognitive principles which help humans to organize their worlds and experiences in it.

Within the symbolic system called language, we may recognize principles that are similar to the different types of signs: The **principle of indexicality** occurs when we use “pointing” words, which often reflect our **egocentric** and **anthropocentric** view of the world. The **EGO** is the centre for **deictic expressions** and for the **deictic orientation** of objects. But some objects like chairs or cars have **inherent orientation**. The **principle of iconicity** shows up in similarities between the order of events and the **word order** in the sentences we use to describe them; it is reflected in various sub-principles: The **principle of sequential order**, the **principle of distance**, and the **principle of quantity**. The **principle of symbolicity** accounts for the purely conventional relation between the form and the meaning of signs. This is known as the **arbitrary nature** of symbolic signs or the **arbitrariness** of language. The large number of arbitrary lexical signs should not underestimate the value in language of non-symbolic signs, i.e. **indexical** or **iconic**. In particular, most of the complex forms of a language, such

as complex words or sentences are — as we shall see later — not arbitrary, but transparent or **motivated**.

Linguistic signs are part of the conceptual world of the human mind. We have many more **concepts** and thoughts than linguistic expressions. But those concepts that we have “fixed” in language constitute the meaning of language. Concepts which structure our world of thought are **conceptual categories**, i.e., concepts of a set as a whole. Conceptual categories may also be expressed as **linguistic categories**. Most linguistic signs denote specific conceptual content and show how we **construe** this content. These appear as **lexical categories**, while the smaller number of **grammatical categories** provides the more general structural framework of language. The members of a category tend to have a different status: Some are **prototypical members**, others are more **peripheral members**. The further one gets away from the centre of a category to its periphery, the more the category tends to become **fuzzy**.

1.5 Further reading

The work by the founding father of modern linguistics is Saussure (1966 [1916]). Recent introductions to linguistics are Taylor (2003) and Ungerer and Schmid (1996). Theoretical foundations of the cognitive basis of language are explored in Lakoff (1987), Langacker (1987, 1993), Talmy (2000), Rudzka-Ostyn, ed. (1988), Janssen and Redeker, eds. (1999), Taylor (2002), and Croft and Cruse (2004). The relation of language to human cognition is analyzed by Talmy (1988, 2000).

A good introduction to the various types of signs in animal and human communication is Nöth (1990). Studies of the iconic principle in language are Haiman (1985), Posner (1986) and Ungerer and Schmid (1996). Recent studies on motivation are offered in Cuyckens, Berg, Dirven and Panther, eds. (2003) and in Radden and Panther, eds. (Forthcoming). Word order phenomena in many of the world’s languages are studied in Greenberg, ed. (1963, 1966). The psychological basis of categories and prototypicality is experimentally explored in Rosch (1977, 1999).

1.2 Fundamental concepts

The sign

One of the most important concepts of modern linguistics is the notion of the **sign**, a fundamental unit used in the representation and conveyance of information. The sign involves a pairing of a **form** (roughly, something perceivable) and a **meaning** (a mental notion or idea). Some examples of written (or graphic) signs are ♂, meaning 'male', €, meaning 'euro', &, meaning 'and' and 3, meaning 'three'.³ A gesture such as the 'thumbs-up' is also a sign, since it pairs the hand-shape with a meaning like 'OK, right, go ahead.' Signs can also involve sound forms that can be heard rather than seen, as in the case of spoken words, for example, the spoken words *ten* and *tree*.

The fundamental properties of the sign are illustrated in Figure 1.1, which is based on Ferdinand de Saussure's diagram of the word as a linguistic sign (see below), exemplified by the English word *tree*.

Saussure likened the sign to a coin: just as both faces are essential for a coin to count as an object that can be used in economic transactions, so also are form and meaning both essential to the sign as a unit in information exchange. Without a meaning we have no sign: the letter *h* of the Latin alphabet has no meaning in written English words, and so is not a sign: it can no more be used in information conveyance than the image of a head on a coin can be used in a shop. Nor is a disembodied meaning or concept without a form a sign.

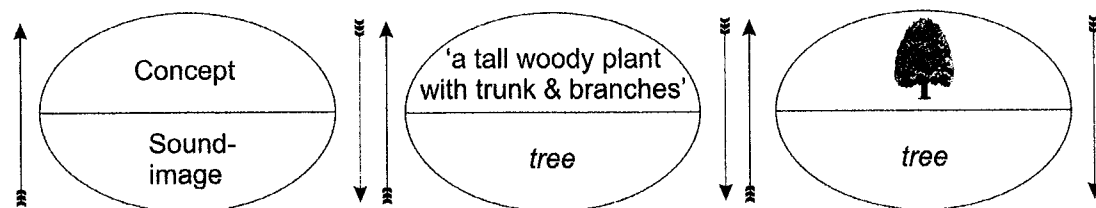


Figure 1.1 Saussure's conceptualization of the linguistic sign. Here 'sound-image' refers to 'form' (the idealized sound-shape of a word, ignoring variations in particular instances of production); 'concept' refers to 'meaning', illustrated here by means of an explanatory definition, and visually (see Saussure 1974/1959: 66–7). © 2009 William B. McGregor and his licensors. All rights reserved.

Relations between form and meaning in the sign

Depending on how the form and meaning of a sign are related we can talk of iconic signs and symbolic signs. A third type, indexical signs, is identified in §11.1.

Iconic signs

An **iconic sign** or **icon** is a sign that has a form resembling its meaning in some way: the form shows some characteristics of the corresponding concept. Figure 1.2 gives some examples. Notice that the form of an icon is never an exact representation of the meaning; it shows salient features in stylized ways, ignoring other features. Different forms can iconically represent the same concept by selecting different features of the concept. The first two icons, (a) and (b), represent the same concept, 'telephone', although (b) depicts only a single aspect of the concept, the receiver. Many manual gestures are iconic: holding up a hand with the digits spread out to represent the number 'five' is iconic.



Figure 1.2 Some iconic signs. The forms of (a) and (b) visually depict salient characteristics of a telephone, and thus iconically represent 'telephone'; (c) depicts salient features of a mobile phone, and is also iconic; and (d) depicts characteristics of an hour glass in operation, and thus is used to indicate the passage of time as a computer processes data. (Note that (d) does not iconically represent time.)



Figure 1.3 Some symbolic signs. (a), the symbol for the mathematical operation of division in the English-speaking world, shows no likeness to the operation itself, and in Denmark represents instead subtraction. The cross in (b) indicates 'wrong, incorrect' when placed by a teacher next to an answer on a school test. This is a purely conventional link, and is often used in boxes on multiple-choice questions to indicate the correct option. (c) is used in comics to indicate that the words enclosed in it are representations of the thoughts of a character. The link between the graphic form and meaning is not based on any actual resemblance – thoughts do not look like (c) (although one might suggest a link via the notion that thoughts are fluffy things like clouds, to which (c) shows some similarity).

Symbolic signs

A **symbolic sign** or **symbol** is a sign the form and meaning of which are related purely by convention, being established and acquired through repeated instances of use in communication: the form bears no apparent similarity to the meaning, nor is it naturally associated with it. Figure 1.3 gives some examples.

The line between symbols and icons is not clear-cut, and they are not really different types of sign. What is a symbol to one person might be an icon to another. To someone who knows only mobile phones, (a) and (b) in Figure 1.2 might appear completely arbitrary and inexplicable as signs for phones generally, established purely by convention. Iconic signs always involve some degree of conventionality and arbitrariness in the form–meaning link; they are not connected by necessity, and could be otherwise. Think of the equals sign =, which has an obvious iconic basis in the identity of lengths of the lines, and was first used by the English mathematician Robert Recorde (1510–1558) with this in mind. Its orientation on the page is arbitrary, and some mathematicians of Recorde's time used the equally iconic ||.

Language as a sign system

The examples discussed in the previous sections illustrate non-linguistic signs. It was one of Saussure's important insights that human language is a system of signs. This means first that human language is made up of signs, and second that the signs interrelate and form a system; they do not exist in isolation from one another.

Nature of signs in human language

Symbolic signs in language

We have already said that the word *tree* is a sign, being constituted in speech by a **phonetic** (sound) form and in writing by an **orthographic** (written) form in association with a meaning. The same goes for the word for 'tree' in many other languages: *qoqa* in Aymara (Aymaran, Peru), *icimuti* in Bemba (Niger-Congo, Zambia), *miistsis* in Blackfoot (Algonquian, Canada and USA), *træ* in Danish (Indo-European, Denmark), *tree* in English, *girili* in Gooniyandi (Bunuban, Australia), *fa* in Hungarian (Uralic, Hungary), *arbor* in Latin (Indo-European, Italy), *uhs* in Papago (Uto-Aztecan, USA), *laau* in Samoan (Austronesian, Samoa) and *dji* in Shua (Khoe-Kwadi, Botswana). Clearly these word-signs are symbolic. There is no natural connection between the sound or orthographic forms and the meaning; each form is as good as another for expressing the meaning 'tree', none is in any way suggestive of the meaning (if you did not know the language you would not be able to guess the meaning if you heard the form), and there is little similarity among the various forms (except in the case of the two closely related languages Danish and English). Most words in human languages are symbols.

It is often said that linguistic signs are typically 'arbitrary' (see also §1.3). This is a potentially misleading statement: it does not mean that 'anything goes', that a speaker is free to choose whatever form or meaning they like to associate together in a sign. Humpty Dumpty may have believed that he could: "When I use a word," Humpty Dumpty said, in a rather scornful tone, "it means just what I choose it to mean – neither more nor less" (Carroll 1899: 123). Clearly communication would be impossible with such anarchy. Arbitrariness refers to the non-necessary relation between the form and the meaning of a sign.

Iconic signs in language

There are exceptions. Some words are iconic. The phonetic forms of words like *woof-woof*, *cock-a-doodle-do*, *baa-baa*, *meow*, *ding-dong*, *pop* and *ping* are quite suggestive of the meanings, which are sounds, the sound made by dogs, roosters, sheep and so on. The spoken form is somewhat similar to the sound it represents; such words are **onomatopoeic**. (The written forms of these words, however, do not resemble the meanings.)

Many languages have onomatopoeic words for the characteristic calls of animals. These need not be exactly the same in different languages – remember that icons also involve conventional associations of form and meaning – though they are often similar. The noise made by a cat is *miau* in Hungarian (pronounced almost exactly as in English), *mjá* in Icelandic (Indo-European, Iceland), *nyao* in Japanese (Japanese, Japan), *miook* in Bulu (Niger-Congo, Cameroon), *mya:u(:)* in Hindi (Indo-European, India), *meu-meu* in Bengali (Indo-European, Bangladesh), *niaou* in Greek (Indo-European, Greece), *miao* in Mandarin Chinese, and *ngeong* in Indonesian (Austronesian, Indonesia). No one would mistake these for the noise of a dog or horse. But we sometimes find no phonetic similarity in onomatopoeic forms: both *woof-woof* and *bow-wow* are onomatopoeic of the noise of a dog; they represent different sounds made by the same animal.

Young children often call a dog a *bow-wow*, and a sheep a *baa-baa*. In fact, in many languages we find words for at least a few animals (especially birds) that are identical with or similar to an onomatopoeic sign for their characteristic call. In Gooniyandi *minyawoo* is the word for 'cat'; the word for 'peewee, peewit, mudlark' is *diyadiya*, for 'galah' is *gilinygiliny* and for 'brolga' is *goorralga*. Anyone who has heard these birds will recognize the similarity to a characteristic call. We can regard these word-signs as iconic (they are not onomatopoeic since they denote animals not sounds).

A more complex example of iconicity in words is drawing out the pronunciation of the word *long* to *loooong* or *big* to *biiiiiig*. The increased length of the word represents increased size – that the thing is very long or big. Other languages allow similar things: in Gooniyandi you can lengthen *girabingarri* 'long' to *giraabingarri* to mean 'very long' and *nyamani* 'big' to *nyaaamani* 'very big'. It is not the phonetic form of the words *loooong* or *giraabingarri* that iconically represents the meaning 'long'. That meaning is associated with the word-forms *long* and *girabingarri* themselves. The iconicity comes in at a different level: the phonetic **difference** between *long* and *loooong* represents the meaning difference between 'long' and 'very long'. Here we have a sign with the form

'extra length word-form' and meaning 'very word-meaning'. This is why *teeny* can be lengthened to *teeeeeeny* in English, and *jiginya* 'small' to *jigiiiinya* 'really small'; the lengthened words obviously do not convey a sense of 'larger in size'.

Relations between linguistic signs

This brings us to the second aspect of language as a sign system, the notion of system: the notion that the signs of any human language interrelate to form a coherent whole. This happens on two dimensions, **syntagmatic** and **paradigmatic**.

Syntagmatic

In everyday speech and writing, linguistic signs occur in combination with other signs. Human beings often put together many signs to convey complex meanings; they are not restricted to producing single-sign utterances like one-year-old children and most animals. In speech, word-signs follow one another in order, even though the boundaries between them are fuzzy; in writing, they follow one another in a conventional spatial sequence (in the writing traditions of Europe, from left to right, top to bottom).

This dimension is called **syntagmatic**. The signs that go together to make up an utterance are not put together randomly, but are related in specific ways to one another. In *I will never forget that terrible day* the order of signs plays an important function. The fact that *I* precedes *will* tells us that the utterance is a statement. If these two words had occurred in the reverse order, we would have a question – *Will I never forget that terrible day?*

Relations between signs that appear in the presence of one another are **syntagmatic relations**. For example, *terrible* describes *day*, and is dependent on it (you can omit it, but you can't omit the following word *day*). The words *never* and *forget* are also syntagmatically related, but the relation is different: *never* does not describe *forget* in the way *terrible* indicates a quality of the day in question. The term **syntagm** refers to any coherent grouping of signs that form a unit together. Thus *I will never forget that terrible day* is a syntagm; so also is *that terrible day*: these three words belong together and function as a single unit (they cannot be split up or separated) in a way that *never forget that* does not.

Paradigmatic

Not only do speakers put signs together in strings, but they choose the signs that go in the sequence from a range of possible alternative signs that could have been used instead. This gives us the **paradigmatic** dimension, the notion that each sign invokes a contrast with other signs that might have been used instead; signs so related are in a **paradigmatic relation**. Signs in paradigmatic relation form a **paradigm**.

The paradigmatic dimension is important because the set of signs in paradigmatic relation with a particular sign in a syntagm is restricted. In our example sentence *I will never forget that terrible day*, *I* contrasts with *you*, *he*, *she*, *my brother*, *John*, *John's older brother* and many other signs, simple and complex. But it does not contrast with *hit*, *and*, *not*, *up*, *won't* and so on. The existence of such restrictions is evidence that the signs in the syntagm are genuinely syntagmatically related,

that there is structure on the syntagmatic dimension, and that the signs are not arbitrarily placed in sequence one after the other.

If we examine the signs in paradigmatic alternation with *I* in our example sentence, it is clear that they relate in different ways to one another. *I*, *you*, *he* and *she* are more closely related to one another than any is to *John* or *John's older brother*. Imagine a game in which I say a word, and you respond with as many words as come to mind in 30 seconds. Most likely, if I say *I*, you would respond with *you*, *he*, *she*, *we*; responses *John*, *John's older brother* and *hit* would be less likely. If I were to say *brother*, the chances are that you would respond with words like *sister*, *father*, *mother*, *son*, sooner than *we*, *you*, *atom* or *star*. The signs in the groups of likely responses have similar meanings. For *brother* and *sister* the difference is in terms of the sex of the relative; for *brother* and *father* it is in terms of the genetic relation. These dimensions of contrast recur throughout the paradigm of kin terms in English.

The meaning of a sign in a language is dependent in part on the other signs in close paradigmatic relationship with it. In English *we* means 'me and someone else'; it contrasts with *I* in terms of the number of persons specified. Gumbaynggirr (Pama-Nyungan, Australia) has four words for 'we' – *ngalii*, *ngiyaa*, *ngaligay* and *ngiyagay*, as well as *ngaya* 'I'. The first two of these, *ngalii* and *ngiyaa*, are used if the group includes the hearer; the second pair, *ngaligay* and *ngiyagay*, if it does not. The first word of each pair is used if there are just two persons in the 'we' group, the second, if there are more. The Gumbaynggirr word *ngalii* does not mean the same thing as English *we* partly because of the other words in paradigmatic contrast to it.

The meaning of a stretch of language depends both on the signs present in it and on the signs absent from it. The same goes for its grammatical structure. The two dimensions, paradigmatic and syntagmatic, are important both to meaning and to form; just as the meaning and form of a sign are inseparable, so also are the paradigmatic and syntagmatic dimensions.

Mediums of language

The **auditory-vocal medium** is the primary medium for language: most natural human languages are usually conveyed by speech. Exceptional are the sign languages of the deaf, which use the **visual-gestural medium** of the eyes, hands, face and body. As will be shown in Chapter 12, these are full human languages satisfying Hockett's design features (see §1.3), and are structurally distinct from the spoken languages surrounding them. This book is primarily about spoken language, and unless otherwise stated it should be assumed that we are talking specifically about spoken language.

Another medium of language is **writing**. Writing is derivative from speech, and secondary to it. It is a system of representing the words of a language by visual forms and their combinations. In this regard writing is distinct from other systems of visual representation such as paintings,

murals, carvings, notches on sticks and so on, which do not represent the words of a language. For want of a better technical term, we will call this medium the **visual-inscribed medium**.

It is important to note, however, that writing is not just speech converted into the visual-inscribed medium. Although writing represents the spoken language, there are real differences in written and spoken varieties of one and the same language, some of which result from the different natures of the mediums. Modern technologies are bringing writing closer in some ways to speech, e.g. in txtng (texting).

Linguists are generally more interested – or claim to be more interested – in speech than in writing, although both are appropriate topics for linguists to study. We discuss writing in Chapter 13.

It is important not to confuse speech and writing. Beginning students frequently make this mistake, and are apt to be misled by features of the way their language is written. For instance, many beginners believe that English has five vowels because five vowel letters are used in writing the language *a, e, i, o, u*. In fact, as we will see in Chapter 2, most dialects of English have more than a dozen vowels, as well as a number of diphthongs (double vowel sounds such as in the pronunciation of the word *l*).

The term *letter* should be reserved for talking about writing. It is misleading to speak of the letters of spoken language; instead, the terms *phone* or *sound* should be used.

1.3 Design features of human language

Many animals use signs to communicate with other members of their species. Some species of bees, for instance, use dances to indicate the location of a source of nectar (see §11.1). Human beings, however, are obsessed with signs, and can't help seeing them everywhere. Dress is a sign system; so also are the Hindu/Arabic numerals (1, 2, 3 ...), the Chinese numerals (一, 二, 三 ...) and traffic lights. Human language occupies a privileged place among sign systems. It is a particularly elaborate sign system that has properties not manifested, or weakly manifested, in other sign systems.

What might these features be? The American linguist Charles Hockett proposed a set of **design features** of human language, a set of features satisfied by all human languages that distinguishes them from other sign systems. This set has undergone modifications and additions since it was first proposed in Hockett (1960). Below we discuss six of the most important features. Some of these will be taken up again in our discussions of animal communication in Chapter 11, sign languages in Chapter 12 and writing in Chapter 13.

Arbitrariness

We have already mentioned **arbitrariness** as a property of word-signs in human languages, and

explained that it is to be understood in the sense that the form and meaning of a word-sign are not connected by necessity. Arbitrariness is a matter of degree, and ranges from highly iconic and motivated (though never bereft of some conventionalization) to purely symbolic.

In the animal world, too, most signs show some degree of conventionalization. In some cases the signs are quite iconic – the dance of some bee species iconically represents the direction to a nectar source by one of the axes of their figure-eight dance. But the forms for this meaning could easily have been otherwise. Mating and territorial calls and dances of animals are generally even more conventionalized.

Displacement

People often talk about things that are not present. They speak about events and things from distant times and places – about things that happened years ago in far-away places. Indeed, these may be entirely imaginary, like unicorns and time travel. This book would not have been possible otherwise, if language could only be used to describe what is actually physically present in the writer's environment. This is called **displacement**.

Animal communication systems sometimes allow limited displacement, for signalling things that aren't physically present and perceivable. The bee's dance can signal presence of nectar at a distance of some kilometres from the hive. Some studies have shown that chimpanzees can sign about items that are not visible. In one study it was shown that the chimpanzee Panzee, using a system of signs on a monitor, could call attention to items of food it observed hidden by a trainer, sometimes days previously. But the displacement revealed in these examples is limited: what is communicated about is something that is relevant to the present circumstances. Thus the invisible food Panzee indicated seems to have always been the last item of hidden food, and the communication was concerned with its retrieval. Displacement is a matter of degree rather than an all-or-nothing thing.

Displacement is not always a good thing to have in a sign system. The system of alarm calls of vervet monkeys (see §11.1) would be compromised if it permitted displacement. It would then no longer be a system of alarm calls, but of calls sometimes used as alarms calling for immediate evasive action, and sometimes referring to the presence of a predator from a different occasion. Similarly, the system of sirens used on emergency vehicles would be of little use if it allowed displacement!

Cultural transmission

Children learn to speak the language or languages used in the environment in which they are reared; they do not inherit their language via parental genes, in the way they inherit hair and skin colour. Languages are passed on by **cultural transmission**. Many of the world's languages are endangered due partly to interruptions in transmission across the generations.

Animal communication systems by contrast are largely instinctive. The communicative noises produced by domestic cats appear to be the same regardless of whether the cat lives in Europe or New Zealand, and regardless of whether it was reared by humans in the virtual absence of other cats.

Some birds do require exposure to the songs of other members of their species. Lacking this, they still instinctively produce songs, but these will be abnormal in some way. This is like some types of body behaviour in human beings such as laughing, smiling and crying: though universal, they admit cultural modifications and elaborations.

Although the language a person speaks is culturally transmitted, the ability to speak is a genetic predisposition. The extent of this predisposition – what aspects of language are genetically encoded – is a controversial issue on which linguists take conflicting positions.

Duality

Utterances in human languages are patterned simultaneously on two levels, the level of form and the level of meaning. This is called **duality**. The Warrwa (Nyulnyulan, Australia) word *yila* 'dog' is made up of sounds that are meaningless in themselves, but when put together in a certain way make up the sign-form. Put together in a different way, for instance as *layi*, we get a different word, meaning 'alone, singly'. Put together in yet other ways, for example, *iayl*, we get forms that are not possible words in the language. Duality of patterning permits a large number of different words to be made up from a small number of meaningless elements that are put together in various ways.

Duality of patterning is not found in animal communication systems. Their sign-forms are simple in the sense that they cannot be analysed into components that are reused in other signs; there is an absence of patterning in the forms and the meanings. Each form is completely different from every other form, and does not involve components that are reused to make other forms. The various calls your cat produces are separate whole units, and cannot be divided into parts that can be reused to make other calls with other meanings. The miaou of a cat is not composed of separate sounds like *m* and *i* (*ee*) that could be used in different orders, to produce different calls, say *im*. The English word *miaou* is, however, composed of reusable parts that are found in other words of the language.

Productivity

Productivity or creativity is the characteristic whereby speakers can make new meanings by producing new expressions and utterances. Linguistic signs can be put together to form sequences that may never have been produced before; and even if they are not entirely novel, they may be innovative in that they are not drawn from memory. Not only do we effortlessly create such utterances, but hearers have little difficulty understanding them.

A good deal of what we say is not new: we use formulaic greetings and farewells many times in the average day. We express meanings that have been expressed, with perhaps slight variations in wording, innumerable times before, as in the case of poetry, jokes, oral traditions and urban myths, for instance.

Another aspect of the productivity of language is that speakers can invent new words to express new ideas and new objects and events that they encounter. No living human language has a rigidly closed class of words that admits no new members. Think of the number of new English words that have been invented in recent years to facilitate talking about computers and the internet. Some of the main ways that new words are incorporated into a language are discussed in §4.2.

The communication systems of non-human animals, by contrast, are typically non-productive, and do not admit new combinations of signs or the invention of new signs for new meanings. The systems allow for the expression of a small set of possible meanings. The honeybee's dance that indicates the location of a nectar source (see §11.1) is restricted to the horizontal dimension, and bees are incapable of specifying that the location of a nectar source is vertically above the hive.

Reflexivity

This book is about human language, and is written in a human language. Your lectures on linguistics are about language and are spoken in a human language. All human languages can be, and often are, used in this way, for conveying information about themselves. This need not be abstruse linguistic information; it could be something as simple as 'that word is not nice to use in polite company'. This property is **reflexivity**.

No known animal communication system allows reflexivity. Likewise, many sign systems human beings employ cannot be used to convey information about themselves. Traffic lights do not allow for messages about themselves, and nor do gestures or facial expressions.

WEEK FIVE

5 The sounds of language

Phonetics and Phonology

5.0 Overview

In the preceding chapters we have talked about meaningful units in language: syntactic groups consist of words, which in turn consist of morphemes. Each is meaningful at its own level. In this chapter, we will look at the parts that make up morphemes: speech sounds. A separate speech sound on its own does not have meaning, but when combined with other sounds, a small distinction such as *it* vs. *fit* may make a meaningful difference.

This chapter describes speech sounds in their general, physical appearance and in their functioning in one specific language, i.e. English. This difference constitutes the basis of the two sciences of speech sounds, i.e. phonetics and phonology.

First the speech organs and the main types of speech sounds are analyzed and the ways to describe them are discussed. These speech sounds are the consonants, vowels and diphthongs. In the sound system of a particular language, things may be different from another language: what counts as two different sounds in one language, may just be two variants of one element in the sound system of the other language. Therefore a distinction between a sound and a phoneme is introduced as well as a distinction between a phonetic description and a phonemic one.

Groupings of sounds form a syllable and such groupings are again subject to highly language-specific combination patterns. Syllables form words, which are characterized by their own stress patterns. Words are combined in a sentence, which carries one of the various intonation patterns possible in a language. In the longer units of word groups or sentences, the sounds of single words undergo massive changes such as linking, elision, assimilation etc. All these processes enable a quick and efficient delivery of speech production and transmission.

5.1 Introduction: Phonetics and phonology

Human beings can make an infinite number of speech sounds. If you say the same word several times, or ask different people to say the same word, there will be differences between the pronunciations. In spite of these differences, we would still want to say that the pronunciations are in some important respects “the same”.

The same holds with the written language. The following symbols all have a different shape. Nevertheless, we are able to regard the different shapes as examples of the “same” entity, i.e. the “first letter of the alphabet”.

A a Å a ʌ A ʌ

A very general cognitive ability is involved here: *categorization*, i.e. the ability to perceive different things as examples of the same category. One aspect of knowing a language is the ability to categorize the great variety of speech sounds heard in that language. The sound categories that a speaker of one language recognizes will not necessarily coincide with those that a speaker of another language will “hear”. Speakers of Thai hear the two “p”-sounds in *pie* and *spy* as different; conversely, for the Japanese, the “s” and “sh” sounds in *sushi* are the same.

Here we have the basis of the distinction between phonetics and phonology. **Phonetics** studies speech sounds as sounds, in all their complexity and diversity, independent of their role in a given language. **Phonology** studies speech sounds as these are categorized by speakers of a given language. In standard British English, there are about 45 different categories of speech sounds, called **phonemes**. As the languages of the world go, English is about average. Some languages have fewer phonemes (Japanese has about 20). Others, e.g. !Xóõ, one of the Bushman (“Khoisan”) languages of Southern Africa, have over a hundred, amongst which a very intricate system of click sounds [!].

5.1.1 Spelling and pronunciation

Some languages (e.g. Spanish) have a writing system that is (almost) a phonemic one, i.e. each phoneme is always represented by the same letter, and vice versa. But in English the relationship between pronunciation and spelling is, as we all know, far from perfect. There are various reasons for this. First there are more phonemes (about 45) than there are letters of the alphabet (26). Next, there are historical reasons: when English spelling was standardized, many

centuries ago, it was broadly phonemic in character. Spelling has remained virtually the same, while pronunciation has changed considerably over the centuries, and continues to do so. The vowels of English have been especially “unstable”. Moreover, English has borrowed from other languages. Words of foreign origin may be spelt according to the rules of the donor language, thereby introducing numerous “irregularities” into English spelling. Examples include French borrowings like *rouge*, *chateau*, *champaign*, *quiche*. Furthermore, spellings have sometimes been influenced by speakers’ beliefs about etymology (**etymological spelling**). *Debt* is a borrowing from Old French *dette*. The “b” was never pronounced, but was inserted to show the supposed relation of the word to Latin *debitum*. Finally, there is a very marked tendency for a given morpheme always to be spelled the same way, even though its pronunciation may vary from context to context. *The* is spelled the same way in *the man* and *the apple*, although it is pronounced differently. You can recognize the invariant spelling of the root morphemes in *photograph* and *photographer*, *clean* and *cleanse*, *sign* and *signature*, *family* and *familiar*, even though the morphemes are pronounced differently in each case.

Speakers sometimes attempt to re-establish the link between spelling and pronunciation, not by changing the spelling, but by modifying the pronunciation. At the beginning of this century, *waistcoat* was pronounced /'weskit/ or /'weskət/, to rhyme with *biscuit*. The current pronunciation /'weɪst,kəʊt/ is a **spelling pronunciation**; the pronunciation is based on the conventional spelling. Speakers who pronounce the “t” in *often* are likewise being influenced by the spelling.

5.1.2 Phonetic symbols

Because spelling is not a faithful representation of pronunciation, it is useful to have a set of special symbols whose values are generally agreed upon. This is the function of the **phonetic symbols** of the **International Phonetic Alphabet** (IPA). These symbols are in general use amongst linguists and are employed in this book. Most modern dictionaries now give pronunciations of words using these symbols.

5.2 Production of speech sounds

We can distinguish two main stages in the production of speech sounds: phonation and articulation.

- **Phonation** stands for the airstream becoming voiced or voiceless as explained further on (Figure 1). As air is expelled from the lungs, it passes through the glottis (located behind the “Adam’s apple”). Located in the glottis are the vocal folds — two flaps of flesh that can be brought together or held apart. Phonation refers to the modulation of the airstream in the glottis. If the vocal folds are brought together, they may vibrate, to produce **voice**. If air passes freely through the glottis, the air stream is minimally affected (this is the state of **voicelessness**).
- **Articulation** refers to the creation of a special resonance space for each sound (Figure 2). This involves the shaping of the vocal tract (i.e. the tubular structure above the larynx), by adjustment, in the oral cavity, of the tongue, jaw, velum (soft palate), lips, etc. The great variety of speech sounds that we are able to make depends very largely on the manner in which we shape the vocal tract.

Phonation and articulation will be discussed in more detail below.

5.2.1 Phonation

If you clasp your hand tightly over your larynx while saying the word *zoo*, you should be able to feel a certain vibration. The vibration is that of the vocal folds, technically known as **voice**. Both [z] and [u] are **voiced** sounds.

If you repeat this exercise while saying a prolonged [s], you should feel no vibration in the larynx. [s] is a **voiceless** sound.

For the production of voice, the vocal folds are brought together. When air is pushed out from the lungs, it encounters the vocal folds as an obstacle. Air pressure builds up under the folds until the folds are literally blown apart, and air escapes through the glottis. The folds then return to their original position. Air pressure builds up again, and the cycle is repeated. This repeated cycle makes the folds vibrate. Each opening and closing cycle is very brief. In men, the frequency ranges from about 80 to 150 cps (cycles per second), in women, from about 120 up to 300 cps. For children, the rate may be even higher.

The frequency of the opening and closing cycle determines the **pitch** of the sound; the higher the frequency, the higher the perceived pitch. The auditory sensation of pitch is produced by the pattern of regular bursts of air passing through the glottis.

Voicelessness ensues when the vocal folds are completely brought apart. When air from the lungs reaches the larynx, it encounters no obstacle, and flows

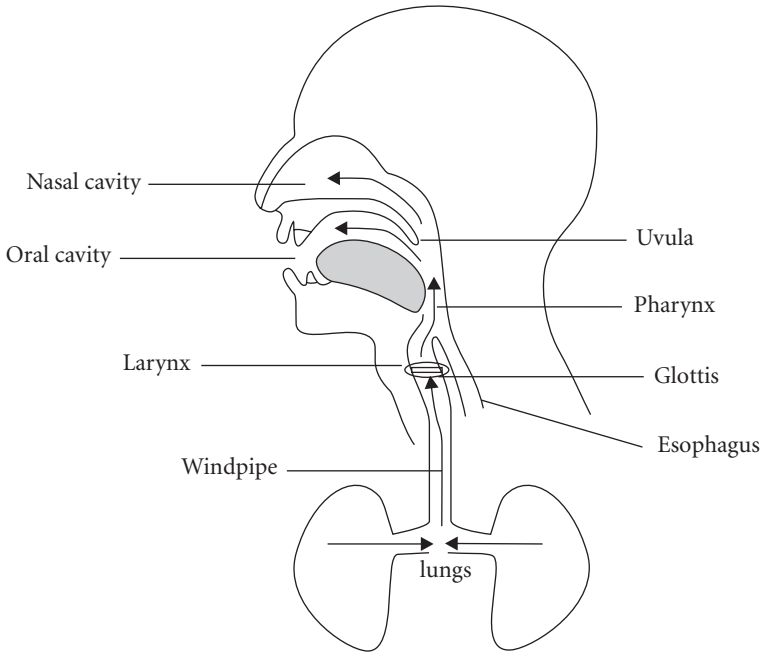


Figure 1. The vocal tract airflow

freely though the glottis. Whisper is characterized by voicelessness throughout. For obvious reasons, it is not possible to produce a voiceless sound with pitch, or with pitch variations.

When the airstream, in passing through the oral cavity, is “obstructed” to a marked degree, the sounds thus formed are collectively known as **obstruents**. Many obstruents come in pairs of voiced and voiceless sounds. Here is a list of the English obstruents, in their voiced/voiceless pairings.

Voiced		Voiceless	
[b]	“big”	[p]	“pig”
[d]	“do”	[t]	“too”
[g]	“gum”	[k]	“come”
[v]	“vine”	[f]	“fine”
[ð]	“them”	[θ]	“thin”
[z]	“zoo”	[s]	“Sue”
[ʒ]	“measure”	[ʃ]	“mesh”
[dʒ]	“jeer”	[tʃ]	“cheer”

The other main class of consonants, the **sonorants**, are typically voiced. (We can think of sonorants as the “hummable” consonants.) These include the nasals [m], [n] and [ŋ], the liquids [l] and [r], and the glides [j] and [w].

[m]	“me”
[n]	“knee”
[ŋ]	“sing”
[l]	“love”
[r]	“ray”
[j]	“yes”
[w]	“when”

5.2.2 Articulation

The second major component of speech production is articulation, i.e. the shaping of the vocal tract as air passes through it. Aspects of articulation will be studied in the next sections, which deal with the characterization of consonants and vowels.

5.3 Consonants

Consonants and vowels are distinguished mainly in terms of the degree of constriction in the vocal tract. **Consonants** involve some major constriction, which obstructs the airflow at some point. **Vowels** on the other hand merely involve a distinctive shaping of the oral cavity, with relatively little impedance of the air flow.

Consonants can be described in terms of two major parameters: the place in the vocal tract at which constriction occurs (**place of articulation**), and the nature of the constriction (**manner of articulation**).

5.3.1 Places of articulation

In the articulation of a consonant, a movable articulator (usually some part of the tongue, or the lips) is moved towards a more stable articulator (e.g. the upper teeth, or some part of the palate). The following terms describe the more common places of articulation.

- *bilabial* [p, b, m]. The lower lip articulates with the upper lip

- *labiodental* [f, v]. The lower lip articulates with the upper teeth
- *dental* [θ, ð]. The tongue tip articulates with the top teeth
- *alveolar* [t, d, n, l, s, z]. The tongue tip articulates with the alveolar ridge. Also many articulations of “r”.
- *alveopalatal* [ʃ, ʒ]. The tongue front (excluding the tip) articulates with the back part of the alveolar ridge.
- *palatal* [j]. The tongue blade articulates with the back part of the alveolar ridge.
- *velar* [k, g]. The tongue back articulates with the velum (soft palate). [k, g] before back vowels, as in *core*, *gore*.

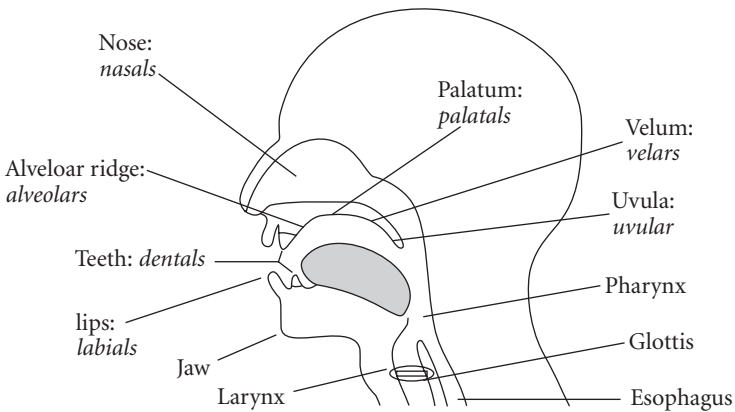


Figure 2. Vocal tract: Places of articulation

5.3.2 Manner of articulation

Manner of articulation describes the kind of constriction that is made. The following are the major categories (see Table 1):

- *stops (plosives)* [p, t, k, b, d, g, ?]. Stops are made by completely blocking the airstream at some point in the oral cavity.
- *fricatives* [f, v, θ, ð, s, z, ʃ, ʒ]. They are made with a very narrow gap between the articulators. The airstream passes through this gap under high pressure, causing **friction**.
- *affricates* [tʃ, dʒ]. They are complex sounds, consisting of a stop followed immediately by a fricative *at the same place of articulation*. Here, the stop is gradually released so as to form a narrow constricted gap for the air to flow through; this is the fricative part of the affricate.

- *approximants* [ɹ, l, j, w]. They are articulated with only minimal constriction; consequently, there is virtually no friction. In most varieties of English, word initial “r” is an approximant. It is articulated by moving the tip of the tongue towards the alveolar ridge, deflecting the air over the tongue without causing friction.

It is useful to distinguish several subcategories of approximants:

- *laterals* [l]. In laterals the air flows along the sides (or along one side) of the tongue. For [l], the tip of the tongue forms a complete closure centrally against the alveolar ridge (as in a stop), but the side(s) of the tongue is/are lowered, and air is deflected between the side(s) and the gums.
- *glides* [j, w]. They are very short unstable versions of vowels, functioning in syllable structure as consonants. The initial [j] of *yes* is actually a kind of [i], whilst the [w] of *we* is a short version of [u]. Notice that [w] has a prominent bilabial (“lip-rounding”) component also.
- *trills*. Here, one articulator is let to vibrate in the outflowing air stream. Scottish pronunciation of “r” is often an alveolar trill, with the tongue tip vibrating under the alveolar ridge. The “r” in some varieties of French and German is typically an uvular trill [R], with the uvula in vibration.
- *flaps* are produced when the tongue strikes against the alveolar ridge once in passing. American speakers often articulate “t” and “d” as flaps, especially when “t” and “d” occur intervocalically (between vowels), e.g. *matter, city, medal*. Phonetic symbol: [ɾ]
- A difficult sound to classify is [h]. It is a kind of fricative, and essentially involves a slight friction at the not completely opened vocal folds, and no further significant modification of the airstream.
- *nasals* [m, n, ŋ]. They involve a blocking of the oral airstream, by lowering of the velum. Thus, the air is allowed to escape through the nasal cavities.

5.4 Vowels

As will be remembered from the previous section, consonants involve some major obstruction of the airflow at some point of the vocal tract. Vowels differ from consonants in that there is relatively little impedance of the air flow, but the oral cavity is shaped in many different ways and this gives rise to the different vowels and diphthongs. Vowels are more difficult to describe than consonants. There are three reasons for this:

Table 1. Consonants of British English

Manner of articulation	Place of articulation							
	<i>bilabial</i>	<i>labio-dental</i>	<i>dental</i>	<i>alveolar</i>	<i>alveo-palatal</i>	<i>palatal</i>	<i>velar</i>	<i>glottal</i>
<i>o stops</i>	p, b			t, d			k, g	ʔ
<i>r fricatives</i>		f, v	θ, ð	s, z	ʃ, ʒ			h
<i>a affricates</i>					tʃ, dʒ			
<i>l approximants</i>	w			l, r, ɾ		j		
<i>nasals</i>	m			n			ŋ	

- Because there is no constriction of the vocal tract, it is often difficult to describe precisely the posture adopted by the oral cavity;
- Vowel categories tend to “overlap” and “merge into” each other, much more than consonant categories;
- Vowels tend to vary from accent to accent. **Accent**, in this sense, means the regional or social differences in pronunciation. What makes the different varieties of English sound so different, is mainly the vowels.

Since the tongue is the instrument par excellence to determine the posture adapted by the oral cavity, vowel sounds are described primarily in terms of the position of the tongue. Two parameters are important.

- front vs. back.** The highest part of the tongue may be towards the front of the mouth, or towards the back;
- high vs. low** (also called **close vs. open**). The degree to which the tongue is raised.

Independent of these two aspects are the following:

- lip position.* The lips may be rounded, or spread;
- duration.* A vowel can be long or short;
- nasalization.* A vowel can be oral or nasal.

In the next sections, we will first look at “ideal” vowels and then more particularly at standard British vowels and diphthongs, which are sequences of vowels within one syllable.

5.4.1 Cardinal vowels

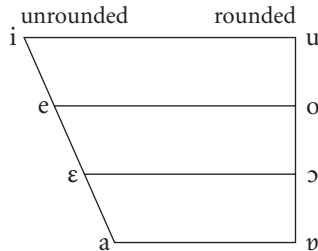
Because of the inherent difficulties of defining tongue positions, phoneticians appeal to a set of reference point vowels. These are called **cardinal vowels**. The cardinal vowels define “fixed points” in articulatory “vowel space”. Any vowel under consideration can then be “placed” with reference to a cardinal vowel.

First, we define the four extreme points on the dimensions front/back, high/low. These are:

- [i]: high and front
- [u]: high and back
- [a]: low and front
- [ʊ]: low and back

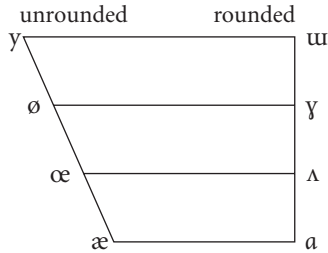
These can be displayed in the vowel quadrilateral. Conventionally, the quadrilateral is shorter at the bottom. This represents the fact that with your mouth wide open, there is less manoeuvre space for the tongue to go from front to back. The front vowel space is then divided up by placing [e] and [ɛ] at equidistant intervals between [i] and [a], while the back space is divided up with [o] and [ɔ]. This gives the eight **primary cardinal vowels** (Table 2).

Table 2. Primary cardinal vowels



Of the eight primary cardinal vowels, the four back vowels are rounded, the four front vowels are unrounded. This is the “normal”, or unmarked state of affairs, in the sense that front vowels in the world’s languages are predominantly unrounded, while back vowels are predominantly rounded. We can, however, make rounded back vowels unrounded, and unrounded front vowels rounded. In this way, we get the eight **secondary cardinal vowels** (Table 3). Some of these vowels are found in languages other than English, such as French, German, Dutch, and Turkish.

Table 3. Secondary cardinal vowels



5.4.2 The vowels of (standard) British English

It is important to remember that cardinal vowels are reference points. When describing the vowels of a language (e.g. English), we “place” each vowel with respect to these reference points. The symbols that we use are largely a matter of convention. Although the vowel in *see* does not coincide with cardinal [i], we may nevertheless use the symbol [i], provided that we do not forget that we characterize English [i] with respect to cardinal [i].

Since the same convention is applied in other languages, we will have differences in the realizations of [i] in English and in the other languages. That is, [i] is pronounced quite differently in English, German or French, but by convention we use the same symbol.

Because of the large number of vowels in English, it is necessary to employ several symbols over and above the cardinal vowel symbols.

Here are the vowels of standard British English (also see Table 4).

beat	i	the	ə	boot	u
bit	ɪ	bird	ɜ	put	ʊ
bet	e	but	ʌ	bored	ɔ
bat	æ	bard	a	pot	ɒ

The schwa vowel /ə/ is used exclusively in unstressed syllables, e.g. *a sofa*, *a banana*. Some of these vowels are noticeably longer than the others. The “long” vowels are the vowels in *beat*, *bird*, *boot*, *bored*, *bard*. Some dictionaries include the length symbol [:] in their transcription of the vowels.

The approximate location of the vowels in the vowel quadrilateral is shown in Table 4.

Table 4. Approximate location of English vowels

5.4.3 The diphthongs of (standard) British English

English has several diphthongs. A **diphthong** is a sequence of two vowels within a single syllable. One component of the diphthong is more prominent than the other. In the English diphthongs, it is usually the first component which is more prominent, but in other languages, e.g. French this may be different.

When the tongue moves during a diphthong, the diphthong obviously comprises a whole series of vowel qualities. The transitional qualities however are of no perceptual significance. What is important is only the starting and end point of the diphthong.

Even so, the precise quality of the less prominent component is also often unimportant. In *boy*, it is important only that the diphthong ends up somewhere in the general area of “high, front, unrounded”. In such a situation, it is acceptable to use the symbol [i] as a cover symbol for “highish, frontish, unrounded”, and [u] for “highish, backish, rounded”. Thus, *boy* may be transcribed as [bɔi], and *so* as [səʊ]. Since the second element of these diphthongs is a high vowel, they are called *rising diphthongs*; if the second element is a schwa, we have *centring diphthongs*.

There are two broad categories of diphthongs in English, which differ according to the direction of vowel movement. The rising diphthongs, where the movement is towards a high vowel, and the centering diphthongs, where the movement is towards schwa. Rising diphthongs are in turn divided into those which have movement towards /i/, and those which have movement towards /u/. The different types are listed below, with suggestions for their transcription.

<i>rising</i>				<i>centring</i>	
say	ei	how	au	hair	eə
sigh	ai	so	əʊ	here	iə
soy	ɔi			poor	ʊə

Some speakers have triphthongs, i.e. sequences of three vowel sounds within a syllable. Here are some examples, with suggestions for their transcription:

shower, flower	auə
fire, hire	aiə
lawyer	ɔiə

5.5 Phonemes and allophones; phonemic transcription

Just as one word may have many different senses and the exact sense of the word does not become really clear until it is used in a context, sounds may have many variations, too, dependent on the sounds surrounding them. In the next sections we will look at the terms used for a “family of sounds” and where the different “family members” may occur.

5.5.1 Definitions

The “p” sound in *pin* is different from the “p” sound in *spin*; the former is aspirated [p^h], the latter unaspirated [p]. Yet, in an important sense, we want to say that the two “p” sounds of English, in spite of their phonetic difference, are variants of the same sound. The term **phoneme** designates the more abstract unit, of which [p^h] and [p] are examples. [p^h] and [p] are **allophones** of the same phoneme, /p/. (See Figure 3.)

By convention, phonemes are written between slashes / /, while allophones (or, more generally, sounds considered in their phonetic aspects) are written between square brackets [].

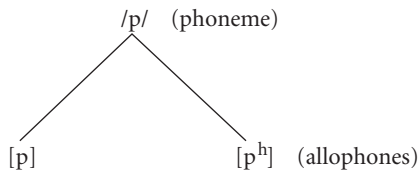


Figure 3. A phoneme and its allophones

Two languages may classify their sounds in different ways. English and Spanish both have [d] and [ð]. For English speakers, the sounds are different (they are categorized as different phonemes), and they serve to distinguish word

meanings (*den* vs. *then*). For the Spanish speaker, the two sounds are merely variants of the same phoneme. Thus, [d] occurs word-initially, while [ð] occurs intervocalically. Compare *donde* “where” [donde] and *lado* “side” [laðo]. If you pronounce *lado* with a [d], you get a variant pronunciation of *lado*, but you do not get a different word.

Whereas English speakers regard aspirated and unaspirated voiceless stops as variants of the same sound, Thai speakers do not. Compare Thai /p^haa/ “split” and /paa/ “forest”.

As this example shows, a simple way of deciding whether two sounds in a language belong to one phoneme or to two different phonemes is to look for **minimal pairs**. A minimal pair is a pair of words that are identical in all respects except for the sounds in question. The minimal pair *pat*, *bat* confirms that /p/ and /b/ constitute separate phonemes in English. On the other hand the impossibility of a contrast between [sp^hai] and [spai], or between [p^hai] and [pai] confirms that [p^h] and [p] do not belong to different phonemes in English.

5.5.2 Free variation and complementary distribution

The precise amount of aspiration in English stops (as in the initial stops in *pat*, *cat*, *tat*) is not linguistically relevant. Stops with different degrees of aspiration are in **free variation**. When sounds are in free variation, it basically doesn't matter which sound you select, and the meaning of an utterance is not affected.

Another situation is where one allophone occurs exclusively in one environment (context), another allophone occurs exclusively in another environment. The sounds are then said to be in **complementary distribution**. Here are some examples of sounds that are in complementary distribution in English.

- a. Aspirated and unaspirated voiceless stops. The former occur in syllable-initial position before a stressed vowel, e.g. *top*; the latter occur after syllable-initial [s], e.g. *stop*.
- b. Allophones of English /h/ can be regarded as voiceless versions of the following vowel. The “h” sounds in *hen*, *heart*, *hat*, *who* are phonetically very different. Yet the choice of one variant over the other is fully determined by the following vowel. The different varieties of “h” are therefore in complementary distribution.
- c. A dental stop [t̪] occurs in the word *eighth* /eɪt̪θ/. But dental stops do not contrast with alveolar stops in English. Dental stops occur only before a dental fricative. Dental stops are therefore in complementary distribution with alveolar stops.

- d. The vowel in *leave* is longer than the vowel in *leaf*. The length difference is a consequence of the voicing of the following consonant. In general, a vowel is shorter before a voiceless consonant than before a voiced consonant. The length difference is therefore not phonemic. The longer and shorter varieties of the vowel are in complementary distribution.
- e. In English, vowels before a nasal consonant are often nasalized, e.g. *can't* [kānt̚]. Whereas in French, oral and nasal vowels contrast in minimal pairs, this is not so in English. In English, oral and nasal vowels are in complementary distribution.

Native speakers are usually quite unaware of the extent of allophonic variation in their language. English speakers think of the /p/ in *pie* and the /p/ in *spy* as “the same sound”; it is only after studying phonetics that one realizes that they are in fact very different sounds! Speakers’ intuitions thus reflect a knowledge of the phonemic structure of their language, rather than its phonetic reality.

5.5.3 Principles of transcription

What is usually called “phonetic transcription”, e.g. in dictionaries for foreign language students, is in actual fact a phonemic transcription. A **phonetic transcription** aims to represent phonetic variation in all its detail. The ability to produce a good phonetic transcription is a skill which requires many years of training.

Fortunately, for many purposes of linguistic analysis, a **phonemic transcription** is sufficient. A phonemic transcription represents each sound segment by the phoneme which it instantiates. For any given language, the inventory of phonemes is quite limited (between 30 and 50 in most cases). A phonemic transcription can then be supplemented by a set of statements which give details of the possible **realizations** of each phoneme in its different environments.

It is therefore quite legitimate to transcribe the words *pie* and *spy* as /pai/, /spai/, with the understanding that syllable-initial /p/ before a stressed vowel is realized with aspiration [p^h].

You can think of a phonemic transcription as an “ideal” alphabetic spelling system. English spelling does not represent aspiration, because aspiration is not phonemic. Spanish spelling does not represent the difference between [d] and [ð] because the difference is not phonemic. The same difference in English *is* phonemic, however, and *is* is represented in spelling.

5.6 Beyond the phoneme

In describing the sound system of a language, it is not enough to list the phonemes and their allophones. We also need to state the ways in which sounds are combined. To do this, it is often necessary to refer to units “above” the individual sounds. One such unit, of fundamental importance in all languages, is the **syllable**. Other units are stress, tone and intonation.

5.6.1 Syllables

i. *What is a (phonological) syllable?*

It is actually rather difficult to give a precise definition of “**syllable**”. One way to think of syllables is as units determined by “peaks of sonority” (i.e. vowels), flanked by elements of lower sonority (i.e. consonants). The stream of speech consists, therefore, of alternations of sonorous and less sonorous elements.

Languages differ considerably with respect to the kinds of syllables which they allow. On the one hand there are languages like Maori, which tolerate only syllables of the form (C)V. A syllable, that is, consists of an obligatory vowel, preceded by an optional consonant. In such languages, it is not possible for two consonants to occur adjacent to each other; in addition, every syllable (and hence, every word and every utterance) must end in a vowel.

English, on the other hand, permits syllables of considerable complexity, with **consonant clusters** (i.e. groups of more than one consonant) allowed in both syllable-initial and syllable-final position, e.g. *spray* /spreɪ/, *sixths* /sɪksθs/. Even so, it is not the case that *any* combination of consonants can occur. A syllable-initial cluster of three consonants can only consist of /s/ + voiceless stop + one of /l, r, j, w/, as in *string*, *scream*, *splice*, *spew*, *skew*, *squat*.

Some languages permit consonant clusters which are quite alien to English. Russian allows syllable-initial clusters consisting of two voiced stops, as in *gd'e* “where”, two voiceless stops, as in *pti'a* “bird”, two nasals, as in *mn'e* “to me”, or a stop plus nasal, as in *kniga* “book”. (Note: in transliterating Russian words, it is normal to indicate palatalization, i.e. the articulation of a consonant with a high front tongue position, by means of the apostrophe, as in *mn'e*.)

The **distribution** of a phoneme is the position in a syllable where a given phoneme can occur. The velar nasal /ŋ/ can only occur in syllable-final position, and then only after the “short” vowels /ɪ, e, æ, ʊ, ʌ, ə/; there are, for example, no native English words beginning with /ŋ/. These facts about English cannot be stated without reference to syllables. It would be false to claim, for example, that

/ŋ/ cannot occur before vowels; it obviously can, as in *singing* /sɪŋŋ/.

Syllable boundaries can be represented in a transcription by means of [·]. The syllabification of *singing* could be represented as /sɪŋ.ŋ/.

ii. Long and short vowels

Some monosyllabic words lack a postvocalic consonant, e.g. *he, car, saw, sow*. Only a subset of the English vowels occur in such words. There are no English words */bɪ/, */bæ/, */bʊ/, etc. The so-called “short” vowels /ɪ, e, æ, ʊ, ʌ/ *must* be followed by a consonant: /bɪt/, /bæt/, /bʊk/. On the other hand, the so-called “long” vowels (i.e. all the remaining vowels, and the diphthongs) can readily occur without a following consonant in a monosyllabic word.

iii. The case of “h” and “r”

We need to refer to syllables in order to describe the distribution of /h/ and /r/. Concerning /h/, we need to say that the sound can only occur in syllable-initial position; it would not be enough to say that /h/ cannot occur after a vowel.

The case of /r/ is especially interesting. We can make a broad distinction between two groups of English accents according to the pronunciation of words like *car, part, nurse, source*. Most North American speakers (as well as speakers of Scottish and Irish English) pronounce the “r” in these words. Speakers of standard British English (as well as speakers of “Southern hemisphere English”, i.e. New Zealanders, Australians, South Africans) generally do not pronounce the “r”. For speakers who do not pronounce the “r”, the words *sauce* and *source* are **homophones** (they are pronounced identically); Americans, however, pronounce the words differently.

How can we describe the difference between the two dialect groups? It is not sufficient to say that in British English (etc.) the “r” does not occur postvocalically. In *The car runs well* the “r” of *runs* occurs after the vowel in *car*. It would be more accurate to say that “r” occurs only in syllable-initial position than to say it may not occur after a vowel within the same syllable.

iv. The linking “r”

Although British (etc.) speakers pronounce *car* without the final “r”, the “r” often does emerge if the following word begins with a vowel. Compare

the car was mine/the car (r)is mine

In the second example, the “r” is pronounced, and gets attached to the following syllable. This is the linking “r”.

Sometimes, an “r” is inserted even if there is no “r” in the spelling: *Asia*

(r)and Africa, the idea (r)of it. This is often called the “intrusive r”. You sometimes get an “intrusive r” within a word, as in *withdraw(r)ing, saw(r)ing*.

5.6.2 Stress, tone, intonation

Stress is a property of syllables. A stressed syllable is produced with more energy than an unstressed syllable. Stressed syllables, therefore, are more “prominent” than unstressed syllables. They are typically longer and louder than unstressed syllables, and are produced with greater clarity. Unstressed syllables tend to be short, and are often pronounced rather indistinctly.

Each word in English has a distinctive **word stress** pattern. Some words are, amongst others, distinguished by stress location: *SUBject* vs. *subJECT*. The phonetic symbol for stress is ['] placed before the stressed syllable: [ˈsʌbdʒekt], [səb'dʒekt].

Within an utterance, stress can highlight the important words, often by suggesting a contrast. Compare: *HE didn't do that, He DIDN'T do that, He didn't DO that, He didn't do THAT*. It is not difficult to construct contexts in which each of these variants would be appropriate.

Tone is also a property of syllables. In a tone language like Chinese, most syllables are associated with a characteristic pitch melody. This means that the same syllable spoken with a different tone each time has a different meaning. The pitch melody assigned to the syllable is just as much a part of the word as is the phonemic structure of the syllable.

Intonation is the melody superimposed on an utterance. Intonation is of importance in English for signalling the function of an utterance (e.g. as a statement or question), and for expressing speaker attitudes (see Chapter 4.4.1 and 4.4.2). It may be very interesting to compare the many intonations that can be associated with *really*.

5.7 Sounds in context

It is not sufficient to study sounds in isolation since sounds may change under the influence of other sounds when words are combined with other words. In the longer units of word groups or sentences, the sounds of single words undergo massive changes such as linking, elision, assimilation etc.

5.7.1 “Linking”

One kind of change involves adding **linking elements** at the boundaries of words. Examples from English are the linking and “intrusive r”, discussed in the preceding section.

5.7.2 Elision

Sounds are often omitted in the stream of speech, especially in informal speaking styles. This is known as **elision**. Elisions should not be thought of as “careless”, or “lazy”. On the contrary, not to use elided pronunciations in relaxed, informal speech could be perceived as pedantic.

In careful speech, *library* would have three syllables. In informal speech, it could have only two [laɪbri]. Likewise, *ordinary* has four syllables only in very careful speech.

Consonant clusters are often the target of elision, i.e. one or more consonants in a cluster are elided. The elided consonants are nearly always alveolar or dental.

Clothes in careful speech is [kləʊðz]. In informal speech it is [kləʊz]. This pronunciation is especially likely if the next word begins with a consonant, as in *clothes cupboard*.

And typically loses the final stop, especially if the following word begins with a consonant: *you and me* [ju ən mi].

Next and last generally lose their final /t/ before a word beginning with a consonant: *last night* [las naɪt].

/h/ is generally elided in unstressed syllables. In *I saw HIM* (with stress on *him*), the /h/ is pronounced. If *him* is unstressed, the /h/ is elided: *I SAW him* [ai 'sɔ ɪm] or [ai 'sɔ əm]. It is even possible for an “intrusive r” to appear in the phrase: [ai sɔ rɪm].

5.7.3 Assimilation

Assimilation is a process whereby one sound causes an adjacent sound to be “more similar” to itself. Assimilation can be progressive (a sound influences the following sound), or retrogressive (a sound influences a preceding sound).

Progressive assimilation is illustrated by the alternative pronunciations of the plural morpheme. After a voiceless consonant, plural “s” is voiceless: *cats* [kæts]. After a voiced sound (either consonant or vowel), plural “s” is voiced:

dogs [dɔgz], *bees* [biz]. Further examples of progressive assimilation are the devoicing of the normally voiced [l, r] when these sounds occur after a voiceless consonant in a syllable-initial cluster: *please, pray* [plɪz, pɹeɪ].

Retrogressive assimilations are frequent in English. *News* has a final voiced [z]. Yet in *newspaper* voiceless [p] causes preceding [z] to become [s]: [nʃuspeɪpə].

The above examples illustrate **voicing assimilation**, i.e. the voice/voicelessness of a segment “spreads” into a neighbouring segment.

Place assimilation is when the place of articulation of a consonant spreads into a neighbouring consonant. Retrogressive place assimilation is frequent in English. Thus, *good boy* may be spoken as [gʊb bɔɪ], *good girl* as [gʊg ɡɜːl]. The nasal in the negative prefixes *un-* and *in-* often assimilates to the place of articulation of a following consonant. In *unbelievable* the negative prefix is followed by a bilabial, and may be pronounced [əm], while in *unconscious* it is followed by a velar, and may be pronounced [ən]. In *unfavourable* one might get the labiodental nasal [m].

Nasal assimilation occurs when one segment takes on the nasality of a neighbouring segment. Vowels often nasalize before a nasal consonant: *can't* [kɑːnt̚].

Assimilation can be total, i.e. a sound can become identical to its neighbour. By retrogressive voicing assimilation, *is Sam* [ɪz sæm] becomes [ɪs sæm].

Some assimilations (e.g. the devoicing of /z/ in *newspaper*) are obligatory within word boundaries, often, however, they are optional, and tend to be more frequent the more informal and relaxed the speaking style.

Assimilation can sometimes appear to change the phonemic structure of a word. In the example *good boy*, the final [d] of *good* is changed to [b], i.e. an allophone of the /d/ phoneme has been replaced by an allophone of a different phoneme, i.e. /b/. In other cases, assimilation replaces one allophone of a phoneme by another allophone of the same phoneme, as when the [l] of *play* becomes voiceless. Although we cannot pursue this matter here, facts of this nature have led some linguists to question the theoretical status of the phoneme, as traditionally defined. For example, given that *comfort* is pronounced [kʌmfət], and that the use of [m] represents place assimilation to the following [f], to which phoneme should [m] be assigned, to /m/ or to /n/?

5.7.4 Palatalization

Palatalization is a rather common process in which the palatal glide [j] causes a preceding obstruent to be articulated in the palatal region.

Palatalization has the following effects, and may occur across word boundaries or within a word:

[d] + [j]	→	[dʒ]	did you	[dɪdʒu]	→	[dɪdʒu]
[t] + [j]	→	[tʃ]	hit you	[hɪtʃu]	→	[hɪtʃu]
[z] + [j]	→	[ʒ]	please you	[plɪzʒu]	→	[plɪʒu]
[s] + [j]	→	[ʃ]	issue	[ɪsʃu]	→	[ɪʃu]
				(conservative British)		(progressive)

Strictly speaking, this is an example of retrogressive assimilation. Its effects however, merit separate treatment. Some of the oddities of English spelling reflect palatalizations that occurred in the past. The fact that orthographic “s” in *sure*, *sugar* is pronounced [ʃ] is a consequence of the sound change [sju] → [ʃu].

5.7.5 Vowel reduction

Vowel reduction is the process in which unstressed vowels in English typically lose their distinctive quality and take on the quality of the schwa vowel. Compare the [æ] vowel that occurs in stressed *and*, with the schwa vowel that occurs in unstressed *and*.

Vowel reduction can be clearly observed in sets of words like the following. Note how the vowels change according to whether they are stressed or not.

PHOtograph	/ˈfəʊtəɡrɑːf/
phoTOgrapher	/fəˈtɒɡrəfə/
photoGRAphic	/fəʊtəˈɡræfɪk/

5.7.6 “Weak” and “strong” forms

Many of the shorter **function words** of English, i.e. free grammatical morphemes such as prepositions, articles, parts of the verbs *be* and *have*, etc., have two pronunciations, according to whether they are stressed or unstressed, called “strong” and “weak” forms respectively. The **strong forms** occur in sentences such as “He *should* do it”. The **weak forms** (pronunciations used when the words are unstressed) exhibit a mixture of vowel reductions and elisions.

You should have done it [jə ʃʊdəv dʌnət]

5.7.7 Complex processes

Sometimes it is possible to display the series of processes whereby careful and relaxed pronunciations can be related.

	boys and girls	girls and boys
	[bɔiz ænd ɡɜlz]	[ɡɜlz ænd bɔiz]
(vowel reduction)	[bɔiz ənd ɡɜlz]	[ɡɜlz ənd bɔiz]
(elision)	[bɔiz ən ɡɜlz]	[ɡɜlz ən bɔiz]
(place assimilation)	[bɔiz əŋ ɡɜlz]	[ɡɜlz əm bɔiz]
	does she	
	dʌz ʃi	
(place assimilation)	dʌʒ ʃi	
(voice assimilation)	dʌʃ ʃi	
(elision)	dʌ ʃi	

5.8 Summary

Phonetics is the study of the physical aspects of speech sounds which may occur in any language, whereas **phonology** is the study of the sound system of a given language. Spelling and pronunciation may differ very strongly. Sometimes an **etymological spelling** as in *debt* /det/ is introduced to mark the etymology of a word. **Spelling pronunciation** is the opposite: a letter that is written such as *t* in *often* is pronounced by some people because they “see” it. Because the spelling and the pronunciation may differ so strongly the **International Phonetic Association** has developed a set of **phonetic symbols**. We characterize speech sounds from the point of view of **phonation**, which determines the difference between **voiced** and **unvoiced** (or **voiceless**) sounds, and **articulation**, which determines the shape of the vocal tract and thus creates the space for each individual sound. **Consonants** are determined by both the **place of articulation** and the **manner of articulation**, such as full occlusion, strong restriction or almost no impediment of the airstream. **Vowels** and diphthongs have no impediment whatsoever and are far more difficult to localize. Therefore some reference points, known as **cardinal vowels**, are chosen in the oral cavity and with the help of the parameters, **high** vs. **low** and **front** vs. **back**, all the vowels may be characterized. The pronunciation of vowels may greatly differ because

of **accent**, i.e. the regional or social differences in pronunciation. **Diphthongs** are combinations of two vowels in one syllable. Since different sounds may be variants of one and the same **phoneme**, this category is of a psychological rather than physical nature. It is what in a given language is considered to be meaning-discriminating. Two different sounds are two different phonemes if they cause a difference in meaning as in a **minimal pair** like *pear* and *bear*. Different sounds that do not create a difference in meaning like the [t^h] in *top* and the [t] in *stop* are **allophones**, which in this case occur in **complementary distribution**. This means that they are bound to a given position: [t^h] can only occur in initial position, [t] in non-initial position. If the context does not play a role, allophones are in **free variation**. We must also distinguish between a **phonetic transcription**, describing all the allophones of a phoneme, and a **phonemic transcription**, only taking care of the phonemes.

In addition to speech sounds, also larger entities such as the syllable, stress, tone and intonation are important. A phonological **syllable** consists of a vowel(-like) sonorant core, i.e. a vowel or diphthong, represented as V and optionally a consonant (C). Languages differ very strongly in their patterns of syllable structure. The position which a phoneme can have in a syllable is known as its **distribution**. In English many consonants can be combined into **consonant clusters**. If a phoneme is not pronounced in a given position, e.g. /r/ *source* in British English, we may have **homophones** as with *source* and *sauce*. Also **stress** and **tone** are properties of syllables, whereas **intonation** is the melody superimposed on an utterance. Syllables are grouped into words and therefore **word stress** is needed to mark the main syllable. The flow of sentences causes the individual words to be adapted in various ways. **Linking elements** may have to be added between words ending and beginning with a vowel, **elision** may be needed, and especially consonants may have to be adapted to each other, which is known as **assimilation**. We distinguish between two types of **voice assimilation**: **progressive assimilation** as in *dogs* /dɒgz/ and **retrogressive assimilation** as in *hotdog* /hɒdɒgz/. **Place assimilation** occurs in *good boy* /gʊbɔɪ/. Other processes of adaptation to the speech stream are **palatalization**, **vowel reduction** and the use of **weak forms** in unaccented syllables and **strong forms** in accented ones.

Chapter 3

Phonology, phonotactics, and suprasegmentals

1. Phonemes
2. Phonemic rules
3. Phonological processes
4. Phonotactics
5. Suprasegmental features
6. Syllable structure

Chapter preview

This chapter begins with a discussion of phonemes (the distinctive sounds of a language) and allophones (the predictable variants of these sounds). A number of phonemic rules for specific English phonemes and their allophones are stated. The chapter then treats the topic of phonological rules, which account generally for allophonic variation in English. This is followed by a description of the constraints on possible positions for sounds and possible sound combinations in English. The chapter then turns to the features of stress and intonation in English, features which extend over more than one sound. The characteristics of stress are defined, the rules of stress placement in English are explained briefly, and the functions of stress in different domains – morphology, syntax, and discourse – are described. The pitch patterns of different sentence types are exemplified, and intonation is related to the presentation of information in an English sentence. The chapter ends with a discussion of English syllable structure – a level of structure intermediate between the sound and the word.

Commentary

1. Phonemes

You will recall that we defined phonology as the study of the distinctive sounds in a language, and although we have mentioned in passing the difference between certain distinctive and nondistinctive variants (for example, between [t^h] and [t]), we have not discussed this subject in any detail. The concept of distinctiveness is captured by the notion of a **phoneme**. A phoneme is a distinctive or contrastive sound in a language. What “distinctive” means in this context is that the sound makes a difference in meaning and has communicative value. Different phonemes make contrasts in words. For example, /n/, /l/ and /t/ are all phonemes because they serve to make contrasts in words, as in *nab*, *lab*, *tab*. Here we see how the phonemes of a language are determined, by means of what are called **minimal pairs**. A minimal pair is a set of different words consisting of all the same sounds except for one. The one sound which contrasts is then determined to be a phoneme since it makes a difference in meaning (it differentiates one word from another). For example, we could set up a *phonetic environment*, or a sequence of sounds, such as an environment containing the sound sequence /æt/. If we then establish a blank slot preceding this sequence, /_æt/, and substitute different consonants in this slot, we can see if we get different words. If we do, then each of these consonants is a phoneme. Examine the following:

/_æt/: *p*at, *b*at, *s*at, *m*at, *g*nat, *f*at, *th*at, *v*at, *c*at ...

We can conclude that /p/, /b/, /s/, /m/, /n/, /f/, /ð/, /v/, and /k/ are all phonemes. Thus, *bat* and *cat*, for example, form a minimal pair, as do *gnat* and *vat*.

This same concept of a minimal pair holds true for vowels as well. Consider, for example, a phonetic environment such as /p_t/. Substituting different vowels in the empty slot, we can generate numerous minimal pairs:

/p_t/: *p*it, *p*eat, *p*ate, *p*ot, *p*out, *p*ut, *p*utt, *p*at, *p*et ...

We can conclude that /i/, /i/, /eɪ/, /v/, /aʊ/, /ʊ/, /ʌ/, /æ/, and /ɛ/ are all distinct phonemes.

Phonemes are said to be unpredictable, since their occurrence depends on what word you want to say rather than by any phonological rule. That is, whether /b/ or /k/ occurs in the environment /_æt/ depends on whether you wish to refer to the nocturnal flying mammal *bat* or to the family feline *cat*, not on whether the sound occurs in the context of /æ/ or word initially or any other factor which is solely phonetically determined. Phonemes are also said to be in **parallel distribution** since they occur in the same (or ‘parallel’) phonetic environments. Note that an ideal writing system would be phonemic, where each alphabetic symbol stands for one and only one phoneme.

There is some debate about the nature of the phoneme. One view is that it has some psychological validity; it is a concept in the mind. Another view is that it is an abstraction, or an ideal sound. A third view is that it refers to a class of sounds which are phonetically similar (but not identical) and have the same phonological function. The last two views are probably the easiest to comprehend, and they have the further advantage of incorporating the notion of the allophone.

An **allophone** (from *allos* 'other' *phōnē* 'sound') is a predictable variant of a phoneme. Allophones are the individual members of a class of sounds (a phoneme), or the pronounceable or concrete realizations of an abstraction (a phoneme). We speak of the phonetically similar variants of a sound as the "allophones of a (particular) phoneme". To take a real example from English, consider the aspirated [t^h] and the nonaspirated [t] discussed in the previous chapter. They are phonetically very similar, but not identical. Allophones are nondistinctive (noncontrastive) variants of a phoneme, since substituting one allophone for another allophone of the same phoneme will not lead to a different word. Replacing [t^h] with [t] in *top*, or [t] with [t^h] in *stop*, will not lead to different words, just slightly odd-sounding ones.

Allophones of a phoneme are predictable: they are conditioned by the phonetic environment, which determines the appearance of one or another allophone. Thus, we can say that the aspirated version of /t/ is predicted by its position word (or syllable) initially before a stressed vowel; the nonaspirated version is predicted by all other phonetic environments. We can say that allophones are positional variants, which are in **complementary distribution**, meaning that where one occurs the other does not. They never occur in the same environment, always in different environments. They never overlap in distribution; rather, their distributions "complement" (or 'complete') one another. Our examples [t^h] and [t] never occur in the same position: [t^h] occurs syllable initial, and [t] occurs in all other environments. Thus, we can conclude that [t^h] and [t] are allophones of the phoneme /t/. We enclose the phoneme in slashes to indicate that it represents a class of sounds, or an abstraction, and thus cannot be pronounced.

Note that *environment* in the context of phonemes and allophones is limited strictly to phonetic features, though it can refer to a number of such features; for example, it can refer to the position of the sound in the word or syllable (e.g. syllable initial or word final), the nature of the surrounding sounds (e.g. between vowels, following a voiceless stop, before an approximant), or even the placement of stress.

Occasionally, allophones are in "free variation". For example, stops may or may not be released word finally. A speaker will release or not release them arbitrarily, and whether or not they are released makes no difference in meaning.

Phonemes and allophones are always language- (or dialect-)specific. For example, in Greek [ɪ] and [i] are allophones of the same phoneme, while in English they are distinct phonemes. In Japanese [l] and [r] are allophones of the same phoneme, hence the difficulty many native Japanese speakers have with these two distinct sounds in English. In some dialects of North American English, specifically those which do not distinguish *pin* and *pen*, the phonemes /ɪ/ and /ɛ/ are allophones of the same phoneme.

Finally, while the phonemes of a language constitute its inventory of distinctive sounds, languages might also have a few marginal phonemes. These are sounds which occur in only a limited number of words. For example, one might consider the voiceless velar fricative /x/ occurring in words such as *Bach* (the German composer) or *loch* (a Scottish lake) as a marginal phoneme for some speakers of English.

2. Phonemic rules

The allophones of phoneme are predictable and hence can be stated in terms of a **phonemic rule**. Phonemic rules stipulate the different environments in which the allophones of a given phoneme are found.

In the previous chapter we introduced several diacritic marks that designate phonological processes such as devoicing, aspiration, and dentalization. In order to discuss phonemic rules, we must now expand this list as follows:

devoicing	[◌̥]	syllabic	[◌̩]	fronting	[◌̟]
aspiration	[◌ ^h]	nasal release	[◌ ⁿ]	retracting	[◌̠]
unreleased	[◌̚]	lateral release	[◌ ^l]	nasalization	[◌̃]
dentalization	[◌̪]	length	[◌ː], [◌ˑ]	velarization	[◌̠]
				labialization	[◌̠]

We also introduced the symbol for the flap allophone [ɾ] but here need to introduce one additional symbol, the symbol [m̪] representing the labiodental nasal allophone of /n/.

The phonemic rules for allophonic variation can be formalized as follows:

$$\begin{array}{l} /x/ \rightarrow [y]/ \\ \quad \quad [z]/ \text{ elsewhere} \end{array}$$

The symbol between the slashes /x/ represents the phoneme, while the symbols in square brackets represent the allophones [y] and [z]. The arrow \rightarrow means ‘is realized as’ or ‘has the allophones’. Thus, this rule reads “the phoneme x has the allophones y and z.” Furthermore, the slash / means ‘in the environment’. Following the slash, the phonetic environment in which the allophone is found is stated. The environment of the last allophone is always stated as “elsewhere”, meaning all other environments. The “elsewhere allophone” is the one with the widest distribution, the one found in the greatest variety of environments. Note that “elsewhere” includes all environments excluding the environments already listed above in the rule; thus you always read the rule from top to bottom.

Environments are quite varied, and they are generally abbreviated in some way, e.g.:

Abbreviation	Meaning
#	word or syllable boundary
—	position of the allophone
#—	word or syllable initial
—#	word or syllable final
Vo—Vo	between vowels

#—Vó	word or syllable initial before a stressed vowel
C—	following a consonant

Let's look at some actual examples of phonemic rules in English, reviewing details that were presented in the previous chapter:

1. Since /h/ may be analyzed as a voiceless approximant that is homorganic with the following vowel, we could write a rule for the predictable variants of this phoneme as follows:

/h/ →	[j]/—i	<i>heed</i>
	[ɪ]/—ɪ	<i>hid</i>
	[æ]/—æ	<i>hat</i>
	[ʊ]/—u	<i>who</i>
	[ʊ]/—ʊ	<i>hood</i>
	etc.	

This rule says that /h/ is articulated as a voiceless approximant that takes on characteristics of the vowel it precedes. Thus before /i/ /h/ becomes [j], before /ɪ/ it becomes [ɪ], and so forth.

2. The voiceless stop /p/ has a number of variants:

/p/ →	[p ^h]/ #—Vó	<i>port, party, computer, apart</i>
	[p [̚]]/ —C _{stop} —#	<i>capped, opt, scepter, cap, rope,</i>
	[p]/ elsewhere	<i>sport, spring, apron, proclaim, tipsy</i>

This rule says that: (1) the phoneme /p/ is realized as aspirated [p^h] syllable initially before a stressed vowel; (2) it is unreleased [p[̚]] before another stop consonant or word finally; and (3) it is [p] in all other environments.

3. The voiceless stop /t/ has more variants than /p/:

/t/ →	[t ^h]/ #—Vó	<i>tongue, return, attend</i>
	[t ⁿ]/ —[n, ŋ]	<i>fitness, mitten</i>
	[t ^l]/ —[l]	<i>atlas, butler</i>
	[ɾ]/ Vó—Vo, Vó— [ɾ], Vó— [l]	<i>city, matter, bottle</i>
	[t̪]/ —[ð, θ]	<i>at that, eighth</i>
	[t [̚]]/ —C _{stop} —#	<i>footprint, hatpin, rat, root</i>
	[t]/ elsewhere	<i>stop, try, twin, attract, matron</i>

This rule reads that the phoneme /t/ has as its allophones: (1) an aspirated [t^h] syllable initially before a stressed vowel; (2) a nasal-released [tⁿ] before [n] or syllabic [ŋ]; (3) a lateral-released [t^l] before [l] (and for some speakers before [ɫ]); (4) a flap [ɾ] between a stressed vowel and a vowel or syllabic liquid; (5) a dentalized [t̪] before dental consonants; (6) an unreleased [t[̚]] before a stop consonant or syllable or word finally; and (7) [t] in all other contexts.

Concerning the flap allophone [ɾ], note that a stressed vowel must precede a flap. Therefore in the following sets of words, there is flapping in Column 1 but not in

Column 2, where the stressed vowel follows rather than precedes the “t”. In Column 2 the aspirated [t^h] allophone occurs since it is found syllable initially preceding a stressed vowel:¹

Column 1	Column 2
[ɹ]	[t ^h]
<i>phótophaph</i>	<i>photógrapher</i>
<i>fráternize</i>	<i>fratérnal</i>
<i>átom</i>	<i>atómic</i>

4. The phoneme /n/ also has a number of predictable variants:

/n/ → [m]/—C _{labiodental}	<i>infamous, in<u>formation</u>, confirm <u>environment</u></i>
[n̠]/—C _{dental}	<i>month, ninth, <u>in</u> the</i>
[ŋ]/—C _{velar}	<i>incongruous, <u>increase</u>, ingrown</i>
[n̩]/ C _{obstruent} —#	<i>lead<u>en</u>, madd<u>en</u>, kitten<u>en</u>, list<u>en</u></i>
[n]/ elsewhere	<i>noise, pound, tons, funny, pin</i>

This rule states that: (1) the phoneme /n/ is realized as the labiodental nasal [m] before labiodental consonants; (2) as dentalized [n̠] before the dental consonants /θ/ and /ð/; (3) as velar [ŋ] before velar consonants; (4) as syllabic [n̩] word finally following obstruents; and (5) as [n] in all other environments.

HINT: The symbol [m] represents a labiodental nasal. Concentrate on the position of your upper lip and lower teeth when you articulate the above words. Also try to think up other examples of words in which labiodental nasals occur.

5. The rule for vowel length can be stated as follows:

/Vo/ → [Vo:] / —#	<i>fey</i>	<i>grow</i>	<i>eh</i>
[Vo:] / —C _{vd}	<i>f<u>a</u>de</i>	<i>bro<u>g</u>ue</i>	<i><u>A</u>be</i>
[Vo] / elsewhere ²	<i>f<u>a</u>ce, t<u>a</u>ste</i>	<i>bro<u>k</u>e, to<u>a</u>st</i>	<i><u>a</u>pe, <u>a</u>ced</i>

This rule states that: (1) vowels are longest at the end of an open syllable; (2) slightly shorter when followed by a voiced consonant; and (3) shortest in all other environments (i.e. when followed by a voiceless consonant or by a consonant cluster).

1. In casual speech a flap may also occur between two unstressed vowels as in *cávity, chárity, próperty, vísiting (cf. vísitátion).*

2. “Elsewhere” could also be stated in terms of the two environments where short vowels occur: —C_{v1} (before a voiceless consonant) and —CC(C)(C) (before a consonant cluster).

3. Phonological processes

There are numerous general processes of phonological change involved in allophonic variation which apply to classes of sounds that share one or more features. Some examples of these classes, as we see below, are alveolar consonants, voiceless stops, front vowels, and lax vowels. These general processes may be stated in terms of **phonological rules** and are similar in formalism to phonemic rules.

Below are some examples of phonological rules. They are stated first in prose, then in abbreviated form using the formalism of rules, and finally illustrated with examples.

1. All consonants are labialized before rounded vowels:

Phonological rule: /C/ → [C^w]/ —Vo_{rounded}

Note: "C" includes stops (*pool, boot, tool, dote, coke, good*), fricatives (*thorough, food, voice, sew, zoo, shone*), affricates (*chose, jury*), nasals (*note, moan*), and liquids (*lute, rude*).³ Vo_{rounded} includes /u, ʊ, ou, ɔ, ɔɪ, v/.

2. Liquids and nasals have a syllabic function following a consonant word finally:

Phonological rule: /l, r, m, n/ → [l̩, r̩, m̩, n̩]/ C_{obstruent}—#, C_{nasal}—#

Note: We saw this rule operating above in the case of the allophones of /n/. Examples of this rule are [m̩] in *chasm*, [n̩] in *button, omen*, [l̩] in *paddle, camel, tunnel* and [r̩] in *latter, hammer, runner*.⁴ We must specify obstruents and nasals in the phonetic environment of the rule above rather than consonants in general in order not to generate syllabic forms following liquids, as in *curl, turn, kiln, firm*, and *film* (though some speakers say [fil̩m]).

3. Alveolar sounds are dentalized before a dental:

Phonological rule: /s, t, d, n, l/ → [s̺, t̺, d̺, n̺, l̺]/—[ð, θ]

Examples of this rule are [s̺] in *sixth*, [t̺] in *eighth*, [n̺] in *tenth*, [l̺] in *wealth*, and [d̺] in *width*.

4. Approximants and nasals, which along with vowels and glides comprise the natural class of **sonorants** (sounds involving a certain degree of resonance), are devoiced following a voiceless consonant:

Phonological rule: /j, w, r, l, m, n/ → [j̥, w̥, r̥, l̥, m̥, n̥]/ C_{v1}—

3. Note that /r/ is by nature labialized.

4. /ŋ/ is syllabic only in connected speech as in *cookies and cake*.

Examples of this rule are [j] in *few*, *cute*, [w] in *twin*, *twelve*, [r] in *try*, *pry*, [l̥] in *play*, *claim*, [ŋ] in *smart*, and [ŋ̃] in *snore*.

5. Velars are fronted (to the palatal region) in the environment of a front vowel:

Phonological rule: /k, g, ŋ/ → [k̟, g̟, ŋ̟] / —Vo_{front}, Vo_{front}—

Examples of this rule are [k̟] in *key*, *kit*, *kept*, *cape*, *cat*, *pick*, *peek*, [g̟] in *geese*, *give*, *get*, *gate*, *gad*, *fig*, *rag*, and [ŋ̟] in *ring*, *rang*.

6. Vowels are nasalized before a nasal:

Phonological rule: Vo → Ṽo / —[n, m, ŋ]

Examples of this rule are [ã] in *sun*, [ĩ] in *sin*, [æ̃] in *Sam*, and [ũ] in *soon*.

7. /l/ becomes “dark” or velarized [ɫ] after a vowel or other approximant:

Phonological rule: /l/ → [ɫ] / Vo—, [r]—

Examples of this rule are *ball*, *wool*, *girl*, and *curl*.

HINT: Both nasalization and velarization are indicated with a “tilde” diacritic, except that in the first case, the tilde is placed above the phonetic letter and in the second case it is superimposed over the letter.

8. Front vowels are retracted (articulated further back) before [ɫ]:

Phonological rule: Vo → V̠o / —[ɫ]

Examples of this rule are [i̠] in *seal*, [ɪ̠] in *sill*, [ɛ̠] in *sell*, and [æ̠] in *Sally*.

HINT: To feel the retraction, compare the vowels in the examples above to the words *seat*, *sit*, *same*, *set*, and *Sam*, where the same vowels are *not* retracted.

9. Voiceless stops are aspirated word or syllable initially before a stressed vowel:

Phonological rule: /p, t, k/ → [p^h, t^h, k^h] / # —V̠o

Examples of this rule are *peace*, *time*, *kind*, *apart*, *until*, and *across*.

10. Alveolar obstruents become alveopalatal obstruents before /j/ in the following syllable:

Phonological rule: /t, d, s, z/ → [tʃ, dʒ, ʃ, zʃ] / —#j/

This process, commonly referred to as **palatalization**, is quite common word internally. Examples of this rule include:

/t/ > /tʃ/	<i>post<u>ure</u></i> , <i>digest<u>ion</u></i> , <i>Christ<u>ian</u></i>
/d/ > /dʒ/	<i>individu<u>al</u></i> , <i>residu<u>al</u></i> , <i>educat<u>e</u></i> , <i>sold<u>ier</u></i>
/s/ > /ʃ/	<i>pass<u>ion</u></i> , <i>tissu<u>e</u></i> , <i>anxi<u>ous</u></i> , <i>miss<u>ion</u></i>
/z/ > /zʃ/	<i>occ<u>as</u>ion</i> , <i>leis<u>ur</u>e</i> , <i>vis<u>ion</u></i> , <i>fusi<u>on</u></i>

Note: Palatalization may also occur between words in rapid speech: /tʃ/ *don't you, can't you*; /dʒ/ *would you, should you*; /ʃ/ *miss you, bless you*, /z/ *as yet, as usual*. Sometimes palatalization occurs even when there is no syllable break, as in the pronunciation of *Tuesday* as /tʃuzdi/.⁵

11. Lax vowels /ɪ, ɛ, æ, ʌ, ʊ/ when unstressed are reduced to /ə/:

Phonological rule: $V_{\text{lax}} \rightarrow [ə]$ / when unstressed

Examples of vowel reduction can be seen in the underlined vowels in the following pairs of related words:

<u>á</u> tom	<u>a</u> tómic	<u>mé</u> lody	<u>m</u> elódic	<u>m</u> elódius	<u>ph</u> ótograph	<u>ph</u> otógrapher
/æ/ <u>ə</u>	/ə/ <u>ə</u>	/ɛ/ <u>ə</u>	/ə/ <u>ə</u>	/ə/ <u>ə</u>	/ou/ <u>ə</u>	/ə/ <u>ə</u>
<u>Cá</u> nada	<u>C</u> anádian	<u>ó</u> riġin	<u>o</u> rġinal		<u>có</u> medy	<u>c</u> omédian
/æ/ <u>ə</u>	/ə/ <u>ə</u>	/ɔ/ <u>ə</u>	/ə/ <u>ə</u>		/ə/ <u>ə</u>	/ə/ <u>ə</u>

HINT: Contrast the lax vowels given in the examples above with the unstressed vowels in the following words: *geography, psychology, calico, vacation. Since the underlined vowels here are tense, they are not reduced.*

12. The unstressed central vowel /ə/ may be deleted when followed by a liquid or nasal at the beginning of the next syllable:

Phonological rule: $/ə/ \rightarrow \emptyset$ —#[l, r, n, m]

Examples of this rule are the underlined vowels in *police, parade, suppose, gorilla, every, evening, generally, botany, and family.*

Note: The syllable following the deleted vowel generally carries some degree of stress. Unlike the preceding rules, which are obligatory, this rule is optional.

HINT: It is also possible to state the above rules in terms of the distinctive features; see Exercise 3.2. Often the use of distinctive features makes clear how assimilation is working.

The motivation behind many, though not all, of the above phonological rules is ease of articulation, which allows the speaker to minimize his or her articulatory effort. This results in **assimilation**, where two neighboring (usually adjacent) sounds become more like one another in respect to one or more phonetic feature.

If we consider the rules above, we see that there is assimilation in voicing, as in rule (4) above, assimilation in place of articulation, as in rules (3, 5, 7, 8, and 10), and assimilation

5. Note that palatalization includes the rule of “yod-dropping” which deletes the /j/ of the following syllable; we have already encountered this rule in the monophthongization of /ɪu/ to /u/ (see Chapter 2).

in manner of articulation, as in rule (1 and 6). The deletion of a segment (12) or reduction of vowels (11) is probably also motivated by ease of articulation. Not all rules are clear cases of assimilation, however, as in rule (9), in which a segment (aspiration) is added, or rule (2).

Self-Testing Exercises: Do Exercises 3.1 and 3.2.

Below is a summary of the diacritics used in this chapter:

devoicing	[◌̥]	labialization	[◌ʷ]
aspiration	[◌ʰ]	fronting	[◌̟]
unreleased	[◌̚]	nasalization	[◌̃]
dentalization	[◌̪]	retracting	[◌̠]
syllabic	[◌̩]	velarization	[◌̤]
nasal release	[◌̃]	length	[◌ː], [◌ˑ]
lateral release	[◌̩̚]		

4. Phonotactics

Phonotactics are the constraints on positions and sequences of sounds in a language. Phonotactics are always language-specific; that is, combinations of certain sounds may be permitted in another language which are not permitted in English, such as /pn/ beginning a word.

When discussing the possible positions of sounds in a language, we need to refer to word initial, medial, and final positions, as well as other positions, such as syllable initial, or other factors, perhaps the occurrence of a sound in monosyllabic or polysyllabic words. In the previous chapter, we considered in passing some of the constraints on the positions of sounds in English. Let's review those constraints:

- /ŋ/ is never word initial; it is word medial only after a stressed vowel as in *anger*;⁶
- /ʒ/ is very restricted word initially (occurring only in French words such as *gendarme*). It is common word medially (as in *pleasure*) and fairly rare word finally (again in French words such as *rouge*);⁷
- /h/, /j/, and /w/ are always syllable initial before a stressed vowel, as in *hit*, *yes*, and *wet*. /j/ and /w/ occur syllable finally only as part of a diphthong;
- /ð/ is word initial only in pronouns, adverbs, prepositions, demonstratives, and the definite article, never in nouns, verbs, and adjectives. Otherwise, it occurs freely word medially and word finally;

6. Historically, [ŋ] was an allophone of [n] occurring before [k] and [g]; as a cluster it could not occur word initially.

7. Unlike its voiced counterpart /ʒ/, /ʃ/ is quite common word initially, as in *sure*, *sugar*, *shirt*.

- the syllabic nasals [m̩] and [ŋ̩] and the syllabic liquids [l̩] and [r̩] are never word initial; and
- unreleased stops only occur word finally, as in *tap* [p̚], or before another stop, as in *apt* [p̚t].

The above is not an exhaustive list of the positional constraints; however, it covers the most important ones.

When discussing the possible sequences or combinations of sounds in a language, we are primarily concerned with the combinations of consonants, called **consonant clusters**, which may begin or end a syllable. Unlike many other languages of the world, English rather freely allows for consonant clustering. In fact, it allows up to three consonants in an initial cluster and up to four consonants in a final cluster configuration:

initial consonant clusters	<i>glow, spruce</i>
final consonant clusters	<i>bird, ends, worlds</i>

In English we find that initial consonant clusters are much more restricted than final consonant clusters. In initial position, the phonotactics of English do not allow the following sequences:

- stop + stop, such as /pt/⁸
- stop + nasal, such as /pn/
- nasal + stop, such as /np/
- stop + fricative, such as /ts/
- fricative + stop, such as /ft/⁹

The only permitted syllable initial sequences are the following:

voiced or voiceless stop + approximant	<i>play, price, bleed, break, clean, creek</i>
voiceless fricative + approximant	<i>fly, sled, three, shrew</i>
/s/ + voiceless stop	<i>spend, sting, scare</i>
/s/ + nasal ¹⁰	<i>snail, sneak, small, smile</i>

There is only one possible combination of three consonants occurring initially:

/s/ + voiceless stop + approximant *strong, split, scrape, spry, sclerosis*¹¹

8. The spelling “pt” can be found at the beginnings of some borrowed words such as *ptarmigan*, *Ptolemy*, *ptomaine*. However, this combination of letters is pronounced /t/ and is not articulated as a cluster.

9. As we discuss shortly, the exception is where the fricative is /s/. Other exceptions include obviously foreign words such as *shtick*.

10. Note that since /ŋ/ does not occur syllable initially in English, it cannot occur in an initial consonant cluster.

11. The cluster /skl/ occurs quite infrequently.

The results of these restrictions are summarized in Table 3.1.

Table 3.1. Initial Consonant Clusters in English

stop +	/pl/	<i>please</i>	/bl/	<i>black</i>	*/tl/		*/dl/		/kl/	<i>class</i>	/gl/	<i>glue</i>
approximant	/pr/	<i>prank</i>	/br/	<i>brown</i>	/tr/	<i>trace</i>	/dr/	<i>dry</i>	/kr/	<i>crew</i>	/gr/	<i>grow</i>
	*/pw/		*/bw/		/tw/	<i>twain</i>	/dw/	<i>dwel</i>	/kw/	<i>queen</i>	/gw/	<i>Gwyn</i>
voiceless	/fl/	<i>flow</i>	*/θl/		/sl/	<i>slow</i>	*/ʃl/		*/hl/			
fricative +	/fr/	<i>free</i>	/θr/	<i>throw</i>	*sr		/ʃr/	<i>shrimp</i>	*/hr/			
approximant	*/fw/		/θw/	<i>thwart</i>	sw	<i>swear</i>	*/ʃw/		/hw/	<i>where</i> ¹²		
/s/ +	/sp/	<i>spy</i>			/st/	<i>stove</i>			/sk/	<i>sky</i>		
voiceless												
stop												
/s/ + nasal	/sm/	<i>smart</i>			/sn/	<i>snore</i>			*/sn/			
/s/ +	/spl/	<i>splash</i>			*/stl/				/skl/	<i>sclerosis</i>		
voiceless	/spr/	<i>spring</i>			/str/	<i>string</i>			/skr/	<i>scream</i>		
stop +	*/spw/				*/stw/				/skw/	<i>square</i>		
approximant												

Note: An asterisk (*) before the consonant cluster sequence indicates that this cluster does not exist in English.

The gaps in Table 3.1 can be seen as either *systematic* or *accidental*:

- Systematic gaps are those that can be explained by phonotactics, such as the restriction against two labials occurring together. This rules out the consonant clusters */pw/, */bw/, and */spw/, since all these consonants are classified as labials. Similarly, the restriction against two alveolars/dentals occurring together rules out the clusters */tl/, */dl/, */θl/, and */stl/.
- Accidental gaps, on the other hand, include those sequences which do not violate any general principle but which simply do not occur in contemporary English, such as /stw/, /hl/, or /hr/.¹³
- A general restriction against /ʃ/ + approximant rules out the clusters */ʃl/ and */ʃw/. However, the cluster /ʃr/ occurs since it represents the labialization of /s/ > /ʃ/ before /r/. Note that /sr/ in *Sri Lanka* is not a native pronunciation. Also in a few other foreign words, such as *schlepp*, *schlemiel*, containing /ʃl/, or *schwa*, containing /ʃw/, we find /ʃ/ plus approximant, but these are not English consonant clusters.

12. Speakers of some dialects – those who do not distinguish between *whale* and *wail* or *which* and *witch* – have simplified /hw/ > /w/ and thus do not have this cluster in their speech.

13. Interestingly, the latter two sequences did occur in an earlier period of English, as in Old English *hlūd* 'loud' and *hnutu* 'nut', but were subsequently lost.

- As can be seen in Table 3.1, the only consonant preceding nasals in English is /s/. However, in a few non-native words we find /ʃm/ (as in *schmooze*, *schmuck*) or /ʃn/ (as in *schnapps*, *schnauzer*).

HINT: See if you can think of other examples of the allowable consonant clusters in Table 3.1. Then, for the non-occurring clusters marked by the asterisk, see if you can determine whether they are systematic or accidental gaps. For example can you explain why [sn] does not occur? Is this a systematic or an accidental gap?

You might have noticed that the approximant /j/ has been omitted from the discussion. The reason for this is that it occurs following a consonant only in combination with the vowel /u/ and is therefore not considered to participate in consonant clusters. In fact, it may occur following a wide variety of consonants, voiced or voiceless. The following permissible sequences of consonant + /j/ are not considered consonant clusters:

pj	<i>pew</i>	tj	<i>tune</i>	kj	<i>cute</i>
bj	<i>beauty</i>	dj	<i>duty</i>	gj ¹⁴	<i>gules</i>
mj	<i>music</i>	nj	<i>news</i>	*nj	
fj	<i>few</i>	θj ¹⁵	<i>thew</i>	*fj	
vj	<i>view</i>	*ðj		*zj	

There are some dialectal restrictions regarding the above consonant + /j/ sequences. For example, in some dialects /j/ is lost following alveolars. Thus in many if not most dialects of North American English the word *news* is pronounced /nuz/ rather than /njuz/. The same is true for the pronunciations of *tune*, *duty*, and *sue* in North American English, causing these words to be pronounced differently than in British English. Also, only certain dialects have /j/ following /tʃ/ and /dʒ/ and for this reason these consonant combinations have not been included in the list above. By the way, do you know the meaning of *gules* or *thew*?

Final consonant clusters are freer and more complex than initial clusters, containing up to four consonants. Space does not permit an exhaustive listing, but some possible combinations of two final consonants are the following:

liquid + consonant	<i>harp, harm, horse, hurl, help, helm, else</i> ¹⁶
nasal + obstruent	<i>bend, bent, pins, tenth, lamp, rink</i>
obstruent + obstruent, e.g.	
fricative + stop	<i>lift, paved, disk, roast, bathed</i>
stop + fricative	<i>mats, lapse, grabs, cheeks</i>
fricative + fricative	<i>leaves, reefs, sheaths</i>
stop + stop	<i>apt, ached, bobbed</i>

14. The sequence /gj/ is extremely rare.

15. The sequence /θj/ is also extremely rare.

16. The cluster /lr/ does not occur since /r/ must precede /l/.

Not all possible combinations of these sounds occur, however. For example, /m/ precedes /p, f/ only and /ŋ/ precedes /k, g/ only, while in all other instances the nasal preceding the obstruent is /n/. Also, certain of these clusters are indicative of a particular grammatical context. Thus, the cluster of fricative + fricative or voiced consonant + /z/ always indicates a noun plural or possessive or third person singular of the verb; similarly, the voiced consonant + /d/ always indicates the past tense or past participle of a verb.

Sequences of three consonants include:

three obstruents (stop + fricative + stop)	/dst/ in <i>midst</i> ; /kst/ in <i>boxed</i>
nasal + two obstruents, e.g.	
nasal + fricative + stop	/nst/ in <i>rinsed</i> ; /mft/ in <i>triumphed</i>
nasal + stop + fricative	/mps/ in <i>glimpse</i> ; /nts/ in <i>dents</i>
nasal + stop + stop	/mpt/ in <i>prompt</i> ; /mbd/ in <i>thumbed</i>
liquid + two obstruents, e.g.	
liquid + stop + fricative	/rps/ in <i>corpse</i> ; /lps/ in <i>gulps</i>
liquid + stop + stop	/lpt/ in <i>helped</i> ; /rpt/ in <i>warped</i>
liquid + fricative + fricative	/lvz/ in <i>shelves</i> ; /rfs/ in <i>dwarfs</i>
liquid + fricative + stop	/rst/ in <i>first</i> ; /rvd/ in <i>starved</i>
liquid + nasal + fricative	/lnz/ in <i>kilns</i> ; /rmz/ in <i>terms</i>

Sequences of four consonants occur, although more rarely:

/mpst/	<i>glimpsed</i>	/ndθs/	<i>thousandths</i>
/ksθs/	<i>sixths</i>	/ksts/	<i>texts</i>
/rlds/	<i>worlds</i>	/mpts/	<i>tempts</i>
/lfθs/	<i>twelfths</i>	/ŋkst/	<i>jinxed</i>

As you can see, in these cases, the fourth consonant is always an inflectional ending added to a word ending in three consonants. Words ending in four consonants without an inflectional ending are rare, if not impossible. In cases where the medial consonant in a cluster is a voiceless stop or /θ/, native speakers tend to simplify the cluster by omitting this consonant, saying [glimst] instead of /glimpst/, [twelfs] instead of /twelfθs/, etc. Importantly, the inflectional ending cannot be omitted in the process of consonant cluster simplification because of the grammatical information it carries.

Native speakers of a language intuitively know the permissible and nonpermissible sequences (it is part of their linguistic competence); newly-created words will always follow the phonotactic principles of the language: thus, while *pnark* could never be created in English, *plark* could be. Borrowed words which have not been fully assimilated into English may have nonEnglish sequences, such as /kn/ in *Knorr*. It is usual, however, to make the borrowed word conform to the phonotactics of English by eliminating nonEnglish clusters, such as /ps/ in *psychology*, which becomes /s/, and /ts/ in *Zeppelin*, which becomes /z/. Remember also that while certain sequences of sounds are not possible in English, they

are humanly possible and may be found in other languages, for example, initial /ts/, /kn/, /gn/, /ps/, and /pf/ in German.

5. Suprasegmental features

Suprasegmental features are those articulatory features which are superimposed over more than one segment (i.e. vowel or consonant); they include stress and intonation.

5.1 Stress

Every word spoken in isolation has at least one stressed syllable. In articulatory terms, stress involves a rise in air pressure; an increase in the activity of the respiratory muscles forces more air out of the lungs during the articulation of a particular syllable. There may also be an increase in the activity of the larynx, resulting in higher pitch. In acoustic terms, the stressed syllable is perceived as longer, louder, and of higher pitch. The term *stress* is sometimes used interchangeably with *accent*, but “accent” should not be confused here with the other use of the term to refer to dialect features (as in “a British accent”).

Certain languages in the world have an accentual system based on pitch differences, not stress differences. That is, syllables carry varying levels of pitch, and pitch differences alone can distinguish words. These “tonal” languages include Chinese, Thai, West African languages, and Amerindian languages. English, on the other hand, belongs to the group of languages which have stress accent.

Stress is a meaningful feature of speech in respect to both words and phrases in English. It has functions in the province of morphology, syntax, and discourse.

Traditionally, different degrees, or levels, of stress are differentiated at the word level:

primary (level 1)	marked by an acute accent (')
secondary (level 2)	marked by a grave accent (`)
unstressed (level 3)	unmarked or marked by a breve (˘)

For example, if you say *computation* in isolation or at the end of a sentence, the *ta* syllable will carry the strong stress, but the *com* syllable will also carry a seemingly weaker stress. What is actually happening here is superimposition of an intonational pattern (discussed in the next section) called a *tonic accent* onto the last stressed syllable. So we say that *ta* carries **primary stress** and *com* carries **secondary stress**, thus *còmputátion*. Secondary stress is sometimes difficult to hear, but generally it will be separated by at least one syllable – either before or after – from the syllable carrying primary stress, as follows:

intérrogàte àccidéntal inventòry
còncentrátion épilépsy hallucinátion

That is, secondary stress will occur in words where the stressed syllable is followed by two or more syllables or where the stressed syllable is preceded by two or more syllables.

HINT: To find the stressed syllable in English, say a polysyllabic word and tap your finger at the same time. You will naturally tap on the stressed syllable. The reason for this is that it is easier to produce one increase in muscular activity in conjunction with another, so you use your respiratory muscles and your hand muscles simultaneously. If you try to tap on an unstressed syllable, you will get a distortion in the pronunciation of the word. Try saying the following words while tapping your finger (the stressed syllable is marked):
abómínable pátriarchy exécutive confídential intérpretation

In transcription, the IPA system of marking stress is the use of a superscript tick before the primary stressed syllable and a subscript tick before the secondary stressed syllable, e.g. *eligibility* /ɛlɪdʒə^ˈbɪlə_ˈti/.¹⁷ Alternatively, only primary stress is indicated. Unstressed syllables are not marked.

The rule for stress in Germanic words is very simple: words are always stressed on the first syllable (as in *ápple*, *fáther*, *húnger*), except prefixed verbs, which are stressed on the root syllable (as in *forǵét*, *believe*, *withdráw*). However, English has borrowed many words from the Romance languages. These words have a different stress principle: stress falls on the penultimate syllable, as in *admónish*, unless there are two consonants or a tense vowel at the end, as in *adápt*, *exíst*. The result is that the stress system of Modern English is now very complex, and accent is not entirely predictable.

Some useful generalizations about stress at the word level include the following:

1. Stress can distinguish different parts of speech, as in the corresponding sets of nouns (with initial stress) and verbs (with final stress) below:¹⁸

noun	verb
<i>próduce</i>	<i>produíce</i>
<i>áddress</i>	<i>addréss</i>
<i>ímport</i>	<i>impórt</i>
<i>ínsult</i>	<i>insúlt</i>
<i>súrvey</i>	<i>survéy</i>
<i>íncline</i>	<i>inclíne</i>
<i>éxport</i>	<i>expórt</i>

There are also derivationally-related pairs that show the same stress pattern: *concéive* (V) and *cóncept* (N), *procéed* (V) and *prócess* (N), or *preténd* (V) and *prétense* (N). But note that there are many exceptions: *respéct* and *rewárd* are both a noun and a verb;

17. Alternatively, only primary stress is indicated.

18. According to Minkova and Stockwell (2009), this is a finite class of words consisting of approximately 130 word pairs.

*cómmen*t is both a noun and a verb; and *díffer* and *defér* are different verbs; compare also *belíeve* (V) and *belíef* (N).

2. Stress can distinguish a word from a phrase. A word, as we shall see in the next chapter, has only one primary stress (as in the case of *wáلكout*, given below), though it may have both primary and secondary stress (as in the case of *hótdòg*). A phrase, on the other hand, has more than one stress (as in the case of *to wáلك óut*). We can see this difference in stress patterns in the following word-phrase pairs:

- a. where a noun or a verb combines with an adverbial particle such as *in* or *out*:

Word	Phrase
<i>wáلكout</i>	<i>to wáلك óut</i>
<i>púshover</i>	<i>to púsh óver</i>
<i>rípoff</i>	<i>to ríp óff</i>
<i>cáve-in</i>	<i>to cáve ín</i>

- b. where an adjective combines with a noun to form either a single noun or a noun phrase:

Word	Phrase
<i>hótdòg</i>	<i>hót dòg</i>
<i>bláckbòard</i>	<i>bláck bóard</i>
<i>híghcháir</i>	<i>hígh cháir</i>

- c. where two nouns combine to form either a single verb or a noun phrase:

Word	Phrase
<i>to stónewall</i>	<i>stóne wáلل</i>
<i>to bláckball</i>	<i>bláck báلل</i>
<i>to máinstream</i>	<i>máin stréam</i>

3. Stress patterns in derivationally related words distinguish parts of speech:

Noun (concrete)	Noun (abstract)	Adjective
<i>díplomat</i>	<i>diplómacy</i>	<i>diplomátic</i>
<i>phótograph</i>	<i>photógraphy</i>	<i>photográphic</i>
<i>mónotone</i>	<i>monótony</i>	<i>monotónic</i>
<i>télegraph</i>	<i>telégraphy</i>	<i>telegráphic</i>
Noun		Adjective
<i>pícture</i>		<i>picturésque</i>
<i>jóurnal</i>		<i>journalése</i>

That is, the affix affects the placement of stress.

4. There may be differences in the placement of stress in individual words. For example, the following words typically receive different stress placement in British and

North American English, as indicated in the designation of primary stress in the list below. However, there is a great deal of regional variation. Decide which syllable is stressed for you:

North American English	British English
<i>á</i> nchovy	an <i>ch</i> óvy
<i>pré</i> paratory	pr <i>ep</i> árary
<i>gará</i> ge	gá <i>ra</i> ge
<i>lamé</i> ntable	lá <i>me</i> ntable
<i>á</i> pplicable	ap <i>pl</i> icable
<i>mú</i> stache	mu <i>st</i> áche
<i>má</i> gazine	ma <i>ga</i> zine
<i>ad</i> vertisement	ad <i>ve</i> rtisement

There is a fairly general rule in British English that secondary stress is omitted on *-ery/-ory/-ary*. Compare the North American and British pronunciations of *battery* /bætəri/ vs. /bætri/, respectively. As a consequence, the penultimate syllable is lost in the British pronunciation of words ending in /-(ə)ri/, as in *secretary*, *laboratory*, *obligatory*, *military*, and *dictionary*.

5. In general, stressed vowels within a word are generally full, while unstressed vowels may or may not be reduced to /ə/ or another unstressed vowel:

expláin /eɪ/	explánation /ə/
emphátic /æ/	émphasis /ə/

HINT: Remember that the reduction of vowel sounds is not due to "sloppiness" or "laziness", but is completely natural. You may have observed that when nonnative speakers do not reduce vowels as we would expect, their speech indeed sounds "foreign" and nonEnglish.

6. The vowel in the second half of a compound noun is reduced:

/mæn/ > /-mən/	foreman, policeman, draftsman
/lænd/ > /-lənd/	Finland, England, highland
/fʊl/ > /-fəl/	helpful, thoughtful, rightful
/badi/ > /-bədi/	somebody, anybody, nobody

However, conscious factors, such as the newness of a word, may prevent an expected reduction, as in *superman* or *Disneyland*, which usually contain full vowels and carry secondary stress.¹⁹

19. Note though that some words may be variably stressed (e.g. such as *madman*) while others may be subject to dialectal variation (e.g. Canadians invariably pronounce *Newfoundland* with a full vowel in *land*).

7. Reductions of other forms may likewise be predictable, as in the cases of *a*, *the*, *to*, which are reduced when they occur before a word beginning with a consonant:

a /ə/ *a cup* vs. /æn/ *an apple*
the /ðə/ *the man* vs. /ði/ *the apple*
to /tə/ *to jail* vs. /tu/ *to university*

8. Sometimes we have full and reduced versions (**strong and weak forms**) of the same words. When spoken in isolation or used contrastively, function words are pronounced with full vowels, but when they occur in a sentence, they are generally unstressed (see Table 3.2):

Table 3.2. Strong and Weak Forms

Word	Strong	Weak	Example of Weak Form
<i>and</i>	/ænd/	/ənd, ən/, [n]	<i>I've got to make dinner and clean up.</i>
<i>too, to</i>	/tu/	/tə/	<i>She went to New York.</i>
<i>can</i>	/kæn/	/kən/	<i>I can help you.</i>
<i>at</i>	/æt/	/ət/	<i>Betsy's staying at home today.</i>
<i>as</i>	/æz/	/əz/	<i>He's as happy as possible.</i>
<i>could</i>	/kʊd/	/kəd/	<i>I could be there in ten minutes.</i>
<i>than</i>	/ðæn/	/ðən/	<i>She is richer than I am.</i>
<i>you</i>	/ju/	/jə/	<i>Can you give me a hand?</i>
<i>had</i>	/hæd/	/(h)əd/	<i>I had better leave now.</i>
<i>would</i>	/wʊd/	/(w)əd/	<i>Jack would know the answer.</i>
<i>are</i>	/ɑr/	/ər/, [r]	<i>We are going to Florida next week.</i>
<i>them</i>	/ðem/	/(ð)əm/	<i>Tell them to stop making so much noise.</i>

Self-Testing Exercise: Do Exercise 3.3

At the phrasal level, stress also plays a role. In English, when we utter entire phrases, we do not, in fact, stress every word. Instead, we stress only certain words, and unstress others. Generally, we place stress on the major parts of speech, or content words (the nouns, verbs, adjectives, and adverbs); we do not place stress on the minor parts of speech, or function words (the prepositions, conjunctions, pronouns, articles, and so on). Consider the following sentence:

In autumn, the dry, yellow leaves fall from the trees.

Based on the above, we would expect the content words *autumn*, *dry*, *yellow*, *leaves*, *fall*, and *trees* to carry stress, and the function words *in*, *the*, and *from* not to.

Moreover, in English these stresses fall as much as possible at regular intervals, making English a "stress-timed" language. The amount of time necessary for an utterance depends

upon the number of stressed syllables, with unstressed syllables occupying much less time than stressed ones.

HINT: Say the following sentences and note where the stresses fall. Observe that certain content words which one might expect to carry stress do not do so:

A fúnny thing háppened on the way to the fórum.

Five p'retty girls k'issed f'ifteen hándsome bóys.

This is the hóuse that Jáck búilt.

You can also try tapping out the rhythm. As you do so, note the regularity of the intervals between stresses. Finally, try stressing all the words equally to see how unnatural these sentences sound when the function words are stressed.

1. There are strong and weak forms of phrases:

Strong > Weak Form	Example
<i>I am > I'm</i>	[aɪəm > aɪəm > aɪm]
<i>you are > you're</i>	[juər > juwər > jɹ]
<i>she is > she's</i>	[ʃiɪz > ʃiɪz > ʃɪz]
<i>it is > it's</i>	[ɪtɪz > ɪrɪz > ɪts]

2. Variations in the placement of stress within an individual polysyllabic word may result from the position of the word in a sentence. Note the difference in stress for the following adjectives if they occur before the noun (in attributive position) or if they occur following the verb (in a predicative position), in the slot indicated:

Attributive Position	Predicative Position
Alex is an _____ person.	Alex is very _____.
<i>ártificial</i>	<i>artificial</i>
<i>ábsent-minded</i>	<i>absent-minded</i>
<i>arístocratic</i>	<i>arístocrátic</i>

Because the placement of stress in a sentence is a matter of spacing out the stresses as evenly as possible and because it is usual to place stress near to the end of the sentence in English, on the last major part of speech, *pérsón* carries stress; as a consequence, stress on the preceding adjective is placed as far from it as possible, on the first or second syllable. In contrast, since *véry* carries emphatic stress, the stress on the following adjective is placed as late as possible, on the penultimate syllable.

3. Stress is used for contrastive emphasis within phrase units. This is often indicated in writing by italics or underlining:

I want the red one, not the blue one.

He can, but he wón't finish his work.

4. Stress may be used in a discourse to signal new as opposed to old (given) information. For example, in a discussion of what food is wanted by the addressee for dinner, the speaker might use any of the questions below:
- a. *Do **y**ou want pizza for dinner?*
 - b. *Do you want **p**izza for dinner?*
 - c. *Do you want pizza for **d**inner?*

In sentence (a), pizza is considered given information. By placing the stress on *you*, the speaker is questioning specifically whether it is the addressee who wants pizza (as opposed to another person in the group). In sentence (b), the speaker is questioning the addressee's wants for dinner ("pizza" as opposed to "spaghetti"). Finally, in sentence (c), the speaker is questioning which meal pizza should be served at ("dinner" rather than "lunch"). The third sentence – in which the last noun in the clause receives the greatest prominence – is also the most neutral version of this question, where no particular item is being unduly stressed (as we shall see in the next section). We will consider this aspect of stress in more detail in Chapter 11.

5.2 Intonation

Like stress, intonation is a meaningful suprasegmental feature of speech. Intonation refers to patterns of pitch variation in a sentence. It does not refer to the discrete pitches of different vowels, to pitch accent, or to physiologically determined variations in pitch due to the size and shape of a person's vocal apparatus (e.g. the difference in pitch between men's and women's voices). The pitch patterns of intonation are similar to tunes distributed over sentences in an organized and systematic way. They affect the meaning of the sentence as a whole by indicating different sentence types, such as statements or questions.

Intonation is represented in a gross fashion in writing by punctuation marks: ? , . ! ; –. Intonation patterns may also indicate the attitude or relation of the speaker to the hearer as well as various contextual features. Therefore, though intonation is a phonological feature, its meaning lies within the province of syntax and pragmatics. Intonation patterns differ quite substantially among different dialects of English, for example between British and American or American and Canadian English. Note that you cannot usually determine the national dialect of a singer because the tunes of the music supersede the distinctive intonational patterns of English sentences.

In describing intonation, we generally identify four different levels of pitch, which we can refer to as "extra high", "high", "middle", and "low". Within an utterance, the pitch tends to alternate between low and high. The extra high level is reserved for expressing a strong emotion such as surprise, enthusiasm, or disbelief; it is also the pitch level that signals contrastive or emphatic stress.

It has been the practice to recognize two basic intonation contours, **falling intonation** (where the end of the utterance is marked by low pitch) and **rising intonation** (where the end is marked by high pitch). In general, a fall signals certainty or finality while a rise signals uncertainty. Within these two basic contours, we can identify several different pitch patterns, which convey different meanings:

Pitch Pattern	Meaning
long falling	expresses finality, conclusion, affirmation, agreement
short falling	expresses an attenuated or qualified conclusion
long rising	expresses questioning and a lack of finality
short rising	expresses some degree of reservation or functions as a signal of attentiveness (continuation marker)
rising-falling	expresses finality with added emotion (e.g. emphasis, enthusiasm, certainty, annoyance)
falling-rising	expresses querulousness, skepticism, reservation

In essence, the difference between the “long” and “short” falling and rising patterns has to do with the time it takes for the speaker to change pitch within the utterance. In “long” patterns, the change in pitch (whether up or down) is more gradual; in “short” patterns it tends to be rather abrupt (typically over one or two words).

The listener uses the cues provided by pitch change to interpret the speaker’s intent. We can see the meaning of these pitch patterns even in the different ways that the one-word utterance “Yes” can be produced:

Pitch Pattern	Utterance	Meaning
long falling	“Yes.”	The answer is “yes.”
short falling	“Yes.”	The answer is “yes”, but I am impatient with your question or find it unimportant.
long rising	“Yes.”	Did you say “yes”?
short rising	“Yes.”	Perhaps. <i>or</i> Please go on – I’m listening.
rising-falling	“Yes.”	I’m certain.
falling-rising	“Yes.”	I’m doubtful.

Of course, we normally speak in sequences longer than an individual word. In analyzing intonation patterns, we need to divide longer sequences of discourse into **tone groups**. Tone groups are not necessarily syntactic, but correspond to units of information. A single tone pattern continues over a particular tone group. There may be more than one tone group per sentence. The number of tone groups may vary depending on style: in more formal, deliberate, or pompous style, there are a greater number of tone groups than in more colloquial styles. Consider the following sentence:

She sat by the window in the late afternoon, // reading a letter.

Here there are two tone groups, corresponding to syntactic units, both with falling intonation. A more formal style might consist of three tone groups:

She sat by the window // in the late afternoon, // reading a letter.

Each tone group contains a **tonic syllable**, which carries the major shift in intonation. Usually, the tonic syllable is the last stressed syllable in the tone group. It expresses the information which the speaker considers new (unknown) and most important, as in the following sentences where the tonic syllable is underlined:

Did you get the job? vs. Did you lose your job?
I visited my mother. vs. I visited your mother.

Let's now examine pitch patterns in different sentence types.²⁰ In each example the tonic syllable is underlined.

1. A statement has a long falling intonation pattern.
 - a. *A whale is a mammal.* (Here the topic of the conversation is whales. What the speaker is adding to the conversation is that these animals are mammals – as opposed to fish – so “mammal” is new information.)
 - b. *A whale is a mammal.* (Here “mammal” is the topic, and “whale” is new information.)
2. A command also has long falling intonation when compliance is expected:
 - a. *Close the window!*
 - b. *Take your seats!*
3. A yes/no question has a long rising intonation pattern, since it expects an answer.
 - a. *Do you want some coffee?*
 - b. *Do you want cream in your coffee?*
 - c. *Do you want coffee or tea?*
 - d. *Do you want coffee, // or tea?* (This actually represents two yes/no questions, the second being a kind of afterthought to the first; the first has long rising intonation and the second has short rising intonation)²¹

20. It is important to note that there is no complete correspondence between intonation patterns and grammatical structures. Thus, any generalizations about statements having falling intonation or questions having rising intonation are tempered by the discourse contexts in which these grammatical patterns are found and also by the speaker's intent.

21. This pattern is not to be confused with the pattern used for alternative questions (see 7 below).

- e. *You are giving up coffee?* (Note that this is not syntactically a question, but the intonation shows that it is functioning as one.)
4. An echo question, which asks for the repetition of what has been said before, also has rising or falling-rising intonation.
- a. *He said what?*
b. *You did what?*
5. A *wh*-question has a long falling intonation pattern (like a statement) since this type of sentence does not ask for but rather presupposes an answer.
- a. *Where did you put the paper?* (This is the neutral emphasis.)
b. *Where did you put the paper?* (This focuses on “you” as new information.)
6. A tag question has two tone groups; the first half is syntactically a statement, while the second half is syntactically a question.²²
- a. *You will help, // won't you?* (This follows the expected pattern where the first tone group has falling intonation because it is a statement and the second tone group has short rising intonation because it is a *yes/no* question.)
b. *He likes chocolate, // doesn't he?* (This is not a real question, but merely asks for confirmation, so unlike (a), the second tone group has short falling intonation.)
7. An alternative question consists of two or more tone groups, the first one or more having question intonation and the final having statement intonation:
- a. *Did you buy a paper, // or not?* (The first pattern is long rising, and the second short falling.)
b. *Did you eat a doughnut, // or a muffin?*
c. *Do you want an apple, // an orange, // or a peach?*
8. A list has a number of tone groups with short rising intonation patterns indicating that the discourse continues:
- a. *I bought some apples, // oranges, // and peaches.* (The last tone group is falling because this is a statement.)²³
b. *I ordered an endive salad, // pasta with sun dried tomatoes, // and tiramisu.*

22. We look at the construction of questions in Chapters 8 and 9.

23. Long falling intonation on the first two tone groups yields a very slow, deliberate, solemn style, while long rising intonation of these tone groups yields a highly dramatized style, often used when addressing children.

9. Complex sentences have a similar pattern – short rising followed by the appropriate end intonation – whether the subordinate clause precedes or follows the main clause:
- When she arrived home // she opened the mail.*
 - She turned off the radio // when he called.*
10. A question expressing great doubt or surprise has a falling-rising intonation pattern.
- Are you sure? (The vowel of the tonic syllable may be elongated.)*
 - It's raining?*
11. A statement expressing great certainty has a rising-falling intonation pattern.
- (I've told you several times) I don't know.*
 - (You have to wear your jacket) It's raining.*
12. The intonation patterns of parenthetical expressions such as direct address (e.g. *Mr. Smith, James*), adverbials (e.g. *unfortunately, realistically*), expressions of opinion (e.g. *I believe, you know*), and expletives (e.g. *damn*) differ depending on where the parenthetical expressions appears within the utterance.
- Your taxi, // Ms. Jones, // is waiting downstairs.* Sentence initial and sentence medial expressions tend to have short rising intonation signaling that the speaker has not completed the utterance.
 - We're in for some hard times, // I think.* Sentence final parenthetical expressions generally have short falling intonation. In some cases, there may also be short rising intonation on the parenthetical to lighten up the utterance.²⁴

Self-Testing Exercise: Do Exercise 3.4.

6. Syllable structure

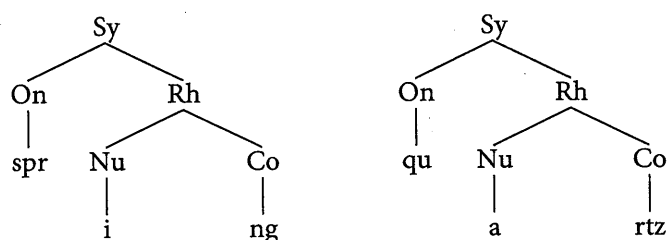
We will end this chapter by examining the level intermediate between sounds (meaningless segments) and affixes/words (meaningful segments), namely the **syllable** (Sy). The syllable represents a level of structure intuitively recognized by speakers of the language; it figures importantly in the rhythm and prosody of the language. As noted earlier, a syllable consists obligatorily of a vowel (or syllabic consonant); this is the acoustic peak, or **nucleus** (Nu),

24. Note that if the final parenthetical element is short, the speaker may not separate the utterance into two tone groups. In this case the parenthetical element is subsumed into the first tone group and the intonation contour of the first tone group extends over the entire utterance.

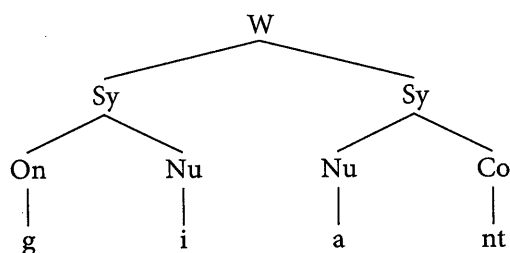
of the syllable and potentially carries stress. As discussed above, a syllable may optionally begin with one to three consonants – the **onset (On)** of the syllable – and may close with one to four consonants – the **coda (Co)** of the syllable:

(C) (C) (C) Vo (C) (C) (C) (C)

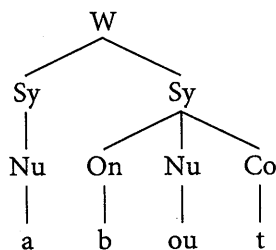
The nucleus and coda together form the rhyme (Rh). Syllable structure can be represented in the form of trees, as in the diagrams below for *spring* and *quartz* (using conventional orthography rather than transcription):



With polysyllabic words, the question of syllable division arises. If there is no medial consonant, the syllable division falls between the vowels, as in *po.et*, *ne.on*, or *gi.ant*:

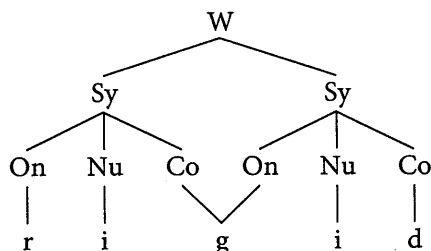


(W = word. For simplicity, we will ignore the intermediate level of the rhyme.)²⁵ If there is one medial consonant, and stress follows the consonant, the medial consonant forms the onset of the second syllable, as in *ba.ton*, *re.gard*, or *a.bout*:

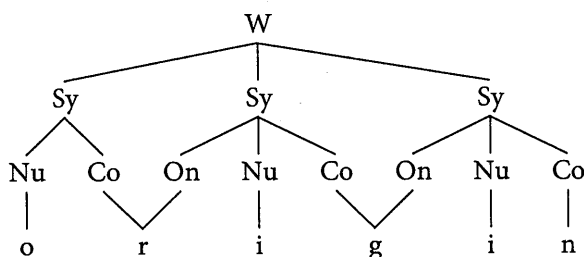


25. While it is conventional to use the symbol σ for “syllable” and Σ for “word”, for the purposes of this introductory text, we are using the more intuitively more obvious “Sy” and “W.”

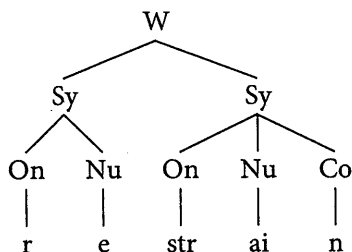
However, if stress falls on the initial syllable, speakers syllabify sometimes with the consonant as coda of the first syllable, sometimes as onset of the second, as in *read.y/rea.dy*, *op.en/o.pen*, or *rig.id/ri.gid*. The consonant is said to be **ambisyllabic** (*ambi-* Greek for 'both'), belonging to both syllables:



Ambisyllabicity may occur as well when the syllable preceding and following the consonant are both unstressed, as in *man.i.fest/man.if.est*, or *or.i.gin/or.ig.in*. Of course, the first consonant is also ambisyllabic (hence also *ma.ni.fest* and *ma.nif.est* or *o.ri.gin* and *o.ig.in*):

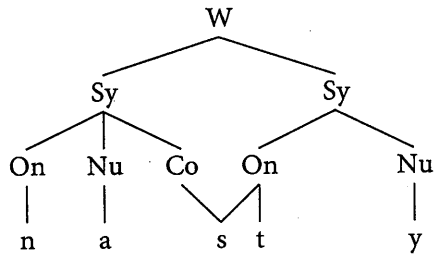


When a consonant cluster occurs word medially and stress falls on the vowel following, the consonants form the onset of the second syllable (compare *about* above), as in *su.blime* or *re.strain* (not *rest.rain*, *res.train* or *sub.lime*;²⁶ **subl.ime* would not be possible since **bl* is not a possible final cluster):

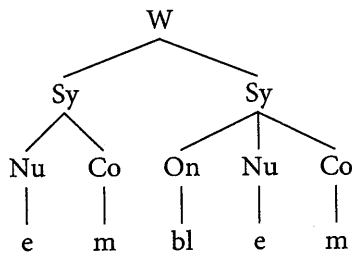


26. Syllabification practices used in dictionaries are conventional and not entirely phonologically based. Often, morphological boundaries are also used in establishing syllables. This would be the case for *sublime*, where the prefix *sub-* would be recognized for the purposes of syllabification.

When stress falls on the vowel preceding the consonant cluster, the cluster forms the onset of the second syllable with the initial consonant being ambisyllabic (compare *rigid* above), as in *mi.stress/mis.tress* or *na.sty/nas.ty* (but not *nast.y* or *mist.ress*):



However, if the consonant cluster is not a possible initial cluster in English, the consonants are split between the two syllables, as in *at.las* (not **a.tlas*) or *on.set* (not **o.nset*), with the longest possible sequence (according to phonotactic constraints) forming the onset of the second syllable, as in *em.blem* (not *emb.lem* or **e.mblem*).

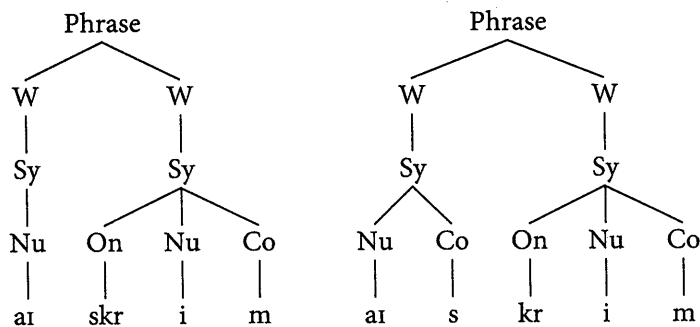


Self-Testing Exercise: Do Exercise 3.5.

A phenomenon similar to ambisyllabicity arises not at syllable boundaries, but at word boundaries, in cases of apparent ambiguity, as in these well-known examples:

- | | |
|--|--------------------------------------|
| <i>my train/might rain</i> | <i>this kid/the skid</i> |
| <i>mice fear/my sphere</i> | <i>syntax/sin tax</i> |
| <i>that scum/that's come</i> | <i>not at all man/not a tall man</i> |
| <i>night rate/nitrate</i> | <i>an aim/a name</i> |
| <i>Grade A/gray day</i> | <i>we dressed/we'd rest</i> |
| <i>lighthouse keeper/light housekeeper</i> | <i>that's tough/that stuff</i> |

For example, the sequence of sounds /aɪskrɪm/ could be divided as follows:



That is, /s/ could form the coda of the first word or the onset of the second word, just as in ambisyllabicity, a consonant can form the coda of the first syllable or the onset of the second. Nonetheless, various phonetic features seem to permit disambiguation of these sequences.²⁷ For example, the /k/ in *ice cream* would be aspirated, whereas that in *I scream* would not be. Vowel length would distinguish *my train* (with [aɪ:]) from *might rain* (with /aɪ/); nasalization and vowel quality would distinguish *an aim* (with [æ̃n]) from *a name* (with /ə/); and stress would distinguish *lighthóuse kéeper* from *líght hóusekèeper*.

Chapter summary

Now that you have completed this chapter, you should be able to:

1. write rules for phonemes of English, given appropriate data;
2. identify a number of phonological processes at work in English;
3. state the restrictions on positions of sounds and combinations of sounds in English;
4. determine the placement of primary and secondary stress in English words;
5. describe the different functions of stress in English;
6. identify the tonic syllable and pitch pattern within a tone group; and
7. determine the syllable structure of English words.

Recommended additional reading

More detailed discussions of English phonology can be found in Giegerich (1992, Chapters 6–10), McMahon (2002, Chapters 2, 4, 5, 7, and 9), Kridler (2004, Chapters 5–7, 9–10, 13–14), Ladefoged (2006, Chapter 3, pp. 71–76 and Chapter 4, pp. 98–100), and Clark, Yallop, and Fletcher (2007).

Textbook discussions of the topics covered by this chapter include Jeffries (2006, Chapter 2), Fromkin, Rodman, and Hyams (2007, Chapter 7), Finegan (2008, Chapter 4), and Curzan and Adams (2009, Chapter 3). Murray (1995, Chapter 2) is an elementary discussion, complete with exercises and answers.

A generative approach to English phonology is Carr (1999), see also Clark, Yallop, and Fletcher (2007, Chapter 6). General linguistics treatments of phonology include Katamba (1989) and Odden (2005).

For a more detailed discussion of English intonation, see Wells (2005), and, for a more individualistic account, Bolinger (1986).

27. Such phenomena used to be explained by postulating a suprasegmental feature called “juncture”, a kind of pause which demarcated the boundary between words and which differed from the pauses between sounds within words (“open” versus “close” juncture).

WEEK SIX

Goals

The goals of the chapter are to:

- explain the concept of word as a minimal free form;
- introduce and explain the key concepts in the study of the structure of words, including morpheme and allomorph;
- distinguish and classify the main types of morpheme according to their behaviour;
- exemplify the main methods and techniques of identifying morphemes and allomorphs;
- show how the structure of words in a language can be described; and
- raise the question of the psychological reality of morphological analysis.

Key terms

allomorph	inflectional morpheme	root
bound morpheme	lexical morpheme	stem
case	morph	suffix
clitic	morpheme	suppletion
derivational morpheme	morphophonemic form	tense
enclitic	morphophonemic rule	verb
free morpheme	noun	word
grammatical morpheme	number	zero morpheme
infix	person	
inflection	prefix	

3.1 Words

Notion of the word

Speakers generally have some notion of what constitutes a word in their language, and all languages probably have a word for 'word' – that is, a word that can translate *word* in some context. (This does not hold for most of the other terms used in grammatical description, including many of the terms we encountered in the previous chapter, such as *phone*, *phoneme*, *syllable* and so on.)

Speakers of English generally have a good feel for how an utterance can be divided into words.

This may seem trivial: surely words are the things that are separated by largish white spaces in writing? But this does not always work smoothly. *Bookcase* and *bookshelf* would be words by this criterion, and this probably agrees with your intuitions. On the other hand there is no apparent motivation for writing *church mouse* as two words, *churchman* as one. And of course, you could not use this criterion at all for an unwritten language.

In speech we find no corresponding pauses between the words – recall Figure 2.1, the sound wave for *The farmer kills the duckling*. Nevertheless, no speaker of English would have any doubt that there are five words in this sentence: *the*, *farmer*, *kills*, *the* (again) and *duckling*. No one would say that there is a word boundary between *farm* ([fɑ:m]) and *erkills* ([ək'hɪlz]), or between *kill* ([k'hɪl]) and *s* ([z]).

Although no pauses occur between the words, you could potentially pause at any of the word boundaries in uttering the sentence, or put an *um* or *er* in between the words, as you might do in hesitating while trying to think of the right word. You could say, for instance, *The farmer ... kills the duckling* (where ... represents a pause), or *The um farmer kills um the duckling*. But you can't put pauses within the words: you wouldn't say *Th...e* ([ð...ə]) *farmer kills the duckling* or *The far...mer kills the duckling* or *The farmer kills the duck-um-ling*. In the last case, you would, rather, say *duck um duckling*, saying the full form rather than part of it.

We can extend this observation. First, notice that each word in the example sentence can be separated from its neighbour by another word: *The hairy farmer always kills all the little ducklings*. Second, each word can stand alone as an utterance. For instance, if a non-native speaker of English had said *De farmer kills de duckling*, a native speaker might possibly correct them by saying just *the* ([ðə]); the same can be done for the other words. But only full words would be corrected in this way: no native speaker would correct *The farmer kills the duckling* with just *ling* or *l* – they would repeat the whole word, *duckling* (with perhaps extra stress on the final syllable).

Words are thus **minimal free forms**: they have a degree of independence from other words in the sentence in the sense that they can be separated from them (this gives us the 'free' bit), and no smaller part of them has such freedom (giving the 'minimal' bit).¹

Returning to our earlier problem examples, *church mouse* and *churchman*, can you now decide whether they are each single words or two words?

The structure of words

We begin by drawing a distinction between **simple words** like *farm*, *kill* and *duck* that have no internal structure, and **complex words** like *farmer*, *kills* and *duckling* that do have internal structure. Complex words can be divided into smaller meaningful pieces: *farmer* into *farm* and *-er*; *kills* into *kill* and *-s*; and *duckling* into *duck* and *-ling*. By contrast the simple words *farm*, *kill* and *duck* can't be divided up further into meaningful pieces: no smaller part of these words has a meaning. Nor can we divide *-er*, *-s*, or *-ling* into smaller meaningful pieces.

The 'pieces' we have been talking about are minimal linguistic signs: they have a form and a meaning, and cannot be divided into smaller linguistic signs. Such pieces are **morphemes**. Morphemes are in a sense atomic signs: they can't be split up further. Simple words consist of a single morpheme; complex words of more than one morpheme.

Languages differ vastly in terms of the word-complexity they permit. English words are generally made up of relatively few morphemes. By comparison, words in Yup'ik (Eskimo-Aleut, Alaska) tend to be more complex, and often correspond to full sentences in English. Thus the single word *kaipiallrulliniuk* means 'the two of them were apparently really hungry', and is made up of six morphemes:

(3-1)	<i>kai-</i>	<i>-pia-</i>	<i>-llru-</i>	<i>-llini-</i>	<i>-u-</i>	<i>-k</i>
	be:hungry-	-really-	-past-	-apparently-	-statement-	-they:two

We return to the issue of the relative morphological complexity of languages in Chapter 14.

Morphemes are linguistic signs, not mere phonological forms. The word *duct* /dʌkt/ (referring to a type of tube) contains the phoneme string /dʌk/ found at the beginning of *duckling*, which we separated off as a morpheme, as well as /t/, which is found in /fɪnɪʃt/ and means 'past time'. But *duct* is a simple, not complex, word and does not mean anything like 'a duck in the past', or 'a onetime duck'.² To identify a morpheme requires that we identify a repeated form-meaning correlation, not just a repeated form (or meaning).

3.2 Morphemes, allomorphs and morphs

Morphemes sometimes come in different phonological shapes. For instance, we identified a morpheme with the shape /z/ in *kills*, which indicates that a single person (not the speaker or hearer) is doing the event now. For *pat* the corresponding form ends instead in /s/, and for *touches*, it ends in /əz/. These variant forms are called **allomorphs**. Other allomorphs in English are /t/, /d/, and /əd/, which are variant forms of the morpheme that attach to verbs and indicate past time, as illustrated by *kissed* /kɪst/, *killed* /kɪld/ and *batted* /bætəd/, respectively.

In Yngkarta (Pama-Nyungan, Australia) future time is indicated in some verbs by adding *-ku*, in others by adding *-wu*, and in others by *-lku*: *karnkaya-ku* 'will call out', *nyina-wu* 'will sit' and *kampa-lku* 'will cook'. The three forms *-ku*, *-wu* and *-lku*, are allomorphs of the future morpheme.

Allomorphs, like allophones, may be in either complementary distribution or free variation. The allomorphs /ə/ and /æn/ of the English indefinite article (these are not the only allomorphs) – written *a* and *an* respectively – are in complementary distribution: the former occurs when the following word begins with a consonant, the latter when it begins with a vowel. Free variation is illustrated by alternative realizations of the word *exit* as /egzɪt/ and /eksɪt/, and *off* as /ɔ:f/ and /ɒf/. Both forms of each pair are found in the speech of many speakers of English, and are phonemically distinct: elsewhere [gz] and [ks] (*exist* and *excel* are near minimal pairs), and [ɔ:] and [ɒ] contrast phonemically.

The term **morph** is sometimes (albeit rather infrequently) used in reference to any minimal meaningful element in a language. For example, three morphs can be identified in the English

word *unwisely*: /ʌn/, realizing a negative morpheme, /wɪz/, realizing the morpheme meaning 'wise', and /li:/, realizing a morpheme meaning 'manner'. In English we have three morphs with the same phonological form /z/, one going on nouns and specifying plural ('more than one'), as in *dogs* /dɔgz/, another going on nouns and indicating a possessor, as in *dog's* /dɔgz/, and yet another going on verbs, and indicating 'he, she or it is doing something'. There are also three morphs with the phonological shape /s/, and three with the shape /əz/ (in my dialect, Australian English). This gives nine morphs altogether, forming three sets of allomorphs of three morphemes.

3.3 Main types of morphemes

Types according to occurrence

Free morphemes

Words, as we have already seen, are free forms. A simple word consists of a single morpheme, and so is a **free morpheme**, a morpheme with the potential for independent occurrence. In *The farmer kills the duckling* the free morphemes are *the*, *farm*, *kill* and *duck*. It is important to notice here that (in this sentence) not all of these free morphemes are words in the sense of minimal free forms – *farm* and *duck* are cases in point.

Bound morphemes

Bound morphemes, by contrast, require the presence of another morpheme to make up a word; they can't occur independently. The morphs *-er*, *-s* and *-ling* in our example sentence are bound morphemes; all the other morphemes are free. Yngkarta *-ku*, *-wu* and *-lku* (see §3.2) are also bound morphemes.

Bound morphemes which, like those discussed in the previous paragraph, go on to the ends of words, are called **suffixes**. Another type of bound morpheme is a **prefix**, which precedes the morpheme to which it is attached. The bound morphemes *un-* and *re-* in English are prefixes, as in *unhappy* and *re-constitute*. A third type of bound morpheme is an **infix**, that goes inside another morpheme, as in Tagalog (Austronesian, Philippines) *-in-* 'past' in *ib-in-igay* 'gave', which occurs within the morpheme *ibigay* 'give'. Collectively, suffixes, prefixes and infixes are called **affixes**.

It is important to stress that infixes are affixes that occur within other morphemes, and not between them. Thus *-er* (/ə/) is **not** an infix in *farmers*, where it occurs between the two morphemes *farm* and *-s*, not within either of them; *-er* remains a suffix. The closest thing to infixation in English is the incorporation of expletives into words, as in *abso-bloody-lutely* and *fan-fucking-tastic*.

The distinction between bound and free morphemes is not always completely clear-cut. A morpheme can have both free and bound allomorphs. For example, *not* in English has a free form /nɒt/, and a bound form /nt/: *he is not going* has the free form, while *he isn't going* has the bound form. There are also words like *deride* (/dəˈrɪd/) that have a different bound form, /dɪrɪz/, as in *derision*.

Types of morpheme according to function or use

A different classification can be arrived at if we consider the usage of a morpheme, including the type of meaning it conveys, instead of its distributional possibilities. This is the basis for the distinction between lexical and grammatical morphemes.

Lexical morphemes

Lexical morphemes are those like *farm, kill, happy, constitute, book* in English and *ibigay, 'give'* in Tagalog, that convey the major 'content' of a message, specifying the things, qualities and events spoken about. The lexical morphemes of a language form a large set, which allows new members – new ones are constantly being introduced into languages in response to the changing worlds in which speakers live (see Chapter 4). Lexical morphemes, that is, form an open set.

Farm, kill, happy, constitute, book are free lexical morphemes, or free **roots**, which may serve as bases to which bound morphemes can be attached. Lexical morphemes can also be bound; there are **bound lexical roots** and **derivational affixes**.

Bound roots

Recall that some lexical roots have bound and free allomorphs. Sometimes lexical roots are bound in all of their manifestations. Nyulnyul has around 50 bound roots, mainly terms for parts of the body, that must take a prefix indicating the owner of the part. There is no free lexical morpheme 'hand'. The root is the bound form *-marl* that has to have a prefix, as in *nga-marl* 'my hand', *nyi-marl* 'your hand', *ni-marl* 'his or her hand', *irr-marl* 'their hand', and so on. Nyulnyul has in addition, some hundreds of other bound roots, including *-jid* 'go', *-m* 'put', *-j* 'do, say'.

Derivational affixes

These are affixes that attach to a lexical root and result in a new word, a complex item called a **stem**. The suffix *-er /ə/* in English is a derivational suffix: adding it to a lexical root gives a stem with a related meaning. Attaching this suffix to *bake* gives *baker*, to *boil* gives *boiler* and so on. Other derivational suffixes in English include *-ish* as in *childish*, *-ic* as in *alcoholic*, *-ful* as in *tearful* and *-ly* as in *precisely*, among others. Notice that these suffixes do not only change the meaning of the morpheme they are attached to, they also change its part-of-speech (see §4.1). Thus from nouns like *child, alcohol* and *tear*, we get adjectives like *childish, alcoholic* and *tearful*.

Not all derivational morphemes change the part-of-speech of a root. For example, *-hood* normally attaches to a noun, giving another noun: *childhood, priesthood* and *sisterhood*. Most derivational prefixes in English are like this, and do not change the part-of-speech of a root.

Nyulnyul has a derivational morpheme *-id* – with a meaning similar to English *-er* – that can be attached to a lexical morpheme of virtually any type to give a noun (so it may or may not change a morpheme's part-of-speech): *yaward-id* (horse-er) 'horseman', *-alm-id* (head-er) 'hat', *majanbin-id* (to:jump-er) 'jumper' and *junk-id* (run-er) 'runner'.

Stems can often be further derived to give yet more complex stems. For instance, from the root *help* we can derive *helpful*, which can be further derived to *unhelpful*; this new word can be further derived by suffixing *-ness, unhelpfulness*, or *-ly, unhelpfully*.

Grammatical morphemes

Whereas lexical morphemes give the major meaning content of an utterance, **grammatical morphemes** mainly give information about the grammatical structure of the utterance, about how to put the content together to form a coherent whole. Grammatical morphemes are generally demanded by the grammar, and contribute relatively abstract schematic meanings concerning the functions of the lexical items. For this reason they are sometimes called **function morphemes**. Like lexical morphemes, they can be either free or bound.

Free grammatical morphemes

Free grammatical morphemes in English include words like *and, but, by, in, on, not, the, a, that, it, me* and so forth. Languages only rarely acquire new grammatical morphemes, and the grammatical morphemes in a language can be regarded as effectively forming a closed class.

The most frequent words in English are free grammatical morphemes. An investigation I made of three corpora – totalling just over two million words from both speech and writing – revealed the following as the ten most frequent words (in order of frequency):³ *the, be, of, and, a ~ an,⁴ to, in, he, have* and *that*. With the possible exception for *have*, these are grammatical morphemes; *have* arguably has both lexical uses (e.g. in *She has two kittens*) and grammatical uses (e.g. in *She has stolen two kittens*). In fact, almost all of the 40 most frequent words in these corpora are grammatical words. The three or four that are not all have grammatical uses as well as lexical uses.

Bound grammatical morphemes

Inflectional affixes

Inflectional affixes are bound morphemes that give grammatical information relevant to the interpretation of a sentence. They do not give rise to new lexical words, but to different forms of a single lexical word, different forms that are appropriate for the use of the lexical word in the sentence.

Consider the following Latin sentence:

(3-2)	<i>serv-ī</i>	<i>cōnsul-em</i>	<i>audi-unt</i>
	slave-PL:SUB	consul-SG:OBJ	hear-they:PRS
	‘The slaves hear the consul.’		

This example shows the standard way of laying out example sentences, and should be followed. The first line shows the words in the language, divided into morphemes separated by hyphens; this line is given in italics. Below is a line giving a gloss (simple translation) for each morpheme. For grammatical morphemes the gloss is usually given as an abbreviation in capitals: in the above example, PL stands for 'plural', PRS for 'present' (i.e. an event going on now), OBJ for 'object', SG for 'singular' and SUB for 'subject'. When more than one word is used in the gloss for a single morpheme in the language line, the words are separated by a colon (:). The third line shows a free translation, a translation that indicates the meaning of the entire sentence. This is enclosed in single quotation marks. For fuller details of recommended conventions see *The Leipzig glossing rules: conventions for interlinear morpheme-by-morpheme glosses*, available at <http://www.eva.mpg.de/lingua/resources/glossing-rules.php>.

The suffix *-ī* on *serv* 'slave' indicates that this word is the subject of the sentence, and that more than one slave is involved, that is, that the word is plural in number; the *-em* suffix on the second word indicates that *cōnsul* 'consul' is the object and is singular in number. (See §5.4 on the notions of subject and object.) The suffixes *-ī* and *-em* are inflectional suffixes that give information about how the words they are attached to are incorporated into the grammar of the sentence. Attaching them to the roots *serv* 'slave' and *cōnsul* 'consul' does not give rise to new words, but to forms of the same words that are appropriate to their grammatical environments. If instead the sentence was to express the meaning that the consul heard the slaves, the word *cōnsul* 'consul' would be used as is, and the suffix *-ōs* would be attached to *serv* 'slave'.

The suffix *-unt* added to *audi* 'hear' is also an inflectional suffix, giving a form of this word that should be used when the subject is plural. If the subject was singular, the suffix *-t* would have been used instead. The suffix also indicates that the event is going on at the present time. The lexical words *serv* 'slave', *cōnsul* 'consul' and *audi* 'hear' come in different forms according to the grammatical features of the sentence they occur in. Thus compare (3-2) with (3-3).

(3-3)	<i>cōnsul</i>	<i>serv-ōs</i>	<i>audi-t</i>
	consul:SG:SUB	slave-PL:OBJ	hear-he:PRS
	'The consul hears the slaves.'		

Inflections on nouns indicating the grammatical role of the noun in the sentence are called **cases**. It is usual to call the subject case (as in Latin) the **nominative** (abbreviated NOM), and the object case **accusative** (abbreviated ACC). The inflections on the verb are called **agreement** inflections: they agree with the subject in terms of whether it is 'I', 'we', 'you', 'they' and so on.

English also has inflectional suffixes, including a regular plural suffix with allomorphs /s/ ~ /z/ ~ /əz/ as in *magistrates*, *slaves* and *churches*, respectively. (Some nouns have irregular plurals; for example, the plural of *mouse* is *mice*, and of *ox* is *oxen*.) The suffix /z/ on *hears* and *kills* is also an inflectional suffix, giving the form of these words appropriate to sentences with a singular subject excluding the speaker or hearer (i.e. 'he', 'she' or 'it') and present time reference.

Clitics

Not all bound grammatical morphemes are inflectional affixes. Consider the bound form of the free grammatical morpheme *not*, written *n't*. When this morpheme is attached to an auxiliary verb such as *have* as in *They haven't broken in* it does not result in a new form of that auxiliary verb: the word *haven't* is not a distinct form of *have* that has been chosen because of the grammar. Nor is it a new lexical stem. Bound grammatical morphemes like this, which behave grammatically as separate words, but are phonologically part of the preceding word, are called **enclitics**. If they are part of a following word, they are called **proclitics**; the term **clitic** is a generic term covering both types.

Not all clitics are like *-n't* in having corresponding free form words. The English possessive morpheme written *'s* – with allomorphs /s/, /z/ and /əz/ – is an example. This morpheme does not give a variant form of the morpheme to which it is attached, a form that is appropriate to a particular grammatical environment. This is because it is attached not to the end of a word, but to the end of a phrase, a group of words that go together (§5.3) as a single unit. Although in *the king's crown* it might appear that the *'s* gives the form of the noun used when it is a possessor, this is not always the case. In *the king of England's crown* it is still the king who is the possessor, not England; similarly he remains the possessor in examples such as *the king who beheaded him's palace*, *the king we saw's palace* and *the king they knocked the crown from's palace*. There is no free allomorph of *'s*.

Differences between derivational affixes, inflectional affixes and clitics

Three main types of bound morphemes were introduced in the previous sections, derivational affixes, inflectional affixes and clitics. Derivational affixes give rise to new lexical words, while inflectional affixes give different forms of the word to which they are attached, forms that are appropriate to the grammatical context of the sentence.

There are several other differences between derivational and inflectional affixes that are tendencies rather than absolute differences. These differences underline the status of derivational morphemes as lexical rather than grammatical in nature.

- **Concept distinctiveness.** Attaching a derivational affix to a word generally gives a new concept, which could in principle be expressed by a simple lexical root; attaching an inflectional affix does not give rise to a new concept. In Warrwa the derived word *burr-kurru* 'a thing associated with a brumming noise' means 'car'; the alternative form *mudika* (borrowed from English) is a root expressing the same meaning.
- **Degree of abstraction.** Derivational affixes tend to have more concrete meanings than inflectional affixes: their meaning is more like that of a lexical word, while inflectional affixes have meanings more like grammatical words. For example, the English derivational suffix *-ess* has a quite concrete, lexical-like meaning, 'female'.
- **Relevance.** The meaning of a derivational affix is usually relevant to the meaning of the root; the meaning of an inflectional affix need not necessarily be very relevant to the meaning of the word.

- **Replaceability.** A word with a derivational affix attached to it can usually be replaced by a single simple word; this is not normally possible for a word with an inflectional affix, which will usually have to be replaced by another inflected form.
- **Regularity.** Derived words often have irregular or not entirely predictable meanings; the meanings of inflected words are normally completely regular and predictable. The lack of regularity in meanings of derived words can be illustrated by the derivational suffix *-ize*, which has rather different effects in *publicize* 'draw to public attention, make well known', *romanticize* 'portray in a romantic fashion', *vaporize* 'to cause something to become a vapour' and *winterize* 'prepare something for use in winter'.
- **Productivity.** Derivational affixes usually have limited applicability; inflectional affixes usually apply to all words of a particular part-of-speech (with perhaps a small class of irregularities). English has a derivational suffix *-ess* that occurs on *heiress*, *authoress*, *lioness*, *goddess* and so on. But there are arbitrary restrictions on the suffix: joking aside, we do not say *elephantess* for 'female elephant', *maness* for 'woman', *workeress* for 'female worker' or *professoress* for 'female professor'.

Clitics do not give a new form of the word to which they are attached, and nor do they result in new lexical words. The forms *haven't* and *isn't* are not inflected forms of *have* and *be*, and nor are they separate lexical items that need to be listed individually in a dictionary.

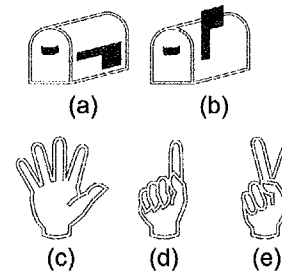
Differences between clitics and affixes include the following, which are again tendencies rather than absolute differences.

- **Freedom of position.** Clitics often – though not always – have a degree of freedom of movement in a sentence, a feature not shared by affixes. Gooniyandi has a question clitic *-mi* that can go on any word of a sentence. No affix has this degree of freedom.
- **Selectivity.** Clitics tend to be relatively free in terms of the range of lexical items they can be attached to (as we saw for English *'s*); affixes are generally more particular about the company they keep.
- **Allomorphic variation.** Clitics generally show few allomorphs, and any they do can usually be explained by the phonological environment, as is the case for the allomorphs of the possessive *'s*. Allomorphs of affixes can have peculiarities that are not explicable phonologically (as in the case of the Latin inflections discussed on pp. 61–2).
- **Predictability of meaning.** There are rarely semantic idiosyncrasies in clitics. Regardless of what word they happen to be attached to, the meaning is generally predictable.
- **Prosodic integration.** Clitics are not necessarily prosodically integrated into the words they are attached to, whereas affixes tend to be integrated. In some languages inflected or derived words are stressed like roots; words and their clitics need not be stressed like roots, and the clitic may show prosodic features of a word. For instance, Gooniyandi has a set of clitic pronominals that attach to verbs, as in *wardba-ngarra* (bring-1SG.OBL) 'bring it for me'; these are stressed as though they were separate words.

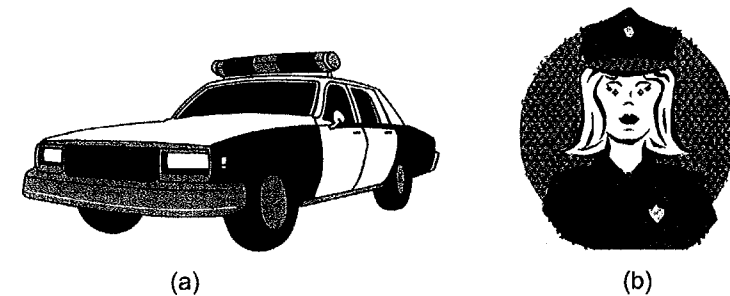
Figure 3.1 attempts to bring out by analogy the difference between the three types of bound morphemes.

If bound morphemes of all three types can be attached to a given word, it is derivational affixes that normally go next to the root, giving a stem; then come inflectional affixes, and finally clitics, at the greatest distance from the root. Thus in English the plural inflection of nouns follows derivational affixes such as *-er*: *teach-er-s*, *farm-er-s* and so on. Similarly, in *energ-iz-ed* the derivational affix is next to the root, and is followed by the inflection. And in *the robot we energ-iz-ed-'s co-processor* the possessive enclitic *-'s* comes finally.

(1)



(2)



(3)

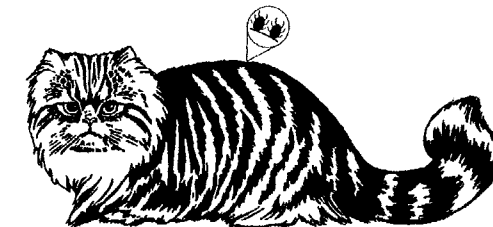


Figure 3.1 A conceptual representation of the differences between the three main types of bound morpheme. (1) Inflection gives different forms of a single item. For example, (a) and (b) are different forms a letterbox can be found in; (c), (d), and (e) are different shapes a hand can take. (2) Derivation gives rise to something new, an item different from the one it derives from, and not a different form of it. The distinctive markings on the car in (a) mark it as a police vehicle, and give rise to vehicle used in particular ways. Similarly, wearing a uniform in (b) specifies the individual as discharging a specific social role. (3) Clitics are items that lean on or depend on other items, like ticks on a cat. The thing that they depend on is their host; the clitic is like a parasite. The presence of a tick does not give rise to a new form of a cat, nor does it derive a new animal type from it. © 2009 William B. McGregor and his licensors. All rights reserved.

Summary of morpheme types

We can summarize the classification of morphemes given in this section as shown in Table 3.1.

Table 3.1 Summary of major morpheme types

	Free	Bound
Lexical	Lexical words (roots and stems) English: <i>man, dog, big, love, run</i>	Bound lexical roots and stems Nyulnyul: <i>-alm</i> 'head', <i>-marl</i> 'hand' (must have a prefix) Derivational morphemes English: <i>-er, -ion</i>
Grammatical	Grammatical words English: <i>of, the, not, we, be</i>	Clitics English: <i>-s, -n't</i> Inflectional morphemes English: <i>-ed</i> (past), <i>-s</i> (on noun, plural)

3.4 Allomorphs and allomorph conditioning

We have now introduced the main morphological units found in languages, and their types. In this section we will look at the relations between allomorphs: how allomorphs of a morpheme resemble one another phonologically; and the factors that condition the choice between them.

Types of allomorph

So far the morphemes we have discussed have allomorphs that are phonologically similar. The three English plural allomorphs /s/ ~ /z/ ~ /əz/, like the formally identical possessive allomorphs /s/ ~ /z/ ~ /əz/, are obviously very similar phonologically. They are called **phonological allomorphs**.

But allomorphs can be quite different phonologically. The derived comparative and superlative forms of *good* are *better* and *best*, with the regular derivational suffixes *-er* and *-(e)st*. However, these suffixes are not attached to *good* to give *gooder* and *goodest* (although these can be found in the speech of children, and in jocular, playful, or foreigner speech of adults). The derivational morphemes are instead attached to *bet-* and *be-* (which are phonological allomorphs), allomorphs of *good* that are not phonologically related to it. Variants like *good* and *bet-* ~ *be-* are said to be **suppletive allomorphs**.

Goemai (Afro-Asiatic, Nigeria) has a fair amount of suppletion in its lexicon. Compare *f'yer* and *nan* the singular and plural verbs 'become big', and *mat* and *sharap* the singular and plural forms of the noun 'woman'.

Suppletion can also be found in grammatical morphemes. For instance, in Yawuru (Nyulnyulan, Australia) verbs take prefixes indicating whether the subject is 'I', 'we', 'you', 'he', 'they' and so on. The form of the prefix for subject 'you (one individual)' is usually /mi/, as in /minapanda/ 'you caught it' and /mijjurkuŋ/ 'you were cutting hair'. In reference to a future event, however, the form

is instead usually /wal/: /walapa/ 'you will catch it', and /waljurku/ 'you will cut hair'. But for a few verbs it is /ŋa/, as in /ŋajali/ 'you will return'. The three forms /mi/, /wal/ and /ŋa/ are suppletive allomorphs of the second person singular subject prefix.

Types of conditioning factors

Conditioning factors are the factors that determine which allomorph of a morpheme you use. In **phonological conditioning** different allomorphs are selected according to the phonological environment. The choice between the allomorphs /ə/ and /æn/ of the English indefinite article is phonologically conditioned by the following phoneme, whether it is a vowel or a consonant. The three possessive allomorphs /s/ ~ /z/ ~ /əz/ are also phonologically conditioned, though in this instance by the preceding phoneme.

Sometimes allomorphs show **lexical conditioning**. That is, the choice of allomorph depends on the particular word the morpheme is attached to. A specific instance of this is the plural suffix involving /n/ found on the irregular plurals *children* and *oxen*. So also is the choice between *-en* (phonological form /n/) and *-ed* (/t/ ~ /d/ ~ /əd/) in the past participle, the form of the verb used after *have* and *had*. Thus we have on the one hand *(have) given, (have) eaten, (have) broken* and on the other *(have) finished, (have) grabbed* and *(have) wanted*.

A third possibility is **morphological conditioning**. Here it is the grammatical rather than lexical morphemes that condition the presence of the allomorph. We saw an example in the previous section, with the distribution of the suppletive allomorphs of the 'you subject' prefix in Yawuru (which depend in part on whether the event is in the future or not).

All three types of conditioning factor can be relevant to the choice amongst allomorphs of inflectional and derivational affixes, including combinations of factors. For allomorphs of clitics, conditioning is almost always phonological.

Morphological rules

In §2.6 we saw that phonemes are abstract forms that are realized by phones, and that a phoneme can be regarded as a set of phones. Likewise, in morphology it can be descriptively and conceptually useful to identify abstract forms for morphemes that are realized by different phonological allomorphs. Thus the regular past suffix in English has three phonological allomorphs, /d/ ~ /t/ ~ /əd/, which are in complementary distribution. We could presume that they are alternative realizations of a more abstract form of the morpheme: the phonemes would thus relate to the abstract form in the same way as phones relate to phonemes. Such abstract forms are sometimes called **morphophonemes**; the specification of a morpheme in terms of these units is its **morphophonemic** (or underlying) form.

Rules are needed to get from the morphophonemic form of a morpheme to its phonological forms, its allomorphs (and then another set of rules to get from that to the phonetic form). We could presume that the regular allomorphs of the past suffix in English have the underlying form {d}, using braces in order to maintain a distinction from phonemic and phonetic levels. The three allomorphs could be accounted for by two rules:

- 1 Insert a schwa (/ə/) following a verb stem ending in an alveolar stop.
- 2 {d} is realized by: (a) /t/ when the preceding segment is voiceless; otherwise (b) it is realized by /d/.

Thus, the past of the regular verb *wish* is /wɪʃt/, which can be derived from {wɪʃ-d} by rule 2a; the regular form of *kill* is /kɪld/, which derives from /kɪl-d/ by 2b (which indicates to do nothing). What about verbs ending in an alveolar stop, like *debate*? This can be accounted for by first applying rule 1 (of schwa insertion), giving /dəbeɪtə/ then rule 2b, giving /dəbeɪt-əd/. Notice that the rules must be applied in this order. Otherwise, you would get the incorrect form /dəbeɪtət/, by first realising the {d} as /t/ and then inserting the schwa after the first /t/. You should verify these rules for a selection of regular verbs (e.g. *love, bow, hoe, pitch, wish, want, raid, grab*) to ensure they give the correct result.

There are more formal ways of writing morphophonemic rules, allowing for more succinct statements of the rules. These follow basically the same conventions as phonemic rules (see box on p. 46), with the addition of the hyphen for a morpheme boundary. Thus, for example, the above rule for the realization of the English regular past morpheme could be expressed as follows:

- 1 insert /ə/ / alveolar stop - _
- 2 {d} → $\left[\begin{array}{l} /t/ \quad / \text{ voiceless segment - } _ \\ /d/ \quad \text{otherwise} \end{array} \right.$

Chapter 5

Grammatical categories and word classes

1. Grammatical categories
2. Determining word classes

Chapter preview

The first half of the chapter defines the grammatical categories (number, person, gender, case, degree, definiteness, tense, aspect, mood, and voice) and the distinctions within each category, explaining how each of these categories is expressed in the different parts of speech in English. The second half of the chapter considers the classification of words using formal (inflectional and distributional) tests. Tests for the categories of noun, adjective, verb, auxiliary, and particle are examined.

Commentary

1. Grammatical categories

In the previous chapter, we introduced the distinction between lexical and grammatical morphemes, but apart from listing the inflectional affixes of English, we were – in our discussion of the processes of word formation – primarily concerned with lexical morphemes. We return now to grammatical morphemes, focusing on the diversity of their meanings and forms in English. You will recall that grammatical morphemes may be either free roots (function words) or bound affixes (inflectional suffixes). Semantically, grammatical morphemes express grammatical notions such as number or tense, what are called the **grammatical categories**. In this section, we will look in more detail at the different grammatical categories, the terms of each category (the distinctions made within each category), and the means by which they are expressed in English. In synthetic languages, such as Classical

Latin or Greek, the grammatical categories are expressed almost exclusively by inflectional endings, whereas in analytic languages, such as Present-day English or French, the grammatical categories are expressed primarily by word order (the position of a word in a sentence) and by function words, as well as by a few inflections.¹ A phrase containing a function word which is functionally equivalent to an inflection is called a **periphrasis**, or **periphrastic form**. For example, in English, we can express the possessive either by an inflection *'s* (as in *Alicia's cat*) or by a periphrasis with *of* (as in *the leg of the table*).

Let us look first at the concept of a grammatical category, which is rather difficult to define. It is important to keep in mind that a grammatical category is a linguistic, not a real-world category, and that there is not always a one-to-one correspondence between the two, though they are usually closely related. For example “tense” is a linguistic category, while “time” is a category of the world. If we consider the following two past-tense forms underlined below:

- a. I saw a movie last night.
- b. I wish you would go.

we see that the past tense expresses past time in (a), as is usual, but that it expresses future time in (b). And if we consider the following two present-tense forms underlined below:

- a. I bite my nails.
- b. I leave tomorrow.

we see that the present tense expresses a timeless habit in (a) and a future time in (b), neither expressing an action occurring at the present moment. Grammatical categories can thus be identified either by formal or notional means. In the first case, we look at the formal distinctions made in a language solely by means of inflection. By these criteria, English has only two tense distinctions, past and present (as in *work/worked*). In the second case, however, there is assumed to be a universal set of grammatical categories and terms, which for tense are past, present, and future. These are expressed in English by means of inflection and, in the case of the future, by periphrasis (as in *will work*). Languages will express different subsets of these universal distinctions and will do so in different ways. We can also differentiate between overt and covert categories. Overt categories have explicit or formal realization on the relevant part of speech, such as past tense in English (the *-ed* inflection on the verb), while covert categories are expressed only implicitly by the cooccurrence of particular function words, such as the future tense in English (the *will* auxiliary occurring with the verb). Finally, we must decide whether a distinction is expressed systematically

1. Languages are situated on a cline between these language types. A language such as Modern German, for example, is more synthetic than Present-day English but more analytical than classical Latin. Modern French is probably somewhat more synthetic than Present-day English.

and regularly in a language, by a regular grammatical marker, or whether it is expressed idiosyncratically and lexically, by the meaning of content words. For example, the distinction “dual” (the concept of ‘two’) is expressed grammatically in Old English by special forms of the personal pronouns, that is, by *wit* ‘we two’ and *git* ‘you two’. In Present-day English dual is expressed lexically only with the words *both* or *two*, not grammatically by an inflection or function word.

The following inventory of grammatical categories proceeds through the nominal categories (number, gender, person, case, degree, definiteness) and then the verbal categories (tense, aspect, mood, and voice).

1.1 Number

The first category, **number**, is relatively simple. There are two terms of this category in English: singular (the concept of ‘one’) and plural (the concept of ‘more than one’). Number is expressed by inflection in:

- count nouns, generally by *-s* (*dog/dogs*)
- demonstratives (*this/these, that/those*)
- the 1st and 3rd p (but not in the 2nd p) of pronouns
 - personal pronouns (*I/we*)
 - possessive determiners (*my/our*)
 - possessive pronouns (*mine/ours*)
 - reflexive pronouns (*myself/ourselves*)

HINT: For historical reasons the idiosyncratic forms of the personal pronouns are considered “inflected forms”, though they do not always contain separable inflectional endings.

Number is also expressed by distinct forms of certain pronouns and adjectives:

- singular: *every, each, someone, anybody, a/an*
- plural: *all, many, few, several, most*

It is also indicated in a limited way in verbs, by the singular *-s* of the 3rd p which occurs in the present but not in the past tense (*he writes* versus *they write, he wrote*). Number is expressed more fully in the inflected forms of the verb BE (singular *am, is, was*, plural *are, were*), which because of its high frequency, tends to preserve inflections more fully than do other verbs.²

2. The history of the English language has involved a gradual loss of inflections in all parts of speech.

The concept of **generic number**, which incorporates both singular and plural and is used when one doesn't want to specify number, is expressed in English in three ways:

1. the definite article + singular noun (*The tiger may be dangerous*),
2. the indefinite article + singular noun (*A tiger may be dangerous*), and
3. Ø article + plural of count nouns or singular of mass nouns (*Tigers may be dangerous* or *Gold is valuable*).

Finally, an "odd" use of number is use of the plural when singular is denoted, in the so-called "royal *we*" or "editorial *we*".

1.2 Gender

English has a rather straightforward system of gender called **natural gender**, in which gender distinctions made in language depend upon the sex of the object in the real world. English distinguishes masculine, feminine, **common gender** (m or f), and neuter (sexless) genders.

HINT: A system of gender found in many languages, such as German, French, or Italian, as well as in an earlier stage of English, is called **grammatical gender**. Grammatical gender appears to be arbitrary, not related to the sex of the object denoted, as in German *das Mädchen* 'the girl' (neuter gender) or French *le jour* 'the day' (masculine gender) or Italian *la vita* 'the life' (feminine gender). Historically, there is probably motivation for grammatical gender since it serves as a means of subcategorizing nouns, but for the contemporary speaker, the motivation is generally not obvious.

In English, gender is expressed by inflection only in personal pronouns, and only in the 3rd person, singular *he, she, it*; the 1st and 2nd person forms *I, we, and you* are common gender, while the 3rd person plural form *they* is either common gender or neuter (*the people ... they, the boats ... they*). Relative and interrogative pronouns and some other pronouns inflectionally express a related category of "animacy" (animate/inanimate): *somebody/one* vs. *something, anybody/one* vs. *anything, who, whom* vs. *what, which*. Distinctions of animacy are variable, but commonly speakers distinguish between human beings and higher animals (*the {woman, dog} who ...*) and lower animals and inanimate things (*the {ant, stone} which ...*).

There is nothing about the morphological form of nouns such as *boy* and *girl* which would indicate that they are masculine or feminine gender. Instead, gender is shown by the cooccurrence of relevant pronouns, *he* and *she*, which refer back to the noun: *the boy ... he, the girl ... she*. Thus, we say that gender is a covert category of the noun.³ However, gender may also be expressed overtly on the English noun in a number of limited ways:

3. It is also generally the case in languages with grammatical gender that the accompanying article or demonstrative, not the shape of the noun, reveals its gender.

1. by derivational suffixes, such as the feminine suffixes *-ine* (*hero/heroine*), *-ess* (*god/goddess*), *-rix* (*aviator/aviatrix*), and *-ette* (*suffragist/suffragette*) or the common gender suffixes *-er* (*baker*), *-ist* (*artist*), *-ian* (*librarian*), *-ster* (*prankster*), and *-ard* (*drunkard*);
2. by compounds, such as *lady-*, *woman-*, *girl-*, *female-*, *-woman* (*lady friend*, *woman doctor*, *girl friend*, *female fire fighter*, *chairwoman*) or *boy-*, *male-*, *gentleman-*, *-man* (*boy friend*, *male nurse*, *gentleman caller*, *chairman*);
3. by separate forms for masculine, feminine, and common genders, such as *boy/girl/child* or *rooster/hen/chicken*; and
4. by separate forms for masculine and feminine genders, such as *uncle/aunt*, *stallion/mare*, *bachelor/spinster* and proper names such as *Joseph/Josephine*, *Henry/Henrietta*.

You can see that none of these means is systematic. It is significant that the feminine is always derived from the masculine, except in the case of *widow/widower*,⁴ presumably because women outlive men. Also, it is typical for the masculine form to double as the common gender form, as with *dog* (cf. the feminine form *bitch*), though in the case of *cow/bull*, *goose/gander* or *drake/duck*, the feminine form is the common gender form, presumably because the female is more important in the barnyard economy.

The marked use of the feminine gender with ships, cars, countries, fortune, art, music, and nature in Present-day English is sometimes considered a remnant of grammatical gender, as in:

Isn't she a beauty? (referring to a car or a ship)
Every country must defend her sovereignty.
Fate has exacted her revenge.
Mother Nature can be cruel.

But it is better seen either as a kind of personification or what George Curme calls “gender of animation”, by which the object is animated and an emotional attachment is expressed. The use of neuter gender with babies (*What a cute baby. What's its name?*) or callers (*A person is calling for you. Who is it?*) is an expediency used when the gender is unknown.

The lack of a common gender for the 3rd person singular, especially for use following a singular indefinite pronoun such as *each* or *every*, has long been a source of difficulty in English. Traditionally, the masculine form has been used for the generic (e.g. *Every child should put on his coat*), but this expediency is now out-of-favor. In fact, the use of the plural *their*, which is gender-neutral but which violates number agreement (e.g. *Every child should put on their coat*), has a long history and is very common in Present-day English. Forms such as *his* or *her*, *his/her*, *s/he* (e.g. *Every child should put on his or her coat*) are newer attempts to correct this deficiency.

4. Also perhaps in the case of *ballerina/ballet dancer*, though the masculine is a compound, not a simple form.

1.3 Person

The category of **person** has three terms:

- 1st person: the speaker, person speaking;
- 2nd person: the addressee/hearer, person spoken to; and
- 3rd person: the person or thing spoken about.

Person distinctions are expressed by the inflected forms of the pronouns, for example:

personal pronouns:	<i>I</i>	<i>you</i>	<i>he, they</i>
personal possessive determiners:	<i>my</i>	<i>your</i>	<i>his, their</i>
personal possessive pronouns	<i>mine</i>	<i>yours</i>	<i>his, theirs</i>
personal reflexive pronouns	<i>myself</i>	<i>yourself</i>	<i>himself, themselves</i>

As *I* denotes the person speaking, the referent of *I* changes depending on who is speaking; the referent of *I* is always related to the specific speech situation. This means that the personal pronouns are what linguists call “deictic”,⁵ that is, an expression whose meaning depends upon the time and place of speaking (the speaker’s here and now).

Nouns are all 3rd person, but this is shown only covertly by the cooccurrence of pronouns: *the house ... it* (**I*, **you*), *the houses ... they* (**we*, **you*).

Person is also expressed inflectionally in the singular, present tense, indicative of verbs by the -s inflection on the 3rd person (but on no other persons or numbers): *she/he/it writes* vs. *I/you/we/they write*.

HINT: Both number and person are expressed more fully in the verb BE, which because of its high frequency tends to preserve inflections more fully than do other verbs. Hence, we have

singular *am, is, was* vs. plural *are, were*
 1st person *I am/was, we are/were* vs. 2nd person *you are/were* vs.
 3rd person *he/she/it is/was, they are/were*

The form *one* expresses **generic person** (all persons) in English, but since it is often considered rather formal, it coexists with other forms that also express generic:

1st p pl	<i>we</i>	<i>We're often misinformed by the media.</i>
2nd p	<i>you</i>	<i>You never can tell.</i>
3rd p sg	<i>one</i>	<i>One doesn't do that in polite company.</i>
3rd p pl	<i>they</i>	<i>They'll find a cure for cancer soon.</i>

5. The term *deictic* is from the Greek word meaning ‘to point’.

The generic *you* is the most common in informal usage. Finally, a few apparently deviant uses of person are the following:

3rd p for 2nd p	<i>your excellency, your honor</i>
3rd p for 1st p	<i>present company, the writer, your teacher,</i> <i>Caesar</i> (spoken by Caesar himself)
1st p for 2nd p	<i>we won't do that anymore, will we</i> (spoken by a parent to a child)

Finally, an interesting use of the personal pronouns is for social purposes, to mark a person who is socially close to or remote from the speaker, such as the use of *tu/vous* in French or *du/Sie* in German. For example, when asking in German *Have you eaten everything?*, one can say *Hast du* [familiar form] *alles gegessen?* when addressing an intimate or child in an informal context, or *Haben Sie* [formal form] *alles gegessen?* when addressing a more distant acquaintance or stranger in a formal context.

1.4 Case

Case may be defined rather simply as an indication of the function of a noun phrase, or the relationship of a noun phrase to a verb or to other noun phrases in the sentence. Case is most fully expressed in the personal and interrogative/relative pronouns, which distinguish **nominative case** (the function of subject), **genitive case** (the function of possessor), and **objective case** (the function of object) by different inflected forms:

nominative:	<i>I, we, you, he, she, it, they, who;</i>
genitive:	<i>my/mine, our/ours, his, her/hers, its, their/theirs, whose;</i> and
objective:	<i>me, us, you, him, her, it, them, whom.</i>

There is no distinction between the nominative and objective form of *it*, nor of *you* (though historically the nominative form was *ye*, as in the archaic expression *Hear ye, hear ye*). The genitive includes forms which function as determiners, such as *my* and *our*, as well as forms which function as pronouns, such as *mine* or *ours*.

Nouns differentiate inflectionally between the nongenitive, or **common case** and the genitive:

common case	genitive case
<i>cat, cats</i>	<i>cat's, cats'</i>
<i>man, men</i>	<i>man's, men's</i>

While orthographically there appear to be four distinct forms of nouns when singular and plural, common and genitive case are considered, you should keep in mind that the apostrophe is merely orthographic so that the forms *cats*, *cat's*, and *cats'* are phonologically indistinguishable. Only irregular plurals such as the noun *man* actually distinguish four forms both orthographically and phonologically.

Beyond this, nouns can be said to distinguish nominative and objective case only by word order, by the placement of the noun before or after the verb, respectively, in the

usual positions for subject and object in a Subject-Verb-Object language such as English. Hence, in the sentence *The ship struck the dock*, “the ship” could be called nominative case and “the dock” objective case, though morphologically both are common case. This ordering principle is so strong that it may even override grammatical principles. The sentence *Who did you see?* is more natural than the grammatically correct *Whom did you see?* because in this structure the object (*who*) precedes rather than follows the verb, so the nominative form *who* is preferred. Another case distinction which can be made is **dative case** (the function of indirect object); this is really a subcategory of the objective case. It is shown by periphrasis with *to* or *for* or by word order (V iO dO): *He gave the book to Jane, He gave Jane the book.*

What we have just presented is a simplified picture of case usage:

- There are other traditional cases (such as the “instrumental” case) which are expressed only periphrastically in Present-day English, for example, with the prepositions *with* or *from* (*I broke the glass with a rock*).
- There are many conventional uses of cases, such as use of the nominative case after the verb BE (e.g. *It is I*)
- The same function can be expressed by different cases, as in instances where the concept of possession is expressed by either the genitive or dative case (e.g. *The book is mine, The book belongs to me*).
- One case can express several different functions or meanings.

The genitive case is an excellent example of this latter situation. It does not simply express the notion of possessor, but it indicates a variety of other notions. The following types of genitives have been identified, based on the meaning relationship between the noun in the genitive and the head noun:

possessive genitive:	<i>Felix's car, Maureen's inheritance</i>
subjective genitive:	<i>the movie star's entrance, the hero's actions</i>
objective genitive:	<i>the city's reconstruction, the play's conclusion</i>
genitive of origin:	<i>Shakespeare's plays, the baker's cakes</i>
descriptive genitive:	<i>person of integrity, a woman of courage</i>
genitive of measure:	<i>an hour's time, a stone's throw</i>
partitive genitive:	<i>a member of the crowd, a spoke of the wheel</i>
appositive genitive:	<i>the city of Vancouver, the state of California</i>

Only the first, the possessive genitive, expresses the prototypical meaning of the genitive: *Felix owns his car*. In contrast, the “subjective genitive” expresses the same relation as a subject does to a verb (*the movie star enters*), while the “objective genitive” expresses the same relation as a direct object does to a verb (*X reconstructs the city*); it is certainly not the case that the movie star owns her entrance or that the city owns its destruction. The “genitive of origin” expresses the source, person, or place from which something

originates. The “descriptive genitive” is usually expressed periphrastically; the genitive noun is often equivalent to a descriptive adjective, as in *man of wisdom* = ‘wise man’. The “genitive of measure” expresses an extent of time or space, the “partitive genitive” the whole in relation to a part. Finally, the genitive noun of the “appositive genitive” renames the head noun.

HINT: Although the genitive can be expressed inflectionally with ‘s or periphrastically with *of NP*, it is not always possible to substitute one means of expression for the other. For example, while *the Queen’s arrival* is interchangeable with *the arrival of the Queen*, *a person of integrity* is not interchangeable with **an integrity’s person* nor is *a stone’s throw* interchangeable with **a throw of a stone*. Certain types of genitives, such as the partitive, descriptive, or appositive, are typically expressed only periphrastically.

The phrase *the shooting of the hunters* is ambiguous between subjective and objective genitive readings because it can mean either ‘the hunters shoot X’ or ‘X shoots the hunters’. *The child’s picture* is likewise ambiguous – has the child drawn the picture or has someone taken the picture of the child? And *the woman’s book* could be ambiguous between the possessive genitive and the genitive of origin – does the woman own the book or has she written the book?

Another complex aspect of the genitive is the **double genitive**, in which periphrastic and inflectional forms cooccur: *a friend of Rosa’s*, *no fault of his*. The double genitive is necessarily indefinite (**the friend of Rosa’s*) and a human inflected genitive (**a leg of the table’s*). It normally has a partitive sense (= ‘one friend among all of Rosa’s friends’), though it is also possible to use it when Rosa has only one friend. Contrast *a portrait of the king’s* (= ‘one among all the portraits (of others) that the king owns’) and *a portrait of the king* (= ‘a portrait which depicts the king’).

1.5 Degree

Degree, unlike the nominal categories that we have been discussing, is a category that relates to adjectives and adverbs. It has three terms, **positive**, **comparative**, and **superlative degree**. While positive degree expresses a quality, comparative degree expresses a greater degree or intensity of the quality in one of two items, and superlative degree expresses the greatest degree or intensity of the quality in one of three or more items. The positive degree is expressed by the root of the adjective (e.g. *big*, *beautiful*) or adverb (e.g. *fast*, *quickly*) – that is, it is null-realized – while the comparative and superlative degrees are expressed either by inflection (by means of *-er*, *-est*) or by periphrasis (using *more*, *most*):

positive	∅	<i>big</i>	<i>fast</i>	<i>beautiful</i>	<i>quickly</i>
comparative	-er, more	<i>bigger</i>	<i>faster</i>	<i>more beautiful</i>	<i>more quickly</i>
superlative	-est, most	<i>biggest</i>	<i>fastest</i>	<i>most beautiful</i>	<i>most quickly</i>

Whether the inflection or the periphrasis is used depends upon the phonological shape of the root. The inflection is used with:

monosyllabic forms	<i>neater, thinner, wider</i>		
certain disyllabic forms			
-y	<i>holier</i>	-le	<i>littler</i>
-er	<i>bitterer</i>	-ow	<i>narrower</i>
-some	<i>handsomer</i>		

All other forms occur in the periphrasis, including adverbs ending in *-ly* (e.g. **quicklier*). Lesser degree can be expressed periphrastically with *less* and *least*, as in *less big, least beautiful*. Sometimes, the three degrees of a particular word are expressed by different roots, as in *bad/worse/worst* or *good/better/best*. This is called **suppletion**. The paradigm of the adjective *old* (*older/elder, oldest/eldest*) shows irregularities but is not suppletive; the irregular forms *elder/eldest* are specialized semantically to refer to familial relations, while the regular forms *older/oldest* are used in all other functions. An interesting set of inflected forms is *nigh, near, next*; the positive form has been lost, the old comparative has become the positive, new comparative and superlative have developed (*near/nearer/nearest*), and the superlative form no longer exhibits degree.

HINT: For semantic reasons, not all adjectives can be inflected for degree, such as *perfect, unique, round, full, empty, married, and dead*. These adjectives are incomparable because they express absolute qualities. Something is either 'dead' or not; it cannot be more or less dead. Superlatives such as *most unique* are thus logically impossible, though one frequently hears such forms, where either *most* can only be understood as an emphatic or *unique* can be understood as meaning 'unusual'.

A form such as *best time, rudest remark, or closest of friends* often expresses a high degree rather than a true comparison, with the superlative equivalent to 'very'. Finally, it is also common to hear the superlative used in the comparison of two items, as in *put your best foot forward, the most advantageous of two alternatives*.

1.6 Definiteness

The concepts of definiteness and indefiniteness are intuitively quite simple: definite denotes a referent (a thing in the real world denoted by a noun) which is known, familiar, or identified to the speaker and hearer, while indefinite denotes a referent which is novel, unfamiliar, or not known. If we consider nouns on their own, definiteness is a covert category, obvious only in the cooccurrence of an article with a noun, either the **definite article** *the* or the **indefinite article** *a/an*, though all proper nouns and most pronouns are intrinsically definite. In actual practice, definiteness can be quite confusing. First, it intersects with the

category of specificity.⁶ Second, article usage in English is complex and in many instances arbitrary. There are several different uses for each article, articles are often omitted, and there are dialectal differences in the use of articles. Thus, article usage can be an area of grammar which is very difficult for nonnative speakers to master.

In broad outline, the major uses of *the* are the following:

1. for something previously mentioned: *yesterday I read a book ... the book was about space travel* (This is the **anaphoric**, or 'pointing back', function of the definite article);
2. for a unique or fixed referent: *the Prime Minister, the Lord, the Times, the Suez Canal*;
3. for a generic referent: *(I love) the piano, (We are concerned about) the unemployed*;
4. for something which is part of the immediate socio-physical context or generally known: *the doorbell, the kettle, the sun, the weather*;
5. for something identified by a modifying expression either preceding or following the noun: *the gray horse, the house at the end of the block*; and
6. for converting a proper noun to a common noun: *the England he knew, the Shakespeare of our times, the Hell I suffered*.

HINT: Article usage with proper nouns often depends on the category of proper nouns (e.g. *Lake Superior* vs. *The Red Sea*; *The Mississippi River* vs. *Cache Creek*) or even on the specific example within a category (e.g. *The Sudan* vs. *Ethiopia*; *Sears Tower* vs. *The Eiffel Tower*; *Washington Monument* vs. *The Lincoln Memorial*). One useful rule of thumb is that proper nouns with *-s* (in the plural form) generally take the definite article: *The Everglades, The Great Plains, The Rocky Mountains, The Seychelles*.

Many times in actual usage the definite article is omitted when it would be expected:

- with institutions (e.g. *at school*)
- with means of transportation (e.g. *by car*)
- with times of day (e.g. *at noon*)
- with meals (e.g. *at breakfast*), and
- with illnesses (e.g. *have malaria*).

These omissions are not always possible to predict and may depend on dialect.

The major uses of *a/an* are the following:

1. for something mentioned for the first time (see above);
2. for something which cannot or need not be identified: *(I want) a friend*;
3. for a generic referent: *(He is) a teacher*;

6. This topic is taken up in Chapter 11.

4. equivalent to 'any': *a (any) good book*;⁷
5. equivalent to 'one': *a week or two*; and
6. for converting a proper noun to a common noun: *a virtual Mozart, a real Einstein*.

Self-Testing Exercise: Do Exercise 5.1 on nominal categories.

1.7 Tense

We turn now to categories that relate to the verb. The first such category is **tense**, which, in simple terms, is the linguistic indication of the time of an action. In fact, tense establishes a relation: it indicates the time of an event in respect to the moment of speaking (or some other reference point). If we consider the time line below, for example, we see that a past-time statement, such as *It rained*, or a future-time statement, such as *It will rain*, denotes a situation that did hold before the present moment or will hold after the present moment, respectively:



This relational aspect of tense makes it a “deictic” category, since whether a situation is past, present, or future depends upon the moment of speaking and changes as that moment changes.

HINT: You should remember that adverbs are also a common means of expressing time in language. Temporal adverbs may be either deictic, expressing time in relation to the speaker and moment of speaking, such as *then/now/then, yesterday/today/tomorrow* (i.e. past, present, future), or nondeictic, expressing absolute time, either calendric, such as *Tuesday*, or clock, such as *at 4:00*. Tense, on the other hand, is always deictic.

The only tense distinction expressed inflectionally in English is that between present and past, as in *walk/walked* or *sing/sung*, even though it is conventional to talk about a three-way distinction between past, present, and future tense. However, the future is expressed periphrastically and thus is not formally parallel to the past and present.

Beginning with an examination of the uses of the **present tense** form in English, we find that it is not, in fact, used to denote actions which are actually going on at the present time. For this, the present progressive is used, as in *I am reading at this moment*, not **I read at this moment*. Instead, the present is used for the expression of a number of other types

7. “Generic” makes reference to a (characteristic) member of the class (e.g. *A book makes a good travel companion*); ‘any’ is indifferent in its reference to a particular member of the class (e.g. *I need a book to read on my trip*).

of temporal as well as nontemporal situations; for this reason, the term *nonpast* is preferred to *present*:

1. habits: *I walk to work everyday. She smokes. We eat dinner at 6:00.*
2. states: *She lives at home. I like chocolate. I believe you. I have lots of work to do. The dog sees well. I feel sick.*
3. generic statements: *Beavers build dams. Tigers are ferocious.*
4. timeless statements: *The sun sets in the west. Summer begins on June 21st. Two plus two is four.*
5. gnomic (proverbial) statements: *A stitch in time saves nine. Haste makes waste.*
6. future statements: *We leave tomorrow. I see the doctor this afternoon.*
7. instantaneous commentary: *He shoots; he scores. Now I beat in two eggs. He pulls a rabbit out of the hat.*
8. plot summary: *Hamlet dies at the end of the play. Emma marries Mr. Knightley.*
9. narration in the present (the “historical present”): *Then he says ...*
10. information present: *I hear/see that Manfred has been promoted.*

A habit indicates a series of events that are characteristic of a period. These events constitute a whole. For habits to exist, the event (of walking to work, smoking, etc.) need not actually be going on at the present moment. States include nondynamic situations such as:

- emotional states (*love*),
- cognitive states (*understand*),
- perceptual states (*feel*),
- bodily sensations (*ache*), and
- expressions of having and being (*own, resemble*)

A generic statement says something (‘being ferocious’) about a class of things (‘tigers’). Note that the difference between a state such as *I am happy* and a generic statement such as *Tigers are ferocious*, in addition to the nongeneric (*I*) vs. generic (*tigers*) subject, is that the state refers to a specific situation and can occur with adverbs such as *still, already, not yet* (e.g. *I am still happy*/**Tigers are still ferocious*). Timeless statements express eternal truths and laws of nature. Gnomic statements express proverbs, which though similar to eternal truths, aren’t necessarily timeless. Futures expressed with the simple present generally refer to situations that are predetermined and fixed. Instantaneous commentary occurs in sports reporting, cooking demonstrations, and magic shows, though the progressive is also possible in these contexts. This is the only use of the nonpast form for actions actually going on at the current moment. The present is used in summarizing works of literature and in talking about artists as artistic figures, though not as actual persons (*Shakespeare is the greatest writer in English* vs. *Shakespeare was born in Stratford on Avon*). The historical present is the use of present tense for narrating informal stories and jokes, though it is being used

increasingly frequently in serious literature. Finally, the information present is the use of present tense with verbs of hearing or seeing where one might expect the past tense.

The uses of the **past tense** are more unified; generally it denotes a past time divorced from, or distinct from, the present moment:

1. an event or a state in past time: *Haydn composed the symphony in 1758* or *Handel lived in England for a number of years*;
2. narration: *Two days after the war ended, my sister Laura drove a car off a bridge* (Atwood, 2000, p. 1)
3. past habit: *I drove to work last year*.

The past tense is the usual tense of narration (even for narratives set in the future!). If the simple past denotes a past habit, an appropriate time adverbial is required; however, there is also a special past habitual form, *used to*, as in *I used to drive to work*, which does not normally require a time adverbial. The past tense may also be used nontemporally for purposes of the politeness or to denote the unreal:

4. politeness: *I was hoping you would help*. (present hope; future help)
5. hypothetical: *If you studied more, you would do better*.

These are “modal” uses of the past, as we will discuss more fully below.

As noted above, the **future tense** is expressed by a variety of periphrases as well as by the inflected simple tense:

1. *will/shall* + infinitive: *I will help you tomorrow*.
2. the simple present: *The party begins at 4:00*.
3. the present progressive: *We're having guests for dinner*.
4. *be going to, be about to* + infinitive: *The child is going to be sick. The boat is about to leave*.
5. *shall/will* + the progressive: *I will be moving next week*.

All of the forms of the future are subtly different in meaning. For example, *It's going to rain today* or *It's about to rain* might be uttered while looking up at a threatening rain cloud, while *It will rain today* could only be the prediction of the meteorologist or a report of this person's prediction, but **It rains today* is distinctly odd because it denotes the future as fact, or predetermined, and as punctual; the progressive *It's raining today* could not function as a future in this instance either. *It will be raining today* (when you want to mow the lawn) is possible if it denotes a situation surrounding another event. Note that commands (e.g. *Wash the dishes!*) always carry a future meaning as well since you cannot command someone to do something in the past nor to be doing something at the present moment. Despite the designation of future as a tense, however, it bears a closer relation to modality than to tense since it expresses what is not (yet) fact (see below).

1.8 Aspect

The so-called “compound tenses” – the perfect and the progressive – are better treated as expressions of the category of **aspect**, which can be defined as the view taken of an event, or the “aspect” under which it is considered, basically whether it is seen as complete and whole (**perfective aspect**) or as incomplete and ongoing (**imperfective aspect**). The simple past tense in English is perfective in aspect since it views events as complete and whole, e.g. *Yesterday, I drove to town, ran some errands, and visited with my friends*. The **progressive** periphrasis, consisting of BE + the present participle, presents actions as in progress, ongoing, and incomplete (not yet ended). It thus expresses imperfective aspect. It is the usual way to express a situation happening at the very moment of speaking, which by definition is incomplete. However, depending upon the temporal nature of the situation expressed by the verb – whether it is punctual (e.g. *flash, solve*) or durative (e.g. *swim, clean*)⁸ – the progressive may denote somewhat different situations:

- a continuous activity: *She is swimming. They were cleaning the house when I called.*
- a repeated activity (“iterative aspect”): *He is bouncing the ball. The light was flashing when I entered the house. He is washing dishes (*a dish). People (*a person) will be leaving early.*
- a process leading up to an endpoint: *The child is finishing the puzzle. She was solving the problem when she was interrupted.*

Note that in all cases, the activity in question is ongoing and hence not complete, either at the present moment or in reference to some time in the past (expressed in the *when*-clause).

HINT: The progressive is generally incompatible with static situations since they are nondynamic and hence cannot be seen as ongoing or in progress, e.g. **I am liking chocolate, *I am having lots of work to do.*⁹

Both the meaning and categorization of the other periphrasis in English, the **perfect**, consisting of HAVE + the past participle, pose difficulties for scholars. However, it is widely agreed that the perfect is an aspect category (rather than a tense category) and that it presents the “current relevance” of a past event. The past event is relevant either by its continuation into the present or by its results in the present. When a state or event that has duration, that is, that extends over a period of time, is expressed in the perfect, it denotes a situation

8. The topic is treated in more detail in the next chapter.

9. There are a number of “marked” uses of the progressive with state verbs, such as to change a state verb into a dynamic one (e.g. *Fred is being very silly* = ‘behaving in a silly way’), to indicate a temporary state (e.g. *She is living with her parents this summer*), to denote a waxing or waning state (e.g. *Gasoline is costing a lot these days, I’m understanding economics better now*), or for purposes of politeness (e.g. *I’m not recalling your name*).

that began in the past but continues to the present and possibly beyond (e.g. *she has stayed for a week*). This is called a “continuative perfect”. When an event that is punctual or has a necessary endpoint is expressed in the perfect, it denotes a situation that is completed but has results in the present (e.g. *she has opened the door*). This is called the “resultative perfect”.

continuative:

state	<i>I have lived here since childhood.</i>
habit	<i>She has sung in the choir for ten years.</i>
activity (continuous)	<i>The preacher has talked for the last hour.</i>
activity (iterative)	<i>The child has coughed all night.</i>

resultative:

activity with a necessary endpoint	<i>She has recovered from the flu.</i> <i>I have read the novel.</i>
punctual event	<i>I have lost my keys.</i> <i>I have just seen a movie star.</i>

The perfect differs from the simple past in the following way. While *I have eaten breakfast (today/*yesterday)* would imply that one is still full (and could be said only in the morning), *I ate breakfast (today/yesterday)* would have no such implication (and could be said at any time of the day or subsequent days). Similarly, *I have lost my keys* could not be uttered if one had subsequently found one’s keys, though *I lost my keys* could be. Expressions such as *I have read that novel* belong to the subcategory of “perfect of experience”. Here the event (‘reading that novel’) occurred at least once in the past; the present results that it has may not be tangible results, as in the case of finding one’s keys, but the results may be in the memory of the subject *I* (the subject’s recollection of the novel). The last example of the resultative perfect given above (*I have just seen a movie star*) belongs to the subcategory of the perfect which one linguist calls “hot news perfect”; here, the simple past would be equally possible (and would be more common in North American English: *I just saw a movie star*).

The aspectual periphrases combine with tense forms – tense is expressed on the auxiliary verb BE OR HAVE – to give the following forms:

present progressive:	<i>she is singing</i>	action ongoing at the present moment
past progressive:	<i>she was singing</i>	action ongoing at some moment in the past
future progressive:	<i>she will be singing</i>	action ongoing at some moment in the future
present perfect:	<i>she has sung</i>	past action with results in the present
past perfect:	<i>she had sung</i>	past action with results at some past moment or completed prior to some past moment
future perfect:	<i>she will have sung</i>	future action with results at some future moment or completed prior to some future moment

HINT: The two aspectual periphrases may also combine in the order perfect + progressive, as in *I have been reading the novel for the last hour*, to express an action which has been ongoing from some moment in the past to the present (and possibly beyond). What would the past + perfect + progressive (e.g. *I had been reading the novel for the last hour*) and future + perfect + progressive (e.g. *I will have been reading the novel for the last hour*) mean?

A number of other aspectual periphrases in English distinguish the beginning of situations, the continuation of situations, and the end or termination of situations, e.g. *It started/continued/stopped raining*.¹⁰ In contrast to the perfect aspect, we can recognize a “prospective aspect” consisting of BE + infinitive, e.g. *she is to see her doctor tomorrow*. The “habitual aspect”, which views a situation as repeated on different occasions, has been treated in the discussion of the nonpast and past tenses above.

1.9 Mood

Simply defined, mood is an indication of the speaker’s attitude towards what he or she is talking about, whether the event is considered fact or nonfact. The **indicative** is the mood of fact; it is expressed by the simple and compound tenses of the verb. Nonfact encompasses a number of different degrees of reality, including wishes, desires, requests, warnings, prohibitions, commands, predictions, possibilities, and contrary-to-fact occurrences. It has two primary subcategories, the imperative and the subjunctive.

The **imperative** is a one of the two nonfact moods. It is used to express direct commands. In English the imperative has a special syntactic form: it is a subjectless sentence containing a bare form of the verb, as in *Go!*, *Be quiet!*, *Don’t disturb me!*. The imperative is addressed to a second person *you*. There are also an imperative with *let’s* addressed to the 1st person plural, to oneself and to others present, as a kind of suggestion (e.g. *Let’s see a movie tonight*) and an imperative with *let* addressed to the 3rd person (e.g. *Let him see to that*).¹¹

The **subjunctive** is the other non-fact mood. In Present-day English, the subjunctive is expressed by the modal auxiliaries or their phrasal equivalents, as in:

<i>He <u>may</u> leave.</i>	<i>You <u>shouldn’t</u> wait.</i>
<i>I <u>can’t</u> find my keys.</i>	<i><u>Would</u> you pass the salt?</i>
<i>It <u>might</u> rain.</i>	<i>You <u>ought to</u> try harder.</i>
<i>I <u>have to</u> run an errand.</i>	<i>We <u>have got to</u> be more careful.</i>

10. These aspects will be treated further in Chapter 10.

11. The 1st person imperative with *let’s* must be distinguished from a true 2nd p command *Let us stay up late tonight*, spoken, for example, by children to their parents (= ‘allow us to stay up late tonight’).

Modal adverbs such as *maybe*, *possibly*, or *perhaps* are also used, as are modal adjectives such as *possible*, *probable*, or *necessary*. A more colloquial, but very common, means of expressing the subjunctive is by the use of first-person parentheticals, or what have been called comment clauses: *He would be happy to help, I think* or *You're right, I guess*.

In earlier stages of English, the subjunctive was expressed by special inflected forms of the verb, as it still is in many of the European languages such as French, German, and Spanish. In Present-day English, most inflected subjunctives have disappeared (and been replaced by modal auxiliaries). However, a few remnant forms of the inflected subjunctive remain in Present-day English; they are identifiable by the lack of *-s* in the 3rd p sg pres and by use of *be* for all persons and numbers of the present tense and of *were* for the past tense. In main clauses, these remnants tend to be highly formulaic, such as *Long live the Queen*, *Have mercy on us*, *Heaven preserve us*, *Be that as it may*, *Suffice it to say*, or *Far be it from me*.¹² In dependent clauses, they are restricted to a few contexts:

- *that*-clauses following verbs such as *insist*, *suggest*, *recommend*, *move*, *beg*, *ask*, *be required* (*I recommend that he leave*);¹³ adjectives such as *advisable*, *imperative*, *desirable* (*It is advisable that he leave*); and nouns such as *decision*, *requirement*, *resolution* (*It is a requirement that that he leave*). (The use of the subjunctive here is more common in North American than in British English.)
- *if*-clauses: *If she had the time ...*, *If we were rich ...*, ... *as if he liked it*, *if only he were smarter ...*¹⁴
- clauses following verbs of wishing: *I wish I were rich*.

In the latter two cases, the indicative is rapidly replacing the subjunctive, that is, *If I was rich* rather than *If I were rich*. Note that these cases resemble the “polite” use of the past tense discussed above. Finally, another means of expressing the subjunctive is by means of inversion: *Had I the time ...*, *Were I in control ...*

1.10 Voice

The category of voice, though usually considered a category of the verb, is actually relevant to the entire sentence. Voice is an indication of whether the subject is performing the action of the verb or being something (active voice) or whether the subject is being

12. While a form such as *God save the Queen* might resemble a command to God to save the Queen, it differs from a command in having an explicit 3rd p subject; furthermore, it would be quite presumptuous to command God to do anything.

13. Note that the indicative would be *I recommend that he leaves*; it is only in the 3rd p sing that the difference between indicative and subjunctive is obvious since the other persons and numbers have no *-s* ending on the verb.

14. Subjunctives in *whether*-, *though*-, or *lest*-clauses (e.g. *I wonder whether that be true or not*) are now obsolete.

affected by the action or being acted upon (**passive voice**). While the active is expressed by the simple forms of the verb, the passive is expressed periphrastically:

- by BE + the past participle, as in *The report was written (by the committee)*; or
- by GET + the past participle, as in *The criminal got caught (by the police)*.

The difference between the *be*-passive and the *get*-passive is that the former focuses on the resultant state ('the report is in a written state') while the latter focuses on the action bringing about the state.

HINT: In the passive, the logical subject – the agent – moves out of the position of grammatical subject and is relegated to a *by*-phrase. However, it is common to delete the *by*-phrase in the passive, to omit mention altogether of the agent who performed the action. This is a manifestation of one of the rhetorical functions of the passive (see Chapter 11).

Another distinction of voice is the “middle” voice, in which the action of the verb reflects back upon the subject; in English, the middle is generally expressed with a reflexive pronoun (a form in *-self*), which indicates the sameness of the subject and the object, as in *Henry shaved (himself)*, *Terry bathed (herself)*, *Felicia cut herself*. A form which resembles the middle is what Otto Jespersen calls a **notional passive**; this is a sentence which is active in form but passive in meaning, for example:

<i>The shirt washes easily.</i>	= ‘the shirt is easily washed’
<i>These oranges peel easily.</i>	= ‘these oranges are easily peeled’
<i>The cake should cook slowly.</i>	= ‘the cake should be slowly cooked’

Note that nearly all notional passives contain a manner adverb. They differ from regular passives in that, not only do they occur without explicit agents, there is never even an implicit agent (**these oranges peel easily by you*). Some infinitives may also be active in form but passive in meaning, such as the following:¹⁵

<i>These apples are ready to eat.</i>	= ‘these apples are ready to be eaten’
<i>There are the dishes to do.</i>	= ‘there are the dishes to be done’

In conclusion, we can approach the categories from a different perspective by noting which different word classes each of the grammatical categories is relevant to:

- nouns: number, gender, case, (person), and definiteness;
- pronouns: number, gender, case, and person;
- adjectives and some adverbs: degree; and
- verbs: number, person, tense, aspect, mood, and voice.

15. Constructions such as *that movie is filming in Vancouver*, which is also active in form but passive in meaning (= ‘that movie is being filmed in Vancouver’), or *your order is shipping* (= ‘your order is being shipped’) are remnants or an earlier period when it was not possible to combine the progressive and the passive.

No grammatical categories are relevant to prepositions and conjunctions, which are invariable.

Self-Testing Exercises: Do Exercise 5.2 on verbal categories and Exercise 5.3 as a review.

2. Determining word classes

We have completed our examination of the internal structure of words, but there remains one aspect of morphology that we have yet to examine: the classification of words into what are known variously as **word classes**, lexical categories, or parts of speech. Traditionally, eight word classes are recognized: noun, verb, adjective, adverb, pronoun, preposition, conjunction, and interjection (or article). The reason for eight word classes is that the first Greek grammarian recognized that number of word classes in Classical Greek. Changes in the inventory of word classes have subsequently been required to account for other languages, but the number eight has remained constant.

The traditional word classes are identified by a mixed combination of criteria, both notional (according to the meaning of words) and formal (according to the form, function, or distribution of words). The notional criteria are particularly problematical. For example, nouns are traditionally said to name people, places, and things, but they also denote abstractions (e.g. *truth, existence*), nonentities (e.g. *void, vacuum*), and events (e.g. *picnic, race, thunderstorm*). In fact, word classes are purely a matter of language, not of the external world; they do not correspond in a one-to-one way with things in the real world. We tend to equate nouns with things and verbs with events, but there are other languages which make different correspondences.¹⁶ Furthermore, the inventory of word classes does not appear to be universal, but differs from language to language (Vietnamese has 12, Nootka has 2 word classes).

The student of language should not bring preconceptions about word classes to bear on a particular language. Approaching English as if it were an unknown language, the linguist C.C. Fries determined that there were 19 word classes in English (see Table 5.1). He did so using the formal tests that we will examine below (we have supplied the names for the categories).

16. For example, it might be possible to put in one class words denoting things of long duration, such as *house* and *live* (N and V, respectively, in English) and in another class words denoting things of short duration, such as *kick* and *fist* (V and N, respectively, in English).

Table 5.1. The Nineteen Word Classes of English (C.C. Fries, 1952)

Class 1: (noun)
Class 2: (verb)
Class 3: (adjective)
Class 4: (adverb)
Class A: <i>the, this, a/an, both our, every, two, each</i> , etc. (determiners)
Class B: <i>may, might, can, will</i> , etc. (modals)
Class C: <i>not</i>
Class D: <i>very, rather, pretty, quite</i> , etc. (degree adverbs)
Class E: <i>and, or, but, rather</i> , etc. (coordinating conjunctions)
Class F: <i>at, by, for, from</i> , etc. (prepositions)
Class G: <i>do</i>
Class H: <i>there</i> (existential <i>there</i>)
Class I: <i>when, why, where</i> , etc. (<i>wh</i> -words)
Class J: <i>after, when, although</i> , etc. (subordinating conjunctions)
Class K: <i>oh, well, now, why</i> (discourse markers)
Class L: <i>yes, no</i>
Class M: <i>look, say, listen</i>
Class N: <i>please</i>
Class O: <i>let's</i>

Finally, the traditional analysis of parts of speech seems to suggest that all parts of speech are of the same semantic and functional importance. However, as we saw when we examined morphemes, words fall into one of two quite different categories: content words (lexical morphemes) or function words (grammatical morphemes).

Content words:

- carry the primary communicative force of an utterance
- are open or productive classes
- are variable in form (inflected)
- fall into the major parts of speech, including nouns, verbs, adjectives, adverbs, and some pronouns

Their distribution is not definable by the grammar.

In contrast, **function words**, whose distribution is definable by the grammar:

- carry less of the communicative force of an utterance
- express grammatical meaning (by relating sentence parts)
- express the terms of grammatical categories (the meanings often expressed by inflections)
- are closed or unproductive classes
- are generally invariable in form (except demonstratives, modals, and some pronouns)
- fall into the minor parts of speech, including prepositions, conjunctions, interjections, particles, auxiliaries, articles, demonstratives, and some adverbs and pronouns.

2.1 Inflectional and distributional tests

Because of the problems associated with notional definitions of the parts of speech, we need some formal means for determining the word classes of a language. Two types of tests have been developed in structural linguistics as an objective (formal), not subjective (notional), means of determining the parts of speech.

In a **distributional test**, words that fill the same syntactic slot, that is, fit into the same syntactic position and function, are considered to belong to the same class of words. In such a test, semantics is ignored as much as possible. For example, the words *large*, *green*, *exciting*, and *damaged* belong to the same class because they all fill the following test frame, while the other words do not:

The _____	book is on the shelf.
large	*read *man
green	*while *up
exciting	*very *oh
damaged	*that *him

Note that this test is very similar to the test frame used to identify phonemes that we discussed in Chapter 3.

In an **inflectional test**, all words that take a particular inflectional suffix are considered to belong to the same class of words. This test depends, of course, on the prior identification of the inflectional suffixes of a language. Thus, for example, *big* takes the inflection *-er*, but *hand*, *arrive*, *and*, and *him* do not:

The _____	{-er, -est} book
bigger	*hander *ander
biggest	*arrivest *himest

Derivational morphology is generally not very helpful in such a test because it is highly idiosyncratic and individual in its combinatory possibilities.¹⁷ In general, inflectional tests have fairly limited applicability in a language such as English, which has very few inflections. They are also suitable only for the major parts of speech since the minor parts of speech are invariable.

Distributional and inflectional tests must be used in combination, because words belonging to the same class may not meet all of the tests. When words meet *most* tests for a particular class, but fail to meet some, then we have evidence for the subcategorization, or subclassification, of a particular word class.

17. Extremely productive derivational affixes such as the agentive *-er* on Vs and the adverbial *-ly* on As may be of some use, however.

2.2 Tests applied to various word classes

Noun. Inflectional tests for the category **noun** (N) include the plural *-s* inflection and the genitive *'s* inflection. The plural inflection attaches to certain types of nouns, but not to others:

count noun:	<i>pencils, dogs, hats, pies, accountants</i>
mass (noncount) noun:	<i>*honeys, *rices, *golds, *muds</i>
abstract noun:	<i>*existences, *friendships, *happinesses</i>
collective noun:	<i>committees, herds, *furnitures, *cutleries</i>

Proper nouns are distinguished from **common** nouns in that they denote a unique referent. Most proper nouns occur in the singular and are not pluralizable (e.g. **Susans, *Jims, *Seattles, *Gandhis*). However, some proper nouns invariably occur in the plural form (e.g. *The Everglades, The Great Plains, The Rocky Mountains, The Seychelles*) and are never singular in form. **Count** nouns denote items that are individuated and can be pluralized and counted, while **noncount** (**mass**) nouns denote substances that exist in bulk or unspecified quantities. While they may be divided into portions (*a spoon of honey, a cup of rice, an ounce of gold*), in their bulk form, they cannot be counted. Note that some mass nouns name continuous substances (e.g. *honey, gold*), whereas other names substances whose parts are generally too small or insignificant to be counted (e.g. *rice, sand*). **Abstract** nouns are distinguished from **concrete** nouns in that they denote things which are not tangible and cannot be known through the senses; they are often mass as well. **Collective** nouns name groups of individuals which together form a unit. Collectives are generally countable, though some are not. Thus, we see that the plural inflectional test serves as an important means of subcategorizing nouns.¹⁸ The genitive inflection can be added to all kinds of nouns, though it is sometimes a bit odd with inanimates (e.g. *?the cupboard's back* vs. *the back of the cupboard*).

18. Apart from instances of recategorization, which are discussed below, the mass/count distinction involves quite a number of complexities of number, which cannot be treated in detail here (but see any standard reference grammar of English). For example, some mass nouns are plural in form and take a plural verb (e.g. *brains, savings, wages, ashes*), some singular nouns end in *-s* and take a singular verb (e.g. *news, politics, mumps, dominoes*), nouns denoting singular bipartite items end in *-s* and take a plural verb (e.g. *scissors, binoculars, pajamas, pants*), and some singular nouns may follow plural numerals (e.g. *five staff, six offspring, two bear*). Collective nouns may be count (e.g. *family, team*), mass and singular in form (e.g. *shrubbery, gentry*), or mass and plural in form (e.g. *groceries, leftovers*); moreover, collective nouns take a singular verb or a plural verb depending on whether the collective is seen as a unit or an abstraction (e.g. *The family is a dying institution*) or whether the individual members of the collectives are emphasized (e.g. *The family are all coming home for Christmas*), though there are some dialectal differences here as well.

We can consider three distributional tests for the category noun:

1. Det _____

That is, nouns can follow a subclass of words called **determiners (Det)**, which include articles (such as *a, the*), demonstratives (such as *this, that*), possessives (such as *my, her*), *wh*-words (such as *which, whose*), and quantifiers (such as *many, several*). The occurrence of nouns with determiners depends on their subclass and number:

- proper nouns, when singular in form, seldom follow a determiner (**the Seattle*), but when plural in form invariably take the definite article (*The Times*)¹⁹
- single count nouns always follow a determiner (*the dog, *dog*)
- plural count nouns may or may not follow a determiner (*dogs, the dogs*)
- mass nouns may or may not follow a determiner (*the honey, honey*), though they never follow the indefinite article (**a honey*)
- collectives behave either like count nouns (**herd, herds, the herd, the herds*) or like mass nouns (*furniture, the furniture, *a furniture*)

Quantifiers are rather complex since some (such as *much, a little, a large amount of, less*) are restricted to mass nouns: *much violence, a large amount of money, less homework*. Others (e.g. *many, a few, several, a large number of, fewer*) are restricted to count nouns: *many protesters, several reporters, fewer regulations*. Finally, yet other quantifiers (e.g. *more, most, a lot of*) may occur with both: *more time/reasons, most people/parents, a lot of trouble/magazines*.²⁰

2. A _____

Plural count nouns and mass nouns may follow an adjective (*fierce dogs, sticky honey*), but single count nouns and proper nouns cannot (**big dog, *beautiful Seattle*).

3. Det A _____

All nouns except proper nouns can follow the sequence of determiner and adjective (*the big dog, two fierce dogs, the sticky honey, *the beautiful Seattle*). There are a number of other elements which can occur in the noun phrase (NP), but these three distributional tests are sufficient for our purposes here. (We will consider the structure of the NP in Chapter 7.)

19. A limited number of proper nouns in the singular form include the definite article, such as *The Hague, The Empire State Building, The White House, The Metropolitan*.

20. It is amusing to observe that the usage of all supermarkets – in their signs for express lanes which declare “nine items or less” – ignores the distinction between mass and count. These signs should, of course, read “nine items or fewer”. Rather than seeing this usage as an “error”, we should probably consider it a “change in progress”.

Adjective. Inflectional tests for the category **adjective (A)** include the comparative *-er* and the superlative *-est* degree endings, as in *larger/largest* or *prettier/prettiest*. As discussed earlier in the chapter, some adjectives cannot take these inflections for phonological reasons, while other are excluded for semantic reasons. Another difficulty with this inflectional test is that it admits certain adverbs, such as *late/latest*, *sooner/soonest*, though not others **quicklier/quickliest*. As we discussed in the previous chapter, *-ly*, though a common derivational suffix added to adjectives, does not function as an inflectional test.

Distributional tests for the category of adjective include the following:

1. Det _____ N

This is called the “attributive” position of adjectives, the position preceding the noun (as in *the fierce dog*). A few adjectives, such as *afraid*, *asleep*, or *afire*, cannot appear in this position. Another position in which adjectives are found is the following:

2. V_{cop} _____

This is called the “predicative” position of adjectives, following a copula verb (see below) in the predicate of a sentence (as in *the dog is fierce*). A few adjectives cannot appear in this position, such as *principal*, *utter*, *mere*, *outright*, *entire*, or *same*. Also note that certain adjectives have quite different meanings in attributive and predicative positions, e.g. *That poor heiress has no friends* (here *poor* expresses the speaker’s sympathy for the heiress; the heiress is likely quite rich) vs. *That girl is very poor* (here *poor* means ‘impecunious, without wealth’). Adjectives may also follow a subclass of words called **degree words (Deg)**, or intensifiers:

3. Deg _____

Degree adverbs include *so*, *too*, *very*, *somewhat*, *rather*, *quite*, *slightly*, *highly*, *moderately*, *completely*, *awfully*, *incredibly*, or *unbelievably* (as in *very fierce dog*). Also included among the degree adverbs are the periphrastic forms for degree, *more* and *most*. The degree word and the adjective together form the adjective phrase (AP). A problem with this test is that it will also include most adverbs, as in *very quickly*, *quite soon*, or *most helpfully*.

Verb. The category of **verb (V)** has the greatest number of inflectional tests of all the word classes:

1. the present participle *-ing*, which attaches to all verbs;
2. the 3rd p sg pres *-s*, which also attaches to all verbs;
3. the past tense *-ed*, which attaches to “weak” verbs, but not to “strong” verbs (which form their past tense by vowel alternation) or to other irregular verbs; and
4. the past participle *-ed*, which likewise attaches to weak, but not to strong verbs (which may take the nonproductive ending *-en* or some other ending).

The agentive suffix *-er*, though a common ending to verbs (*singer, worker, writer, helper*), is not inflectional; in fact, there are many members of the class which cannot take it, e.g. **knower, *hurter, *realizer*, or **beer* (< *be* + *-er*).

There are several distributional tests for the category verb; these serve to subclassify verbs. Certain verbs, known as transitive verbs, such as *buy, help, learn, give*, or *hit*, may precede noun phrases (e.g. *buy stocks, help people, learn French, give advice, hit the ball*):

1. _____ NP

Other verbs, known as intransitive verbs, such as *appear, rise, arrive*, or *fall*, cannot precede noun phrases:

2. _____ #

(The pound sign # indicates a clause boundary; in other words, no word needs to follow an intransitive verb, though an adverb often does.)

A third subclass of verbs, known as copula verbs (or “linking verbs”), such as *seem, feel, become, appear*, or *happen*, precede adjective phrases. The copula *be* may also precede a noun phrase.

3. _____ AP/NP

Two distributional tests apply to all verbs. First, verbs may follow an auxiliary verb and *not*:

4. Aux (*not*) _____

Second, they may follow the periphrastic marker of the infinitive *to* (which replaces the infinitival inflectional ending *-an* in older English):

5. to _____

(We have treated the different types of verbs cursorily, since they will be treated in some detail in Chapter 7.)

Self-Testing Exercise: In order to explore the tests for verbs more fully, do Exercise 5.4.

Adverb. The category of **adverb** (**Adv**) is rather difficult to differentiate. A small number of what are traditionally recognized as adverbs take the comparative inflectional endings *-er* and *-est*, but most are uninflected. In respect to distribution, adverbs are very free:

Maria worked quickly.

Maria completed the work quickly.

Maria quickly completed the work.

Quickly Maria completed the work.

It is traditional to say that an adverb modifies verbs, adjectives, and other adverbs. However, the possible distributional tests for adverb as modifier are inadequate: _____ A would include adjectives as well (as in *large, fierce dog*); _____ Adv would isolate the subclass of degree words only; and _____ V would draw in nouns, auxiliary verbs and *not*. Adverbs also “modify” entire sentences; such sentence adverbs may occur in initial and final position in the sentence (hence _____ S or S _____) as well as medially:

Surprisingly, Maria (surprisingly) completed the work (surprisingly).

In fact, there is considerable overlap in word forms among adverbs and other parts of speech. For example, *since* and *before* may have the following functions:

adverb: *He hasn't been here since. I've never seen it before.*
 preposition: *I haven't seen him since lunch. I saw him before his exam.*
 conjunction: *He's been asleep since I arrived. I spoke to her before she left.*

Because of this overlap and because of the difficulty of isolating adverbs from other parts of speech, some scholars have proposed a larger category of **particle (Prt)**, or adposition, which would include **prepositions (P)**, some adverbs, some conjunctions, and the particles of phrasal verbs. There would be no inflectional tests for this category, because these words are generally invariable, but there are several distributional tests:

1. *right* _____
look it right up (particle of phrasal verb)
go right home (adverb)
land right on top (preposition)
he left right after the music started (conjunction)
 2. measure phrases _____
three feet behind me (preposition)
twice before (adverb)
he was here two hours before I was (conjunction)
 3. _____ NP
in the garden (preposition)
after the man leaves (conjunction)
blow out the candle (particle of phrasal verb)
- (Note that this test does not distinguish particle from verb.)
4. _____ P
out of up from
away with up from under

The last test works for prepositions, but not for the other members of the category of particle.

Self-Testing Exercise: Do Exercise 5.5.

2.3 Recategorization

A major difficulty for word classification is that the same word can often belong to different parts of speech. The word *round*, for example, can function as a noun, an adjective, a verb, a preposition, and perhaps even an adverb:

N	a <u>round</u> of parties
A	a <u>round</u> table
V	<u>round</u> off the figures
Prep	come <u>round</u> the corner
Adv	come <u>round</u> with some fresh air

We can account for some of these forms by functional shift, or conversion, but we might also have to say that there are a number of homophones here.

A related problem is how to deal with an expression such as *the good, the bad, and the ugly*. The forms *good*, *bad*, and *ugly* seem to be functioning as nouns because they follow a determiner, but they are unlike nouns in the following respects:

- they do not pluralize (**the bads*)
- the possessive is odd (*?the bad's horse*)
- they do not follow an adjective (**the remarkable good*)²¹

In some respects, they behave like adjectives in that they can follow a degree adverb (*the remarkably/truly good*) and perhaps be inflected for degree (*?the best, the worst, the ugliest*). There would appear to be four possible ways to analyze these forms:

1. There are two distinct lexemes in each case, a noun and an adjective, which are homophones.
2. The forms are adjectives with an understood, or elliptical, noun such as *ones*.
3. The adjectives have been recategorized as nouns.
4. The forms belong to the class of adjective, but syntactically function as nouns.

While the first analysis works, it is a cumbersome solution and it does not serve to show how the adjective and the noun forms might be related (which intuitively we feel they are).

21. A possible counter example is *the working poor*, with a present participle functioning as an adjective.

The second analysis looks appealing, but it has problems since sometimes you would have to understand a singular noun *one* rather than *ones* (e.g. *the {deceased, Almighty, accused, departed} one*), while at other times, the adjective refers to an abstraction and hence *one* seems inappropriate (*the known *one*). Between the third and fourth analyses, the fourth seems preferable; if recategorization had occurred, one would expect the recategorized word to have all of the behavioral characteristics of its new class, including its inflectional forms. Since it doesn't, it seems that these forms are still lexical adjectives, but are functioning as nouns in this instance.

Recategorization can occur both within a class (from one subcategory to another) or between classes. For example, the subcategories of a noun can be shifted in the following ways:

from abstract to concrete:	<i>a beauty</i> (= 'a horse'), <i>a youth</i> (= 'a boy'), <i>a personality</i> (= 'a well-known person'), <i>a terror</i> , <i>a help</i>
from mass to count:	<i>wines</i> , <i>milks</i> , <i>difficulties</i> , <i>hairs</i> , <i>teas</i> , <i>cakes</i>
from count to mass:	(<i>a taste of</i>) <i>garlic</i> , (<i>the smell of</i>) <i>lilac</i>
from proper to common:	<i>the Susans I know</i> (= 'the women named Susan whom I know'), <i>an Einstein</i> (= 'a genius'), <i>a Benedict Arnold</i> (= 'a traitor')

Again, to account for the shift – e.g. from mass to count noun – there are four possibilities:

1. A word such as *difficulty* would be entered in the dictionary as two separate lexemes, one mass and one count.
2. The count noun is understood as having an elliptical quantifying expression, e.g. (*pieces of*) *cake* = *cakes*.
3. The mass noun has been recategorized as count.
4. The mass noun is functioning syntactically as a count noun.

The first analysis is again ungainly and doesn't show the relation between the two uses of the nouns. The second analysis runs into difficulties because it would be necessary to postulate a different quantifying expression for each shifted noun, as in *bottles of wine*, *glasses of milk*, or *strands of hair*, while in some cases, there does not appear to be any quantifying expression, as with *difficulties*. Furthermore, the plural forms occasionally refer to types not quantities, as in *the wines of France* or *the teas of China*. One would also have to shift the plural inflection from the quantifier to the noun (e.g. from *pieces* to *cakes*) by some yet unknown syntactic process. However, in contrast to the case of *the good*, it seems plausible to explain the shift in this case as a true instance of recategorization since the words behave both inflectionally and distributionally like count nouns.

Self-Testing Exercise: Do Exercise 5.6 on recategorization.

In conclusion, there appear to be a number of general problems with the inflectional and distributional tests that we have been discussing. First, there is an inherent circularity to the tests: the first test frame usually contains some word class, such as “determiner” in the test for noun; we are then assuming what we are trying to prove. Or the first test frame contains some lexical item; in this case, meaning (which we were trying to exclude) necessarily enters in. We must also ignore certain violations (which subcategorize words) and take certain tests as the basic one for a category. But there are no reasons, on inflectional and distributional grounds, why one test should be more important than any other. Finally, it is not clear how far subcategorization should be taken: we could conceivably continue until each word is a separate subclass, though doing so would not be very useful. Despite these difficulties, the inflectional and distributional tests discussed here represent a more precise means of categorization than does the traditional approach which is based on a combination of meaning and form.

Chapter summary

Now that you have completed this chapter, you should be able to:

1. define the grammatical categories and their terms;
2. say how the terms of each grammatical category are expressed in English (by means of inflection, periphrasis, word order, and so on) and in which parts of speech; and
3. apply the inflectional and distributional tests for the categories noun, adjective, verb, auxiliary, and adverb in English.

Recommended additional reading

Both of the topics treated in this chapter are generally covered in traditional grammars of English (see the references in Chapter 1). A very clear account of tense, aspect, and modality in English is Leech (2004). The classic structuralist treatment of parts of speech is Fries (1952, pp. 65–141).

Leech, Deucher, and Hoogenraad (2006, Chapter 4) and Klammer, Schulz, and Della Volpe (2010, Chapters 4, 5, and 6) discuss the distinction between content and function words. Carstairs-McCarthy (2002, Chapter 4), Miller (2009, Chapter 12 and 13), and Finegan (2008, Chapter 2, pp. 35–41, pp. 54–59, and Chapter 6, pp. 191–197) include discussions of the grammatical categories; Hurford (1994) defines the grammatical categories in English.

WEEK SEVEN

Goals

The goals of the chapter are to:

- introduce two primary concepts, the lexicon and parts-of-speech;
- outline criteria for distinguishing parts-of-speech, and identify the main types found in human languages;
- identify and exemplify some of the main ways of creating new words;
- touch briefly on idioms as more or less fixed strings of words forming single lexemes; and
- show that words are not always neutral, but can evoke emotional responses in speakers of a language and be used to soften or make harsher unpleasant realities.

Key terms

acronyming	compounding	noun
adjective	conjunction	part-of-speech
adverb	derivation	phonaesthesia
auxiliary	dysphemism	postposition
backformation	euphemism	preposition
blending	extension of meaning	pronoun
borrowing	idiom	reduplication
calquing	interjection	taboo word
clipping	lexeme	verb
coinage	lexicon	
collocations	narrowing of meaning	

4.1 The lexicon

Nature of the lexicon

As a literate speaker of English, you doubtless expect that the words of a language can be listed in a dictionary. You perhaps imagine this as an alphabetical list of entries that tells you how to pronounce each word, and gives a description of its meaning; you might also expect information about the type of word it is, whether it is a noun, verb or whatever. This sort of information is

crucial if you want to use an unknown word correctly. It seems reasonable to believe also that speakers of a language have internalized mental dictionaries, from which they make selections in constructing utterances. Experimental evidence shows that these are not organized in the same way as standard dictionaries, as alphabetical lists. Rather, they are much more structured, with links both between the phonological forms and the meanings of the items: they are more like web-documents than printed ones. Instead of the everyday term *dictionary*, linguists use the technical term **lexicon** for such a list.

Let us leave aside for now the question of how the lexicon is structured and enquire into what should go into it. To begin with, we have assumed that it contains the words of a language. It would have to include all of the root morphemes; it must also contain the derived stems, since (as seen in the previous chapter) their meaning is normally not entirely predictable, and must be recorded. For English the lexicon will have *farmer* as well as *farm*. On the other hand, forms like *farmers* and *farmer's* need not be listed, since knowledge of the morphology of English is sufficient to permit full understanding of these words from the meaning of the component morphemes. That is provided that the bound morphemes are also listed, including inflectional and derivational affixes as well as clitics.

Other things you would expect to find in a lexicon are irregular inflectional forms of words, such as the irregular forms of *be*, *are* and *is*, since these can't be predicted from the morphology (although their meaning can be). Morphologically complex words like *blackboard*, *strawberry*, *penknife* and so on (see §4.3) will also need to be in the list. You will probably agree that a comprehensive lexicon should also list longer expressions such as *kick the bucket*, *know by heart*, *grasp the nettle*, *chew your heart out*, *kill time* and so on. Expressions like these, the meaning of which can't be guessed from the meanings of the component words and the grammar, are called **idioms** (see §4.4).

In short, the lexicon of a language should contain all signs whose meaning is not predictable, whether they are single morphemes, words or combinations of words. These are the **lexemes** or **lexical items** of a language. Anything that has a predictable meaning – like an ordinary non-idiomatic sentence such as *John kicked the bucket down the street* – does not need to be included in the lexicon, and is not a lexeme.

Beware of a potential confusion in terminology! In classifying morphemes the term *lexical* is used in contrast with *grammatical* to indicate morphemes that convey content meaning. But the lexicon of a language, as it is usually conceived, includes all morphemes, regardless of whether they are lexical or grammatical; both lexical and grammatical morphemes are lexemes.

Openness

The lexicon of a language is not fixed; it does not remain constant forever. Indeed, lexicons change quite rapidly. You are doubtless aware of changes that have happened during your own lifetime, as

new words come into use, and old ones lose popularity, and eventually disappear. Some changes are due to social and technological changes: new terms are required for new items, and old words are forgotten as the items go out of use. But other factors can be relevant, including multilingualism (ability to speak more than one language) and tabooing of words (see §4.5). In sections 4.2 and 4.3 we examine some ways languages add to their lexicons.

Even the grammatical morphemes of a language change over time, although they are more stable than lexical morphemes. Over long periods of time new grammatical morphemes are created, often out of existing lexical items, and old ones wear out, so to say, and disappear from use. When we said (p. 61) that grammatical morphemes form closed classes, this is meant in a relative sense: they are not absolutely closed, but much less likely to be added to or taken from than lexical morphemes.

Parts-of-speech

Main categories

The notion of **parts-of-speech** or **word classes** is the idea that the words in the lexicon of a language can be put into different classes. In school grammars these classes are defined intuitively, in terms of the type of meaning expressed. But in modern linguistics grammatical behaviour is the primary consideration, although meaning does play a role, and serves as the basis for labelling the classes. The idea is, on the one hand, that not all words show the same grammatical behaviour, and, on the other, that there are sufficient commonalities among some groups of words to allow us to make generalizations about them. It is not the case that each word behaves in an idiosyncratic manner.

Below is a list of some of the main parts-of-speech found in the world's languages, with some brief remarks indicating the typical semantic content of the members of each class, and some characteristics of the part-of-speech in English. (Different criteria may be required for other languages.)

- **Nouns** are words that typically specify things or entities (people, animals, objects, places, abstract ideas).¹ Grammatical characteristics of English nouns include the ability to inflect for number (except for a small set of irregular nouns), and that they can be preceded by modifiers such as *the*, *a* and adjectives. In many languages nouns distinguish inflectional categories of number (§3.3), case (§3.3) and gender (see §7.2).
- **Adjectives** indicate qualities or properties of things, such as age, colour, size, speed and shape. In English adjectives usually go before nouns; they can usually be preceded by an intensifier like *very* or *too*; they can often be negated by the prefix *un-*; and they can be used in making comparisons by adding the suffix *-er* or the word *more*. They also admit the superlative suffix *-st*.
- **Pronouns** are words like *I*, *me*, *you* and *they* that are used instead of nouns to refer to persons and things, especially known and identifiable ones. Pronouns are grammatical morphemes and form closed classes that can't normally be added to. Pronouns in English make case-distinctions (see §3.3) that are not made for nouns.
- **Verbs** generally designate events (actions, states, processes, happenings, mental and bodily

activities). In English, verbs can be distinguished by the fact that they make past tense forms regularly by the suffix *-ed* (and irregularly by other means, including suppletion); many take the agentive derivational suffix *-er* to form nouns (*thinker*, *walker*, *caller*, *lover*). Verbs in many languages inflect for tense, and person and number of the subject.

- **Auxiliaries** are verbs that express grammatical rather than lexical information, and are used along with lexical verbs denoting events. Auxiliaries in English include *do*, *be* and *have*, as in *Does the duckling love the farmer?*, *The duckling is quacking* and *The farmer has called the duckling*.
- **Adverbs** indicate qualities and properties of events (e.g. like *quickly*, *happily*, specifying the manner of performance), or indicate intensity of a quality (like *very* in *a very slow train*). In English, as in many languages, adverbs do not take inflections, and many show the derivational affix *-ly*.
- **Prepositions** are grammatical words like *at*, *in*, *to*, *by* and *from* that go with nouns to specify how they are related to the rest of the sentence (e.g. by locating the event in space or time). Some languages have **postpositions**, which are words that do the same work as prepositions, but follow the noun rather than precede it. The closest thing to a postposition in English is the possessive clitic *'s*.
- **Conjunctions** are grammatical words like *and*, *or*, *but*, *if* and the like that join words or groups of words together. In English they admit no morphological modification, and usually occur in front of the last item of the list of words joined together (*salt and pepper*; *Tom, Dick and Harry*).
- **Interjections** are words like *hey!*, *yuk!*, *strewth!*, *erk!*, which mostly express the speaker's emotional attitude, or call for attention. Important characteristics of these words are that they can stand alone as full utterances, and do not allow any morphological modification.

Criteria

As mentioned above, in modern linguistics parts-of-speech are defined by grammatical behaviour, not meaning. Thus a word such as *seem* can hardly be interpreted as denoting an event, although its grammatical behaviour in English groups it with verbs: it takes the regular past tense suffix *-ed* (here /d/), and third person singular present *-s* (here /z/) and occurs in the same position in English sentences as event-denoting verbs like *hit*, *walk* and so on.

The grammatical features characterising the parts-of-speech vary from language to language. In some languages it is relatively easy to set up nouns and verbs as distinct parts-of-speech by morphological behaviour. Thus in Pitta-Pitta (Pama-Nyungan, Australia) nouns take case marking suffixes, and verbs tense suffixes. This criterion works very well, giving distinct, almost disjoint, classes – just two words can take both sets of suffixes.

But in many languages things are more complex: simple morphological criteria like the ability to take certain morphemes lead to parts-of-speech with considerable overlapping of members. This is the case in English.

Linguists have different opinions as to what to do in such cases. Some are not bothered by massive overlapping; others look for ways to reduce overlap. There are also differences of opinion

on at least two other points. One is whether we should be satisfied with defining parts-of-speech in a language-specific way, or whether we should be seeking universally valid criteria. The other is whether to use morphological criteria (as in Pitta-Pitta), or syntactic criteria – that is, to assign words to parts-of-speech according to the way they are used in sentences – or a mixture of both.

Parts-of-speech across languages

Not all languages distinguish all of the parts-of-speech listed above. A fair number of languages do not recognize a distinct class of adjectives. This is so in many Australian languages, where words translating as adjectives in English belong together with nouns in a single part-of-speech. By contrast, in Mandarin Chinese words translating into English as adjectives usually belong with verbs.

Probably the majority of languages distinguish at least the two major lexical parts-of-speech – nouns and verbs. But even this distinction is perhaps not universal. Some languages of Native North America – including many Salishan languages – have been claimed to lack this distinction. (There are differences of opinion among specialists.) Samoan is another such language. It seems that in principle any word can behave either like a noun or like a verb; English translation equivalents of a single word can be either a noun or a verb, as illustrated by *lā* ‘sun’, ‘suns, be sunny’ in (4-1) and (4-2).² There is thus, it has been argued (e.g. by Hengeveld et al. 2004), no reason to distinguish nouns from verbs as different parts-of-speech.

- | | | | | | |
|-------|--|---------------|-----------|------------|--------|
| (4-1) | <i>‘Ua</i> | <i>mālosi</i> | <i>le</i> | <i>lā</i> | Samoan |
| | perfective | strong | article | sun | |
| | ‘The sun is strong.’ More literally, ‘The sun strong.’ | | | | |
| (4-2) | <i>‘Ua</i> | <i>lā</i> | <i>le</i> | <i>aso</i> | Samoan |
| | perfective | sun | article | day | |
| | ‘The day is sunny.’ More literally, ‘The day sun.’ | | | | |

While some of the parts-of-speech listed above may not exist in a language, additional categories are frequently distinguished. In many northern Australian languages words corresponding to verbs in English belong to two different parts-of-speech: members of one group are morphologically complex, and take inflectional affixes; members of the other group are morphologically simple, and admit no inflection and just a little derivation. The first group is a closed set with between about 10 and 200 members, while the second group is open, with many hundreds of members. In the following Warrwa sentence, *-wani-* ‘be’ belongs to the class of morphologically complex verbs, and takes the prefix *ngirr-*, which indicates subject ‘they’, the suffix *-n* indicating present time, and the suffix *-bili* indicating that the persons are two in number. (These glosses are rough, and this morpheme analysis is incomplete.) The word *nganka* is a member of the second part-of-speech; the suffix *-ngkaya*, indicating ongoing or continuous action, is the only bound morpheme that can be attached to it.

- | | | | | |
|-------|--|----------------------|--------------------------|--------|
| (4-3) | <i>kujarra</i> | <i>nganka-ngkaya</i> | <i>ngirr-wani-n-bili</i> | Warrwa |
| | two | talk-continuous | they-be-present-two | |
| | ‘The two of them are speaking together.’ | | | |

Grouping words together into parts-of-speech categories does not imply that every word in each class patterns in precisely the same way. Rather, they are sufficiently similar to make it reasonable to group them together. Sometimes one can identify subclasses of major parts-of-speech because of shared minor differences. On the other hand, in some languages one finds a small number of lexical items that have their own unique patterning, and show no substantial similarities with any other words.

4.2 Ways of making new words

Limitations on formation of new words

In this section and the next we look at some of the means by which languages expand their lexicons; we will be concerned with lexical roots and stems, and ignore grammatical items and idioms. This section discusses ways of expanding the lexicon by making new word forms, sometimes to express new meanings, sometimes to express existing meanings. The following section identifies ways in which existing forms can be used to make new lexical signs expressing new meanings.

The formation of new words is constrained in many ways. New forms must normally satisfy the phonological system of the language; thus a new word with final /ŋ/ would be possible in English, though one with initial /ŋ/ would be impossible. There are also meaning constraints: the meaning must be one that speakers are likely to want to make. The meaning ‘quark’ is useful only in a language spoken in a scientifically oriented society. The lexical item *quark* entered the English language in the 20th century, when the meaning was needed, not in 1063!

Aside from these constraints, human inventiveness is not unlimited, and it is unusual for a new lexeme to be totally original in both form and meaning. More usually, we put together bits and pieces of old forms and meanings according to relatively well-established patterns (sometimes grammatical, sometimes not), to come up with new lexemes.

Etymology is the study of origin of words. It is often difficult to be sure how and when a word entered a language. This is particularly true of languages which, like most human languages, are unwritten or just recently written. At least for a language with a long tradition of writing old records may be preserved, permitting one to conclude that a certain word was in use by a particular time. However, it doesn’t follow that the earliest written record remaining is the first use of the word – relevant written documents may well not have survived, and it is likely that the word was used in speech before it was ever written. (Writing is generally more conservative than speech.) Moreover, the basis on which the word was formed may not be apparent, or there may be two or three quite different though equally likely explanations.

Dictionary makers these days keep a careful eye – and ear – open for new words entering the major European languages like English, French, German and Spanish. But for the vast majority of languages there are no written dictionaries, let alone sufficient human and financial resources to monitor the acquisition of new words.

Clipping

Clipping is the shortening of an existing word of more than one syllable, generally to a single syllable. Common examples are *pub* (from *public house*), *fan* (in one sense from *fantastic*, in another from *fanatic*), *fax* (from *facsimile*), *ad* (from *advertisement*), *condo* (from *condominium*) and *flu* (from *influenza*). Personal names are often clipped in English – *Mike*, *Ron*, *Rob*, *Sue* and *Liz*.

Over time, clippings may become more frequent than the longer forms. This has happened with *pub*, *pram* and *fan* (in the ‘devoted follower’ sense), for which links with the source-words are not recognized by many speakers. Sometimes the long and short forms take on different senses, or become associated with different contexts of use (e.g. formal vs. casual speech). This is the case for short and long forms of names in English, where short forms tend to be used in more informal and intimate contexts, long forms in formal contexts. In the case of *fax* and *facsimile* the former has come to apply specifically to a document sent via the telephone network, while *facsimile* is normally restricted to an exact replica of a document, preserving its original written or printed form.

A variant on clipping that is common in Australian English is **hypocorism**. This involves first clipping a word down to a closed monosyllable. Next the suffix *-y* ~ *-ie* (/i/) is attached to the clipped form. Some examples are *Aussie* ‘Australian’, *brekky* ‘breakfast’, *bickie* ‘biscuit’, *barbie* ‘barbeque’ and *telly* ‘television’. The same suffix can be added to clipped personal names (e.g. *Mickey*, *Robby*, *Lizzie*); but there is no suffixless *brek* or *bick* corresponding to *brekky* and *bickie*.

Acronyming

Acronyms are words formed from the first letters of a string of words. There are two types: word acronyms and spelling acronyms.

Word acronyms are pronounced as single words, following the spelling to pronunciation rules. Examples are *RAM* (*random access memory*), *ROM* (*read only memory*), *NASA* (*National Aeronautics and Space Administration*), *UNESCO* (*United Nations Educational, Scientific, and Cultural Organization*) and *AIDS* (*Acquired Immune-Deficiency Syndrome*). Acronyms are often written with capital letters, giving away their status; but many well-established acronyms are written as ordinary words: *laser* (*light amplification by stimulated emission of radiation*), *scuba* (*self-contained underwater breathing apparatus*) and *radar* (*radio detecting and ranging*). Few people realize that these words are acronyms. Famous is *snafu*, an acronym dating from the Second World War, which stands for *situation normal all fucked* (or *fouled*) *up*.

Spelling acronyms are pronounced as sequences of the names of the letters used, rather than as words (often because the sequences of letters are unpronounceable). Examples are *EU* (*European Union*), *PR* (*public relations*), *VCR* (*video cassette recorder*) and *CD* (*compact disc*). The widespread *OK*, which has been borrowed into many languages as an expression meaning ‘all right, satisfactory, acceptable’, began life as a jocular acronym for *orl korrekt*, coined in 1839.

Acronyming is a popular way of forming new terms in modern English and many other European languages, especially names for organizations. They are often chosen so as to be evocative of the function of the organization, as in Ian Fleming’s *SPECTRE* (*Special Executive for Counterintelligence, Terrorism, Revenge and Extortion*), *WAR* (*women against rape*), *NOW* (*National Organization for Women*) and *MADD* (*mothers against drunk driving*).

Acronyming is restricted to languages with established traditions of alphabetic writing and widespread literacy. It is not universally employed, and is dependent on the visual medium. To the best of my knowledge, speakers never construct words from the initial phonemes of strings of spoken words.

Blending

Blends involve the combination of parts of two separate words to form a single word. Usually it is the first part (often syllable) of one word together with the second part of the other word (either syllable or single final consonant), which occur in that sequence. The word *motel* is a blending of *motor* and *hotel*; *smog* is a blending of *smoke* and *fog*; and *bit* is a blending of *binary* and *digit*. Other examples are *Chunnel* (the tunnel under the channel between England and France) from *channel* and *tunnel*, *refolution* ‘a peaceful revolution’ from *reform* and *revolution*, and names for various mixes of languages such as *Français*, which blends *Français* (*French*) and *Anglais* (*English*), and *Japlish*, a blend of *Japanese* and *English*. While speakers undoubtedly realize the status of some of these words as blends, others are not so obvious.

Occasionally, it is the first part of both words that are combined together, as in *modem*, a blend of *modulator* and *demodulator*.

Borrowing

Major features of word borrowing

Borrowing, the process of incorporating into one language words from another, is perhaps the most common source of new words. Words that have been borrowed are called **loanwords**.

Loanwords are normally adapted to the phonological (and phonetic) patterns of the language they are borrowed into, although if the source (or loaning) language is well known to most speakers of the borrowing language, this adaptation does not always occur. An example is the word *kangaroo*, a borrowing from Guugu Yimithirr (Pama-Nyungan, Australia). The Guugu Yimithirr word is /gaŋuru/, with stress on the first syllable. But this is not a possible word in English, and it has been regularized to follow the phonemic patterns of the borrowing language: the velar nasal beginning the second syllable has been replaced by the nasal-stop cluster /ŋg/ (which is a possible

sequence), and the /r/ – a tap or trill [r] (phonemically distinct from the continuant [ɹ] in Guugu Yimithirr) – has been replaced by the English rhotic ([ɹ] in most dialects). In addition, stress has shifted to the third syllable, and the vowel of the second syllable has been reduced from /u/ to /ə/. The other two vowels also show different qualities.

This example illustrates another characteristic of loanwords: their meaning need not be identical with the meaning of the word in the source language. The Guugu Yimithirr word refers to a particular type of macropod, not to kangaroos in general. According to one story, speakers of the language did not recognize the word as one of their own when pronounced in the English fashion because the English speaker was pointing to the wrong type of macropod!

Sometimes borrowed words are misidentified. A number of borrowings from Arabic include along with the lexical item also the definite article *al*, or a part of it. For example, *lute* comes from Arabic *al ūd*, the morpheme boundary being wrongly placed after the initial vowel; *algebra* (from *al jabr* ‘the reunion of broken parts’) and *algorithm* (from *al Khwārizmī*, ‘the man from Khwārizm (Khiva)’), on the other hand, preserve the entire definite article as a part of the root.

Loan translations or **calques** are a special type of borrowing in which the morphemes composing the source word are translated item by item. Examples are English *power politics* from German *Machtpolitik* and Mandarin Chinese *nan pengyu* (male friend) from English *boyfriend*. Similar to calques are loanblends, in which one of the morphemes, usually the lexical root, is borrowed, and the other is native, as in Pennsylvania German *bassig* ‘bossy’, with borrowed stem and native suffix, *-ig* a German morpheme corresponding to the English *-y* suffix.

Some borrowings into English

Over the last millennium or so English has borrowed a vast number of words. Indeed, it has been estimated that over 60 per cent of the vocabulary of the average text in the modern language has been borrowed since 500 CE (Williams 1975). Knowledge of the time and place of these borrowings gives something of a picture of the history of the language and its speakers. Below is an outline of some of the major sources of borrowings.

Some centuries after the invasion of Britain by West Germanic tribes in the 5th century there occurred another invasion of Germanic tribes from Denmark. Around 900–1000 CE numerous Danish words were borrowed into English; many remain, including a number of very basic words, among them *sky*, *sister*, *egg*, *both* and *thing*.

The Norman invasion of England in 1066 resulted in French becoming the second language of many inhabitants. Numerous French loanwords date from this period, including many terms relating to the political and economic sphere, such as *duke*, *cost*, *labour*, *rent* and *calendar*, as well as some everyday lexemes such as *uncle*, *aunt* and *easy*.

From about the 10th to the 16th centuries English borrowed a considerable number of Latin and Greek words. The loanwords dating from those times are mainly from the scientific and philosophical domains: these developing intellectual pursuits required terminologies, and Latin and Greek were good sources because they were known by the educated elite. Examples include *solar*, *gravity*, *telescope*, *history* and *legal*.

Following the colonization of America, numerous words were borrowed into English – as well as the other major colonial languages Spanish, French and Portuguese (Romance, Portugal) – from Native American languages. Many were words for places (e.g. *Michigan*, *Chicago*, *Texas*), and for plants (*maize*, *tomato*, *tobacco*) and animals (*moose*, *skunk*, *caribou*) that were unfamiliar to the European invaders. A number were subsequently borrowed into other European languages.

The post-1788 colonization of Australia brought another rash of loanwords, again primarily lexemes for places, plants and animals. Some 200 words have been borrowed from Australian languages into Australian English, and subsequently into other dialects. These include *kangaroo* (see pp. 87–8), *boobook* ‘an owl type’, *dingo* ‘wild dog’ (from the language of Port Jackson), and *boala* (from the language of the Sydney area). Some of these words, including *kangaroo*, *emu* and *boomerang*, have since been borrowed into other languages, including other Australian Aboriginal languages.

Some borrowings from English

English has also contributed loans to numerous languages, especially in the colonial and post-colonial periods. Thus the languages of North America and Australia borrowed numerous words from English, again often words for previously unknown objects (e.g. *cattle*, *sheep*, *horses*, *guns* and later *cars*) and activities (e.g. *branding*, *mustering* and *working*).

With the increasing globalization of English during recent decades, and its status as the international language of business, science and technology, many languages have borrowed, and continue to borrow, considerable numbers of English specialized terms from these domains. Danish has borrowed numerous terms from the technological domain including *computer*, *video*, *radio*, *internet*, *harddisk*, *rom*, *pc* and *cd*. For logging off my server I go to the button labelled *log off*, a loanblend from *log off*. When I’ve finished working on the computer, I click *luk computeren* (literally ‘close the computer’), at which point have the choice of going to *standby* (a straight borrowing from English), *luk* ‘shut down’ (indigenous Danish), or *genstart* (literally ‘again-start’ a loanblend from *restart*). Examples of calques in Danish are *fjernsyn* (*fjern* ‘distant’ and *syn* ‘sight’) ‘television’ and *fjernstyring* (*fjern* ‘distant’ and *styring* ‘control’) ‘remote control’.

Coinage

Very rarely, a word is completely novel, an entirely creative invention; such words are called **coinages**. Coinages are always restricted to the limits imposed by the phonology of the language. Possible examples in English are *nerd*, *chunder* (‘to vomit’, primarily in Australian English), *barf* (‘to vomit’, mainly in American English), *naff* ‘unfashionable, worthless, faulty’, *razoo* (‘imaginary coin’ in Australian and New Zealand English), and brand names, like *Kodak*, *xerox*, *Vegemite* and *Buxon*.

More usually, the degree of creativity of a new word is limited, and speakers exploit existing words and word patterns. Thus, according to *The New Shorter Oxford English Dictionary*, the word *rayon*, which refers to fabric made from fibres and filaments of a certain type, is an invented word that could be suggestive of the now rare *rayon* ‘ray of light’, and/or the noun *ray* with ending on

(which is not a morpheme) motivated by *cotton*. Other invented words like *nylon* and *teflon* might further exploit this meaningless ending.

We have already remarked (§1.2) on the iconicity of some words, in particular of onomatopoeic words that represent the sound characteristic of some object, animal or event. A fair number of Australian languages have an invented onomatopoeic word for 'cat': *minyawoo* in Gooniyandi, *minyawu* in Warrwa and *mijawu* in Nyulnyul.

Sometimes certain phonemes or combinations of phonemes are felt by speakers to be evocative of certain meanings. For instance, in many languages the high front vowel /i/ conveys a suggestion of smallness or closeness in contrast with /a/ or /u/. Compare, for instance English *ding* and *dong* – which of these do you feel best describes the noise of a large bell?³ If I was a betting man I would bet you chose *dong*, and that you would go for *ding* for the sound of a small bell. Interestingly, in Australian English a small dent on the body of a car is referred to as a *ding*. And in English (among other languages) the lateral *l* has a tendency to suggest liquids and fluid or uncontrolled movements.

A related phenomenon is **phonaesthesia**, where certain phonemes tend to be associated in the lexicon of a language with certain meanings, often on a partially iconic basis. For instance, many English words with initial *gl-* have to do with brightness, as in *glisten*, *gleam*, *glitter*; and many beginning with *sl-* tend to be associated with uncontrolled, liquid-like movements, as in *slip*, *slide* and *slither*. Phonaesthesia can be exploited at least to some extent by speakers in coining new words. Indeed, coinages that display some degree of phonaesthesia are perhaps more likely to gain acceptance than those that are totally arbitrary.

A special type of coinage is **nonsense words**, forms that could be words in the language, but are not. Lewis Carroll was a master inventor of nonsense words, which he used in many poems in Carroll (1899). These poems (sometimes called nonsense verse) use the usual grammatical morphemes of English, but replace some of the lexical words by nonsense words, sometimes with stunning effect. Here is the first verse of Carroll's poem *Jabberwocky* (Carroll 1899: 28):

*'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe;
All mimsy were the borogoves,
And the mome raths outgrabe.*

Carroll also went on to explain, in a dialogue between Humpty Dumpty and Alice, the meanings of the nonsense words, and their motivations. It is worth repeating the explanation of the first two lines here not just because of its sheer brilliance, but also because it alludes to some of the processes we have identified.

"'Brillig" means four o'clock in the afternoon – the time when you begin broiling things for dinner.'

'That'll do very well,' said Alice: 'and "slithy"?''

'Well, "slithy" means "lithe and slimy." "Lithe" is the same as "active." You see it's a portmanteau – there are two meanings packed up into one word.'

'I see it now,' Alice remarked thoughtfully: 'and what are "toves"?''

'Well, "toves" are something like badgers – they're something like lizards – and they're something like corkscrews.'

'They must be very curious-looking creatures.'

'They are that,' said Humpty Dumpty; 'also they make their nests under sun-dials – also they live on cheese.'

And what's to "gyre" and to "gimble"?''

'To "gyre" is to go round and round like a gyroscope. To "gimble" is to make holes like a gimlet.'

And "the wabe" is the grass-plot around a sun-dial, I suppose?' said Alice, surprised at her own ingenuity.

'Of course it is. It's called "wabe" you know, because it goes a long way before it, and a long way behind it--'

And a long way beyond it on each side,' Alice added.

Carroll 1899: 125–7

4.3 Ways of using old forms to get new meanings

In this section we focus attention on new meanings instead of new forms. Of course, there is overlap with the strategies for making new forms discussed in §4.2, most of which give rise to new meanings. Conversely, many of the processes we discuss here result in new forms; but, in contrast to the processes discussed in the previous section, these new forms are more systematically related to existing forms.

Derivation

Derivation is the process of forming new words by use of derivational morphemes, morphemes that create new lexical stems (see §3.3). Derivation is commonly used in English to form new words in science, medicine and technology. Linguistics is typical, and numerous derived forms can be found in this book. Dating from the mid-20th century are *deverbal*, *denominal* and *deadjectival*, referring to derivational processes by which verbs, nouns and adjectives lose their original part-of-speech membership.

Compounding

Two separate words are sometimes joined together to form a single word, a new word with a

new meaning of its own, a meaning that is not entirely predictable from the component words. This process is called **compounding**. An example is *loanword*, a single word made up of two independent words *loan* and *word*. Notice that although a loanword is a type of word, one that has been borrowed into one language from another, the meaning of *loanword* is not entirely predictable from the meaning of the individual words making it up. Why is this? There are two main reasons. First, a loanword is not borrowed in the way that things are usually borrowed – the word *loan* suggests a temporary change of possession (otherwise it is surely a gift), which does not apply in this case: the word remains in both donor language and borrowing language. (I would be happy to loan you any amount of money if I knew that I would keep the same amount in my possession!) Second, as described earlier, the word applies to the specific case in which the word is incorporated into the lexicon of another language, which usually means that it adapts to the phonological structure of the borrowing language. A loanword is not just any word of Danish that I as a native speaker of English living in Denmark might insert into my spoken English, although nothing in the meaning of the words making up the compound precludes words of this type.

Compounding is quite heavily used in English, German, Dutch and Danish as a means of forming new words. Kiowa (Kiowa Tanoan, USA) also makes extensive use of compounding: *t'òá* (ear-stick) 'earring', *món-k'óy* (hand-cloth) 'glove', *món-só'dè* (hand-hook: on) 'bracelet' and *món-pà-tò* (hand-against-hold) 'weapon'. It is less frequent in Romance languages such as French, Spanish and Romanian, and almost non-existent in Mosestén (Mosestenan, Bolivia).

Reduplication

Many languages form new words by repeating an existing word either in full or in part. This is called **reduplication**. Oceanic languages usually make a good deal of use of reduplication to construct new words. For example, in Saliba (Oceanic, Papua New Guinea) nouns can be formed from verbs by reduplication, as in *kuya-kuya* (sweep-sweep) 'broom', and *lau-lau* (go-go) 'way, method'. A verb can also be reduplicated to form a word expressing a quality: *dou-dou* (cry-cry) 'crying (person)'. If the word has more than two syllables, reduplication is partial, the first two syllables only being repeated, and attached to the front of the word, as in *tago-tagodu* (break-break) 'broken (thing)' and *hede-hedede* (talk-talk) 'word, talking'.

Reduplication is often iconic. Reduplication of verbs generally conveys the idea of a frequent and repeated event, or one that is habitual or characteristic of something, as in the Saliba examples just cited. Reduplication of a noun often indicates numerosity or multiplicity, or intensity. In many Australian languages reduplication of nouns results in a new noun indicating a multiplicity of things; this is illustrated by the Jaru (Pama-Nyungan) reduplications *maluga-maluga* (old:man-old:man) 'many old men', *manga-manga* (girl-girl) 'many girls', and *guju-guju* (baby:animal-baby:animal) 'many baby animals'. Reduplication of nouns in Chichewa (Niger-Congo, Malawi) indicates intensification: *m-kázi-kazi* (*m*-woman-woman)⁴ 'cute and cultured woman' and *munthu-múnthu* (person-person) 'a real (i.e. humane) person'.

Reduplication is often considered marginal in English, although this is questionable: over 2,000 words are formed by this process according to Burrige (2004: 47). Sometimes the whole stem is repeated, as in *fifty-fifty*, *hush-hush* and *never-never*; more often there is a slight phonological

change in the repeated element, as in *helter-skelter*, *dilly-dally*, *higgledy-piggledy*, *teeny-weeny*, *flanky-panky* and *shilly-shally*.

Backformation

In **backformation** a shorter word is created from a longer one by removing a part that is wrongly taken to be an existing morpheme. From the noun *television* the verb *televise* was backformed on analogy with other pairs such as *revise* ~ *revision*, and *incise* ~ *incision* that involve the nominal derivational suffix *-ion* (-ʒn). Another example is *burger*, which, as most speakers of English know, comes from *hamburger*. But the term was originally *Hamburg-er*, with the derivational suffix *-er* attached to *Hamburg*, the name of a city in northern Germany. Speakers reanalysed the word as *ham-burger*, doubtless interpreting the *ham* as the word for a type of meat. By analogy with pairs like *ham sandwich* ~ *sandwich*, the pair *hamburger* ~ *burger* is expected. Other examples are the verbs *edit* from *editor*, *emote* from *emotion* and *babysit* from *babysitter*.

Meaning extension

Our final two processes of word formation do not involve changes to word forms. The first is **meaning extension**, which is the process of extending the meaning of an existing word, broadening it to embrace new senses. This is a quite common way of forming new words – new words because the meaning associated with the old form is a new one, and not fully predictable from the old sense. This can be exemplified by the word for 'policeman' in many Australian languages: in Walmajarri it is *limpa* 'a type of biting fly that swoops down on a person'; in Bardi (Nyulnyulan) it is *liinyj* 'sour'. On the opposite side of the continent, Dhurga (Pama-Nyungan) has extended the word *jungga* 'octopus' (the eight arms of the law!), while Djabugay (Pama-Nyungan) has extended *jun.gi* 'freshwater crayfish type'. Money, in Australian languages (a non-traditional artefact), is often designated by the word for 'rock, stone', an extension based on the resemblance of coins to stones; these days the term shows, in many languages, a further extension to include paper money as well.

Examples of meaning extensions are not difficult to find in English either. The word *holiday*, for instance, comes from the compound *holy-day*, a day on which one did not work. It has extended to cover any day designated as work-free (as in *today is a holiday*, which happens to have been true at the time I first composed this sentence), and thence to the travel and other enjoyable activities one might perform on a work-free day (as in *I will go for a holiday next month*). A number of product brand names have extended their meaning to embrace any artefact of their type. An example is *hoover*; indeed, this word has extended further to the activity one typically performs with the instrument, namely vacuum-cleaning the floor.

Meaning narrowing

Meaning narrowing is the reverse of meaning extension: a word's sense becomes restricted. For example, *doctor* in everyday spoken English shows narrowing from 'person holding a doctorate

degree' to 'person holding a doctorate in medicine'. To express the former meaning one would normally use a more specific expression such as *doctor of philosophy*, *doctor of science* or *PhD*. (*Doctor* has subsequently extended its meaning to 'qualified medical practitioner', relaxing the requirement of having a doctorate in medicine.)

The word *doctor* has perhaps narrowed due to the lack of a suitable term for the professional in the medical field: *medical practitioner* has a formal air, while terms like *physician* and *surgeon* have more specific senses. Not all narrowings are motivated by lack of a suitable term. In 17th-century English *meat* meant 'food', and *flesh* meant 'meat'. The meaning of *meat* has since narrowed to one particular type of food, that derived from animals; *flesh* has at the same time shifted its meaning to refer to part of an animal's or person's body, regardless of whether or not it is to be eaten. And *food* took the place left by *meat*.

4.4 Fixed expressions

Idioms

Recall that idioms are more-or-less fixed expressions like *kick the bucket* 'die', the meanings of which are not predictable from the component words or grammar (see p. 81), and which need to be listed in the lexicon.

Some idioms are virtually unchangeable, like the Australian English *Don't come the raw prawn with me*, meaning 'don't try putting that behaviour over me' (also idiomatic). You can't change this to the positive form **Come the raw prawn with me*, or into a statement in past time **He didn't come the raw prawn with me*, or with different persons **I won't come the raw prawn with you*. Nor can you replace *raw prawn* by *cooked prawn*, *raw meat*, *raw lobster* or any other such expression.

Most idioms are not so fixed, and allow at least some grammatical modifications. For example, *give (someone) a piece of your mind* can be modified in various ways, according to time, purpose of the utterance and the persons involved: *She gave me a piece of her mind*, (*Don't give her a piece of your mind* and so on. Although you can modify the structure of this idiom somewhat (even to a limited extent rephrasing it, for example, *A piece of my mind is what I intend to give her*), you can't do so as freely as for an ordinary non-idiomatic sentence like *She gave the postman the wrongly addressed letter*. Whereas you can rephrase the latter sentence as *The wrongly addressed letter was given to the postman*, you can't rephrase the idiom as **A piece of your mind was given to her*, or **She was given a piece of your mind*. (The latter sentences invoke the non-idiomatic readings that something was handed over.)

More interestingly, perhaps, idioms can often be exaggerated by either the addition of elaborating material, or replacement of a salient word, injecting life back into tired and worn-out expressions. Examples are *take with a generous pinch of salt*, *take with a ton of salt*, *I'll eat my hat ... and shoes as well!* and *up shit creek in a barbed-wire canoe without a paddle* – as if being up shit creek wasn't bad enough! Even the invariant *Don't come the raw prawn with me* can be modified by lexical replacement to *Don't come the uncooked crustacean with me!* Similarly, *Hold your horses!*

can appear as *Hold your ponies!* Like grammars – as Edward Sapir famously observed – idioms leak.

Although the meaning of an idiom is not predictable from the words that make it up, in many cases it is possible to guess some motivation for it. Idioms like *don't look a gift horse in the mouth*, *throw your weight around*, *I'll eat my hat*, *hold your horses*, *get it off your chest* and *get off your high horse* are not entirely arbitrary. Thus, you can imagine if you examine too carefully a horse given to you that you might find something wrong with it, and this idea is obviously behind the idiom. To be sure, some remain puzzling, if not downright inexplicable, like *don't come the raw prawn with me*, and *kick the bucket*. (Don't ask me to explain these!)

Presumably, all languages have idioms. One domain where idioms are frequently found is in the expression of emotions. These are often idiomatic expressions involving reference to parts of the human body, as in the following examples:

(4-4) *ngiya-mad-ju barij wi* Ngarinyin (Worrorran, Australia)
 my-kidney-to rise it:is
 'I'm happy.' (Literally, 'My kidney is rising.')

(4-5) *tôi đau lòng* Vietnamese
 I sick intestines
 'I'm broken-hearted.' (Literally, 'I'm sick in the intestines.')

(4-6) *ti-n mīs* Paamese (Austronesian, Vanuatu)
 intestines-he he:cries
 'He/she feels sorry.' (Literally, 'His intestines cry.')

(4-7) *ti-n tīsa* Paamese
 intestines-he he:is:bad
 'He/she is angry.' (Literally, 'His intestines are bad.')

To wind up this section consider (4-8), a common idiomatic expression in Romanian. With a little thought you should be able to understand its motivation.

(4-8) *m-ai lovīt în pălărie* Romanian
 me-have:you hit in hat
 'What you are saying (or doing) is so stupid that you fail to hit the target.' (Literally: 'You hit me in the hat.')

Collocations

Some fixed expressions have meanings that are fully predictable from the component words. Examples are so-called **binomials**, such as *salt and pepper*, *pen and paper*, *up and down*, *cup and saucer*. The words of binomials come in a relatively fixed order; thus you normally say *Pass the salt and pepper*, not *Pass the pepper and salt*. Of course, you can say *Pass the pepper and salt*, but that is not the way speakers of English normally phrase the request.

Binomials are examples of **collocations**, habitual combinations of words. Words are somewhat fussy about the company they keep; there is often some degree of predictability of one word given

another: *salt* is statistically more likely to be followed (within two words) by *pepper* than by *sauce*, *cardboard* or *brontosaurus*. *Coffee* collocates with *strong*, *weak*, *sweet* and *hot*, but not with *heavy*, *hard* or *cloying*. You would use the former adjectives to describe a cup of coffee, in preference to the latter: *a cup of strong coffee* or *a strong cup of coffee* rather than *?a cup of hard/heavy coffee*, or *?a heavy/hard cup of coffee*, and *sweet coffee* rather than *?cloying coffee*. You might not expect separate entries in speakers' mental lexicons for collocations such as the above, their meanings being predictable. However, knowledge of the collocations of a word is certainly crucial to their usage, and the collocations themselves are not predictable: there is no particular reason why *strong* rather than *hard* should go with *coffee* – *hard* collocates with other words for drinks: a strong alcoholic drink is *hard liquor*. Another illustration of this point is that *the* collocates with *radio* in *I heard it on the radio* (where *the* is unlikely to be left out), but not with *television* or *TV* in *I saw it on TV* (where *the* is less likely to be used). This difference seems to be idiosyncratic. It is reasonable to expect the entry for a word in a speaker's mental lexicon to contain information about the words it collocates with.

An enormous variety of collocations is found in English, and doubtless other languages. They vary from those with predictable meanings, to idiomatic collocations such as *spick and span*, *livelong day* and *eke out*, in which the first word is not used outside of the collocation, and so completely predicts the following words. It is difficult to draw a precise line between idioms and collocations. Many words in idioms collocate quite strongly with one another: *green* collocates with *envy* (*you'll be green with envy*); other colour words do not.

4.5 What's in a word?

Word taboos

'A rose by any other name would smell as sweet,' said Juliet. True this may be, but not all words smell equally sweet, at least to speakers of a language. Words are not neutral; they carry emotional overtones. Whether you use the word *policeman*, *cop*, *bobby*, *fuzz*, *the filth*, *(a) John* or *pig* you may be referring to an officer of the law; whether you say *strike breaker*, *blackleg* or *scab* you may be referring to someone who takes the place of workers who are on strike. But these words have different overtones, and your choice among them conveys your attitude.

For the words we've just discussed, the overtones are associated with the words in particular uses: *scab* doesn't have such overtones when used to describe the hard dried blood of a sore. But some words have particularly strong affective values; for example, *shit*, *fuck* and *cunt* are among the most highly charged words in English. They are often called 'dirty' words or 'filthy' words, although there is nothing intrinsically dirty (or for that matter, clean) about them, and there is nothing at all unpleasant about them phonetically or phonologically. (*Fuck* surely sounds no better or worse than *duck*, *luck*, *fun* or *fuddle*.)

Nevertheless, these three words are felt to be in some sense 'bad' by speakers of English, who tend to avoid their use in 'polite company', and, for instance, when speaking to their mother, to a prospective employer or on a televised quiz-show. Indeed, in the USA it was not until 1926 that

fuck was first printed openly; its use in printed sources has increased considerably in recent years. (As a foreigner in Denmark I have often been surprised by seeing *fuck* written in places where its use would be considered offensive in Australia or Britain.) Words like *fuck* are called **taboo** words. *Taboo* is a borrowing from Tongan (Austronesian, Tonga) *tabu*, which refers to actions or things that are prohibited by social or religious convention.

In English and other European languages many words relating to sexual activity, the genitals and some bodily functions and exuviae (liquid and solid exudations) are taboo. In English, of course, there are more acceptable words for these activities (e.g. *sexual intercourse*) and body parts (e.g. *penis*) and products (e.g. *urine*, *faeces*, *semen*). Interestingly, it is the words inherited from Anglo-Saxon that are taboo; those borrowed from Latin (like *faeces* and *vagina*) tend to be accepted as 'clean' terms. Certain words with religious connotations are also tabooed in many cultures when used outside of the appropriate religious context. This is the case for words like *God* and *Christ* – as a child I was often told 'Don't take the lord's name in vain.'

There are other quite different types of word taboos. Terms for game animals are often taboo to hunters. In many societies in New Guinea and Australia, there is a taboo on uttering the name of a recently dead person. In many Australian languages this taboo extends to a word that sounds like the name of the deceased. Thus, when a man named Djäyila died at Yirrkala (North-East Arnhem Land, Australia) in 1975 the verb *djäl-* 'to want' was tabooed, and replaced by *duktuk-*; after a few years *djäl-* started reappearing.

Euphemisms

Euphemisms are indirect or evasive expressions used to avoid direct mention of unpleasant or taboo ideas; euphemisms provide ways of avoiding being offensive by being evasive. A few examples are: *pass away* and *go to sleep* for 'die'; *bathroom* (American English) and *loo* and, more recently, *washroom* (Australian English) for 'toilet, lavatory'; *smalls* and *unmentionables* for 'underclothing'; and *girl*, *working girl* and *woman of the street* for 'prostitute'. The word *undertaker*, which originally meant 'odd-job man', was used as a euphemism for someone whose job is to bury the dead. Its meaning narrowed to this sense alone, as often happens with euphemisms. A new euphemism is now replacing it – *funeral director*.

The unpleasantness of touchy events or things is felt to be lessened by use of an indirect term, because it reminds one of something more pleasant. Euphemisms are commonly found in the domains around which taboos are often found, including sexual activity, sex organs, bodily functions and products, death and killing. But they are not restricted to these domains, and can be found for any sort of unpleasant reality: for example, *honorariums* instead of *bribes*, *campaign contributions* instead of *graft*, *make redundant* instead of *sack* and *tactical withdrawal* instead of *retreat*.

Dysphemisms

Dysphemisms are the inverse of euphemisms: a euphemistic or neutral expression is replaced by a particularly direct or harsh term, with offensive overtones, often a taboo term. Examples of

dysphemisms include: *shithouse* and *boghhouse* for *toilet* (compare the euphemisms *bathroom* and *loo*); use of tabooed terms like *fuckwit*, *cunt* and *shithead*; and terms for animals such as *pig*, *slut*, *monkey* and *bitch* in insults.

A slightly different illustration of dysphemism is the use in many languages of terms like 'rubbish' and 'worthless' for the most sacred or important ideas or items – in this circumstance without offensive overtones. In Nyulnyul the word *riib* 'rubbish, no good' can be used dysphemistically in reference to the most sacred objects. It is as though by using this term the powerful and potentially dangerous is trivialized or neutralized, thereby losing some of its harmful potential. In this example the effect is more like the effect of a euphemism, while the form is dysphemistic.

Words and expressions are not necessarily inherently euphemistic or dysphemistic. It can depend on the context in which they are uttered. Some of the words that are most dysphemistic in ordinary usage can, in certain contexts, lose their offensiveness and be used as terms of intimacy and endearment. This is the case in the institution of mateship among Australian males, where the stronger the term of abuse the greater the intimacy expressed.

Summing up

The **lexicon** of a language is a listing of its unpredictable signs, its **lexemes**, including **idioms**. This listing ideally provides information about the form and meaning of each, as well as (for a word) its classification and the words it **collocates** with. Speakers of a language have **mental lexicons** in which these types of information are stored.

Words and morphemes are classified into **parts-of-speech** according to their grammatical behaviour, which varies from language to language. Widely found parts-of-speech include nouns, verbs, pronouns, adjectives, adverbs, prepositions, postpositions, conjunctions and interjections. Not all of these categories are found in all languages; indeed, it is not certain that any are universal.

The lexicon of a living language is **open**, and new words are regularly added while old words may be lost. New lexemes can be constructed by inventing novel forms via processes such as **clipping**, **acronyming**, **blending**, **borrowing** and **coinage**. They can also be constructed by re-using old forms and processes, including **derivation**, **compounding**, **reduplication** and **backformation**. New lexical items can also be formed by **extension** and **narrowing** of the meanings of existing words.

Words may be attitudinally charged. Some are prohibited in particular circumstances; these are **taboo words**. Other illustrations of the affective values of words come from **euphemisms** and **dysphemisms**.

2 What's in a word?

Lexicology

2.0 Overview

The next three chapters offer a systematic study of the meanings of linguistic expressions as they are related to one another and to entities in our conception of the world. This field of linguistics is called **semantics**, which deals with lexicology (Ch.2), morphology (Ch.3), and syntax (Ch.4). In the present chapter the meanings and the structure of words are studied. This is lexicology, i.e., the systematic study of the meanings (or senses) of words. In this approach we can go from the form of a word to the various senses. Or we can adopt the opposite approach: Take a given concept and then see what different words are available as synonyms to refer to the entities in our conceptual world.

In both approaches the same general route will be followed. First of all, we will look at the central members of a category and at prototype effects; then we will look at the links between the different members of a category; and finally, we will look at the marginal members at the periphery and their “fuzzy” character. Categories are clear-cut at the centre but tend to be more fuzzy towards the periphery.

2.1 Introduction: Words, meanings and concepts

In Chapter 1 we saw that language helps us categorize our experiences of the world. Therefore, the answer to the question in the title “What is in a word” is relatively simple: “The whole world”, or at least all the experiences we have of our world that have somehow been categorized linguistically. These are probably the experiences that have more prominence in a given cultural community.

In one very naïve way, one might be tempted to expect that for each conceptual category we have just one linguistic category, or word, and, con-

versely that each word stands for one conceptual category or one meaning. But this is not the way that language works. On average, a word form has three to four senses. A word with different, related senses is a **polysemous** word (from Greek *poly* ‘many’ and *sema* ‘sign, meaning’). A good dictionary usually lists several senses for one lexical item. Here is part of a slightly adapted example of the item *fruit* from the DCE:

- (1) fruit /fru:t/ n plural *fruit* or *fruits*
 - a. something such as an apple, banana, or strawberry that grows on a tree or other plant and tastes sweet: *Fresh fruit and vegetables, a bowl of fruit*
 - b. *technical* the part of a plant, bush, or tree that contains the seeds
 - c. *The fruit/fruits of sth* the good results that you have from something after you have worked very hard
 - d. *The fruits of the earth/nature* all the natural things that the earth produces such as fruit, vegetables, or minerals
 - e. *old-fashioned slang* an insulting way of talking to or about a man who is a homosexual
 - f. (not in DCE) *fruit of the womb* offspring

As the example shows, a dictionary starts from a word form and lists the various senses and therefore follows a semasiological approach. **Semasiology** (from Greek *sēma* ‘sign’) is thus an approach to the lexicon which describes the polysemy of a word form and the relationship between these various senses. The two literal senses in (1a,b) come before the figurative one in (1c). The most common senses in (1a–d) are in contrast to the less common ones as in (1e,f), and so on. Sometimes the same form may in reality stand for two entirely different words, as in *Pole*, used for inhabitants of Poland and for the North and South Pole. This is called **homonymy**, which means that two different words have the same form.

But we can also follow the opposite approach. This second approach is the onomasiological approach (from Greek *ónoma* ‘name’). In **onomasiology** we start from a concept such as “fruit/fruits” and see which other words or expressions we can use as synonyms to denote the same or similar concepts. This is what a **thesaurus** does. A thesaurus is “a book in which words are put into groups with other words that are related in meaning” (DCE). *The Cambridge Thesaurus of American English* gives the following synonyms and other related words for the literal meanings (2a) and figurative meanings (2b) of *fruit*:

- (2) fruit, n.
- a. berry, vegetable, grain, nut, root, tuber, crop, harvest, produce, product, yield
 - b. result, outcome, consequences, aftermath, effect, profits, pay, benefit, return, yield, harvest

An onomasiological approach in a thesaurus goes from a concept or meaning to the various synonyms which can be used to denote that concept. Onomasiology thus deals with the fact that different words may express similar meanings like *rich* and *wealthy*, called **synonymy**; with the fact that words have opposite meanings like *rich* versus *poor*, called **antonymy**; and with the fact that the meanings of groups of words are related, like *richness*, *affluence*, *wealth*, *poverty*, called a **lexical field**. This is summarized in Table 1.

Table 1. Word forms and meanings or concepts

Semasiology	Onomasiology
Word form (e.g. <i>fruit</i>)	Concept (e.g. “fruit”)
senses a, b, c, d, etc. in (1)	words a, b in (2)
polysemy; homonymy	synonymy, antonymy

Definitions of four terms used in Table 1:

Polysemy

The fact that a word may have two or more related senses as illustrated in (1); sometimes even more than ten senses are possible, as in the case of the preposition *over*.

Homonymy

The fact that two words of different origin have the same form, e.g. *Pole* as in the sense of ‘Polish’ and *Pole* as used in ‘North Pole’.

Synonymy

The fact that two words have the same or nearly the same meaning, e.g. *happy*, *joyful*, *pleased*.

Antonymy

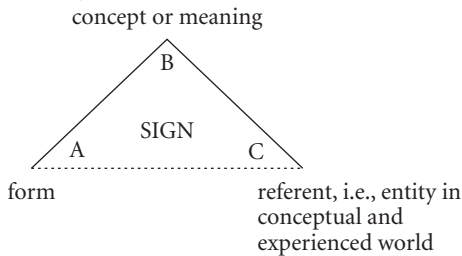
The fact that two words have the opposite or nearly the opposite meanings, e.g. *large* and *small*, *thick* and *thin*, *to buy* and *to sell*.

Thus, given the nature of the lexicon, we can use a semasiological approach, concentrating on the many different senses of words, or an onomasiological approach, concentrating on what is common or different between the various words in capturing the essence of our experiences. These two paths will now be systematically explored in Sections 2.2 and 2.3. In Section 2.4, however, we will see that these approaches interact and overlap.

2.2 From words to meanings: Semasiology

Let us suppose you want to communicate to someone else that you can see an apple. As already discussed in Chapter 1, you can make this clear in three different semiotic ways. You can point to it (indexical sign), you can draw a picture that resembles the thing (iconic sign), or you can say the word *apple*, which is a symbolic sign. In the last case, how does the word that I pronounce [æpəl] relate to the thing I see? The word itself is of course not the thing itself, but only a symbol for the thing. A symbolic sign is a given form which symbolizes or stands for a concept (or a meaning) and this concept is related to a whole category of entities in the conceptual and experiential world. The relationship between these three elements (a) form, b) concept or meaning, and c) referent or entity in the conceptual and experiential world) was presented in a triangle in Chapter 1, Table 2 and is reproduced here as Table 2 for the sake of clarity.

Table 2. The semiotic triangle



Although many different interpretations have been proposed for this semiotic triangle since it was devised by its inventors Ogden and Richards (1923), the interpretation proposed here is generally acceptable. There is a direct, though conventional link between A (form) and B (concept, meaning) and between B (concept) and C (referent, i.e., entity in conceptual and experienced world). But there is only an indirect link between A (form) and C (referent or entity in world), indicated by the interrupted line AC. This semiotic triangle is a further elaboration of the views of the Swiss linguist Ferdinand de Saussure, who introduced two essential terms: The word form is the *signifiant* (that which signifies), and the meaning of the word is the *signifié* (that which is signified). We will refer to the former simply as **word form** or **word** and put it in italics, and to the latter as **meaning** — or if a word form is polysemous, as its **senses** — and put it in single quotation marks. For example, the word (form) *apple* stands for the meaning ‘a kind of fruit’.

As the dictionary entry of the word *fruit* in Section 2.1 shows, this word has more than one meaning. Next to the basic, every-day sense ‘sweet and soft edible part of a plant’ as in (1a), illustrated in Figure 1a, it has various other senses. In its technical sense (1b) ‘the seed-bearing part of a plant or tree’, the word refers to things that are not usually included in its every-day use, as shown in Figure 1b. It also has a more general use in an expression like *the fruits of nature* (1d), which refers to ‘all the natural things that the earth produces’ (including, for instance, grains and vegetables). In addition to these literal senses, there is a range of figurative senses, including the abstract sense in (1c) ‘the result or outcome of an action’ as in *the fruits of his labour* or *his work bore fruit*, or the somewhat archaic senses in (1e) ‘homosexual’ or in (1f) ‘offspring, progeny’ as in the biblical expressions *the fruit of the womb*, *the fruit of his loins*.

Each of these different uses represents a separate sense of *fruit*. In turn, each sense may be thought of as referring to a different set of things in the outside world, a set of referents. For example, when we use the word *fruit* with the basic sense ‘sweet and soft edible part of a plant’, we refer to a set of referents that includes apples, oranges, bananas, and many other sweet and soft edible objects as in Figure 1a. If we use *fruit* in its second sense ‘seed-bearing part of plant’, we think of the fruit’s function as a seed for future plants, typically shown by the seeds or the referents in the middle of the melon in Figure 1b.

But the seed-bearing part may be the whole fruit as is the case with a walnut, which is “technically speaking” a fruit (in the second sense), but it is probably not a fruit in the every-day sense. Thus in the case of a walnut, the referent is the whole seed-bearing part. In the case of the melon (in the second, technical sense), the referent is rather the core with the seeds. However, in the every-day sense, it is rather the edible part. A referent can be defined in a

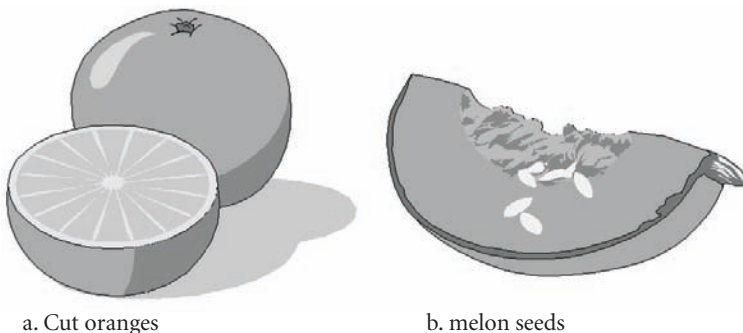


Figure 1.

simplified way as an entity or part of an entity evoked by words. Each word sense evokes a member of a different conceptual category. In the *fruit* example, the category members happen to be material objects, but in the case of verbs, they could be actions and in the case of adjectives, they could be properties.

There is no precondition that the “things” in the category need exist in the real world. The category “fruit” contains all real and imaginary apples and oranges that *fruit* could possibly be applied to, in the same way in which *goblin* will have a set of members associated with it, regardless of whether goblins are real or not.

In the next sections we will look more closely at the relationships among members of a category. We will look at which member is considered the most central or salient one (2.2.1), how the members are linked to each other in meaning (2.2.2), and how meanings are fuzzy, i.e. cannot always be distinguished clearly (2.2.3).

2.2.1 Salience: Prototypical word senses and referents

In Chapter 1.3.1, it was shown that categories, e.g. the category “chair”, have **prototypical** or central members and more marginal or peripheral members. This principle does not only apply to the members of a category, but also to the various senses of a word form. The question then is: How can we tell which sense of a word form like *fruit* is the most central? There are three interrelated ways that help us determine which sense of a word is the most central. In order to establish the **salience** of a sense, we can look at what particular sense comes to mind first, we can make a statistical count as to which use is the most frequent, or we can look at which sense is the more basic in its capacity to clarify the other senses.

When you hear someone say “I like fruit”, probably the first thing that comes to everybody’s mind, not only to the dictionary maker’s, is the ‘sweet and soft edible part’ sense and not the archaic ‘offspring’ sense. The technical sense of ‘seed-bearing part of a plant or tree’ would not occur to us as immediately, unless we were talking about *fruit* in that sort of context. If you were to count the types of senses where a word like *fruit* is used in every-day language, you would probably discover that the ‘edible part’ sense is used far more frequently than the other senses. From this we may infer that the sense ‘edible part’ is much more central or salient in our conception of *fruit* than the ‘seed-bearing part’ sense and certainly more salient than the archaic ‘offspring’ sense. Another reason for regarding both the ‘edible part’ and also the ‘seed-bearing part’ sense

as more central than the other senses is the fact that these senses are a good starting-point for describing the other senses of *fruit*. For example, suppose you don't know the expression *fruit of the womb*. This sense can be understood more easily through the central 'seed-bearing part' sense of *fruit* rather than the other way round. In other words, the most salient, basic senses are the centre of semantic cohesion in the category: They hold the category together by making the other senses accessible to our understanding.

Thus **centrality effects** or **prototypicality effects** mean that some elements in a category are far more conspicuous or salient, or more frequently used than others. Such prototypicality effects occur not only at the level of senses but also at the level of referents. As we saw earlier, *fruit* has many different referents. When Northern Europeans are asked to name fruits, they are more likely to name apples and oranges than avocados or pomegranates whereas Southern Europeans would name figs. Also, if we were to count the actual uses of words in a Northern European context, references to apples or oranges are likely to be more frequent than references to mangoes.

2.2.2 Links between word senses: Radial networks

The fact that some word senses are more salient and others more peripheral is not the only effect under consideration here. Word senses are also linked to one another in a systematic way through several cognitive processes so that they show an internally structured set of links. In order to analyze these links and the processes that bring them about, let us consider the senses of *school* in (3).

- (3) *school*
- | | |
|--|---|
| a. 'learning institution or building' | Is there a school nearby? |
| b. 'lessons' | School begins at 9 a.m. |
| c. 'pupils and/or staff of teachers' | The school is going to the British Museum tomorrow. |
| | We must hand in the geography project to the school in May. |
| d. 'university faculty' | At 18 she went to law school. |
| e. 'holiday course' | Where is the summer school on linguistics to be held? |
| f. 'group of artists with similar style' | Van Gogh belongs to the Impressionist school. |

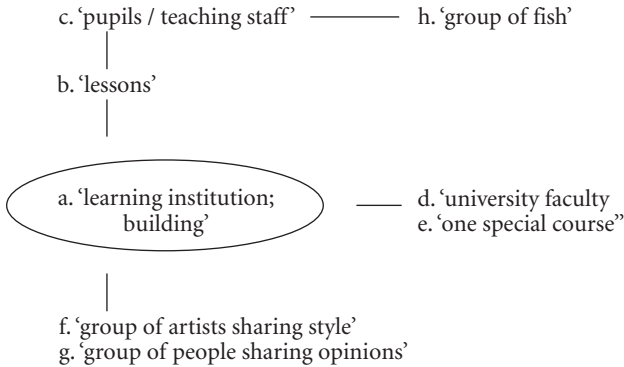
- | | |
|--|--|
| g. 'views shared by a group of people' | There are two schools of thought on drinking red wine with fish. |
| h. 'a group of big fish swimming together' | A school of whales followed the boat. |

The first sense of *school* in (3a) is in fact not just 'learning institution', but it can also be the place or building where the learning institution is housed. Thus in the sentence *She left school at the age of 14*, the word *school* can only mean 'learning institution', but in *She left the school after 4 p.m.*, *school* can mean both, and in *The school was burned down* only the building is meant.

The last case in (3h) is a problem. As stated before (see definition of *homonymy*) there are, historically speaking, two words *school*. The senses in (3a–g) of *school* go back to a Latin word *schola*; the last meaning (3h) is not an extension of the other senses but it stems from a different word form, i.e. Old English *scolu* 'troupe' and has its own development. Still, in the present use of the meaning of *school* as 'group of big fish', the language user appeals to folk etymology and may rather see this meaning as a metaphorical extension of the other senses. Accordingly we will treat the 'group of big fish' sense of *school* as a process of folk etymology, taking all the senses of this word to be related to each other.

So, these eight senses appear to form a cluster that is structured in the shape of a **radial network**, i.e. a centre with radii going in various directions. For the radial network representing the senses of *school* we find four main directions as represented in Table 3.

What are now the processes that constitute the links within this radial network? It is clear that the central meaning of *school* has to do with 'learning by a group of (young) people'. There are four different processes that allow us to focus on one or more components in this general category. The first is **metonymy**. In **metonymy** (from Greek *meta* 'change' and *onoma* 'name') the basic meaning of a word can be used for a part or the part for the whole. For instance, *school* as a 'learning institution for a group of people' allows us to focus upon each subset (the pupils, the staff) of this complex category and we can take the subset (e.g. the head of the school) for the whole category. In metonymy the semantic link between two or more senses of a word is based on a relationship of contiguity, i.e. between the whole of something, i.e. *school* as an "institution for learning in group" and a part of it, e.g., the lessons. In fact, the expression *the school* can metonymically stand for each of its components, i.e. the building itself, the lessons, the pupils, the staff, the headmaster etc. More generally, **contiguity** is the state of being in some sort of contact such as that between a part and a whole, a container and the contents, a place and its inhabitants, etc.

Table 3. Radial network of the senses of *school*

For example, in English and most languages we may say something like *He drank the whole bottle*. With such an expression we mean of course the contents in the bottle and not the bottle itself. Because the bottle and its contents are literally in contact with each other, this is considered a metonymic link. As we will see in Chapter 3.3, however, the concept of contiguity does not apply only to real physical or spatial contact, but also to more abstract associations such as time or cause.

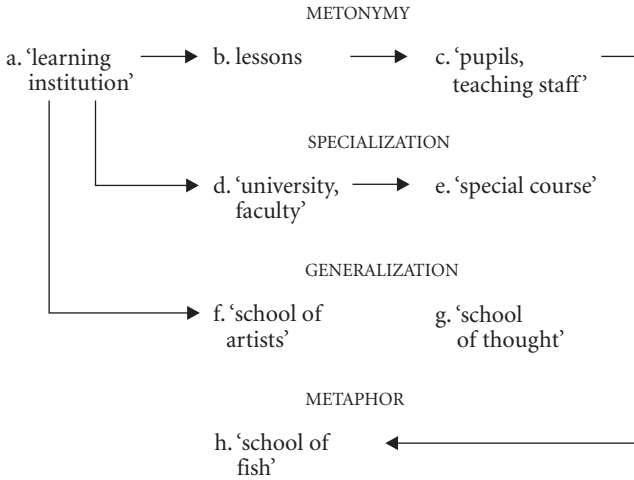
The link which language users as folk etymologists make between the sense of *school* as a 'group of pupils/teaching staff' and its most peripheral sense as 'a group of fish swimming together' is based on the process of metaphor. **Metaphor** (from Greek *metapherein* 'carry over') is based on perceived **similarity**. Referring to the bottom part of a mountain as *the foot of the mountain* is based on a conceived similarity between the structure of the human body and a mountain and hence a transfer is made from the set-up of the human body to that of the environment. Even the interpretation of a homonym such as *school* in the sense of 'group of fish' can be related to the senses of *school* as 'group of pupils' and may thus be motivated by the relation of similarity which language users perceive between a group of pupils following a master and a group of fish swimming together and following a leader. But the similarity is completely in the eyes of the beholder: If he wants to see the similarity, it is there. But the link is never objectively given as in the case of metonymy, where the relation of contiguity always involves some objective link between the various senses of a word. In metaphor one of the basic senses of a form, the **source domain**, e.g. elements of the human body, is used to grasp or explain a sense in a different domain, e.g. the elements of a mountain, called the **target domain**.

The other senses of *school* are based on the processes of specialization and generalization. The process of specialization is found with the senses of *school* as in (3d) ‘a university faculty’ and (3e) ‘one special course’. In a process of **specialization** the word’s original meaning is always narrowed down to a smaller set of special referents. Thus from the general meaning of *school* as ‘an institution for learning’, English has narrowed the sense down to that of an ‘academic unit for learning’ (3d) and even further down to ‘any specialized institution for learning one specific subject’ as is usually the case in a summer school (3e), or a dance school, a language school, etc.


Another example of specialization is the English word *corn*, which was originally a cover-term for ‘all kinds of grain’. Later it specialized to the most typical referent in various English-speaking countries such as ‘wheat’ in England, ‘oats’ in Scotland, and ‘maize’ in the USA. The word *queen* also went through a specialization process. Originally, it meant any ‘wife or woman’, but now it is highly restricted to only one type of wife as in ‘king’s wife’ or ‘female sovereign’. Each language abounds with cases of specialization. Thus *hound* now denotes ‘a dog used in hunting’, but it used to denote ‘any kind of dog’, like the German or Dutch words *Hund*, *hond* ‘dog’. Similarly *deer* originally meant ‘any animal’ like German or Dutch *Tier*, *dier* ‘animal’, *fowl* meant ‘any kind of bird’ like German or Dutch *Vogel* ‘bird’, *to starve* meant ‘any form or way of dying’ like Dutch *sterven*, German *sterben* ‘to die’.

The opposite of specialization is **generalization**, which we find in the senses of *school* as in (3f) ‘group of artists’ or (3g) ‘group of people sharing opinions’. Here the meaning component of ‘an institution for learning’ has been broadened to that of ‘any group of people mentally engaged upon shared activities or sharing views of style or opinions’. Some other examples of generalization are *moon* and *to arrive*. The word *moon* originally referred to the earth’s satellite, but it is now applied to any planet’s satellite. The verb *to arrive* used to mean ‘to reach the river’s shore’ or ‘to come to the river bank’, but now it means ‘to reach any destination’.

In summary (see Table 4), the different senses of a polysemous word like *school* form a cluster of senses which are interrelated through different links: metonymy, metaphor, specialization and generalization. The various senses of a word are thus systematically linked to one another by means of different paths. Together, the relations between these senses form a radial set as shown in Table 3, starting from a central (set of) sense(s) and developing into the different directions. In addition, Table 4 offers a survey of the possible processes that have led to the meaning extensions of *school*.

Table 4. Processes of meaning extension of *school*

2.2.3 Fuzziness in conceptual categories and word senses

So far we have talked about the senses of a word as if they are clearly separate from each other. But we saw in Chapter 1 that meanings reflect conceptual categories. Categories may have clear centres, but their boundaries may not be clear-cut, and categories may overlap. As already discussed in Chapter 1.3.1, this phenomenon is called **fuzziness**, i.e. the boundaries of any category may be unclear or **fuzzy**. Since senses symbolize conceptual categories, it is no surprise that they cannot be defined in such a way that they include all the referents that should be included and exclude those that do not belong to the category. As an illustration, let us consider the question whether the central sense of *fruit* can be delimited in a straightforward fashion. Such a delimitation would take the form of a **classical definition**, a definition that lists all the necessary and sufficient conditions for something to be a member of a category. Such a classical definition is possible for any mathematical category, e.g. the category of “triangle”, which is defined as ‘a flat shape with three straight sides and three angles’ (DCE). A condition is necessary in the sense of naming characteristics that are common to all triangles, and it is sufficient in the sense that it distinguishes a category, e.g. a triangle from any other category, e.g. a shape like . This shape has three lines, but only two angles. So both elements “three lines” and “three angles” are necessary conditions, but at the same time also sufficient conditions: A flat shape with three lines and three angles can only be a triangle. But things are different with most natural categories.

If we try to give the necessary conditions or characteristics for *fruit*, characteristics such as *sweet*, *soft*, and *having seeds* may come to mind as good candidates. But these are not always necessary since lemons are not sweet, avocados are not necessarily soft, and bananas do not contain parts that are immediately recognizable as seeds. There are of course a number of characteristics that are necessary. All fruits “grow above the ground on plants or trees” rather than in the ground. They have “to ripen” before you can eat them, and if you want to prepare them rather than eat them raw, you would primarily use sugar, or at least use them in dishes that have a predominantly “sweet taste”. Taken together, however, these obligatory features are not sufficient since they do not exclude almonds and other nuts or a vegetable like rhubarb, which grows above the ground and is usually cooked with sugar.

We must conclude, then, that the central sense of *fruit* cannot be defined in a classical sense, satisfying both necessary and sufficient conditions and covering all the eventualities of what speakers understand by *fruit*. However, this does not mean that our conceptualization of fruit, our mental picture of fruit, what we call to mind when we think of fruit, is necessarily fuzzy or ill-defined. It could very well be that the image that spontaneously comes to mind when we think of fruit is very clear-cut. Indeed, when we ask people to name a few examples of fruit, they will come up with very much the same list. But all the same, we also have to accept that such a mental image does not fit all fruits equally well.

2.3 From concepts to words: Onomasiology

Whereas semasiological analysis starts with a word and tries to discover the various senses it may have, onomasiological analysis starts from a given concept and investigates the words that are used to name that particular concept. What is the purpose of onomasiological analysis? First of all, it can help us find out where (new) lexical items come from and which mechanisms are used to introduce different words for the same concept into the vocabulary of a language. The main purpose of onomasiological analysis is to discover patterns in a group of conceptually related words, called a lexical field. A **lexical field** is a collection of words that all name things in the same conceptual domain. Thus words such as *breakfast*, *lunch* and *brunch* are related and belong to the same lexical field because they all name things in the domain of “meals”. A **conceptual domain**, in its turn, can be defined as any coherent area of conceptualization,

such as meals, space, smell, colour, articles of dress, the human body, the rules of football, etc., etc.

The question is: What is the position and status of single words in a lexical field delimited by a more general word like *meal*? Other typical examples of lexical fields are found in conceptual domains such as disease, travel, speed, games, knowledge, etc. As we will show in the next sections, the conceptual relations that occur between words in a lexical field are very analogous to those between the senses of a word identified in the section on semasiology: salience effects, links and fuzziness.

2.3.1 Salience in conceptual domains: Basic level terms

Just as there are **salience effects** in semasiology, which tell us which one of all the senses of a word or which one of the referents is thought of first and used most often, there are salience effects in onomasiology. For example, in a group of words like *animal*, *canine*, and *dog*, the hierarchical order goes from more general to more specific. If faced with something that barks at you, probably a word like *dog* would come to mind first. This would be one type of salience effect. Another type of salience effect may occur in a group of words that are at the same level of a hierarchy, such as *labrador*, *Alsatian*, *German shepherd*, and so on. Some names for dog breeds may occur more often than others. Both types of salience effects are discussed below.

According to anthropologist Brent Berlin, popular classifications of biological domains usually conform to a general organizational principle. Such classifications consist of at least three — for Berlin's investigation even five — levels, which go from very broad or **generic** to very narrow or **specific**. Thus in conceptual domains (see Table 5) with several levels, the most general category is at the highest level, and the most specific one is at the lowest level. A **basic level term** is a word which, amongst several other possibilities, is used most readily to refer to a given phenomenon. There are many indications that basic level terms are more salient than others. For example, while learning a language, young children tend to acquire basic level terms such as *tree*, *cow*, *horse*, *fish*, *skirt* before generic names like *plant*, *animal*, *garment*, *vehicle*, *fruit* or specific names such as *oak tree*, *labrador*, *jeans*, *sports car* and *Granny Smith*. From a linguistic point of view, basic level terms are usually short and morphologically simple. From a conceptual point of view, the basic level constitutes the level where salience effects are most outspoken. At the basic level category, individual members have the most in common with each other, and have the least in

Table 5. Folk classifications of conceptual domains

Levels	Conceptual domains				
<i>Generic level</i>	plant	animal	garment	vehicle	fruit
<i>Basic level</i>	tree	dog	trousers	car	apple
<i>Specific level</i>	oak tree	labrador	jeans	sports car	Granny Smith

common with members of a related basic level category. In the domain of garment, items such as trousers, skirts, and coats may be considered basic level members. All members of the category “skirt” have in common that (1) they are normally restricted to female wearers, (2) they do not cover the legs separately, (3) they cover the body from the waist down, and (4) they usually are no shorter than the upper thighs. Features that “skirt” has in common with “trousers” or “sweater” are much more difficult to find. On the other hand, members of categories at the generic level such as *garment* have only one rather general characteristic in common: They all represent “a layer of clothing”.

This basic level model is useful in that it predicts to a certain extent which level is the most salient in a folk classification. However, it cannot predict which term among the terms at the same level is preferred and used most often. Imagine you are looking at a magazine and you see a very short skirt with two loose front panels that are wrapped. Is it both a *wrap-over skirt* and a *miniskirt*? What are we most likely to call it? A detailed analysis of such terms has shown that fashion journalists prefer the term *miniskirt* in such a case. If there are several equally descriptive terms at one level, what criteria are applied in the choice of one term over another? (See Figure 2.)

We can explain this fact with the notion of **entrenchment**. This concept was first introduced by Ronald Langacker to explain how new expressions may be formed and then remain deeply rooted in the language. For example, in the past the two words *by* and *cause* formed the new compound *because*. This newly formed compound was used so often that people were no longer aware of its origin. In other words, a word group may develop into a regular expression, until it is so firmly entrenched in the lexicon that it has become a regular, well-established word in the linguistic system. A similar process may apply to the choice of one particular member of a category rather than the other. The name *miniskirt* is highly entrenched since it is used much more often than the name *wrap-over skirt* or another more general or more specific name.

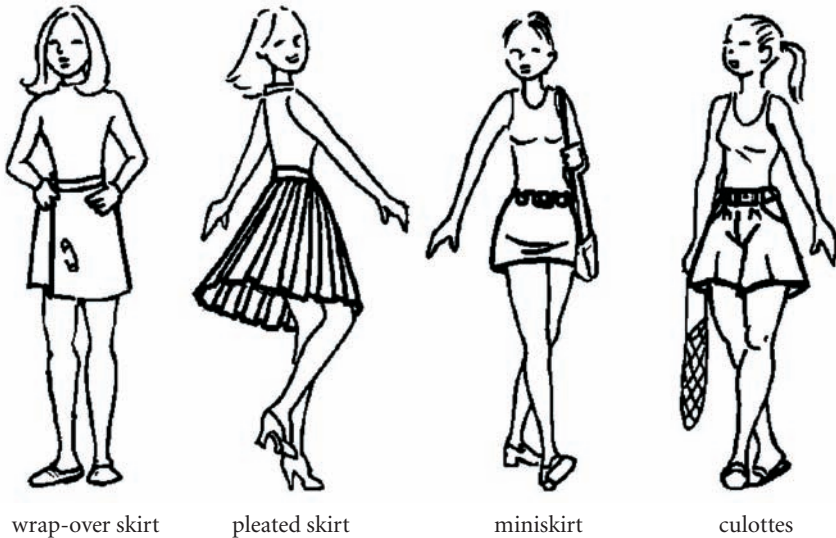


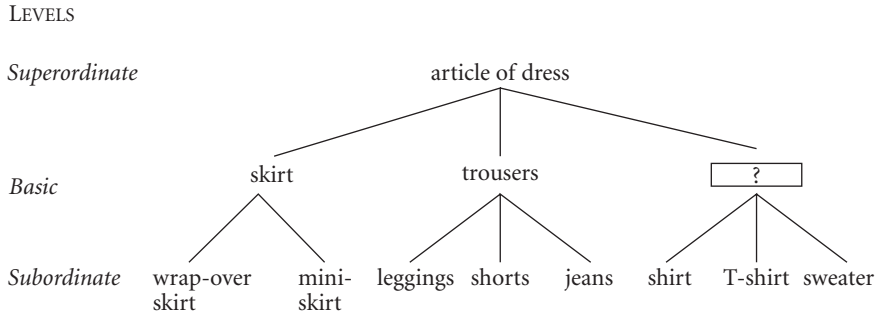
Figure 2. Some women's garments

2.3.2 Links in conceptual domains: Taxonomies

In Section 2.2.2 on the links between the senses of a word (semasiology), we saw that words may develop new senses through the processes of metonymy, metaphor, specialization, and generalization. These processes may also be applied in onomasiology. As we saw earlier, onomasiology deals with the relations among the names we give to categories. These categories, in turn, are not just there in isolation, but they belong together according to a given conceptual domain.

Within a conceptual domain, we not only find a distinction between a generic level, a basic level and a specific level, as illustrated in Table 5, but these levels may also form a **hierarchical taxonomy**, as illustrated in Table 6. In a hierarchical taxonomy the higher level is the **superordinate level**, e.g. *vehicle*, which is a **hypernym** and subsumes all the concepts below it, e.g. *car*. But *car* is itself a superordinate category or hypernym, if compared with *sports car*, which is a **hyponym** of *car*. Thus Table 6 combines two things, i.e. a folk classification and a hierarchical taxonomy. A hierarchical taxonomy is also a special instance of a lexical field in that the lexical items are now hierarchically ordered. Thus in all cases of a lexical field, e.g. “article of dress”, we can always distinguish between three hierarchical levels: Going up in the taxonomy is generalization, going down in the taxonomy is specialization. As the third group of words like

Table 6. Hierarchical taxonomy



shirt, *T-shirt*, *sweater*, etc. shows, in a number of cases there may be a **lexical gap**, i.e. there is no basic level term available where we might expect one.

Other links between conceptual domains are made by means of metaphor and metonymy. We often use a whole conceptual domain to structure our understanding of some other domain. Thus, in our anthropocentric drive, we have used the domains of the human body to structure our view of the parts of a mountain. The lower part of the mountain is the foot of the mountain, the higher curving part is its shoulder and the top of the mountain is, in many languages, seen as its “head” or “crown”. Here the process of metaphorization does not just apply to a given sense of a word as was shown for *school* in the sense of ‘a group of fish’ in Table 3. In the case of mountain a whole conceptual domain such as the human body is used to structure another conceptual domain such as the shape of a mountain. George Lakoff, who recognized this thought process, calls this use of metaphor a **conceptual metaphor**. Our understanding of abstract, conceptual domains such as reasoning and emotions is particularly affected by many conceptual metaphors. Thus Lakoff proposes an underlying conceptual metaphor ARGUMENT IS WAR for all the concrete metaphors found in English to denote arguing, such as *to win or lose an argument*, *to give up an indefensible position*, *to attack someone’s views*, and many more. Likewise, emotions are conceptualized as HEAT OF A FLUID IN A CONTAINER, so that we can *boil with anger*, or *make someone’s blood boil*, *reach a boiling point*, or *explode*.

Just as a conceptual metaphor restructures a conceptual domain like mountains in terms of another conceptual domain such as the human body, a **conceptual metonymy** names one aspect or element in a conceptual domain while referring to some other element which is in a contiguity relation with it. The following instances are typical of conceptual metonymy.

- (4) Instances of conceptual metonymy
- a. PERSON FOR HIS NAME: *I'm not in the telephone book.*
 - b. POSSESSOR FOR POSSESSED: *My tyre is flat.*
 - c. AUTHOR FOR BOOK: *This year we read Shakespeare.*
 - d. PLACE FOR PEOPLE: *My village votes Labour.*
 - e. PRODUCER FOR PRODUCT: *My new Macintosh is superb.*
 - f. CONTAINER FOR CONTAINED: *This is an excellent dish.*

In each of these instances, the thing itself could be named. Thus in (4a) we could also say *My name is not in the telephone book*, in (4b) *The tyre of my car is flat*, in (4c) *This year we read a play by Shakespeare*, etc. By the use of the metonymical alternative, the speaker emphasizes the more salient rather than the specific factors in the things named.

Table 7 summarizes the conceptual relations we find in semasiological and onomasiological analyses. In both we discern hierarchical relations (from more salient to more specific), relations based on contiguity and relations based on similarity.

Table 7. Conceptual relations in semasiological and onomasiological analysis

Conceptual relations	In semasiology (how senses of one word relate to each other)	In onomasiology (how concepts and words relate to each other)
1. hierarchy (top/bottom)	generalizing and specializing e.g. <i>school of artists</i> vs. <i>school of economics</i>	conceptual domain: Taxonomies (e.g. <i>animal, dog, labrador</i>) and lexical fields: e.g. <i>meals</i>
2. contiguity (close to sth.)	metonymic extensions of senses (<i>school as institution</i> → <i>lessons</i> → <i>teaching staff</i>)	conceptual metonymy, e.g. CONTAINER FOR CONTAINED
3. similarity (like sth.)	metaphorical extensions of senses (<i>win an argument</i>)	conceptual metaphor, e.g. ARGUMENT IS WAR

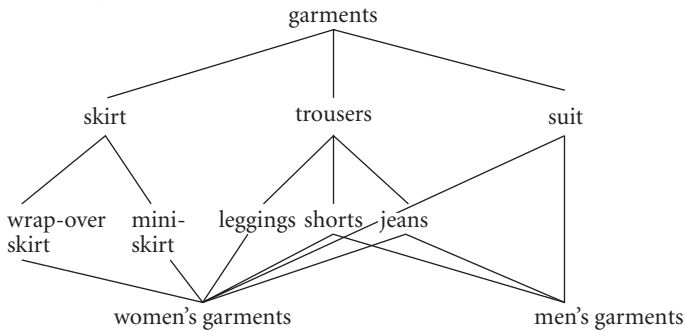
2.3.3 Fuzziness in conceptual domains: Problematical taxonomies

In Section 2.2.3 we saw that whenever categorization of natural categories is involved, there is by definition some **fuzziness** at the category edges. Tomatoes, for example, can be categorized as either vegetables or fruit, depending on who is doing the categorizing. The same goes for the onomasiological domain.

For example, when we look at the basic level model introduced in 2.3.1, we might feel that if we “puzzle” long enough we will discover a clear, mosaic-like

organization of the lexicon where each item has a clear “place” in a given taxonomy. However, there are several reasons to question this apparent neatness. For one thing, as Table 8 shows, there are problems of overlap in actual language data: Since shorts, jeans, and trousers are generally worn by both men and women, the taxonomy in Table 8 shows overlapping areas if women’s and men’s garment criteria are taken into account.

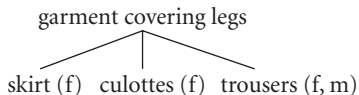
Table 8. Taxonomy with fuzzy areas



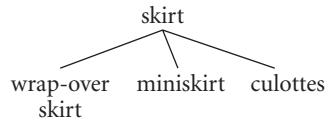
Another problem is that it is not always possible to decide exactly at which level one should place a lexical item in the hierarchy. A detailed analysis of clothing terms provided the following problem: At which level of the taxonomy in Table 8 would the item *culottes* (see Figure 2 on page 39) have to be placed? Is it a word at the more generalized, higher end of the taxonomy, alongside “trousers” and “skirt”, that is, as a basic level term (Table 9a), or do *culottes* belong one level below these terms as a subordinate category, at the more specific level (Table 9b)?

Table 9. Culottes

a. as a basic level term



b. as a subordinate term



The fact that we cannot determine exactly at which level an item should be put relates to semasiological salience effects. As we saw earlier, those category members that are preferred and occur the most are the most salient. For example, words like *trousers* and *skirt* occur much more often than *culottes*. By

nature, such salient category members are better category members than non-salient members. We may conclude that if it is unclear whether *culottes* are a pair of “trousers” or a “skirt”, it is also unclear where to put it in the taxonomy. Different languages may even tend to classify the items differently. For example, the Dutch equivalent for *culottes*, i.e. *broekrok* (literally ‘trouser skirt’), emphasizes the “skirt” aspect. The definition in the DCE for *culottes*, i.e. “women’s trousers which stop at the knee and are shaped to look like a skirt”, emphasizes the “trouser” part even more. From this viewpoint it would be at the same level as *leggings*, *shorts*, and *jeans* as represented in Table 8.

Also, contrary to what the basic level model might suggest, the lexicon cannot be represented as one single taxonomical tree with ever more detailed branchings of nodes. Instead, it is characterized by multiple, overlapping hierarchies. One could ask oneself, for instance, how an item like *woman’s garment*, clothing typically or exclusively worn by women, would have to be included in a taxonomical model of the lexicon. As Table 8 shows, such a classification on the basis of sex does not work because some items may be worn by both men and women. Consequently, the taxonomical position of *woman’s garment* itself is unclear because it cross-classifies with *skirt/trousers/suit*.

2.4 Conclusion: Interplay between semasiology and onomasiology

Up to now we have looked at semasiological and onomasiological matters from a theoretical point of view. To round off this chapter on lexicology, let us concentrate on meaning and naming with a more practical purpose, and ask ourselves the question “which factors determine our choice of a lexical item” or, in other words, “why does a speaker in a particular situation choose a particular name for a particular meaning”. The basic principles of this “pragmatic” form of onomasiology are the following: The selection of a name for a referent is simultaneously determined by both semasiological and onomasiological salience. As we argued earlier, semasiological salience is determined by the degree to which a sense or a referent is considered prototypical for the category, and onomasiological salience is determined by the degree to which the name for a category is entrenched.

Semasiological salience implies that something is more readily named by a lexical item if it is a good example of the category represented by that item. Let’s take motor vehicles as an example. Why do we in Europe call the recently issued type of motor vehicle like the Renault’s *Espace*, which is somewhere between a

van and a car, a *car* rather than a *van*. The preference for *car* as a name for these vehicles probably follows from the fact that — although they have characteristics of both vans and cars — they are still considered better examples of the category *car* because they are owned by individuals to transport persons. Typical European vans, on the other hand, transport goods. In other words, these vehicles are called *cars* because they are considered more similar to prototypical cars than vans. (Note that in the US, though, where these types of vehicles have been around longer and vans have been used as family vehicles, the name *mini-van* has become entrenched.)

Onomasiological salience may now be formulated as follows: A referent is preferably named by a lexical item *a* instead of *b* when *a* represents a more highly entrenched lexical category than *b*. So in the situation where our “mini-wrap-over skirt” is as much like a “wrap-over skirt” as a “miniskirt” — and there is no semasiological motivation for preferring one or the other category — the name *miniskirt* will still be chosen as a name for the hybrid skirt if *miniskirt* is a more highly entrenched word than *wrap-over skirt*.

In short, the choice for a lexical item as a name for a particular referent is determined both by semasiological and onomasiological salience. This recognition points the way towards a fully integrated conception of lexicology, in which both semasiological and onomasiological approaches are systematically combined.

2.5 Summary

We can see two almost opposite phenomena when studying words and their meanings. On the one hand, words are **polysemous** or have a number of different related senses. On the other hand, we use many different words, sometimes **synonyms**, but sometimes **generic** or **specific** words, to refer to the same thing, which is the **referent**. Such words are collected in a **thesaurus**. Next to relations of **polysemy** and **synonymy**, there is also **antonymy** and **homonymy**. The two basic approaches to the study of words and their senses or meanings are known as **semasiology**, and **onomasiology**, respectively. Although they are fundamentally different approaches to the study of the senses of words and the names of things, they are also highly comparable in that we find similar phenomena with respect to **prototypicality** or **centrality effects**, links between senses or words, and fuzziness.

Amongst the various senses of words, some are always more central or **prototypical** and other senses range over a continuum from less central to

peripheral. The sense with the greatest **saliency** is the one that comes to mind first when we think of the meanings of a word. All the senses of a word are linked to each other in a **radial network** and based on cognitive processes such as **metonymy**, **metaphor**, **generalization** and **specialization**. In metonymy the link between two senses of a word is based on **contiguity**, in metaphor the link is based on **similarity** between two elements or situations belonging to different domains, i.e. a **source domain**, e.g. the human body, and the **target domain**, e.g. the lay-out of a mountain. The borders between senses within a radial network and especially between the peripheral senses of two networks such as *fruit* and *vegetable* are extremely **fuzzy** or unclear so that **classical definitions** of word meanings are bound to fail, except in highly specialized or “technical” definitions, in dictionaries.

Amongst the various words that we can use to name the same thing, we always find a prototypical name in the form of a **basic level term** such as *tree*, *trousers*, *car*, *apple*, *fish*, etc. Instead of a basic level term such as *trousers* or *skirt* we can also use **superordinate terms** such as *garment* or **subordinate terms** such as *jeans* or *miniskirt*, but such non-basic terms differ in that they are less “**entrenched**” in the speaker’s mind. **Entrenchment** means that a form is deeply rooted in the language. If no word is available for a basic level category, we have a **lexical gap**. Words are linked together in **lexical fields**, which describe the important distinctions made in a given **conceptual domain** in a speech community. When a whole domain is mapped on to another domain, we have a **conceptual metaphor**; when part of a domain is taken for the whole domain or vice versa, we have a **conceptual metonymy**. Finally, it must be admitted that the **hierarchical taxonomies** in lexical items do not neatly add up to one great taxonomy of branching distinctions, but that **fuzziness** is never absent.

2.6 Further reading

The most accessible work on linguistic categorization and prototypes in semantics is Taylor (2003). The technical analysis of terms of clothing on which this chapter very strongly draws is Geeraerts, Grondelaers and Bakema (1994). Studies on basic level terms have been carried out by Berlin (1978), Berlin *et al.* (1974) for plants and Berlin and Kay (1969) for colour terms. Studies of metaphor and its impact on the extension of meanings are offered in Lakoff and Johnson (1980). Volumes grouping a large number of cognitive studies of metaphor and/or metonymy and their relevance for the lexicon are Panther and Radden (1999), Barcelona (2000), Dirven and Pörings (2002), Panther and

WEEK EIGHT

LANGUAGE AND MEANING

MODULE 1

A functional grammar aims to match forms to function and meaning in context. This module introduces the three strands of meaning that form the basis of a functional interpretation of grammar: the representational, the interpersonal and the textual.

Each of these strands is encoded in the clause (or simple sentence) as a type of structure. The three structures are mapped onto one another, illustrating how the three types of meaning combine in one linguistic expression.

1.1 COMMUNICATIVE ACTS

Let us start from the basic concept that language is for communication. Here is part of a recorded conversation taken from a sociological project of the University of Bristol. The speakers are Janice, a girl who runs a youth club and disco in an English town, and Chris, one of the boys in the club, who is 19 and works in a shop. In the dialogue, we can distinguish various types of communicative act, or **speech act**, by which people communicate with each other: making statements, asking questions, giving directives with the aim of getting the hearer to carry out some action, making an offer or promise, thanking or expressing an exclamation.

Offer	J:	If you like, I'll come into your shop tomorrow and get some more model aeroplane kits.
Reminder	C:	O.K. Don't forget to bring the bill with you this time.
Promise	J:	I won't.
Question		Do you enjoy working there?
Statements	C:	It's all right, I suppose. Gets a bit boring. It'll do for a while.
Statement	J:	I would have thought you were good at selling things.
Statement	C:	I don't know what to do really. I've had other jobs. My Dad keeps on at me to go into his business. He keeps offering me better wages, but the last thing to do is to work for him!
Exclamation		
Question	J:	Why?
Echo question	C:	Why? You don't know my old man! I
Exclamations		wouldn't work for him! He always
Statement		wanted me to, but we don't get on. . . .

Question		D'you think it's possible to get me on a part-time Youth Leadership Course?
Offer/Promise	J:	I'll ring up tomorrow, Chris, and find out for you.
Thanking	C:	Thanks a lot.

In a communicative exchange such as this, between two speakers, the kind of meaning encoded as questions, statements, offers, reminders and thanks is **interpersonal** meaning. Asking and stating are basic communicative acts. The thing asked for or stated may be something linguistic – such as information or an opinion (*Do you enjoy working there? It's all right, I suppose*) – or it may be something non-linguistic, some type of goods and services, such as handing over the aeroplane kits.

This non-linguistic exchange may be verbalised – by, for instance, *Here you are* – but it need not be. Typically, however, when goods and services are exchanged, verbal interaction takes place too; for instance, asking a favour (*Do you think it's possible to get me on a part-time Youth Leadership Course?*) or giving a promise (*I'll ring up tomorrow, Chris, and find out for you*) are carried out verbally.

The grammatical forms that encode two basic types of interpersonal communication are illustrated in section 1.3.2. The whole area is dealt with more fully in Chapter 5.

1.2 THE CONTENT OF COMMUNICATION

Every speech act, whether spoken or written, takes place in a social context. A telephone conversation, writing a letter, buying a newspaper, giving or attending a lecture, are all contexts within which the different speech acts are carried out. Such contexts have to do with our own or someone else's experience of life and the world at large, that is, the doings and happenings in which we are involved or which affect us.

Any happening or state in real life, or in an imaginary world of the mind, can be expressed through language as a **situation** or **state of affairs**. Used in this way, the terms 'situation' or 'state of affairs' do not refer directly to an extra-linguistic reality that exists in the real world, but rather to the speaker's conceptualisation of it. The components of this conceptualisation of reality are **semantic roles** or **functions** and may be described in very general terms as follows:

- 1 **processes**: that is, actions, events, states, types of behaviour;
- 2 **participants**: that is, entities of all kinds, not only human, but inanimate, concrete and abstract, that are involved in the processes;
- 3 **attributes**: that is, qualities and characteristics of the participants;
- 4 **circumstances**: that is, any kind of contingent fact or subsidiary situation which is associated with the process or the main situation.

The following example from the text shows one possible configuration of certain semantic roles:

I	'll come	into your shop	tomorrow
participant	process	circumstance	circumstance

The kind of meaning expressed by these elements of semantic structure is **representational** meaning, or meaning that has to do with the content of the message. The various types of process, participants, attributes and circumstances are outlined in the following sections and described more fully in Chapter 4.

1.3 THREE WAYS OF INTERPRETING CLAUSE STRUCTURE

The clause or simple sentence is the basic unit that embodies our construal of representational meaning and interpersonal meaning. The clause is also the unit whose elements can be reordered in certain ways to facilitate the creation of **textual** meaning. The textual resources of the clause, such as the active-passive alternative, enable the representational strand and the interpersonal strand of meaning to cohere as a message, not simply as a sentence in isolation, but in relation to what precedes it in the discourse.

Each type of meaning is encoded by its own structures; the three types of structure combine to produce one single realisation in words.

To summarise, the three kinds of meaning derive from the consideration of a clause as: (a) the linguistic representation of our experience of the world; (b) a communicative exchange between persons; (c) an organised message or text. We now turn to the three types of structure that implement these meanings.

1.3.1 The clause as representation: transitivity structures

The representational meaning of the clause is encoded through the transitivity structures, whose elements of structure or functions include: Agent, Recipient, Affected, Process, Attribute and Circumstance, as described in Chapter 4. Some of these make up the semantic structure of the following example:

Janice	will give	Chris	the bill	tomorrow
Agent	Process (action)	Recipient	Affected	Circumstance (time)

With a process of 'doing' such as the action of giving, the Agent is that participant which carries out the action referred to by the verb; the Recipient is that participant who receives the 'goods' or 'information' encoded as the Affected. Circumstances attending the process are classified as locative, temporal, conditional, concessive, causal, resultant, etc.

1.3.2 The clause as exchange: mood structures

When a speaker interacts with others to exchange information, or to influence their behaviour and get things done, she adopts for herself a certain role, such as 'questioner' and, in doing so, assigns a complementary role, such as 'informant', to her addressee. Unless the conversation is very one-sided, the roles of 'questioner' and 'informant' tend to alternate between the interlocutors engaged in a conversation, as can be seen in the exchange of speech roles between Chris and Janice in the text on page 3.

The clause is the major grammatical unit used by speakers to ask questions, make statements and issue directives. The exchange of information is typically carried out by the indicative mood or **clause type**, as opposed to directives, which are typically expressed by the imperative mood. Within the indicative, making a statement is associated characteristically with the declarative, and asking a question with the interrogative. More exactly, it is one part of these structures – consisting of the Subject and the Finite element – that in English carries the syntactic burden of the exchange. The rest of the clause remains unchanged.

In a declarative clause, the Subject precedes the Finite.

Declarative

Janice	will	give	Chris	the bill	tomorrow
Subject	Finite operator	Predicator	Indirect Object	Direct Object	Adjunct

Interrogative

Will	Janice	give	Chris	the bill	tomorrow?
Finite operator	Subject	Predicator	Indirect Object	Direct Object	Adjunct

In the interrogative structure, the positions of Finite operator and Subject are reversed, the Predicator and the rest of the clause remaining the same. The Finite is that element which relates the content of the clause to the speech event. It does this by specifying a time reference, through tense, or by expressing an attitude of the speaker, through modality. Also associated with finiteness, although less explicitly in many cases in English, are person and number. The Finite element is realised in the examples above by the modal auxiliary *will* (see 3.1.1 and 23.3 for the interrogative). Clause types and the meanings they convey are treated in Chapter 5.

1.3.3 The clause as message: thematic structures

Here, the speaker organises the informational content of the clause so as to establish whatever point of departure is desired for the message. This is called the Theme, which

in English coincides with the initial element or elements of the clause. The rest of the clause is the Rheme:

Janice	will	give	Chris	the bill	tomorrow
Theme	Rheme				

The Theme may coincide with one of the participants, as in this example, or it may 'set the scene' by coinciding with an initial expression of time, place, etc. These possibilities are illustrated in 1.3.4. and treated more fully in Chapter 6.

1.3.4 Combining the three types of structure

The three types of structure we have briefly introduced are examined more closely in Chapters 4, 5 and 6. Here, they are mapped simultaneously on to the example clause, in order to show the tripartate nature and analysis of English clauses from a functional point of view. Predicator, Indirect and Direct Objects, and Adjunct are included as **syntactic functions**, which correspond to the semantic roles. We examine the syntactic functions more closely in Chapter 2.

	Janice	will give	Chris	the bill	tomorrow
Experiential	Agent	Process	Recipient	Affected	Circumstance
Interpersonal	Subject	Finite + Predicator	Indirect Object	Direct Object	Adjunct
Textual	Theme	Rheme			

In a typical active declarative clause such as this, Agent, Subject and Theme coincide and are realised in one wording, in this case *Janice*. But in natural language use, a situation can be expressed in different ways, in which the order of clause elements can vary, since different elements of structure can be moved to initial position. Our present example admits at least the following possible variants:

- 1 Chris will be given the bill (by Janice) tomorrow.
- 2 The bill will be given to Chris tomorrow (by Janice).
- 3 Tomorrow, Chris will be given the bill (by Janice).

It can be seen that the three types of structural elements do not coincide (vertically) in the same way as they do in the typical active declarative clause. For example: Theme now coincides with Recipient in 1, with Affected in 2, and with Circumstance in 3; Agent no longer coincides with Theme or with Subject in any of the variants. The configurations for 1 are illustrated below.

Chris	will be given	the bill	by Janice	tomorrow
Recipient	Process	Affected	Agent	Circumstance
Subject	Finite + Predicator	Direct Object	Adjunct	Adjunct
Theme	Rheme			

The motivation for this and the other variants is not to be sought in the clause in isolation, but in its relationship to that part of the discourse at which it is located. The speaker organises the content of the clause in order to achieve the best effect for their communicative purpose. This involves establishing the point of departure of the clausal message – that is, the Theme – in relation to what has gone before. This choice conditions to a large extent the way the clausal message will develop and how the speaker or writer will lead the hearer or reader to identify that constituent which is presented as New information, usually at the end of the clause.

By choosing variant 1, for example, *Chris* becomes the point of departure, while *tomorrow* is still in final position, with the Agent, *Janice*, nearing final position. By using the passive, instead of the active voice, the Agent can be omitted altogether, leaving the Affected, *the bill*, nearer final position. Finally, if we bring the circumstantial element of time, *tomorrow*, to initial position as Theme, as in 3, this element will serve as a frame for the whole event. By means of such reorganisations of the clausal message, the content of the clause can be made to relate to the rest of the discourse and to the communicative context in which it is produced. It is for this reason that the active-passive choice, which determines the constituent of the clause that will be Subject, is related to choice of Theme and the 'packaging' or distribution of information.

The textual motivations outlined in the previous paragraph, and the syntactic strategies that serve to produce different kinds of clausal message, are discussed in Chapter 6.

We will now look at the full range of grammatical units in a hierarchy where the clause is central. We will then look briefly at the unit above the clause, the 'complex sentence', and the units immediately below the clause, the 'groups'.

Goals

The goals of the chapter are to:

- introduce and explain three key concepts of syntax: openness, grammaticality and hierarchical structure;
- present the fundamental syntactic units, and give criteria for their identification;
- show how the syntactic structures of sentences can be represented in tree diagrams;
- explain the need to identify grammatical relations;
- identify some of the major types of grammatical relation;
- illustrate by example some differences in the structure of sentences of the world's languages; and
- remark on similarities and differences between morphology and syntax.

Key terms

Actor	grammatical relation	sentence
adjectival phrase	hierarchical structure	Subject
clause	interpersonal role	textural role
constituent analysis	nominal phrase	Theme
embedding	Object	Undergoer
experiential role	openness of syntax	verbal phrase
Event	postpositional phrase	
grammaticality	prepositional phrase	

5.1 What is syntax?

Openness

In all human languages words can be put together in sequences to express meanings for which no separate words exist: the range of complexities and nuances of meanings that a speaker might want to express – and distinguish from other possible meanings – is much larger than can be expressed by the lexical and morphological resources of any language. For instance, no human language would have a single word to express a meaning like that expressed by the previous sentence. Words

and morphology alone are insufficient to make all the complex meanings and meaning distinctions people regularly need to make in thought and communication.

Syntax is concerned with the means available in languages for putting words together in sequences. Sometimes the term *grammar* is used instead of *syntax*, though more usually grammar is considered to cover not just syntax but also morphology, and often phonology and semantics as well. The way we are using the terms, syntax is grammar above the word.

It should be clear from the previous two chapters that morphology and lexicon are not completely closed systems: languages can acquire new lexemes, even new grammatical morphemes (see §15.5). But these resources are somewhat limited, even in languages that are morphologically much more complex than English, such as Yup'ik, in which single words can express meanings that require full sentences in English, as in example (3-1), repeated as (5-1). Not all English sentences, however, can be expressed as single words in Yup'ik: as (5-2) shows, sentences in this language sometimes consist of more than one word (the glosses have been simplified somewhat).

(5-1) *kai- -pia- -llru- -llini- -u- -k* Yup'ik
 be:hungry- -really- -past- -apparently- -statement- -they:two
 'The two of them were apparently really hungry.'

(5-2) *tauku-t atsa-t tegu-k-ai* Yup'ik
 that-PL fruit-PL take:in:hand-PART-he→them
 'He took those pears.'

Syntax provides additional means of 'opening up' the grammatical system for the expression of new meanings, nuances of meanings, precision in meaning and links between ideas; it provides means for speakers to go beyond the limitations of the morphology and lexicon. Syntax enhances the creativity of expression in language. In this respect the difference between syntax and the other domains is one of degree rather than kind. All grammatical systems, phonological, lexical, morphological and syntactic, are to some extent open; openness is most salient in syntax.

The notion of sentence

The sentence, as it is usually conceived in linguistics, is the largest linguistic unit showing grammatical structure, the largest unit over which grammatical rules or patterns apply; it is at the opposite end of the scale of grammatical items from the morpheme, the smallest grammatical unit. This understanding of the sentence goes back to the American linguist Leonard Bloomfield (1887–1949) who proposed that a sentence is a string of words not included in any larger linguistic form by virtue of grammatical structure. According to this criterion, (5-3) consists of two sentences, since the two components, (5-4) and (5-5), are grammatically independent of one another.

(5-3) *The fisherman hung the net on the fence. I saw him.*

(5-4) *The fisherman hung the net on the fence.*

(5-5) *I saw him.*

To be sure, there are connections between the parts of the separate sentences: *him* in (5-3) is naturally interpreted as referring to the same person as *the fisherman*. But this is not by

grammatical rule, and the second sentence could as well have been *I saw it*, or even *I saw the poor guy* (still referring to the fisherman, although it could also refer to someone else). Notice the difference from the situation for (5-6), where the grammatical form of the material following the comma is dependent on the preceding string of words: it can be only *didn't he*, or *did he*. Thus you can't use a different verb, such as *isn't*, *saw* or *hung*, and preserve the structure, as you can in the case of separate sentences, as in (5-3).

(5-6) *The fisherman hung the net on the fence, didn't he?*

Nor can *he* in (5-6) refer to anyone bar the fisherman, whereas *him* in (5-3) can, given the right context, be interpreted as referring to someone other than the fisherman.

The openness of syntax referred to in the previous subsection can now be understood as the openness of the set of sentences of a language. The syntax of a language provides a ready-made system of principles for the construction (production by a speaker) and interpretation (understanding or interpretation by a hearer) of novel sentences – sentences that have never previously been uttered in the language, or at least have never been uttered or heard by the speaker or hearer. These include sentences that express new meanings and sentences that express old meanings in new ways. This can be referred to as creativity in sentence formation – a somewhat restricted sense of the term, to be sure. Of course, not every sentence one utters or hears is novel; but speakers do fairly often produce novel sentences, most of which hearers find quite unremarkable. The invention of new words is a much less common phenomenon, and is more likely to strike hearers as unusual, humorous or smart.

Grammaticality

Not all possible strings of words in a language form grammatically acceptable sentences. While *The fisherman hung the net on the fence* does represent a grammatical sentence, the same words in a different order, for example, *The the hung fisherman fence net on the* is clearly not grammatical. It does not follow the grammar of English, and a speaker might well retort that the words occur in the wrong order. Such strings of words are ungrammatical. It is standard practice to put a star before ungrammatical strings of words: **The the hung fisherman fence net on the*.

The notion of grammaticality should not be confused with meaningfulness or interpretability. Noam Chomsky's famous *Colourless green ideas sleep furiously* is a fully grammatical sentence of English, although it makes little sense, being self-contradictory; it could hardly designate any ongoing situation in the real world.¹ And Lewis Carroll's *Jabberwocky* (§4.2) consists of fully grammatical sentences, though it is 'nonsense verse'. By contrast, *Fisherman hanged net on fence* is not a grammatical sentence, although no speaker of English would have the slightest difficulty understanding it.

The notion of ungrammatical sentences is useful for revealing things about the syntax of a language. What is grammatical needs to be seen in the context of what is not, if one is to produce a revealing and complete description of the syntax of a language. As we find elsewhere in linguistics (indeed in science generally) paying attention to where things go wrong can reveal insights about the situation in which they go right, insights that might not be perceived if attention is directed exclusively to what is normal.

Caution must be observed in using ungrammatical sentences in syntactic arguments. The borderline between what is grammatical and what is ungrammatical is not always clear-cut, and especially if the linguist is relying exclusively their own intuitions they are liable to be misled by their own presuppositions, or by failure to properly interpret a string of words. Here is an example from personal experience. Standard accounts of English grammar say that tag questions can be added to statements (as in *The fisherman hung the net on the fence, didn't he?*) and commands (as in *Hang the net on the fence, will you?*). One infers from this that tags can't be added to questions (if it is not said, then it is not true); indeed, some linguists have explicitly claimed that such sentences are ungrammatical, and star sentences like *Are you going now, are you?* In the early 1990s I began to notice examples of this type in Australian English, and over the next few years collected some hundreds of instances. Clearly these sentences were grammatical, and not errors. Some grammarians responded 'not in my dialect': this was a peculiarity of Australian English, they said, that did not occur in British English. Nevertheless, BBC television programmes such as *The Bill* revealed examples in British English that showed the same properties as their Australian counterparts.

5.2 Hierarchical structure in sentences

Grouping

We have now three types of grammatical unit at our disposal for describing the syntactic structure of a language, sentences, words and morphemes. Are they sufficient? Can we provide a complete account of the syntax of sentences as strings of words and/or morphemes coming one after the other?

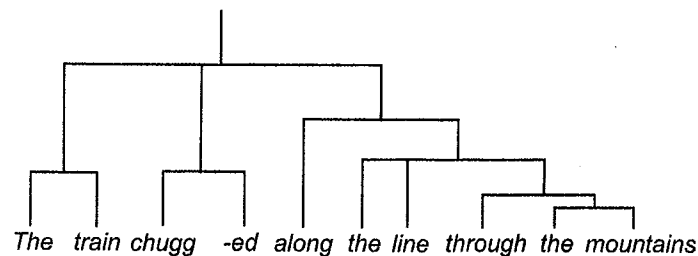
Evidence suggests not, that we need to recognize other units intermediate in size. Consider the English sentence (5-7).

(5-7) *The train chugged along the line through the mountains.*

Some morphemes and/or words seem to belong together: for instance, the first *the* is naturally interpreted as belonging with *train* rather than with *chugged* or *along*. At minimum, it seems reasonable to identify three groups of words or morphemes in (5-7): *the train*, *chugged* and *along the line through the mountains*. Within the third group another group can be recognized, *the line through the mountains*, within which in turn *through the mountains* forms yet another word group.

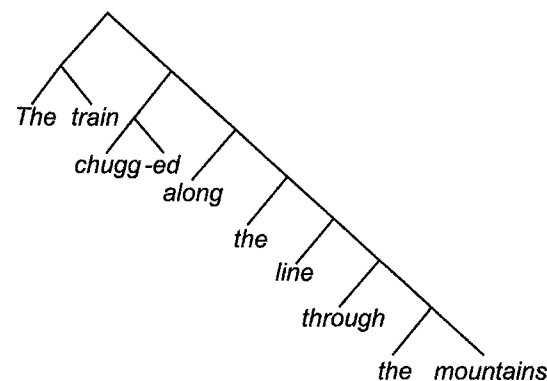
Such descriptions in everyday English quickly become cumbersome and difficult to understand, and it is useful to represent groupings of morphemes/words in diagrammatic form. Example (5-8) shows one form of representation. In such figures the groups are indicated by sets of vertical lines that are connected by a horizontal line.

(5-8)



Other styles of figure are also used. Example (5-9) illustrates the most frequently used type, that represents the groups by connecting them together with slanting lines, thus \wedge instead of \sqcap . In this representation, just two branches meet at any node; this means that more word groups are recognized than in (5-8), and the structure is more hierarchical. You can of course always redraw (5-8) to represent the same hierarchical structure as (5-9), and vice-versa – try it!

(5-9)



Representations like (5-8) and (5-9) are called **tree diagrams**, or simply **trees**. Tree diagrams enjoy a prominent place in syntax. Figures like (5-9), using mostly two-way branches, were popular in American linguistics during the 1930s to 1950s, and are associated with an approach called Immediate Constituent Analysis (or IC Analysis). Modified versions still enjoy considerable popularity, especially within formal syntax (see §1.4). Trees like (5-8), with more rake-like (less hierarchical) structures, tend to be used in functional grammars; they are sometimes said to represent string constituent analysis. As we will see later in the chapter, there are reasons to prefer the string constituent-type analysis.

Evidence for groupings of words

Grammarians are not satisfied with grouping words together on intuitive grounds. They demand evidence from the language. Three main considerations – three main tests – provide evidence for groupings: movability, contractibility and structural ambiguity. We deal with these in turn.

Movability

The idea behind **movability** is that if certain words always move about together in a sentence they constitute a single group: since they can't be split apart, they presumably belong together. That is, if

we compare a sentence with similar-meaning sentences involving the same lexical items in different orders, and find that certain words always cluster together in the same way, this suggests that they form a word-group. Returning to (5-4), repeated as (5-10), compare sentences (5-11)–(5-15):

(5-10) *The fisherman hung the net on the fence*(5-11) *On the fence the fisherman hung the net*(5-12) *It was on the fence that the fisherman hung the net*(5-13) *The net was hung on the fence by the fisherman*(5-14) *It was the fisherman who hung the net on the fence*(5-15) *It was the net that was hung on the fence by the fisherman*

Examples (5-11) and (5-12) show that *on the fence* behaves as a single unit; (5-13)–(5-15) show that *the fisherman* and *the net* each separately forms a single grouping of words. The words *the* and *fisherman* always go together; they can't be shifted around independently of one another, and separated by other words from the same sentence. Thus the ungrammaticality of **The hung fisherman the net on the fence*.

This criterion is a good, though imperfect, guide to word groupings; grammatical criteria (or tests) are rarely perfect. Sometimes word-groups can be split up, as illustrated by (5-16), which shows that *on* can be separated from *the fence*.

(5-16) *It was the fence that the fisherman hung the net on*

What you do not find, however, is that words that do not form a group together always move around in concert. For instance, the three words *the net on* does not behave in this way, as revealed by the unacceptability of the following:

(5-17) **The net on was hung the fence by the fisherman*(5-18) **It was the net on that was hung the fence by the fisherman*

Contractibility

Contractibility is the potential for a string of words to be replaced by a single word. In (5-10) we can replace *the fisherman* by *he*, *the net* by *it*, and *on the fence* by *out* or *up*: *He hung it out*.

The idea behind this is that if the string can be replaced by a single word it behaves as a single word, which we know is a grammatical element. Thus the string behaves like a single grammatical item, and so the component words form a single syntactic group.

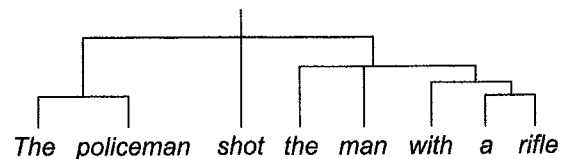
Again, this criterion is imperfect: in (5-7) it is not clear that a single word could replace *through the mountains*, or indeed *the line through the mountains* (it perhaps works marginally – *The train chugged along it*). Nevertheless, replacement of non-groupings of words is not possible. You can't replace *chugged along the* by a single word.

Meaning differences

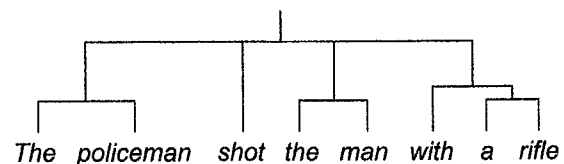
A single stretch of speech or writing sometimes has two or more distinct meanings – like *bank* 'side of a watercourse' and *bank* 'a financial institution'. This is called **ambiguity**. In some cases a

string of words admits various interpretations that can be explained by different groupings of the morphemes or words. For example, we could explain the different interpretations of *The policeman shot the man with a rifle* in this way. In one interpretation *the man with a rifle* forms a single word-group, specifying a man carrying a rifle. In another interpretation the rifle was used to shoot the man, in which case *the man with a rifle* is not a single word-group, but two. (5-19) and (5-20) show tree diagrams for the two different analyses, respectively.

(5-19)



(5-20)



5.3 Syntactic units

Syntactic units are grammatical items showing unified behaviour that behave as indivisible wholes. Words, morphemes and sentences are syntactic units. So are the intermediate word-groups discussed in the previous section. In this section we say a bit more about these intermediate units, distinguishing types according to their size. Units of two intermediate sizes exist between words and sentences: phrases and clauses. This gives us a hierarchy of units according to increasing size: morpheme, word, phrase, clause and sentence.

Clauses

Sentences come in a variety of types ranging from the utmost simplicity of single morphemes (for instance, interjections such as *hey!* and *yuck!*) to complex syntactic configurations. Sentences like (5-7) and (5-10) above are what could be called **simple sentences**; they contain just one verb, and specify a single event. Simple sentences can be joined together to form **complex sentences** like (5-21) and (5-22), which refer to combinations of events; often, as in these examples, words like *when* and *and* are used to connect the two parts.

(5-21) *The car skidded when it hit the oil slick.*(5-22) *The fisherman hung the net on the fence, and the farmer pulled the plough into the shed.*

Sometimes the simple sentences that are put together to form a complex sentence need to be modified in some way. We can for instance combine (5-10) with (5-23) to give (5-24), but adjustments are necessary to (5-23): *the fisherman* must be replaced by *he*, *the fence* should be omitted, and *that* used as a connector.

(5-23) *The fisherman made the fence last year.*(5-24) *The fisherman hung the net on the fence that he made last year.*

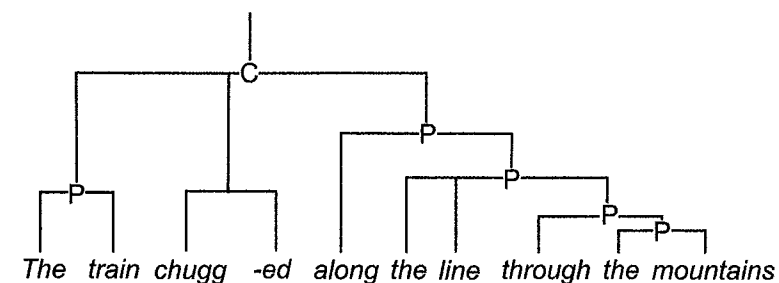
A string of words that is either a simple sentence, or a modified form of a simple sentence is called a **clause**. In many languages, clauses come in two main types. First, we have a simple single-morpheme type, consisting of a word used as an interjection (see p. 83). Such clauses, sometimes called **minor clauses**, have the simplest structure – effectively none. The second type has (when complete, and nothing is omitted) a verb and accompanying nouns, and refers to an event in the real world, or some imaginary world. These latter, which can be called **major clauses**, are either independent (i.e. they can stand alone as independent sentences), or dependent (can't stand alone as independent sentences, but correspond to clauses that can). In some ways the clause is the most fundamental unit of grammar, and displays the most interesting syntactic properties. We examine its structure in §5.4 below.

Phrases

Nature of phrases

In §5.2 we argued for what can now be seen as units intermediate in size between words and clauses. Such intermediate units are called **phrases**. They are groupings of words that do not normally constitute complete clauses, just parts of clauses. In (5-25) the phrase-sized units we identified in example (5-7) are labelled by Ps, the clause by C.

(5-25)

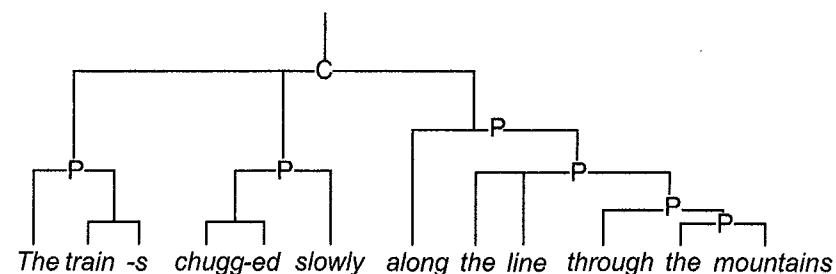


Consider now the following example:

(5-26) *The trains chugged slowly along the line through the mountains.*

The tree structure for this example is shown in (5-27). Comparing this with (5-25), it seems reasonable to suggest that the single word *chugged* in the latter is actually a reduced phrase, in the same way *train* is both a morpheme and a word. Putting things around the other way, we can say that single words can be recognized as phrases provided that they can be expanded into larger units comprising more than one word. This observation permits some useful syntactic generalizations that we could not otherwise make. In particular, clauses are made up of phrases that are in turn made up of one or more words.

(5-27)



Types of phrase

Phrases can be grouped together into different types according to their internal structure. In the next two subsections we deal with two important phrase types that are found in many languages, noun phrases and verb phrases. Then we briefly mention a few other phrase types that are less widespread across languages. Given that nouns and verbs are not separate parts-of-speech in all languages, it is possible that noun phrases and verb phrases might not be distinct in all languages. We do not address this issue here, contenting ourselves with those languages that do draw the distinction.

Noun phrases

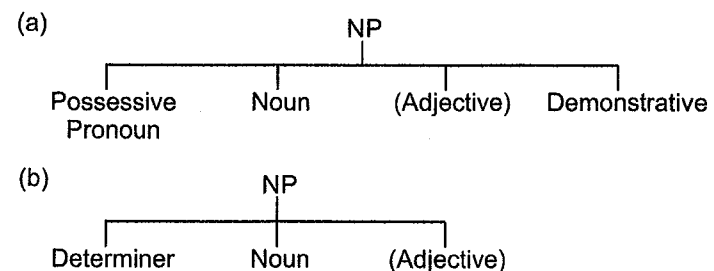
Noun phrases – henceforth NPs – are phrases like *the train*, *the line through the mountains*, *the farmer*, and so on. These are made up of a noun, which is usually the most important word in the phrase, possibly together with one or more other words or morphemes. An NP refers to some entity, concrete (like a person, animal, tree) or abstract (perhaps an emotion or idea), in a real or imaginary world.

NP structure in English, Swedish, Mandarin Chinese or any language is usually far from simple and it would be impossible in an introductory book such as this to provide a comprehensive description of the complexities in any language. Instead, let us look at a few simple examples in Maori (Austronesian, New Zealand), and see how they can be described as sequences of words of particular parts-of-speech. Here are the examples:

(5-28)	<i>wahine pai nei</i>	'this good woman'	Maori
	<i>te tuuru roa</i>	'the tall chair'	
	<i>tooku tuuru pai na</i>	'that good chair of mine'	
	<i>tooku wahine nei</i>	'this woman of mine'	
	<i>te wahine pai</i>	'the good woman'	

Based on these few examples (the reality is not so simple!), it appears that an NP in Maori can consist of up to four words, including a noun (*wahine* 'woman' and *tuuru* 'chair'). The noun can be preceded by a determiner (*te* 'the') or possessive pronoun (*tooku* 'my'), and can be followed by either an adjective (*pai* 'good' or *roa* 'tall'), or a demonstrative (*nei* 'this' and *na* 'that'). A full NP would look like one or the other of the following structures:

(5-29)



Verb phrases

Verb phrases (VPs) are groups of words and morphemes like *chugged*, *was chugging*, *might chug* and so on. VPs contain a lexical verb, which conveys the most important lexical information, usually along with other morphemes, grammatical and/or lexical, bound and/or free. Whereas NPs refer to entities, VPs refer to the events these entities are involved in; these are specified by the central item, the lexical verb.

Again we illustrate how VP syntax can be described by examining a small fragment of Northern Sotho. Below are the examples:

(5-30)	<i>o-rêk-ilê</i>	'she bought it (e.g. meat)'	Northern Sotho
	<i>o-tlô-rêk-a</i>	'she will buy it'	
	<i>o-bê a-rêk-a</i>	'she was buying it'	
	<i>o-rêk-a</i>	'she buys it'	
	<i>o-tlô-ba a-rêk-a</i>	'she will be buying it'	
	<i>o-bê a-rêk-ilê</i>	'she had bought it'	
	<i>o-tlô-ba a-rêk-ilê</i>	'she will have bought it'	

It can be seen (assuming *rêk* 'buy' is a typical verb) that VPs in plain tenses are simple inflected verbs, involving a prefix indicating the gender of the subject,² in this case the buyer, and an affix indicating tense – a prefix and suffix for the future, a suffix for present and past. The two morphological structures can be specified as GEN-V-PRS/PST and GEN-FUT-V-PRS, where GEN stands for gender-agreement prefix for the subject. The verbs expressing the more complex relative tenses – where the time of the event is specified in relation to a reference point of time other than the time of speaking, either in the past or future – involve another word that inflects rather like the verb 'buy': it takes a gender prefix, the future prefix, but has apparently irregular root forms in the past and future. It is presumably an auxiliary verb. Assuming that the *a-* prefix on the main verb *rêk* 'buy' is an allomorph of the gender prefix (e.g. selected by the presence of the auxiliary), an approximate description of the VP would be:

(5-31) (GEN-(FUT)-AUX) GEN-(FUT)-V-PRS/PST

This formula is imprecise: impossible combinations such as of the FUT prefix and PST suffix are not excluded. Nevertheless, it shows a syntactic pattern that all acceptable VPs in our data follow. (As an exercise, try to devise a formula that does exclude the non-occurring forms.)

The reader should be aware that in many theories of syntax, especially formal theories (see §1.4), VPs include not just the verb and its closely associated auxiliaries and the like, but also many of the accompanying NPs – often everything bar the subject. According to this type of analysis, *hung the net on the fence* would be a VP in (5-10), rather than just *hung*. This analytical difference is reflected in the different types of tree diagrams employed, whether string types like (5-8), or IC type trees like (5-9). The arguments are too complex to deal with in an introductory text. Suffice it to say that in favour of the string constituent analysis adopted here is the observation that a meaningful grammatical role can be associated with the VP in examples such as (5-7) and (5-10) – it specifies an event (see further p. 119). No such meaningful role is associated with the larger VP containing everything other than the subject. (A possible contender for a role for this VP would be the role Predicate; however, it is not easy to understand this as anything but a purely formal role.)

Other phrase types

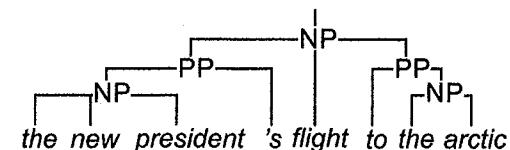
In example (5-7) we have one VP (*chugged*) and three NPs (what are they?). There remain two phrases that are neither NPs nor VPs, *along the line through the mountains* and the included *through the mountains*. Both are clearly made up of a preposition and an NP. Phrases like this are called prepositional phrases, abbreviated PPs. Not all languages have PPs, for the simple reason that not all languages have prepositions. Some languages (e.g. Hungarian, Japanese and Ngarinyin) have postpositions instead, in which case we can speak of postpositional phrases. Some languages have both prepositional and postpositional phrases, while others have neither part-of-speech, so neither phrase type.

Two other types of phrase found in some languages are adjectival phrases (AdjPs) and adverbial phrases (AdvPs). AdjPs in English have an adjective and a modifier indicating degree or intensity as in *very tall*, *quite rich* and *somewhat stupid*. AdvPs have an adverb and a modifier again indicating degree, as in *very badly*, and *excessively well*.

Complications

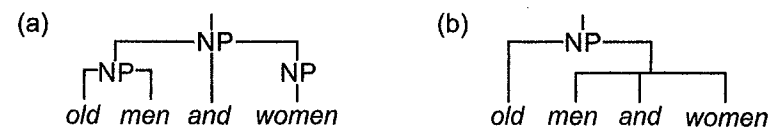
NPs and VPs sometimes have more complex structures than accounted for in the preceding discussion. For example, our PP *along the line through the mountains* involves a PP within a larger PP. This is called **embedding**: the PP *through the mountains* is **embedded** in the larger PP. Embedding of phrases within other phrases is quite common in English and many other languages. In English, if a PP is embedded in an NP or PP, it usually comes at the end of the phrase, as in *the house on the hill*, *the man on the moon*, *the end of the universe* and so on. An NP indicating a possessor can also be embedded in another NP, as in *the old woman's three cats*, *the new film's boring ending*, *the new president's flight to the Arctic* and so on. Example (5-32) shows the structure of the last example. (Note that here PP indicates both postpositional phrase – recall that the possessive *-s* of English is a phrasal enclitic, thus effectively a bound postposition – and prepositional phrase.)

(5-32)



A second complication is that phrases can be **conjoined** by conjunctions such as *and* and *or* to form more complex structures, as in *a word and a number*, *an instruction booklet and the necessary cables* and *from the cities and from the towns*. Within phrases words can also be conjoined, as in *boys and girls*, *salt and pepper*, *big and little people*, *swam and played* and *might have been tarring and feathering*. Example (5-33) shows two possible structures of *old men and women*, according to the two possible interpretations, depending on whether NPs are conjoined (as in (a), where *women* forms a full NP that could be filled out with, for example, *young*) or whether words are conjoined (as in (b)). In the former case *old* applies only to *men*; in the latter, *old* applies to both nouns *men* and *women*.

(5-33)



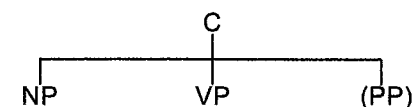
5.4 The structure of clauses

Fundamentals

Description of the clause in terms of phrases

The grammatical notions developed in the previous section permits us to describe clauses as sequences of phrases of various types, in a similar way to our descriptions of NPs and VPs as sequences of words. In this way we can capture similarities among a range of different clauses. Thus the tree diagram in (5-34) captures the structure of both (5-7) and (5-26).

(5-34)



It also characterizes innumerable other sentences, depending on the choice of NP, VP and PP. For example:

(5-35) *The dog ran towards the child*(5-36) *The little child squealed with joy*(5-37) *The train goes in the morning*(5-38) *The door squeaked on its hinges*(5-39) *The little child listened carefully to the story*

Not every English clause, of course, satisfies (5-34). Here are just a few additional patterns, with a single example of each (it is left to you to draw the tree diagrams):

- VP NP PP
(5-40) *Is the locomotive in the shed?*
- PP VP NP
(5-41) *On the corner stands a statue*
- NP VP NP
(5-42) *Marlowe slugged his assailant*
- VP NP NP
(5-43) *Is the president Bill Clinton?*
- NP VP NP NP
(5-44) *The teacher will give his wife a gift of considerable value*
- INTER VP NP (where INTER stands for interrogative or WH-word, e.g. *what, who*)
(5-45) *What is that thing?*
- INTER VP NP PP
(5-46) *When was the locomotive on the line through the mountains?*

This is a very small selection from the range of patterns available in English – for instance, one or more additional PPs can be added to many of the above, and we have not yet brought AdjPs or AdvPs into the picture. Think of some additional patterns yourself, give examples and draw tree diagrams.

Problems

It is not difficult to find clauses that don't lend themselves so readily to descriptions of this type. How, for instance, would you give a general description of the syntactic patterns shown by the following very simple clauses?

- (5-47) *Should we go tomorrow?*
- (5-48) *Does the teacher like strong chilli?*
- (5-49) *Will the teacher give his wife a valuable gift?*
- (5-50) *When did the train travel on the line through the mountains?*

Evidently, you need to look into the structure of some of the phrases. It is impossible to account for clause patterns in English entirely by reference to phrase-sized units, ignoring their internal composition. Specifically, the auxiliary verb in each is separated from the main verb by an NP. The additional clause patterns can be easily listed: AUX NP V PP, AUX NP V NP, AUX NP V NP NP and INTER AUX NP V PP. This fails, of course, to show that the AUX and V belong together as part of the same VP. One could indicate this by labelled brackets, as in: [AUX]_{VP} NP [V]_{VP} PP.

It will be obvious by now that this approach will result in a very long list of different structures. It is also obvious that important generalizations will be missed if the types are merely listed. Thus, the examples so far show that when a clause begins with an INTER, the first NP always follows the first word of the VP, which will be either the main verb or an auxiliary. Recognition of this as a **grammatical rule** would lead us to predict that some patterns – for example, INTER NP VP – are impossible. We can then search for examples to test whether or not this is so, giving us a more powerful method of investigation than searching randomly for new patterns. (Can you find grammatical clauses satisfying this pattern predicted to be ungrammatical?)

A better way of thinking about clause structure than the diagrams we used above is to imagine the trees as three-dimensional objects like real trees, rather than two-dimensional ones. To remain closer to figures like (5-34), they can be thought of as mobiles such as are sometimes found in children's rooms. Units like NPs and VPs can be imagined as rods of a mobile, together with strings and attached objects. The grammatical rules can then be regarded as ways of projecting the three-dimensional mobile on to a two-dimensional representation – as rules taking the abstract units and putting the elements (the words) in the correct sequence. (Pursuing our analogy, this can be likened to shining a light from a particular position to get a shadow on the wall; shining it from different positions will give different shadows.) This allows us to operate with a more general, though slightly weakened, criterion of movability than the one given in §5.2: the bits must move around in concert, although they need not necessarily stick together in the projection to word sequences.

Grammatical relations

An even more serious problem with the type of description outlined in the previous subsection is that, although it captures generalizations about the possible forms of clauses, it fails to reveal anything about their meanings. It leaves completely out of account the systematic similarities and differences in meaning among the clauses. The syntactic patterns in that mode of description are no more than specifications of possible formal shapes, related only by virtue of the fact that they involve similar component units. By recognizing grammatical roles or relations associated with the formal elements it is possible not just to account for differences of meaning expressed by formally related sentences, but also to describe clausal syntax in a way that goes beyond a mere listing of alternatives. In what follows we identify three different types of grammatical relation, which express fundamentally different types of meaning.

Experiential roles

Consider clauses (5-51)–(5-53). These exhibit three different syntactic patterns in terms of units and their combinations: each has the same three types of unit (an NP, a VP and a PP), but in different orders.

(5-51) *The train is leaving from platform two*

(5-52) *Is the train leaving from platform two?*

(5-53) *On platform two the train is leaving*

Each clause describes an ongoing situation, and the NP specifies the thing that is engaged in it, the thing that is moving or about to move. By contrast, in (5-54) and (5-55) – which are identical with (5-51) and (5-52) in terms of their patterns of phrases – the NP refers to something that is acted on, rather than something that does or performs an activity.

(5-54) *The train was shunted from platform two*

(5-55) *Was the train shunted from platform two?*

We can account for these similarities and differences with the notion that the NPs serve in two different **grammatical roles** or **relations** – also called **functions** – in the two sets of sentences. In (5-51)–(5-53) the NPs are **Actors**: their function in the clause is to indicate the doer of the event. In (5-54) and (5-55) they are **Undergoers**: they designate the patient or sufferer of the event, something the event happened to or impinged on.

The terms Actor and Undergoer are not just intuitively meaningful labels; they are labels for grammatical roles – elements of the grammatical structure of English clauses. The terms are given with initial capitals for this reason, to make it clear that we are dealing with grammatical phenomena, not merely with intuitively identified meanings. You can't just call an NP an Actor or Undergoer by inspection of isolated examples. For instance, in *the famous linguist died* intuition suggests that the linguist (the person, not the phrase!) was more of an undergoer than an actor. But in the grammar of English *the famous linguist* (now the phrase) serves in the same role as it does in *the famous linguist climbed the mountain*. The actual meanings of the grammatical roles Actor and Undergoer are not to be confused with the meanings of the corresponding lexical items *actor* and *undergoer*. They are to be found by studying clauses with the roles, not dictionary meanings of the terms.

Perhaps this all appears very abstract, even fanciful: the grammatical role is not something you can tell by inspection of the linguistic form, and its meaning is difficult to pin down precisely. But even if we don't have direct indication of the roles, there is indirect evidence for them. We have identified them using an argument reminiscent of the ambiguity of meaning test for units (§5.2), where the idea was that a single ambiguous string of words might allow different divisions into units – different structures. Here the same style of argument is reused, but at the level of phrase patterns: the same pattern of phrases has different meanings – indeed meanings that differ systematically – and therefore reflects different structures. The structural difference cannot be in terms of division into units (they are precisely the same); it has to be something else: the functions of those units in the clause.

In some languages the situation is more obvious, and the roles are **overt** rather than covert. In Acehnese (Austronesian, Sumatra) the roles of Actor and Undergoer are distinguished morphologically, and their meanings are closer to the senses suggested by the labels. Actors are distinguished by an agreeing prefix to the verb, as shown by (5-56); Undergoers optionally have an agreeing suffix, as shown by (5-56) and (5-57).

(5-56) *gopnyan geu-mat lôn*

(s)he (s)he-hold me

'(S)he holds me.'

(5-57) *gopnyan geu-mat-lôn*

(s)he (s)he-hold-me

'(S)he holds me.'

A clause describing controlled movement has an Actor, as in (5-58); if the movement is uncontrolled, it has an Undergoer, as in (5-59).

(5-58) *geu-jak gopnyan*

(s)he-go (s)he

'(S)he goes.'

(5-59) *lôn rhët(-lôn)*

me fall(-me)

'I fall.'

The two grammatical roles Actor and Undergoer are fundamental in many languages, perhaps even universal. In most languages the majority of clauses have at least one of them: that is, at least one is obligatory.³ Also obligatory is a VP. In clauses like most discussed above, this refers to an event; associated with the VP is the grammatical role **Event**. These three roles then give us a handle on the clause in terms of the way our world of experience is interpreted and construed. The clause is structured so as to express this general type of meaning, called **experiential** or **representational** meaning. Roles like Actor, Undergoer and Event are accordingly experiential roles.

Subject and object

It is unlikely that just these three grammatical relations, Actor, Undergoer and Event, are sufficient to describe the syntax of any language, let alone all languages. At least in some languages – for instance many languages of Europe – Subject, and perhaps also Object, are also required. Comparing (5-60) and (5-61) we see that *the tourist* is Undergoer in each clause. But *the tourist* in (5-61) also shares some grammatical behaviour with the Actor NP *the sniper* in (5-60). First, they occur in initial place in the clause, immediately preceding the verb. Second, the verb in each sentence agrees, to a limited extent at least, with this NP. Third, both NPs could be replaced by nominative pronouns: *he* or *she* rather than *him* or *her*. And finally, if a tag is added, its pronoun picks out these NPs – we could add *didn't she?* to (5-60) and *wasn't she?* to (5-61). These commonalities in behaviour motivate identifying Subject as a grammatical relation in English, distinct from Actor.

(5-60) *The sniper shot the tourist*

(5-61) *The tourist was shot by the sniper*

There has been much debate in linguistics about the need for, and nature of, Subject as a grammatical relation. Some deny its universality, while accepting its existence in certain languages; others deny

it for all languages. Many grammarians consider Subject as a purely formal grammatical role associated with an NP in a particular structural position in the clause. Others maintain that, like Actor and Undergoer, Subject is also a meaningful grammatical relation.

A number of related notions have been suggested in recent decades that begin to make sense of Subject as a meaningful grammatical relation. Simon Dik suggested (1989: 212ff.) that it provides the perspective from which the clause is presented, the vantage point from which it is viewed. Thus (5-60) presents things from the perspective of the sniper, while (5-61) presents it from the perspective of the tourist. Michael Halliday suggests (1985: 76) that the Subject represents the thing in reference to which the truth of the proposition can be affirmed or denied. Thus one would argue about or evaluate (5-60) in relation to the sniper, (5-61) in relation to the tourist. Ronald Langacker proposes (1991: 304–329) that Subject relates to cognitive prominence; he has refined this idea in more recent work (1999) to the notion of event profiling: the event is profiled from the perspective of the subject. Similar suggestions have been made by others.

It is more difficult to interpret Object – the role of *the tourist* in (5-60) – as a meaningful grammatical relation. Nevertheless, both Dik (1989) and Langacker (1990: 225) suggest that the Object represents a secondary vantage point from which the clause is perspectivized. Thus the difference between *The teacher will give the pupil a gift* and *The teacher will give a gift to the pupil* concerns, they suggest, whether the pupil or the gift is taken as the secondary vantage point.

According to these views, Subject and Object have nothing to do with the construal of the world of experience, with experiential meaning. They are concerned with the selection of positions for perspectivizing the situation: with the angle from which the speaker chooses to view it and present it to the hearer. This sets the stage for the hearer to adopt the same angle, the same viewpoint. Meaning of this type is **interpersonal** (the term comes from Halliday, who was the first to suggest Subject expresses this type of meaning): it is concerned with the interactive dimension of language, with the establishment of a shared perspective.

Theme

In many languages the initial NP or PP of a clause serves an important role. Consider the following German examples:

- | | | | | |
|-------------------|-----------------|-------------|-----------------|----------------|
| (5-62) <i>Der</i> | <i>Priester</i> | <i>traf</i> | <i>den</i> | <i>Bischof</i> |
| the:MAS:NOM | priest | meet:PST | the:MAS:ACC | bishop |
| <i>in Hamburg</i> | <i>am</i> | | <i>nächsten</i> | <i>Tag.</i> |
| in Hamburg | on:the:MAS:DAT | next | day | |
- ‘The priest met the bishop in Hamburg the following day.’
- (5-63) *Den Bischof traf der Priester in Hamburg am nächsten Tag.*
‘The bishop the priest met (him) in Hamburg the following day.’
- (5-64) *Am nächsten Tag traf der Priester den Bischof in Hamburg.*
‘The following day the priest met the bishop in Hamburg.’
- (5-65) *In Hamburg traf der Priester den Bischof am nächsten Tag.*
‘In Hamburg the priest met the bishop the following day.’

These clauses all describe the same situation, with *traf* as Event, *der Priester* as Actor and *den Bischof* as Undergoer. They also present it from the same perspectives (as per the previous section), *der Priester* is Subject and primary perspective in each, and perhaps *den Bischof* is Object and secondary perspective. Thus the four clauses express the same experiential and interpersonal meanings, and are made up of the same NPs serving in the same experiential and interpersonal roles. Nevertheless, the clauses differ subtly in meaning. Example (5-62) ostensibly presents a message about the priest, saying what he did; (5-63) by contrast seems to be about the bishop, presenting information about him. The first NP specifies what the clause is about; it serves in the grammatical role **Theme**, sometimes called **Topic**.

If the first NP is the Theme, the Themes of (5-64) and (5-65) should be *am nächsten Tag* ‘on the following day’ and *in Hamburg* ‘in Hamburg’ respectively. But it seems somewhat implausible to say that these clauses are saying something about a time (the following day) and a place (Hamburg), respectively. In these cases the initial PP manifestly establishes a setting (temporal or spatial) within which the event occurred. (Note that this accounts for only a part of the meaning difference between the four examples; we cannot go into other differences here.)

So a Theme can either be what the clause is about, or establish a setting for it. There is something common to both: the Theme anchors the message down, providing a fixed point from which the message can be expanded. The type of meaning conveyed by the Theme is **textural**: it serves to give texture to the clause, distinguishing it from an arbitrary string of words.

Constructing a clause is a bit like putting an Ikea bookshelf together. You start with a particular piece, and build up from it. The first piece is like the Theme: the other pieces are anchored to it. Although the instruction kit gives a sequence of putting the bits together, it is not the only way – though it might be in some sense the best, or most natural. Likewise in syntax, one choice of Theme is often the most natural: in the case of our German examples, it is the choice in (5-62). Other choices are less natural, and less common in language use.

Morphology and syntax

Both morphology and syntax deal with arrangements of grammatical items. But there are differences that underline the need to distinguish them as different levels of grammar. To begin with, only some of morphology is conveniently viewed in arrangement terms. Some aspects (especially of inflectional morphology in highly inflecting languages) are better viewed in word-paradigm rather than item-arrangement terms (see p. 74) – that is, in terms of paradigmatic contrasts among words, rather than as morphemes in sequence. In syntax item-arrangement description always works, even though (as we have seen) it may demand recognition of other things (grammatical rules, grammatical relations) in addition.

Another difference is that in morphology the arrangements of the items are usually quite fixed. Little variation in order is permitted. A single structural formula specifying the ordering of the

morpheme types can normally be given that accounts for the morphological shape of nouns and verbs. The complex situation we encountered for English clauses in §5.4 does not arise.

Lastly, while units serve grammatical relations in syntax, in morphology they do not. We can describe morphology without bringing roles of morphemes into consideration; description in terms of form is adequate. As we have seen, the same NP *the farmer* occurs in the two clauses *the farmer kills the duckling* and *the duckling kills the farmer*, though it serves a different grammatical role. This situation does not arise in morphology. Although the same phonological form /z/ is found in /kil-z/ and /bed-z/, we do not have one morpheme /z/ in different roles; rather we recognize two distinct morphemes that happen to share the same phonological shape.

Summing up

The lexical and morphological resources of a language are insufficient to allow the expression of the full range of meanings people need to make; to get around this limitation, words are combined together into larger units. These units are structured according to patterns that differ from language to language, and define the **syntax** of a language; this is the most open grammatical system of a language.

Fundamental to syntax is the **sentence**, the largest unit in a language that shows grammatical patterning. A sentence made up of a string of words that observe the syntactic patterns of a language is **grammatical**; otherwise it is an **ungrammatical** string. Study of ungrammatical strings, and comparison with grammatical sentences, can yield insights into the syntax of a language.

The structure of sentences is **hierarchical**. Words in a sentence go together to form groups of intermediate sizes – **clauses** and **phrases** – identified by criteria of movability, contractibility and ambiguity. Clauses are effectively simple sentences, that can be combined together to form complex sentences. Clauses are constituted by phrases, which fall into different types, corresponding to the main parts-of-speech of a language.

The hierarchical structure of sentences into clauses, phrases, words and morphemes can be represented in **tree diagrams**, the nodes of which are labelled according to the type of unit.

Sentences cannot be adequately described as strings of units of various sizes and types. It is necessary to also recognize the **grammatical relations** or **roles** borne by the component units. These are characterized in terms of both form (e.g. verbal agreement, case-marking affixes or adpositions) and meaning. Grammatical roles fall into three general types according to the type of meaning they express. **Experiential** roles express meanings concerning the construal the world of experience, and include **Actor**, **Undergoer** and **Event**. **Interpersonal** roles are concerned with meanings relating to the interactive dimension of language, including perspective taking. **Subject**, and perhaps also **Object**, is, according to some linguists, an interpersonal role. **Textural** roles are concerned with giving texture to syntactic units, with providing the glue that binds sentences together. **Theme** is a textural role.

4 Putting concepts together

Syntax

4.0 Overview

In the previous chapters on lexicology and morphology we analyzed links between concepts and morphemes. We will now tackle the question of how to put concepts together and express an event. (The notion of event is used here in its widest sense, as both an action or a state). We express events by means of a sentence. A sentence, in writing usually marked with a full stop or other punctuation marks and in speaking with certain intonation contours, is a complex construction consisting of the following components: an event schema, a sentence pattern and grounding elements.

When describing an event as a whole, we can pick out one, two or at the most, three main participants which we relate to each other in one way or another. Even though each event is unique in its own way, our language shows that we tend to group events according to a limited number of types, called “event schemas”.

Each of these general event types is matched to a typical sentence pattern with a particular kind of word order, which reflects the way the participants in an event are related to each other. There are other elements to help us “place” the event relative to ourselves and the time we are speaking. By means of certain grammatical morphemes, called grounding elements, we express when and where the event occurs or occurred, and — in the case of hypothetical events — whether an event may occur, may have occurred or will occur.

4.1 Introduction: Syntax and grammar

The Shorter Oxford English Dictionary (SOED) defines the **sentence** as “the grammatically complete expression of a single thought”. This definition reflects

traditional thinking about the interrelationship of language and thought. From a cognitive point of view, the sentence is also understood to combine conceptual and linguistic completeness. Conceptually, a sentence expresses a complete event as seen by a speaker. Linguistically, a typical sentence names at least one participant and the action or state it is involved in. By means of verb morphemes, it indicates how this action or state is related to the speaker's here and now in time and space.

To express such an event, a typical sentence consists of various interrelated meaningful units. The preceding chapters surveyed the main categories that form such building blocks of language: lexical items and grammatical morphemes. In a sentence, these units occur together in a systematic order. The field of study that is concerned with such systematic order is traditionally known as **syntax**. The term *syntax* derives from two Greek word forms: the prefix *syn* 'with' and the word *tassein* 'arrange'. Syntax "arranges together" the elements of a sentence by means of regular patterns.

Our ability to recognize these general sentence patterns in a language allows us to understand the thoughts expressed in sentences. We might even detect more than one pattern or more than one possible order of participants in the same string of words and then such a string has more than one meaning. For example, in writing, a sentence like (1a) can be interpreted in two different ways and paraphrased as in (1b) and (1c), respectively:

- (1) a. Entertaining students can be fun.
- b. Students who entertain (people) can be fun.
- c. It can be fun (for people) to entertain students.

In speaking, it might be clear which sense the phrase *entertaining students* conveys by means of differences in intonation and stress, but in writing such a sentence is ambiguous. This ambiguity can be explained as follows. Conceptually, a verb such as *entertain* has two participants: One participant who does the entertaining and one who is being entertained. In simple sentences like *They entertained the students* or *The students entertained them* the same pattern and the different word order clearly indicate who is doing the entertaining. The one before the verb, the **subject**, names the person doing the entertaining and the one after the verb, the **direct object**, the one being entertained.

However, in (1a), the expression *entertaining students* is not a complete sentence but a phrase in which we may recognize two distinct word orders, one in which *students* can be interpreted as subject and one in which *students* is

direct object. Paraphrase (1b) illustrates *students* with the subject function and (1c) with the object function.

Our knowledge of the linguistic categories of a language combined with our knowledge of the patterns in which they may occur is known as the **grammar** of a language (see Table 1). This wider understanding of the notion of grammar thus includes all the components of linguistic structure: lexicology, morphology, syntax as well as phonetics and phonology, discussed in the next chapter.

Table 1. Grammar and its components

Linguistic fields	Linguistic categories	Composition processes
lexicology	lexemes (<i>words</i>)	lexical extension patterns (e.g. <i>metaphor, metonymy</i>)
morphology	morphemes (e.g. <i>affixes</i>)	morphological processes (e.g. <i>compounding</i>)
syntax	grammatical categories (e.g. <i>word classes</i>)	grammatical patterns (e.g. <i>word order</i>)
phonetics/phonology	phonemes (e.g. <i>consonants</i> ; <i>vowels</i>)	phonemic patterns (e.g. <i>assimilation</i>)

In this chapter, we will limit ourselves to three main areas. First, in Section 4.2 we will look more closely at how we conceive of types of events in event schemas. In Section 4.3 we will look at sentence patterns with which event schemas are described. Section 4.4 will deal with the way we relate events to our own situation at the moment of speaking.

4.2 Event schemas and participant roles

When we describe an event, it is not necessary to name all the possible persons, things and minor details involved. Instead we “pick out” only those elements that are the most salient to us at that moment. The relationship between a whole event and the sentence we use to describe it is a way of filtering out all the minor elements and focusing on one, two or three participants only.

As our anthropocentric perspective of the world (see Chapter 1.2.1) would predict, the things that catch our eye most are quite often most like us. They are usually persons, animals or things with which we, as humans, would most often associate.

This is typically shown by the various construals we can use to describe the following situation. While the teacher is absent, two children in class have an enormous fight. Things get so tense that Kim takes a baseball bat, walks over to Bruce and tries to hit him. However, Kim misses and accidentally hits the window, which shatters. When the teacher comes in, this event may be described in many different ways, with different focus, and more or less detail:

- (2) a. Kim is the one who did it.
- b. The window broke.
- c. Kim broke the window.
- d. Kim felt very angry and tried to hit Bruce.
- e. Kim had a baseball bat in his hand.
- f. The baseball bat went through the window.
- g. Bruce had given Kim a nasty picture of himself.

Each of these sentences evokes the event, but each shows that the speaker has focused on different aspects of the event. These typical English sentences in (2) show how we consider events in a very schematic way, according to certain conceptual schemas.

A conceptual schema of an event, i.e. an **event schema**, combines a type of action or state with its most salient participants, which may have different “roles” in the action or state. These roles may range from very active ones in which an animate being performs an intentional action or a rather passive one where an entity is involved in a state or undergoes an action. For example, in an event schema such as “A hit B”, the action of hitting typically takes an **Agent**, a human instigator who performs the act, and a **Patient**, the participant undergoing the action.

As we will see below, there are different types of **event schemas**, involving participants with different **semantic roles**. Some events we describe involve participants such as an Agent who exert a great deal of energy. Others involve participants such as a Patient who undergo energy. Others do not involve any energy and are therefore called states. This flow of energy or its absence is typically expressed by different types of verbs.

Therefore, event schemas can be indicated by the most prototypical verbs that are used to ask questions about the events taking place. Interestingly enough, as Chapter 6 will show, these verbs are not only used in English, but their equivalents are present in all the languages of the world. These verbs are *be*, *happen*, *do*, *feel*, *see*, etc. and are consequently appropriate labels for the main event schema they specify, as shown in the list below:

1. “Being” schema: Who or what is some entity (like)?
2. “Happening” schema: What is happening?
3. “Doing” schema: What is someone doing? What does he or she do?
4. “Experiencing” schema: What does someone feel, see, etc.?
5. “Having” schema: What does an entity have?
6. “Moving” schema: Where is an entity moving?
Where does an entity move?
7. “Transferring” schema: To whom is an entity transferred?

Each of these schemas is discussed in more detail below and in Section 4.3 we will discuss the typical sentence patterns and word orders with which they are described.

4.2.1 The “being” schema

The main function of the “being” schema is to relate a characteristic or any other conceptual category to a given entity which does not really play a dominant role in the relationship. The role of the main participant is described as a **Patient**, whereby the role of Patient is defined as that role which is least involved in any type of relationship. The Patient in a “being” schema can be related with different ways of “being”: It can be linked to an identifying element (3a), to a category or class (3b), to a characteristic (3c), to a given place (3d), or to the notion of mere existence (3e):

- (3) a. This place on the map here is *the Sahara*. (Identifier)
- b. The Sahara is *a desert*. (Class membership)
- c. The Sahara is *dangerous (territory)*. (Attribution)
- d. This desert is *in Northern Africa*. (Location)
- e. *There is a desert (in Northern Africa)*. (Existential)

These semantic relations can be subsumed under the cover term *Essive* (from the Latin verb *esse* ‘to be’). An *Essive* is any role that is related to a patient via a “being” link. In (3a), the speaker identifies a given place on a map by using a proper name, *the Sahara*. A typical test applicable in any identifying construction is that one can turn the two definite noun phrases round without changing the meaning. Thus the difference between (3a) and a sentence like *The Sahara is this place on the map here* is only a question of which element the speaker wants to identify. Both can serve as Identifier. In (3b) we find an act of categorization, namely, that the Sahara is a member of the class or category “desert”. In (3c) the

speaker attributes a property to the Sahara. In (3d) the Patient *Sahara* is linked not to a property, but to an Essive location. Similarly, the existential use of *there is* or *there are* in (3e) is a peripheral member of this category of Essives. The category of Essives has in common that they all denote a state of being.

4.2.2 The “happening” schema

Whereas the “being” schema denotes a state, the “**happening**” schema emphasizes a process that is taking place and the participating entity involved in it. However, the participating entity itself need not really be actively involved in the process and is therefore also a Patient. There is a gradual increase in autonomy between the Patient and the process, as suggested by the following series of examples: The series begins with an atmospheric situation as Patient in (4a) and ranges from lifeless objects in (4b,c) to living and even human (4d,e) entities:

- (4) a. The weather is clearing up.
- b. The stone is rolling down.
- c. The kettle is boiling.
- d. The dog is whining.
- e. The boy is getting better.

In each of these processes, we find an entity which does not contribute to the energy developed in the ongoing process, but rather undergoes it and therefore this entity in the “happening” schema is a more prototypical Patient than the one in a “being” schema. Even the whining of the dog can be seen and explained as the result of some inherent stimulus-reflex energy which is stronger than the dog itself. But of course the dog is self-acting, and hence more autonomous than the water in the kettle (4c) or the rolling stone (4b), which cannot be stopped by a new stimulus, but only by some counterforce. Such instinctive energy of a dog whining is also stronger than the physical and/or psychological processes of becoming ill or getting better. Human beings may undergo these processes rather than control them. The Patient character of all the subjects in (4) thus emerges as an answer to the question “What is happening to an entity?”. Even the question “What is happening to the dog?” does not sound funny in the context of a whining dog or even the dog’s wild continued bout of barking without any noticeable explanation. But in a different context, the dog’s barking might rather belong to the next schema, and it is therefore a peripheral member of each of the two schemas.

4.2.3 The “doing” schema

In instances of the “happening” schema as in (4) it is usually not possible to ask “What is X doing?” or “What does X do?” Of course, in the case of animals like a barking dog we can say “What is the dog doing?” or “What did the dog do when you told him to shut up?”, and then we interpret the dog’s behaviour as somehow controllable. In a “**doing**” schema one entity is seen as the source of the energy that is developed, and consequently as instigating the action. We can see the dog’s barking as “doing something”, namely as a controllable action rather than as simply undergoing an instinctive process. This distinction also helps to explain why the “doing” schema is almost exclusively linked to human Agents, whereby an **Agent** is defined as the entity that deliberately instigates the action expressed by the verb. The main difference between the “happening” schema and the “doing” schema is in the role of an Agent as the source of the energy, that is, the wilful instigator of the action. The energy he or she generates can often be seen to flow to a Patient. These two extremes of the “doing” schema, i.e. energy produced in oneself (5a) or energy transmitted to some other object (5e) and all the variations in between are illustrated in (5).

- | | | |
|--------|---------------------------------|-----------------------|
| (5) a. | John got up early. | (No object possible) |
| b. | He painted all morning. | (Object not relevant) |
| c. | He painted the dining-room. | (Object affected) |
| d. | He also painted a picture. | (Object effected) |
| e. | Later he destroyed the picture. | (Object affected) |

In (5b) there is no Object, since the speaker focuses on the action itself and the time it takes. In (5c) the same verb *paint* is used with an Object that was already in existence and which is affected by the energy of the Subject. In (5d) the Subject produces a new entity, i.e. the picture he painted: This is the result or effect of his painting.

4.2.4 The “experiencing” schema

Most conceptual categorization is based on the experiences humans have in their environmental and cultural world. Experiences may be understood in the most general way, including bodily experiences, social and cultural experiences. But here, in the context of conceptual schemas, we use the term *experience* in a somewhat narrower technical sense; by “**experiencing**” schema we mean the mental processing of the contact with the world. This is expressed by mental

verbs such as *to see*, *to feel*, *to know*, *to think*, *to want* etc. Unlike the “doing” schema, which requires an Agent, the entity involved in an “experiencing” schema is neither passive like a Patient, nor active like an Agent, but it is the “registration centre” of these perceptions, emotions, thought processes and wants. This role is therefore called the **Experiencer**, the role of the entity that has a mental experience.

- (6) a. Little Bernice *sees* a snake.
b. He *knows* that it is a dangerous one.
c. Even so, he *wants* to pick it up.
d. He *thinks* that he can do so if he’s quick.
e. When he does, he *feels* a sharp pain.

The second participant of the sentences in this “experiencing” schema can either denote a concrete object like *snake* in (6a), or a second event schema as in (6b–d), which is expressed in a subclause with *that* or *to*-infinitive. All these types of second participants in the experiencing schema are Patients. The main difference with the Patient in a “doing” schema is that the Patient in an “experiencing” schema is not affected and cannot become the subject of a passive sentence (**A snake is seen by him*).

4.2.5 The “having” schema

The “having” schema subsumes several subtypes. In the most prototypical case, the “having” schema relates a human Possessor to the object possessed, but it may also relate an affected entity to its cause of affection, a whole to its parts, or one family member to another.

- (7) a. Doreen has a nice penthouse. (Material possession)
b. Maureen often has brilliant ideas. (Mental possession)
c. John has very bad flu. (Affected – affection)
d. This table has three legs. (Whole – part)
e. She has one sister. (Kinship relation)

In the prototypical realization of the “having” schema (7a), a (human) **Possessor** is linked with an object which is material, movable and transferable in that it can be passed into someone else’s possession. This type of the “having” schema is known as ownership. Less central are mental objects (7b), and quite peripheral on the continuum of the “having” schema are affections (7c), part-whole relations (7d) or kinship relations (7e).

Just as with an “experiencing” schema there is no real energy flow between the two participants as the first one does not wilfully act, but undergoes a state; therefore, the Possessor is very much like a Patient. In many languages the patient is even expressed as a direct object, i.e. something like “A very bad flu has John” instead of English (7c).

It might look as if the “being” schema and the “having” schema are somehow related, but in English *have* and *be* are quite different. Unlike the “being” schema, the “having” schema can be paraphrased by means of *with*: *The woman with a nice penthouse/The girls with brilliant ideas/The man with very bad flu/The table with three legs/The woman with one sister*. The fact that each of these is somewhat different again shows up when we paraphrase them either with *of* (the *three legs of the table*) or with the genitive *'s* in *John's flu, Doreen's penthouse, Maureen's brilliant ideas* and *the woman's sister*. Here English takes a very strong anthropocentric perspective: “Human” possessors can always be paraphrased with the *'s*-genitive, but a non-human relation such as a part-whole is usually rendered with an *of*-phrase.

4.2.6 The “moving” schema

The “**moving**” schema is a combination of either a “happening” schema or a “doing” schema with the places where the process or action starts (**Source**), where it passes by (**Path**), and where it goes to (**Goal**). These three places are synthesized in a “source-path-goal” schema. The “**source-path-goal**” schema can be understood in a literal, spatial sense as in (8a,b), in a temporal sense as in (8c,d) and in an abstract, metaphorical sense as in (8e,f).

- (8) a. The apple fell from the tree into the grass.
 “happening” schema + Source – Goal
- b. I climbed from my room up the ladder onto the roof.
 “doing” schema + Source – Path – Goal
- c. It went on from ten all night long till two.
 “happening” schema + Start – Duration – End
- d. The police searched the house from noon till midnight.
 “doing” schema + Start – End
- e. The weather changed from cloudy to bright in one hour.
 “happening” schema + Initial State – Resultant State
- f. She changed from an admirer into his adversary.
 “happening” schema + Initial State – Resultant State

As these examples show, a concrete event schema can very easily change into a more abstract one, with some elements changing quite radically.

Thus the notion of “path” in the concrete spatial sense (8b) changes into a “duration” concept in a temporal context (8c,d) and into two successive “states of being” in a process context (8e,f).

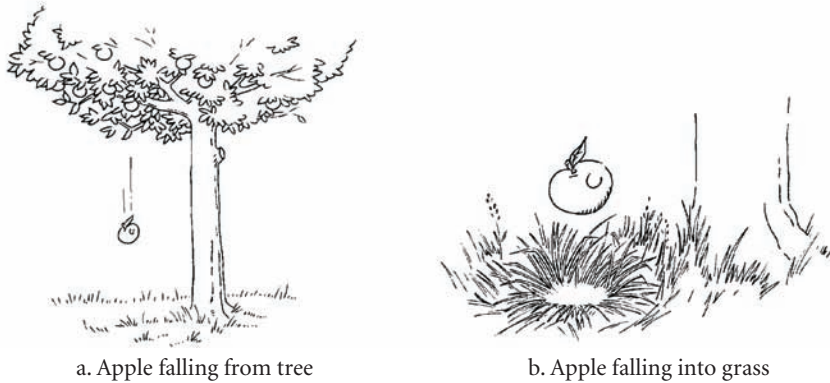


Figure 1. Equal salience of source and goal in the “moving” schema.

In combination with a “moving” schema, the elements of the “**source-path-goal**” schema — as shown in Figure 1 — are equally salient and can all occur independently as in *The apple fell from the tree* (source) or *It fell into the grass* (goal) or *It fell down the roof* (path) or in any combination of these. But a “doing schema” by nature involves human volition, and we tend to be far more interested in the goal of the action than in the source of the action, at least if this is a mere starting-point with *from*. Therefore, when human action is involved, goal is far more salient than such a starting-point. Thus it is strange to say **I climbed from my room*, but much more natural is *I climbed onto the roof* or *I climbed up the ladder*.

In temporal contexts we find a similar principle at play. Combined with a “happening” schema, the source, path or goal elements can occur with a slight difference in saliency as in *It went on from ten* (start) — which is somewhat less acceptable vs. *It went on till two* (end point). But with a “doing” schema involving a human action we would tend to include the end point rather than naming only the start. For example, *They searched from noon till midnight* or *They searched till midnight* sounds more natural than *They searched from noon*.

More generally, we may conclude that there is a strong hierarchy in the every-day experience of the “source-path-goal” schema: For human actions, the

goal is usually more important than the source and the source and goal are usually more important than the path. This principle has been called the “goal-over-source” principle. This applies to abstract changes too. For example, while pointing to the barometer, we could say *The weather has changed to bright*, or *The weather has got brighter* but not **The weather has changed from cloudy*.

4.2.7 The “transferring” schema

Like the “moving” schema, the “transferring” schema is a combination of different schemas: the “having” schema, the “happening” or “doing” schema, and the “moving” schema. The “transferring” schema implies two states. There is an initial state where one participant has something and passes it on to another participant. The resultant state indicates that the second participant has the thing passed on. These processes of transfer are illustrated in (9):

- (9) a. Janice gave Lynn a birthday cake.
 b. Janice gave a birthday cake to Lynn.
 c. Janice gave the door a coat of paint.
 d. *Janice gave a coat of paint to the door.

In both (9a and b), *Janice* has a *birthday cake*. She gives it to *Lynn* and the result is that *Lynn* now has the thing. Both sentence patterns in (9a,b) reflect the “transferring” schema, but there is a clear meaning difference between them. The pattern in (9a) without *to* expresses that the second participant becomes the real possessor of the third entity or she is the **Receiver**. In (9b) *Lynn* is not necessarily the new possessor; *Janice* may just have too much to carry or to do and may want *Lynn* to hold the cake for a little while. So *to Lynn* denotes a Goal, not necessarily a Receiver. In the case of abstract possession like (9c) we use the same type of construction and since the paint is to become part of the door, this cannot become a “temporary” possessor so that sentence (9d) is ungrammatical.

In summary, these types of event schemas are presented in Table 2.

Table 2. Configuration of “roles” in event schemas

	Participants		
	First	Second	Third
1. “Being” schema	Patient	Essive	
2. “Happening” schema	Patient	(Patient)	
3. “Doing” schema	Agent	(Patient)	
4. “Experiencing” schema	Experiencer	Patient	
5. “Having” schema	Possessor	Patient	
6. “Moving” schema	(Agent)	Patient	Goal
7. “Transferring” schema	Agent	Receiver	Patient

4.3 Hierarchical and linear structure of the sentence

As has been said before, the word order in the sentence reflects the way in which participants are related to each other. Word order constitutes the **linear structure** of the sentence. But this is only one aspect of the complex structure of the sentence. The other aspect is the **hierarchical structure** governing within a sentence. This means that some parts or constituents of the sentence belong together more than others. Thus verb (V) and object (O) belong together, forming the **verb phrase**, and are in contrast with the subject (S). Now we will look into more complex aspects of all the hierarchical levels within a sentence.

4.3.1 Hierarchical structure of the sentence constituents

The tremendous achievement of language is to map the levels of thought onto the linear order of spoken or written language. Before resuming the question of how the event schemas presented above are mapped onto language structure, it is necessary to first look into the way linearization takes shape. The way people conceive of events may already be language-specific to some extent — as we will see in Chapter 6 — but the order in which constituents of a sentence are linearized may take radically different forms in the languages of the world. Even in closely related languages such as English, French and German we find major differences with respect to linearization. Compare:

- (10) a. He has given them to his sister.
 b. *Il les a donnés à sa soeur.*
 c. *Er hat sie seiner Schwester gegeben.*

Theoretically, there are eight slots available into which the constituents of a sentence may be put, and each of the three languages makes different use of the slots, as represented in Table 3.

In these languages, the most volatile constituent to be placed in the linear structure of the sentence is the direct object (O) in pronoun-form. The most fixed constituent in the linear structure is, apart from the subject, the auxiliary. In English and French, the participle cannot be split from its auxiliary by a (pronoun) object, while German has a two-pronged construction for the auxiliary and the participle. The slot between them can actually contain any number of constituents as in (11).

- (11) *Gestern hat er Jane nach einem heftigen Streit, ohne auch nur ein einziges Wort zu sagen, alle ihre Briefe zurückgegeben.*

Yesterday he has Jane after a heavy fight, without a word to say, all her letters, back-given.

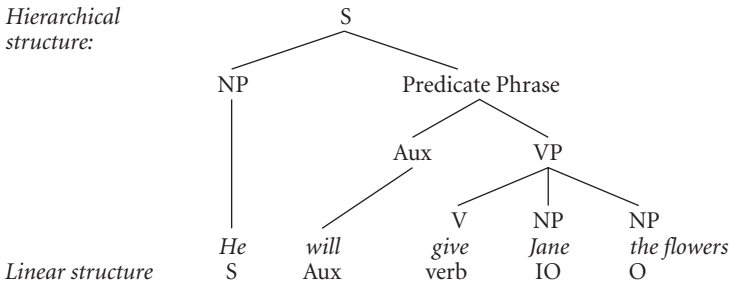
‘Yesterday, after a heavy fight, he gave Jane all her letters back without saying a word.’

However, there is far more to language structure than the filling in of slots. Once a speaker of German has heard the auxiliary *hat* ‘has’ in the sentence above, his grammatical knowledge of the “two-pronged rule” tells him that somewhere there must be a verb in the form of a participle such as *gegeben* ‘given’ with which the auxiliary forms a composite unit.

Table 3. The various slots in the structure of a sentence

	Subject	Pronoun	Auxiliary	Pronoun IO	Participle	Pronoun	Complement
English	<i>He</i>		<i>has</i>		<i>given</i>	<i>them</i>	<i>to Jane</i>
French	<i>Il</i>	<i>les</i>	<i>a</i>		<i>donnés</i>		<i>à Jane</i>
German	<i>Er</i>		<i>hat</i>	<i>sie</i>	<i>Jane</i>	<i>gegeben</i>	

More generally, as was also shown for the two senses of the sentence in (1) *Entertaining students can be fun*, in processing a sentence the hearer has to extract the compositional structure of a sentence. Sentences are composed in a hierarchical way, and there are different grammatical levels at which lower constituents are composed into higher constituents. The combined linear and

Table 4. Tree diagram of a sentence

(S = sentence, NP = noun phrase, VP = verb phrase, S = subject, Aux = auxiliary, IO = indirect object, O = direct object)

compositional structure of the sentence *He will give Jane the flowers* might be represented by means of a tree diagram as in Table 4.

The diagram reflects a three-level hierarchical structure of this sentence; at the lowest level, the verb phrase (VP) unites the verb *give* with the NP *Jane* and the NP *the flowers*; at the next higher level, the **predicate phrase** unites the verb phrase with the AUX(iliary) elements, and at the highest level of the sentence, the predicate phrase and the subject NP are united. This hierarchical structure of the sentence, as represented in Table 4, makes two things clear: (1) that the pronouns (*them, les, sie*) in Table 3 can be put into various slots between the major constituents: Subject–Auxiliary–Verb Phrase; and (2) that Aux is an independent constituent, which in English expresses the difference between a statement and a question. Compare: *she will come/will she come?* Or *she comes/does she come?* The linear structure in Table 4, i.e. S–AUX–V–IO–O represents just one of the various sentence patterns available.

4.3.2 Linear sequence in the sentence: Sentence patterns

The grammar of English, as well as any other natural language, only provides a limited set of basic sentence patterns. **Sentence patterns** are the structural frames of the basic types of sentence in a language, i.e., the grammatical structure of simple sentences which consists of obligatory elements only. English has six main types of sentence pattern, which are listed in Table 5. They are characterized by different combinations of five basic functional constituents, i.e., subject, verb, direct object, indirect object and complement. All sentence patterns have a subject and a verb. The **subject** is the constituent, with which the verb agrees and about which something is said or predicated in the

predicate phrase. Or in reverse, the **predicate phrase** can be defined as all that is said or predicated of the subject of the sentence. The **direct object** is the second most important noun phrase and, by a somewhat circular definition, occurs in transitive sentences. The **indirect object** is the third most important constituent and occurs in ditransitive sentences. **Complements** are essential constituents of the structure of a sentence other than the subject and the direct or indirect object. This term is also used to characterize verb-like structures after a verb such as a *to*-infinitive in *He is trying to cross the street* or *He sees that he can cross the street now*.

Table 5. Basic sentence patterns of English

a.	Doreen	is	such a nice person.		<i>copulative pattern</i>
	S	V-cop	C		
b.	Doreen	smiled.			<i>intransitive pattern</i>
	S	V			
c.	Doreen	invited	all of us.		<i>transitive pattern</i>
	S	V	O		
d.	We	gave	Doreen	roses.	<i>ditransitive pattern</i>
	S	V	IO	O	
e.	The flat	belongs	to her mother		<i>complement pattern</i>
	S	V	C		
f.	We	took	the bus	back home.	<i>transitive complement pattern</i>
	S	V	O	C	

S = subject, V = verb, V-cop = copulative verb, O = direct object, IO = indirect object, and C = complement

- The **copulative pattern** stands out from the other patterns in that its copulative verb, *to be*, merely serves to “link” a complement to a subject.
- The **intransitive pattern** consists only of a subject and a verb.
- The **transitive pattern** requires a direct object, which may become the subject of a passive sentence as in *All of us were invited*.
- The **ditransitive pattern** is characterized by two objects. In English, both the direct object and the indirect object may become the subject of a passive sentence: *A bunch of roses was given to Doreen* and *Doreen was given a bunch of roses*.
- The **complement pattern** usually takes a prepositional phrase as its obligatory complement. In English, complements may also become the subject of a passive sentence as in *She was laughed at*.

- f. The **transitive-complement pattern** fuses the transitive pattern and the complement pattern. It often provides a structural alternative to the ditransitive pattern. Thus, the sentence *We gave Doreen roses* with a ditransitive pattern may also be phrased as a transitive-complement pattern *We gave roses to Doreen*.

Each of the sentence patterns is associated with an abstract meaning of its own. When we want to describe a certain event, we will use the pattern whose meaning most appropriately fits our idea of the event. For example, if we want to express the idea that we intend to go somewhere, we are most likely to select the complement pattern as in (12a); if, however, we understand this to be a special mountaineering feat, the transitive pattern as in (12b) is better suited:

- (12) a. Tomorrow, I will be climbing on Mount Snowdon.
(*complement pattern*)
b. Tomorrow, I will be climbing Mount Snowdon.
(*transitive pattern*)

The sentence patterns of a language may be said to form the mould for the basic event schemas. The number of conceivable individual events is, of course, enormous, but in communicating an event, we are forced to express it in one of the six available sentence patterns. There is, however, a systematic link between certain event schemas and certain sentence patterns. The Essive role can only occur in a copulative pattern (*She is my best friend*) or in a transitive pattern (*I consider her my best friend*). The happening schema and the doing schema can occur both in a transitive pattern or in an intransitive pattern. This depends on the question whether the energy flow is directed towards another entity or not. In the first case the transitive pattern is used (*The tennis racket hit the window* or *The man painted the door*). Here, the window and the door are objects towards which energy is directed. In the second case the intransitive pattern is used (*The dog is whining* or *The boy is walking*). Here, there is no particular object toward which the energy generated by the dog or the boy is directed. The experiencing schema and the having schema as a rule require two entities: a Processor or a Possessor and the entity that is experienced or possessed. Consequently the transitive pattern is required here in most cases (*He felt a sharp pain* or *She has a nice penthouse*). The moving schema and the transferring schema may require the Source, Path or Goal to be expressed, which is done by the complement pattern (*I climbed onto the roof*) or by the transitive complement pattern (*We sent a bunch of flowers to her*). If, as a result of an object's motion, the object

comes into possession of a human, the ditransitive pattern is used. (*We gave her a bunch of roses; He gave the door a new coat of paint*). The instances presented here constitute the regular cases in the matching of event schemas and sentence patterns. There are hundreds of special cases, which, however, we will not go into here.

4.4 The grounding elements of a sentence

In the previous sections we saw that different types of events may be described by means of a few basic sentence patterns. But when we describe events it is — according to the specific culture we live in — also very important to know where the participants are located and when the event took place. Relating an event to the speaker’s experience of the world is technically called **grounding**. The participants of an event and the event as a whole need to be anchored, or grounded in order to ensure successful communication. Usually we take the person speaking as the reference point in space and the moment the person is speaking as the reference point in time (see Ch. 1.2.1).

For example, words like *this* and *these* point to things close to the speaker, and *that* and *those* to those further removed. Other ways in which we can make things accessible to a hearer is by using proper names, the personal pronouns (*I, you, we*), or definite noun phrases to refer to the things spoken about as in *Mum is talking to me on the phone*. This process of pointing to things in the world by means of language is known as **reference** and will be discussed more fully in Chapter 8.

Not only do people need to “ground” things, but they also need to indicate different factors concerning the events they talk about. For one thing, they need to indicate whether their utterance is a statement, a question, or an order. Secondly, they need to indicate whether they understand their statement to be a reflection of the real world or not. They also indicate the time that the event occurs, how this event might relate to others, and whether the event is seen as ongoing or not. Most of these factors can be expressed with grammatical morphemes, also called grounding elements.

We will now look at these grounding elements that relate an event to the speaker’s experience of reality. We may think of them as layers enveloping an event. We will consider the overall picture starting from the outer layer, going gradually to the centre, i.e. the event itself (see Figure 2 at the end of this section on p.96).

4.4.1 Communicative function: Mood

First of all, a sentence contains a **communicative function**. The speaker performing a **speech act** utters a sentence to realize his or her communicative intention. He or she wants to assert something, obtain some information or persuade someone else to do something as illustrated in (13).

- (13) a. Dylan is riding his motorbike to school today.
b. Is Dylan riding his motorbike to school?
c. Turn that engine off! (will you?)

Even though the three sentences in (13) are basically about the same event, they have different **moods**, which express different communicative intentions: A statement of fact in (13a), an information question in (13b), and an order in (13c). Very often these different moods are signalled by means of differences in the word order, especially the word order of the subject and the auxiliary.

The normal, most common word order is that of affirmative sentences, i.e. S-V-O as in (13a), used to express statements of facts. This is called the **declarative mood**. An information question is usually expressed in the **interrogative**; in interrogative sentences, subject and auxiliary change places (13b). To express an order, the **imperative mood** can be used. In such a sentence, the subject and auxiliary verb are not expressed, but may be added as a tag at the end of the sentence (13c).

As will be shown in Chapter 7.5, these are the prototypical word order patterns for these functions, but this correspondence between sentence mood and communicative function is not absolute, and many other combinations may occur in actual language use.

4.4.2 Speaker's attitude: Modality

The next layer represents the speaker's attitude about the event described. As speakers, we either commit ourselves to the truth of what we say or we regard the events as potential ones. One of the grammatical means by which we can express a speaker's attitude towards the status of an event is **modality**.

Normally, people talk about events that have actually taken place or are taking place. Such cases are not specially marked and are commonly known as the **default** case, i.e. the case that most generally pertains and need not be specially marked. It is also called the **unmarked** case. But, a speaker may also want to talk about an event which carries an air of uncertainty. For example, a

speaker may indicate that something may have happened in the past, or that something may or should happen in the future, or that perhaps something is happening at the moment of speaking, which he or she cannot be sure about. What such events have in common is that they are potential events.

To mark such potential events, English — as well as other languages — has a range of **modal auxiliaries**, e.g. *will*, *would*, *may*, *might*, *shall*, *should*, *can*, *could*, and *must*, each one showing a slightly different attitude towards a potential event as in (14a,b) or a possible situation taking place at the moment of speaking as in (14c,d).

- | | | |
|---------|------------------------------------|------------------------|
| (14) a. | Chris, you may go now. | (<i>permission</i>) |
| b. | Chris, you must go now. | (<i>obligation</i>) |
| c. | Chris may be at the car dealer's. | (<i>possibility</i>) |
| d. | Chris must be at the car dealer's. | (<i>inference</i>) |

As the examples show, modal auxiliaries such as *may* or *must* can express two different kinds of attitude. The speaker shows what he wants to happen in (14a) and (14b). In the case of *may* the “wanting” is weaker than in the case of *must*. In (14c) and (14d) the speaker expresses a degree of certainty about the potential occurrence of an event, and again in the case of *may* the degree of certainty is much weaker than in the case of *must*. The modality indicating volition towards an event is called **deontic modality** (14a,b) and modality indicating judgement is called **epistemic modality** (14c,d).

4.4.3 Speech act time: Tense

Tense is the grammatical category reflecting concepts of time. It relates an event in time with respect to the moment of speaking, called **speech act time**. Speech act time is the most obvious point in time to choose because it is evident to both speaker and hearer. Events may take place at speech act time itself, before it in the past, or possibly after it in the future. In general, present and past events are understood to have reality status, while (most) future events have only the status of potential reality. This distinction is reflected in the tense system of many languages, including English, which have two tenses, **present tense** and **past tense**, which are directly marked on a verb, for example, *go/goes* versus *went*. To indicate future time, English uses modal auxiliaries or other helping verbs that indicate potentiality.

- (15) a. Helen *goes* to work by bike. (present tense)
b. Helen *went* to work by bike. (past tense)
c. Helen *will/is going* to drive to work tomorrow. (future time)

4.4.4 Relating events to each other: Perfective aspect

The next grounding element represents how the speaker relates an event to what is happening at speech act time or at another specified time. The relationship whereby one event is situated before another event or before speech act time is expressed by the **perfective aspect**. For example, the event of “buying a new car” can be expressed as in (16a) or (16b).

- (16) a. Chris bought a new car.
b. Chris has bought a new car.
c. Chris had just bought a new car, when he had an accident.
d. By the time he passes his driving test, Chris will have bought a new car.

The difference in meaning between these sentences lies in how the speaker regards the events. In (16a) the past tense expresses the event as finished and completed with no real connection to the moment of speaking. The focus is more on the past act of buying. In (16b) the speaker emphasizes what the event means to the moment of speaking: “I have a car now”. The perfective aspect can also highlight a relevant connection between two past events as in (16c) or two future events as in (16d). In such cases the perfective aspect is used to express the notion of “anteriority”: In (16c) the buying of the new car takes place before the accident; in (16d) the buying of the car will take place before taking the driving test.

4.4.5 Internal phases in an event: Progressive aspect

By means of the progressive aspect the speaker describes the internal phases in events; by means of the non-progressive he takes an external perspective. With the progressive aspect, which consists of *be V+ing*, the speaker construes the event as ongoing. The non-progressive form is the unmarked, default case. The **progressive aspect** focuses on the ongoing progression of an event, the non-progressive aspect views the event as a whole as illustrated in the examples of (17):

- (17) a. Mum is talking on the phone now.
b. Mum answers the phone now.

In using the progressive aspect in (17a), the speaker mentally zooms onto the event as it progresses and, as a result, does not have the beginning and end of the action in his scope of vision. Although people's talking does not go on indefinitely, the speaker ignores the event's boundaries and perceives it as if it were unbounded. In using the non-progressive aspect in (17b), on the other hand, the speaker takes an external perspective of "the mother's answering the phone" and views it as a whole. Now the event's boundaries at the beginning and at the end are in view. Sentence (17b) would only be used in a holistic context such as a movie picture or stage directions or for habitual or repetitive action, but not for the description of an event taking place at speech act time.

4.4.6 Synthesis: Grounding of events

We have looked at the grounding elements that relate an event to the speaker's experience of reality. Events as a whole involve different layers of grounding. We may think of the sentence as an onion-like configuration with the event at its core and the various grounding elements as its leaves layering and enveloping the others as represented in Figure 2.

The grounding elements of a sentence include mood, modality, tense, perfective aspect and progressive aspect. The outermost layer of the sentence represents the level of the speech act, the communicative function for which a sentence is used. In the structure of the sentence, it is realized as sentence *mood*. The next layer represents the speaker's attitude about the event described: The speaker either commits himself to the truth of what he says — this *default* situation is not marked in English —, or he regards the event as a potential one and expresses this by using forms of *modality*. The next layer pertains to the moment when the speech act is uttered: This speech act time determines the use of *tense*. The next layer represents the time at which the event described is situated in relation to speech act time or to other events: This relationship is expressed by the *perfective* aspect. The innermost layer concerns the internal progression of the event, which is expressed by the *progressive* aspect. To summarize, it can be stated that the layers are ordered around the event according to the principle of distance or proximity (see Chapter 1.2.2), i.e. according to how distantly or how closely the layers are conceptually related to the event.

All these sentential elements are shown in Figure 2, which may be called "the sentence onion", aptly suggesting the image of a hard core (the event) and the many "grounding" layers around it.

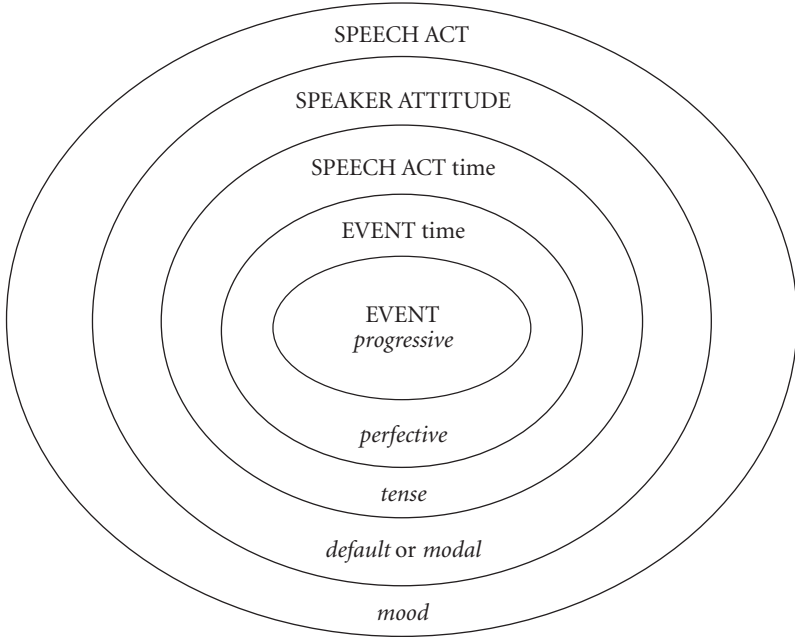


Figure 2. The sentence onion

4.5 Summary

Syntax is concerned with the **sentence** as the unit of language, combining our description of events with our communicative intentions, and ‘**grounding**’ all this into the reality of our here and now. This composite whole is put together in the **linear structure** or the word order of the sentence.

The events to be described are reduced to a small set of types of event and expressed, together with the participants in the event, as **event schemas**. These event schemas are based on the **semantic role** of the participants and the presence or absence of an energy flow from one participant to the other. The typical energy flow goes from an **Agent** or wilfully acting participant to a **Patient**, who receives the energy. This energy flow is typically found in the **doing schema**, the **moving schema** and the **transferring schema**. Although the **happening schema** may involve some energy flow, there is usually no autonomous instigator. The complete absence of energy marks a state, which may be described as a **being schema**, a **having schema**, or an **experiencing schema**. Semantic roles can be found as follows: In a being schema, an Essive role is linked to a **Patient**, in a having schema a Patient is linked to a **Possessor**, and in

an experiencing schema a Patient is linked to a (human) **Experiencer**. A transferring schema combines an Agent, a **Receiver** and a Patient. A moving schema combines a happening or doing schema with a **Source**, **Path**, and/or **Goal**. In the **Source-Path-Goal** schema we often find the **Goal-over-Source** principle.

These conceptual event schemas and their participants are “linguistically framed” into the linear and **hierarchical structure** of a sentence. The centre of this unit is the predicate or verb, which together with a (direct) object or complement forms the **verb phrase**. This is the lower level, which combines with the **Aux(iliary)** elements to form the **predicate phrase**, and this second level combines with the subject to form the sentence. Based on this hierarchical structure, English and many other languages, give rise to a small set of **sentence patterns**, which, in various combinations, combine a **subject** via the verb, with a **direct object**, an **indirect object** or a **complement**. These five constituents and the type of verb lead to the main **sentence patterns**: The **copulative** pattern with the verb *be* and a subject plus complement, the **intransitive** pattern with a subject only, the **transitive** pattern with a subject and direct object, the **ditransitive** pattern with a subject and two objects (a direct and an indirect one), the **complement** pattern with a subject and a (prepositional) complement and the **transitive complement** pattern with a subject, direct object and complement. These syntactic slots take into account all the possible participants at the conceptual level of the event schemas.

Events are grounded. The grounding of all these elements is also centered around the verb — or if there is one — the auxiliary. These help to constitute the three **moods**, i.e. **declarative**, **interrogative**, and **imperative** moods, which reflect the **communicative functions** of asserting, questioning, requesting and ordering. In the **unmarked** or **default** case, the speaker assesses the truth of the event he evokes, but in the **marked** case he or she only sees the event as potential and expresses this by means of **modality**. With a **modal auxiliary** like *may* or *must*, the speaker may express **deontic modality** (to indicate what he/she wants to happen) or **epistemic modality** (to indicate how certain he/she is about an event).

The ultimate point of reference is the speaker’s own position in time and space at the time the **speech act** takes place, known as **speech act time**. By the choice of **tense**, which may be **present** or **past**, a speaker relates the time of the events as simultaneous with speech act time or anterior to it. If a speaker wants to locate events in relation to other events he or she chooses the **perfective aspect**, if a speaker wants to focus on the internal progression of an event he or

she chooses the **progressive aspect**. All these grounding elements are layered around the event schema like the layers of an onion around its core according to the principle of conceptual distance or proximity, and together form the sentence (onion).

4.6 Further reading

The introduction to (English) grammar closest to this presentation and developing its elements in further detail is Radden and Dirven (2005). Other introductions to syntax, from a cognitive-functional viewpoint are Givón (1993) and Haiman ed. (1985). The theoretical foundation of the present approach is offered by Langacker (1987, 1991a, 1991b, 1999). A detailed analysis of one particular event schema and the predicate “give” is Newman (1996). An analysis of grammatical morphemes such as the Dative or the Instrumental is Janda (1993). A construction approach to ditransitives is Goldberg (1995, 2002). The Goal-over-Source principle has been described by Ikegami (1987). A thorough and many-faceted analysis of ‘grounding’ is offered in Brisard, ed. (2002). An overall semantic approach to grammar is Wierzbicka (1988).

WEEK NINE

- introduce the study of lexical semantics through discussion of the main semantic relations between words;
- convey some feeling for the considerable differences in lexical semantics among different languages;
- demonstrate one way of specifying lexical semantics;
- introduce four key pragmatic concepts: speech acts, reference, presuppositions and the cooperative principle; and
- reveal the role of context in utterance meaning.

Key terms

componential analysis	homophony	presupposition
compositionality	illocutionary force	reference
connotation	intension	semantics
contextual meaning	literal meaning	sense
cooperative principle	metaphor	speech act
deictic expressions	non-literal meaning	synonymy
felicity conditions	performatives	vagueness
figurative meaning	polysemy	
Gricean maxims	pragmatics	

6.1 What is meaning?

The notion of meaning in linguistics concerns that which is expressed by sentences, utterances and their components. Meaning is the content conveyed in communication by language, the message or thought in the mind of a speaker that is encoded in language and sent to a hearer who decodes it (recall the speech chain model, §2.1). This is admittedly an imprecise and simplistic characterization. But rather than attempt to give a precise definition of meaning, it seems preferable to proceed indirectly, and draw some distinctions that will hopefully clarify the concept.

Reference and sense

In saying *My computer crashed* I am talking about something that happened to an object in the

real world, an object that sits on my desk. The NP *my computer* **refers** to this material artefact, and the relationship between the NP and this object is called **reference**. Reference is more general than this; however, and covers the relationship between an NP and imaginary and intangible 'things' existing in possible worlds of human imagination. Thus we speak of reference in relation to *my dream*, *Archimedes* and *Sherlock Holmes*.

Reference is a different thing to the 'meaning' or 'concept' component of the Saussurean sign (see Figure 1.1). On the one hand, words like *hello*, *eh*, *in* and *and* can't be used to refer to anything at all, although they are certainly not meaningless. Signs always have some component of meaning, although some are never used in reference. On the other hand, *the Morning Star* and *the Evening Star* both refer to the same material object, Venus (observed in different circumstances), though the NPs surely have different meanings. The term **sense** is sometimes used for this type of meaning.

The sense of a linguistic sign derives in part from its relations to other signs in the language. The sense of the lexeme *hand* is defined in part by the existence of the lexeme *arm*. But Indonesian and Savosavo (Papuan, Solomon Islands) have a single term corresponding to both of the English words *hand* and *arm*. On the other hand, Jahai (Austro-Asiatic, Malaysian peninsular) has three terms, *bling* 'upper arm', *prbér* 'lower arm' and *cjas* 'hand'. The sense of each of the terms in Indonesian, Savosavo and Jahai is different from that of the English terms. The same point can be made for grammatical categories. As Saussure observed, whereas French has a singular vs. plural contrast for nouns, Sanskrit had a three-way contrast between singular, dual and plural. The sense of the plural is different in French and Sanskrit. This aspect of sense – the part derived from the contrasts with other members of the language system – is what Saussure called **value**.

But there is more to sense than just value. For most signs the 'meaning' aspect can also be understood in terms of defining properties that must be satisfied in any application of a linguistic item. Technically, this is referred to as the **intension** of the sign. For instance, the intension of *sheep* will include properties such as 'animal', 'mammal', 'feeds by grazing', 'ruminant', 'has hooves', 'quadruped' and so on.

Not all linguists agree that intensional definitions are necessary or useful. Nevertheless, few linguists would be happy with value alone, that it is just paradigmatic contrasts with other lexical items that define the sense of a lexical item. Thus it has been suggested by some scholars that value should be augmented by something other than defining properties. According to prototype theory, meanings are identified by characteristic instances of the categories of objects, events or whatever, denoted by a word. Thus we usually think of carrots and potatoes as having more of the central characteristics of vegetables than say eggplants, Brussels sprouts and cabbages. A carrot or potato would be the prototype, or a prototypical instance, of a vegetable; eggplants would be peripheral instances. According to this theory, the meaning of *vegetable* will be specified (at least to a large extent) by its prototypes: carrots and potatoes, and other things that share some of their characteristics, that are more or less like them.

Sense and connotations

Words often have **connotations**, unstable meaning associations such as emotional overtones (see §4.5). Unlike the sense of a word, which is an essential part of it, connotations are not always present. Connotations can differ according to a person's attitudes. For example, the word *mathematical* might have quite different connotations depending on a speaker's experience with the subject at school; *that's a very mathematical way of looking at it* could express either a positive or a negative evaluation. Connotations also differ according to the linguistic or speech context. For example, if I used the term *mathematical* of someone's approach to life or social relations a negative evaluation would probably be attached; but it could express a positive rating in a description of a piece of baroque music or of Esher's art.

Connotations can be important in language acquisition and change; over time a connotation can become so firmly attached to a sign that it becomes a part of its sense, in the process perhaps replacing aspects of the earlier sense. For instance, for many speakers of English the word *dork* has just the sense 'stupid or contemptible person', with an implicit negative appraisal. The word first appeared as a slang term for 'penis'; the attitudinal component was a connotation that came to stick, ousting the original meaning.

Literal and figurative meaning

We do not always use an expression in its **literal** sense, the meaning actually encoded by its component lexical and grammatical signs. Clear illustration is provided by idioms (§4.4) such as *He kicked the bucket*, which can mean either 'he hit the bucket with his foot' or 'he died'. The first interpretation is the literal meaning, the second, a **non-literal** or **figurative** meaning. The figurative meaning can be considered to be an extension of the literal meaning (see §4.3). Traditional rhetoric distinguishes a number of different processes of meaning extension; three kinds most relevant to linguistics are:

Metaphor – in which the sense of an expression is extended to another concept on the basis of a resemblance. For instance, in *Belgian drivers are cowboys* the noun *cowboy* is not used in its literal sense 'person who tends cattle', but rather invokes the notion 'person who behaves like a cowboy'; it is left up to the hearer to figure out the basis on which the comparison is made.

Metonymy – here the sense is extended to another concept via a typical or habitual association. The literal sense of *university* is 'educational institution'; in *I'll go to the university tomorrow* the word is used in the sense of 'building in which the educational institution is housed'. In *He's fond of the bottle*, *the bottle* is used metonymically to refer to the alcoholic beverage typically contained in bottles. Governments are commonly referred to by their location, as in *London, Washington, Paris, the Kremlin*.

Synecdoche – where the sense is extended via a part-whole relation. For instance, the term *wheels* is often used to refer to one's car. And in the speech of hospital staff, patients are sometimes referred to by their problematic body part. Thus *the kidney* acquires the sense 'person suffering from some kidney complaint'.

It can be difficult to draw a line between literal and figurative senses, and some linguists reject

the distinction. Cognitive Linguistics, associated with George Lakoff, Ronald Langacker, Eve Sweetser and others, takes this view. According to this approach, metaphor plays a central role in language and thought, and is pervasive in ordinary language. Metaphor is not seen as figurative use of language, but rather as a cognitive strategy allowing people to understand one experiential domain (the 'target domain') in terms of another (the 'source domain'). Thus many domains of experience are understood in terms of space, and are expressed linguistically via spatial relations. In some languages, for example Russian, the target domain of possession is understood in terms of the source domain of space; 'I have a cat' is expressed as 'at me (is) (a) cat'.

Sentence and utterance meaning

Consider the simple sentence *The car broke down yesterday*. This describes a situation, the failure of a car. You can easily picture the event and invoke a conceptualization of it in your mind.

How do we get this meaning? According to the (admittedly fragmentary) grammar developed in the previous chapters, the sentence is made up of signs, including morphemes, words, phrases and grammatical relations. These signs all have meanings, concepts associated with their forms. Supposing we know all of these meanings, we could expect that putting them together will give a good indication of the meaning of the whole sentence. We get a good way towards this goal by putting the meaning of *the car* together with the meaning of the grammatical role Actor (see §5.4), the meaning of *break down* with that of Event, and of *yesterday* with the meaning of the grammatical role it serves, let's say Temporal Location. We also need to bring into the picture the meaning of the inflected past tense form *broke* of the lexical root *break*. This gives the meaning of the sentence in the abstract, that is, as an expression in the English language.

Our sentence can be uttered in many different circumstances. Let's consider just two.

(6-1) Carol: *What's been happening while I've been away?*

Barry: *The car broke down yesterday.*

(6-2) Carol: *Do you feel like going out tonight?*

Barry: *The car broke down yesterday.*

The literal meaning of the sentence remains constant: the same conceptual event is construed. But, depending on context, different meanings are conveyed by uttering the sentence; the meanings of the **utterances** differ. Example (6-1) could be from a conversation between friends who have not seen one another for some time due to Carol's absence abroad. Barry is making a plain statement of fact, giving a direct answer to Carol's question. Example (6-2) might also occur in a conversation between friends, but here what Carol says could be an invitation to Barry to go out with her. Barry's response could constitute a refusal. It might alternatively express willingness, simultaneously requesting that Carol pick him up. The **sentence meaning** is invariant, though the **utterance meaning** changes.

The investigation of sentence meaning – and the meanings of the various signs making up sentences – is called **semantics**. Semantics deals with the meaning of expressions taken in isolation, with the meaning they have within the system of the language.

The study of utterance meaning is called **pragmatics**. Pragmatics deals with the specific meaning of actual instances of language use, that is, with the meaning conveyed by a linguistic expression in a particular context of speech. It is concerned with the uses made of signs belonging to the language system in interactions among human beings. There is a system to these uses – they are not arbitrary, but follow regular patterns, though patterns that do not belong to grammar or lexicon as such. Pragmatics is about meaning in relation to speakers and hearers in context, and thus belongs to the system of speech (to be interpreted generally to include writing and signing) rather than of language.

The distinction between sentence and utterance can be understood in terms of the logical notions of **type** and **token**, where a type is a general category, and a token is a specific instance of the category. Thus in *boys will be boys* there are four word tokens, but just three types: one type, *boys*, occurs in two tokens. A sentence is a linguistic type; an utterance is a token. Semantics is concerned with the meaning of linguistic types, pragmatics with token meaning.

Overview of types of meaning in language

Figure 6.1 puts the distinctions made in the previous sections together in a single diagram to show the sorts of meaning that are linguistically relevant.

This all may seem quite cut and dried. But, as usual in linguistics, things turn out to be somewhat fuzzy in reality. It is not always obvious where the line between pragmatics and semantics falls, and linguists disagree about the location of the border. Some linguists such as Charles Fillmore, Michael Halliday, Ronald Langacker and Peter Matthews are dubious about, or even reject, the division of labour into semantics and pragmatics. However, aside from the fact that it seems conceptually useful to make the distinction, there are clear-cut cases as in (6-1) and (6-2). The line we take in this book is that the two types of meaning are in principle (though not necessarily in practice) distinguishable. Nor are they unrelated; indeed, semantics and pragmatics go hand in hand, to the extent that neither can be investigated in the absence of the other. They also go together in language change and acquisition.

6.2 Semantics

The bulk of this section discusses the semantics of lexical items, which you will recall from §4.1 are those things that need to be listed separately in the lexicon of a language. These are of course signs, and our focus is on their senses. Three key issues in lexical semantics concern: (a) pinning down and identifying the meanings of lexical items; (b) the relationships amongst the meanings of lexical items in a language; and (c) the specification of the meanings of items. These concerns

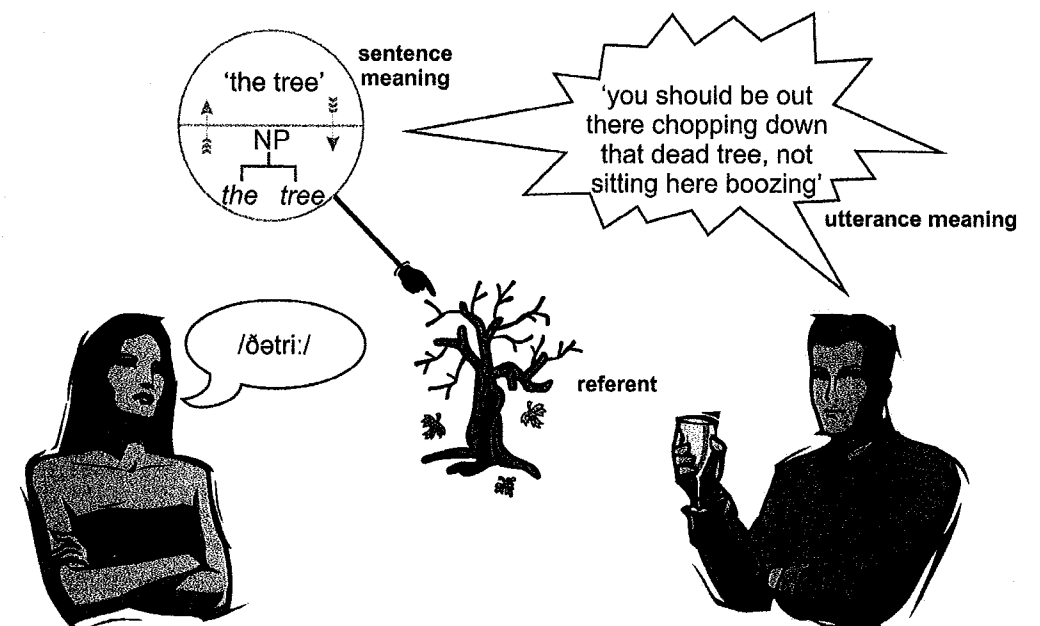
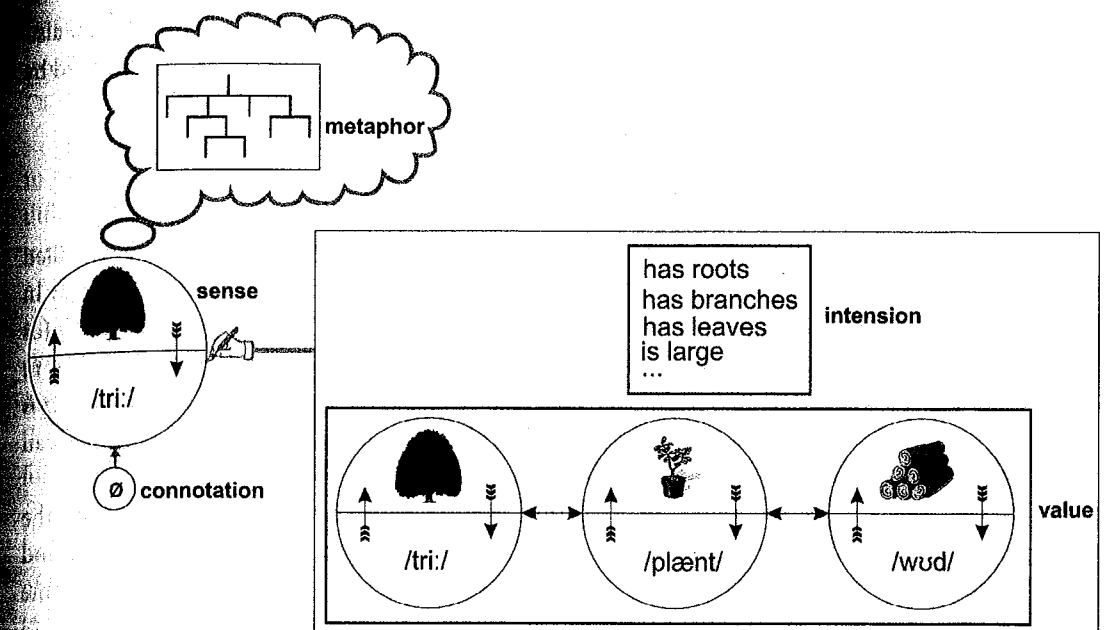


Figure 6.1 Aspects of linguistic meaning. In the meaning system, value and extension are the main components defining the sense of the sign. The sign has a non-literal, metaphoric, meaning (not invoked in this particular instance). Sentence meaning is very roughly represented as the sense of a complex combination of lexical and syntactic signs (the structure of which is not shown). This complex signifying construction points to the referent, the dead tree. This utterance conveys a pragmatic meaning: the hearer is being reprimanded for relaxing when there is an important job to do. © 2009 William B. McGregor and his licensors. All rights reserved.

are clearly interrelated. Before you represent the sense of an item you have to identify it; you also need to know how it relates to other items in the language, as the value of a sign is determined by the contrasts with other items in the language system.

Homophony, polysemy and vagueness

Two different lexemes sometimes accidentally share the same phonological form; this is called **homophony** or **homonymy**, and the words are said to be **homophones**. Some homophones in English are: *boy* (as in *he is only a boy*) and *buoy* (as in *they marked the place with a buoy*); *port* (as in *I don't usually drink port*), *port* (i.e. 'suitcase', as in *I put the luggage in my port*) and *port* (as in *Århus has a port*); and *bank* (as in *I have no money in the bank*) and *bank* (as in *the fisherman is asleep on the bank of the river*). Word forms such as /bɔɪ/ and /pɔ:t/ are ambiguous since they can be interpreted as instances of more than one lexeme.

Sometimes lexemes are partial homophones in the sense that some of their forms share the same phonological shapes. For example, the verb *bear* (as in *she agreed to bear the costs*) and the noun *bear* (as in *the bear attacked the tourist*) share the same phonological shapes in some inflected forms (e.g. both have inflectional forms /bɛ:/ and /bɛ:z/), but only the verb has /bɔ:/ (a phonological form that is incidentally also shared with the verb *bore*).

Homophony is sometimes exploited for humorous effect:

- (6-3) 'How is bread made?'
 'I know that!' Alice cried eagerly. 'You take some flour--'
 'Where do you pick the flower?' the White Queen asked. 'In a garden or in the hedges?'
 'Well, it isn't picked at all,' Alice explained. 'it's ground--'
 'How many acres of ground?' said the White Queen. 'You mustn't leave out so many things.'
 (Carroll 1899: 184-5)

Polysemy is where identical forms have related meanings. For example, the meanings associated with *ear* in the following sentences seem related:

- (6-4) a. *I put cottonwool in my ear.*
 b. *He listened to their difficulties with an impatient ear.*
 c. *That phonetician has a good ear for tone.*
 d. *I tried to get her ear.*

These examples reveal the following clearly related senses (there are others): (a) 'organ of hearing of humans and animals'; (b) 'attention to what is being said or to sounds'; (c) 'ability at discriminating sounds'; and (d) 'favourable attention directed to a person'.

Most dictionaries recognize the distinction between homophony and polysemy by giving separate entries for the former and including the latter under the same entry. But the distinction is not always easy to draw, because of the fuzziness of the distinction between different and related meanings. It is easy to see that the above senses of *ear* are related. Most dictionaries consider the word *ear* as illustrated by *The ear withered on the corn plant* to be a homophone of the lexeme *ear* of (6-4). Nevertheless, many speakers do see a connection, and imagine the ear of corn to resemble in some way an ear of a person.

In fact, lexicographers do not take just meaning into account in their decisions, but also the history of words. In this case, the words come from two different sources: *ear* (as in the body part) comes from Old English *ēare*, whereas *ear* (as in the plant-part) comes from Old English *ēar*.

Few speakers of English see any semantic relation between the two senses of *bank* mentioned in the first paragraph of this section, and dictionary makers tend to agree, putting them under different head-words. But both, in fact, can be traced back ultimately to proto-Germanic **bangk-* 'ridge, mound, bordering slope'. You can appreciate the connection through the following chains of plausible meaning extensions: (a) ridge > bench > moneylender's counter > moneylender's shop > financial institution; and (b) ridge > slope > side of watercourse. Speakers do not perceive the connection between the two extreme concepts because the other senses barely survive in association with *bank*. Speakers perceive, quite reasonably, a closer semantic connection between the body-part and plant-part senses of *ear* (also supported by many other such connections, as in, for example, *head of cabbage*) than the geographical and institution senses of *bank*.

Homophony and polysemy must also be distinguished from **vagueness** or **generality**, that is, lack of specificity of meaning. Earlier we identified four quite general specifications of the senses of *ear* that are involved in (6-4). Sense (a) 'organ of hearing of humans and animals' covers not just (6-4a), but also use of *ear* in the two sentences in (6-5).

- (6-5) a. *The teacher pulled the boy along by the ear.*
 b. *The dog scratched its ear.*

But notice that the 'meanings' in the three cases – the mental concepts invoked in the mind of the speaker and hearer – are quite different: in (6-4a) we think of an orifice at the side of the human head; in (6-5a), of an appendage at the side of the human head; and in (6-5b), of an appendage at the side of a dog's head (which does not look very much like the one on the side of the human head).

We don't usually think of these three meanings as polysemies of *ear* because the meanings are so closely related that they fall under a single general specification, something like '(part of the) organ of hearing of humans and animals'. Similarly for the meanings associated with *wrong* in *It is wrong to speak with your mouth full*, *It was wrong to take Aboriginal children from their mothers*, and *It is wrong to attribute that quote to Saussure*. The first invokes the sense 'improper', the second 'immoral', while the third just 'incorrect'; it is not difficult to see that a single general sense covers each. The sentential context, our knowledge of the world and our knowledge of the speaker's beliefs, can be brought into account to narrow down to the specific meaning invoked.

The meanings that a word acquires from its contexts of use are called **contextual meanings**. As distinct from the sense of a lexeme, which remains invariant, contextual meanings are not fixed. Thus, *It was wrong to take Aboriginal children from their mothers* does not necessarily invoke a moral comment. For instance, a policeman involved in removing Aboriginal children might consider his actions as fully moral, and 'wrong' only in the sense 'mistaken': the intended results were not achieved.

Like the other distinctions we have discussed, the line between vagueness and polysemy can be difficult to draw. Some linguists, the present author included, believe that lexemes have much vaguer senses than usually thought, and that polysemy is comparatively rare.

Lexical semantic relations

The lexemes of a language relate to one another semantically in various ways, and form a highly structured system, the lexicon. As mentioned in §4.1, this is better thought of as a huge network of interrelated items rather than a mere listing, such as is provided by a dictionary. We discuss four types of semantic relation that give structure to the lexicon, synonymy, antonymy, hyponymy and meronymy.

Synonymy

Synonymy is the relation of sameness or close similarity of meaning; lexemes related in this way are **synonyms**. Some examples of synonyms are: *hide* and *conceal*, *small* and *little*, *rich* and *wealthy*, *mother* and *mum*, *car* and *automobile*, *truck* and *lorry*, and *dear* and *expensive*.

You will notice that the members of these pairs are not exact synonyms; indeed, exact identity of meaning is quite rare. Synonyms often belong to different registers or styles (see §7.3) of language such as formal, literary or colloquial. *Bond concealed the automobile under a tarpaulin* is more formal than *Bond hid the car under the tarp*. Synonyms sometimes belong to different dialects: *togs*, *swimmers*, *cossies* and *trunks* are words in different dialects of Australian English for the item of clothing worn when swimming. (What do you call them in your dialect?)

Synonyms may also differ in the lexical company they keep, in the collocations (§4.4) they enter into. *Strong* and *powerful* are partial synonyms, and share some contexts: *he has strong arms* and *he has powerful arms*. But we speak of *the strong arm of the law*, not **the powerful arm of the law*, and *a strong head for alcohol*, not **a powerful head for alcohol*. *Strong* enters into many more collocations than *powerful*. (Why do you think this might be?)

Antonymy

Antonymy is the relation of opposite in meaning, and examples of antonyms include *big* and *small*, *long* and *short*, *up* and *down*, *dead* and *alive* and so on. Several different types of antonymy are usually identified.

Gradable antonyms allow intermediate degrees between the two opposite extremes, like *big* and *small*, *fast* and *slow* and *rich* and *poor*. Gradable antonyms can thus be used in comparative constructions, like *richer than* and *poorer than*. And for gradable antonyms, the negative of one does not necessarily imply the positive of the other: *not fast* does not necessarily mean *slow*.

Non-gradable antonyms are polar opposites, and allow no intermediate degrees. Examples are *dead* and *alive*, *pass* and *fail*, *male* and *female*, and *true* and *false*. For these, the negative of one does imply the positive of the other: *not true* implies *false*, *not dead* implies *alive*. Non-gradable antonyms do not normally enter into the comparative construction.

Pairs like *push* and *pull*, *come* and *go*, and *rise* and *fall*, which contrast in direction of movement, can also be interpreted as being opposite in meaning. These are called **reverses**, as also are pairs like *tie* and *untie*, *pack* and *unpack*, and *inflate* and *deflate* where there is a reversal of the action sequence.

Converses describe the same relation from contrasting viewpoints, as in *own* and *belong to* (*he owns it, it belongs to him*), *like* and *please* (*I like it, it pleases me*), *give* and *receive* (*I gave money to the beggar, the beggar received money from me*), and *above* and *below* (*the red block is above the blue block, the blue block is below the red block*).

Hyponymy

In **hyponymy** the meaning of one lexeme includes the meaning of another. A **hyponym** includes the meaning of a more general word. *Hammer*, *saw*, *chisel*, *screwdriver* all include the meaning of *tool* – they all denote types of tool – and are hyponyms of *tool*; the four specific terms are **co-hyponyms**. The general term is called the **superordinate** (sometimes the terms **hypernym** or **hyperonym** are used instead). *Dog* and *cat* are co-hyponyms of *animal*; *slap* and *punch* are co-hyponyms of *hit*; and *carrot* is a hyponym of *vegetable*.

Hyponymy is a 'kind of' relation: hyponyms are 'kinds of' the superordinate category, which in turn indicates the general type of the hyponym. Thus, relations of hyponymy associate meanings on taxonomic hierarchies. Certain semantic domains lend themselves well to this sort of analysis, including colour terms, kinship terms and terms for animals and plants. Figure 6.2 shows a very partial network for plant terms in English.

Meronymy

Meronymy is the part-whole relation. *Door* and *window* are meronyms of *room*; *wheel*, *handlebar* and *pedal* are meronyms of *bicycle*; and *hand* and *face* are meronyms of *clock*. Meronymic relations in the lexicon can be represented in hierarchies similar to taxonomies, as shown in Figure 6.3 for body-part terms in Huastec (Mayan, Veracruz).

There is an important difference between the relations of hyponymy and meronymy: the property of transitivity. *Alsatian* is a hyponym of *dog*, which is a hyponym of *animal*; *Alsatian* is also a hyponym of *animal*. This often does not apply in meronymy. For example, *nostril* is a meronym of *nose*, but not of *face*: we do not say that one's nostril is a part of one's face! Hyponymy is a transitive relation, but meronymy is not.

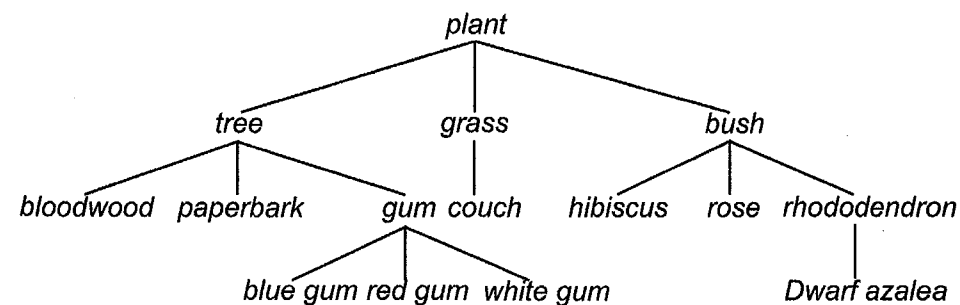


Figure 6.2 A small portion of a taxonomic hierarchy for *plant* in English.

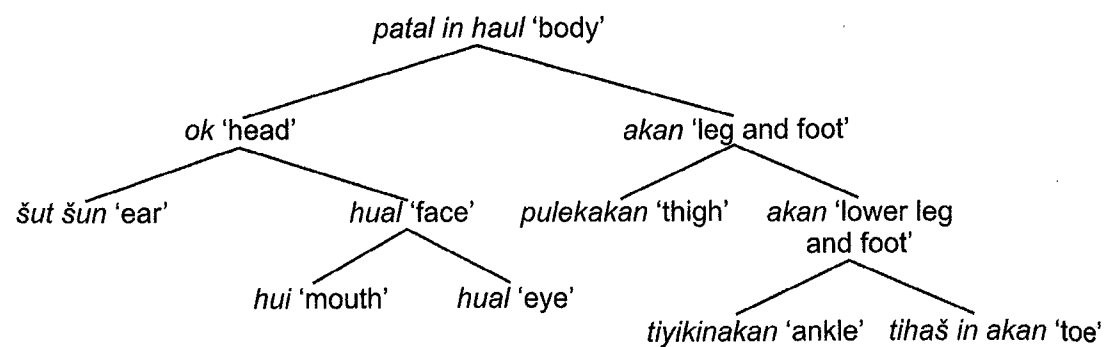


Figure 6.3 Partial meronymic hierarchy for Huastec body-part terms, adapted from Brown et al. (1976). Notice that both *hual* and *akan* appear in more than one place on the hierarchy, indicating that the terms are ambiguous rather than vague.

It must be stressed that networks of both hyponymy and meronymy are lexical networks, not networks of relations among real world entities. There are many conceptually different ways the animal kingdom can be taxonomized (the Linnean system of classification into species is just one of many possibilities), and the human body divided into parts. It seems reasonable to believe that the lexical relations of hyponymy and meronymy reflect speakers' conceptual categorizations of the world. 'Folk' conceptualizations – and thus hyponymic and meronymic relations among lexemes – can be at variance with scientific conceptualizations. For instance, *whale* can't be presumed to be a hyponym of *mammal* in English (or all varieties of English) simply because whales are mammals in the Linnean taxonomy.

Specifying lexical meanings

How would you explain the meaning of *mother*? Perhaps the first thing you think of is a biological explanation, and you may think of using semantically related words such as *woman*, *female*, *father*, *child*, *parent* and so on. If you have taken on board the discussion of this section, you will try to think of other senses, and look for sentences using the word, such as *The earth is mother of us all*, *She is my mother by adoption* and *The Stamp Act is the mother of all mischiefs*. You will need to decide whether the different meanings belong to different lexical items sharing the same form and so are polysemies, or are separate contextual meanings. These considerations are important in pinning down the sense of the word, and essential to giving an adequate description of its sense.

There is no consensus among semanticists as to how descriptions of the meaning of lexical items are best formulated. Some adopt the technique of **componential analysis**, in which the semantic meaning of a lexeme is decomposed into small components, or atoms of meaning.

The standard componential approach identifies semantic features that differentiate words from one another. Consider the following small set of nouns: *bull*, *cow*, *calf*, *woman*, *boy*, *girl*, *chair*, *man*. Except for *chair* these words all have in common the concept 'animate'. We could identify [animate] as a semantic feature with a value of either + for animate nouns, or – for inanimate

nouns. (It is conventional to put semantic features in square brackets.) Continuing the comparison of the terms, we could also identify features [human], [male] and [adult]. Our eight words could be specified as follows:

<i>bull</i> + animate – human + adult + male	<i>cow</i> + animate – human + adult – male	<i>calf</i> + animate – human + adult ± male	<i>woman</i> + animate + human + adult – male
<i>boy</i> + animate + human – adult + male	<i>girl</i> + animate + human – adult – male	<i>chair</i> – animate – human – adult – male	<i>man</i> + animate + human + adult + male

A feature value is given as ± if the word is not specific on that feature: *calf* is [±male] for this reason. Inanimates are given the value –, not ±, for the features [adult] and [male] because they can't be adult or male.

There are also dependencies among the features. If a word is specified as [–animate], it must simultaneously be [–human], [–adult], and [–male]; if a word is [+human] it is also [+animate]. If a word is specified as [+adult], [+male] or [±male] it must also be [+animate]. (Notice that this conclusion does not follow from [–male], though it does from [±male].) There is no need to specify the predictable feature values, which can be simply left out from the matrix specification. Thus we could economize in the above specifications, representing the meanings as follows:

<i>bull</i> – human + adult + male	<i>cow</i> – human + adult – male	<i>calf</i> – human – adult ± male	<i>woman</i> + human + adult – male
<i>boy</i> + human – adult + male	<i>girl</i> + human – adult – male	<i>chair</i> – animate	<i>man</i> + human + adult + male

It is important to realize that a dependency among a pair of features is not the same thing as a ± value for a feature. A ± value means either + or – is possible. But leaving out the specification [+animate] for, for example, *boy* does not mean that either value is possible! Rather, it means that the + value is predictable. (In other cases, a – value is predictable.)

The four features are sufficient to distinguish the eight words, and give at least a partial specification of their senses. Adding more features would allow them to be distinguished from other nouns (e.g. *dog*, *table*, *river*, *whale* etc.), and permit more precise specifications of their meanings. For instance, we could add in [bovine], [canine], [feline] and so on.

This approach can be – and has been – criticized on many grounds. For instance, it adopts an intensional view of semantics, and is criticized on this basis by prototype semantics (see box on p. 131), which rejects intensional definitions. A perhaps more telling criticism is that the

component features used to characterize the meanings of the terms above are more technical than the terms they describe: it appears that the simple is being defined in terms of the complex. Nevertheless componential analysis has been applied to a range of semantic domains in a number of languages. It seems most useful for the description of words belonging to relatively closed lexical sets such as terminologies for kinship, plants, animals and so on; it is also useful for the description of grammatical morphemes and words (e.g. pronouns and adpositions), which constitute the most closed classes in a language.

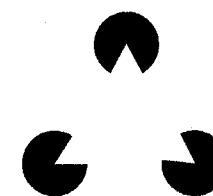
Sentence semantics

The meaning of a sentence depends on the meanings of the component words and how they are syntactically combined; sentence semantics is largely **compositional**. The meaning of the sentence *The fisherman hung the net on the fence* is determined by putting together the meaning of the component words, their groupings into phrases and the grammatical relations such as Actor, Undergoer, Subject and Theme. (Of course, a more comprehensive syntactic description than that developed in Chapter 5 is needed to provide a full description of the sentence semantics.)

Idioms aside, can sentence meaning be fully accounted for compositionally? Some linguists have said (or presumed) so: that giving a complete description of lexical semantics and grammar would provide a complete description of a sentence's meaning. Others disagree. Construction Grammar takes the view that grammatical constructions also carry elements of unpredictable meanings, which means that the lexicon of a language contains not just morphemes, words and idioms, but also grammatical constructions. Sentence semantics can still be partly compositional, but an extra grammatical dimension also contributes meaning. I side with Construction Grammar on this issue.

6.3 Pragmatics: The meaning of utterances

In the previous section we dealt with the sense of lexical items and larger linguistic units, that is, the meaning that is actually encoded by linguistic forms. As has already been mentioned, this accounts for only part of the meaning of a stretch of speech. It is as though speakers specify just the bare outlines of the meaning they intend to convey, leaving it to the hearer to reconstruct the details in their full richness. This is something we human beings are good at doing. When you look at the figure below it is difficult not to see a white triangle laid over three black circles. But all that is actually depicted are three circle-segments arranged in a particular configuration; your mind fills in the lines that are not perceived by the sense organs.



In this section we deal first with two types of meaning that speakers and hearers fill in: (a) what the speaker intends to do with the utterance – why they spoke in the first place – and how the hearer infers these intentions; and (b) reference or referential meaning (see p. 131), in particular, of NPs in utterances. Lastly, we discuss a general principle that guides the inferences we draw.

Speech acts

Speech is fundamentally about purposefully doing things with words; it is a social act of doing. Even now as I sit alone in my room typing these words – not an especially social environment – I am engaged in purposeful acts of using language. I want to inform you, the reader, about linguistics, to sway you to my way of thinking about the subject, and to convince you that linguistics is a fascinating thing to do.

Speech acts are the actions speakers perform in uttering sentences, including informing, promising, requesting, questioning, commanding, warning, preaching, congratulating, laying bets, swearing and exclaiming. The type of action performed by the speaker in making an utterance is referred to as its **illocutionary force**.

Performatives

English has (presumably in common with all languages) a number of speech act verbs, verbs like *inform, promise, request, baptize* and so on, that label types of speech act. Most can be used in sentences like the following, where they make explicit the speech act the speaker intends to perform:

(6-6) *I bet you any money you like that we'll win on Saturday*

(6-7) *I resign*

(6-8) *I apologize*

(6-9) *I double dare you to hit me*

(6-10) *I pronounce you man and wife*

(6-11) *I order you to leave the premises*

Sentences like the above that make explicit their illocutionary force by a speech act verb are called **performative sentences**, or **performatives**.

Direct and indirect speech acts

Most utterances, however, do not wear their illocutionary force on their sleeve. To the contrary, as examples (6-1) and (6-2) show, a sentence like *The car broke down yesterday* can be used with

different illocutionary forces: in the former context it has the force of a statement; in the latter, it may be either a refusal or request.

As a speaker of English you will doubtless feel that there are 'natural' associations between certain syntactic forms of sentences and particular illocutionary forces. Table 6.1 shows these typical associations. The second column gives the technical label for grammatical form of the sentence shown in the first column. Although we did not deal with this aspect of syntax in Chapter 5, it should be clear that the four sentences are syntactically different types. Before reading further, you should attempt to describe each example in item-arrangement terms (as per pp. 115–16); this will give you an idea how the four syntactic forms are defined. The third column of the table indicates the typical illocutionary force associated with sentences of each syntactic type.

Table 6.1 Syntactic forms and their typical illocutionary forces in English

	Syntactic form	Illocutionary force
<i>You are energetic this evening.</i>	Declarative	Statement
<i>Are you energetic this evening?</i>	Interrogative	Question
<i>Be energetic this evening!</i>	Imperative	Command
<i>How energetic you are this evening!</i>	Exclamative	Exclamation

If I were to say *Can you pass the salt?* to my neighbour at the table, I would not normally be asking them a question about his or her ability to pass me the salt, and a purely linguistic response like *Yes* would be judged inappropriate and inadequate. The interrogative form is being used here with the illocutionary force of a command or request. Examples like this, where a syntactic form is used with an illocutionary force other than the one typically associated with it, are called **indirect speech acts**; when the association is the typical or natural one, we speak of **direct speech acts**. Performatives also count as direct speech acts, the difference being that they are specified lexically rather than grammatically.

We often use indirect speech acts to be polite. The difference in politeness between *Can you pass the salt?* and direct speech acts such as *Pass the salt!*, *Give me the salt!* or *I am ordering you to pass the salt* is obvious. Speakers often phrase questions and commands in the declarative for similar reasons. Let us suppose we were sitting in the lunchroom at work on a warm day and you open the window for some cool air. Perhaps this has the undesirable consequence that street noise becomes very loud, so at some point I want you to shut the window again. A polite way of issuing the request would be with a declarative, for example, *It's very noisy in here*. To say *Shut the window!* would be impolite. It also risks the possibility of being ignored, or worse, flatly refused – *Shut it yourself*. Even to say *Please shut the window* would sound somewhat insistent, and suggests that I am presuming authority over you.

Felicity conditions

For a speech act to achieve its intended purpose, its illocutionary force, certain conditions must be satisfied; these are called **felicity conditions**. For instance, a performative such as *I pronounce you man and wife* will only succeed in marrying a couple if the speaker is an authorized marriage celebrant, and only if it is uttered in a particular place in the context of a marriage ceremony. Failing these conditions, the speech act cannot achieve its intended ends, and it is **infelicitous**.

Similarly for non-performative speech acts: more than just an appropriate grammatical form is a requirement for the successful achievement of their purposes. Thus, a question such as *Where are my glasses?* will have as felicity conditions that the speaker doesn't know where his/her glasses are, that he/she wants to know this information, and that he/she believes the hearer may know this information. A request such as *Please give me my glasses* would have as its felicity conditions that the speaker does not have his or her glasses, but believes that the addressee does, that he or she is capable of handing the glasses over to the speaker, and that the speaker wants them.

Reference

As already indicated, reference is different from sense in that it is not what is inherently associated with linguistic forms such as morphemes and words. Words as such do not refer; rather speakers use them to refer. The claim on p. 112 that NPs refer is to be interpreted in this way: that it is the specific instance of use of the NP by the speaker – the NP token (see box on p. 134) – that refers.

How are these acts of reference achieved? All languages have words or morphemes that are used to help pin down the reference of a stretch of speech (including writing and signing), that facilitate the hearer's identification of the intended referent. For instance, we can use proper nouns (e.g. for animals and people *Nim Chimpsky*, *Ferdinand de Saussure*, *Charles Darwin*; and places *Sydney*, *Uluru*), and, in languages like English and many other languages of Europe, articles (*the man on the moon*, *a puppy*, *the government*). In most cases these expressions do not identify unique individuals, except when used in specific contexts. There are however cases where an expression normally identifies a unique entity, and refers to something else only in restricted contexts. For example, *the moon* normally refers to the unique moon of the earth; however, it might be used in a lecture or article on astronomy in reference to one of the moons of Jupiter.

There is a particular class of words or morphemes that are used to assist identifying referents by linking them specifically to the context of the speech act; these are known as **deictic expressions**. Deictic expressions identify things by relating them to the social, linguistic, spatial or temporal context of an utterance, and include pronouns, demonstratives and adverbs of space and time. The reference of these items varies with each context in which they are used.

Personal pronouns such as *I*, *me*, *you*, *we*, *our* are deictic expressions since their interpretation is always dependent on the speech context: their interpretation depends on knowledge of who is the speaker and who is the hearer. As soon as the speaker changes, the interpretation of *I* and *you* changes. Third person pronouns are generally also deictic: they effectively point to someone or something other than the speaker or hearer. (There are exceptions, including use of *it* in *It is clear that you are not listening to me*.)

Demonstratives such as *this* and *that* are also deictics, effectively specifying referents by indicating whether they are close to the speaker, or distant from them. Thus you might say *this book* to refer to the book you hold in your hands; changing speaker roles, I might then refer to the same book as *that book*. Languages differ in the number of demonstratives they have; for instance in some languages there are three (occasionally more) rather than two. In Tongan, for instance, there are three demonstratives, *eni* 'close to the speaker', *ena* 'close to the hearer' and *ito* 'distant from both speaker and hearer'.

Demonstratives employ spatial deixis. Other spatial deictic elements are the adverbs *here* and *there*. Expressions of temporal deixis include words such as *today*, *tomorrow*, *now*, *then*, *last week* and so on, which situate the time with respect to the time of speaking, and change their interpretation with changes in the speech context.

It is important to note that the deictic expressions discussed in this section also have senses, for instance, for pronouns relating to person, number, gender and case. Their full meaning however is only unleashed when they are used in context.

The cooperative principle

Speakers and hearers generally communicate successfully: the utterance meaning intended by the speaker on any particular occasion usually corresponds well with the utterance meaning inferred by the hearer. Of course mismatches do occur; a hearer may take offence when none was intended, or fail to take offence when it was intended. But things normally work fairly smoothly. For this to happen, the speaker and hearer must share some procedures of interpretation, of drawing the appropriate inferences from what is actually encoded.

The philosopher Paul Grice proposed that such an interpretative procedure was the **cooperative principle**. This he explained in the following way: 'Make your contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged' (Grice 1989: 26). According to Grice, the cooperative principle is constituted by four component **maxims**:

- **Maxim of Quantity:** Make your contribution as informative as required, but no more (or less) informative than required.
- **Maxim of Quality:** Try to make your contribution true; do not say that which you believe false or for which you lack adequate evidence.
- **Maxim of Relevance:** Be relevant.
- **Maxim of Manner:** Be perspicuous – avoid ambiguity, prolixity, disorderliness and obscurity.

These maxims are principles governing the inferences conversational partners draw; they are not rules that you have to follow to produce interactively or socially acceptable or correct utterances. Thus people often lie, and are not above formulating their utterances in obscure ways, intentionally or unintentionally. However, speakers flout the maxims for reasons, such as to achieve particular effects – for example, apart from pathological liars, people usually lie for a reason, to achieve some end. In this respect the maxims are unlike grammatical rules such as 'an adjective must agree in gender and number with the noun it modifies'; if a language has this grammatical rule, speakers will

consistently observe it (excluding speech errors). Speakers don't decide to disobey a grammatical rule in order to achieve some effect. (There are exceptions, for instance, when a speaker produces an ungrammatical form to, say, mimic – and perhaps insult – a non-native speaker.)

To illustrate how the Gricean maxims can be used to understand the pragmatic meanings of an utterance, consider the following (invented) conversational fragment involving Carol and Barry again:

(6-12) Carol: *Did you see the new Spielberg movie on TV last night?*

Barry: *Is the Pope a Catholic?*

Carol has asked Barry a yes/no question, using an interrogative clause; but Barry does not reply with either *Yes* or *No* – or anything in between, like *Maybe* or *Some of it*. Nevertheless Carol (and you) will immediately interpret Barry's response as a resounding 'yes', even though it is in the form of an interrogative, which normally has the speech function of a question.

The Gricean maxims can be used to explain how this meaning is inferred. By the Maxim of Relevance, Barry's response, whatever it might be, is interpreted as being relevant to Carol's question. How could the religious affiliation of the Pope be relevant to the question of whether Barry saw the movie? Well, everyone (including Barry) knows that the Pope is a Catholic, so by the Maxim of Manner, Barry cannot be seriously asking for information. Moreover, to be orderly and relevant, Barry must be interpreted as answering Carol's question – his 'question' must really be an answer, and the only way this can be so is for the blatantly obvious answer to Barry's question to be that answer. Hence the inference that Barry did see the movie. But it can also be inferred that Barry means more than this – otherwise he would have just said *Yes*, the briefest and clearest expression of affirmation. The particular roundabout response that he chose implies that things couldn't have been otherwise: 'yes, there was never a question of my not seeing it'.

In applying the Gricean maxims to (6-12) we had to appeal to background knowledge shared by the conversational participants, in this case information known generally to members of the speech community. In some cases the shared information is specific to the conversation. We also had to appeal to syntactic structure, specifically to the status of Barry's response as an interrogative.

Presuppositions

A **presupposition** is something that must be assumed true in order for a sentence to be appropriately uttered. In each of the following examples, the a. sentence presupposes the b. sentence:

(6-13) a. *The bus driver managed to stop in time.*

b. *The bus driver tried to stop.*

(6-14) a. *The baby has stopped crying.*

b. *The baby was crying previously.*

(6-15) a. *I regretted giving them the donation.*

b. *I gave them the donation.*

- (6-16) a. *He realized that he had been tricked.*
 b. *He was tricked.*

If the driver didn't try to stop, it would not be appropriate to utter (6-13a), that she managed to stop; if the baby had not been crying previously, it would not be appropriate to say that he had stopped crying (6-14a); if the speaker had not given the donation, it would be inappropriate to say that she regretted doing so, (6-15a); and if he had not been tricked, he could not realize this (6-16a). Thus in each case the b. sentence is presumed true in order for the a. sentence to be sensibly uttered.

A good test for presuppositions is that they remain constant under negation: each of the b. sentences above remain true if the a. sentence is negated:

- (6-13) c. *The bus driver didn't manage to stop in time.*
 (6-14) c. *The baby hasn't stopped crying.*
 (6-15) c. *I didn't regret giving them the donation.*
 (6-16) c. *He didn't realize that he had been tricked.*

Words like *another*, *again*, *more* and the like also invoke presuppositions. The humour of the following passage from *Alice's Adventures in Wonderland* is based on the Hatter's claim that *more* does not presuppose some previous quantity.

- (6-17) 'Take some more tea,' the March Hare said to Alice, very earnestly.
 'I've had nothing yet,' Alice replied in an offended tone: 'so I can't take more.'
 'You mean you can't take less,' said the Hatter: 'it's very easy to take more than nothing.'
 (Carroll 1927/1866: 101-2)

The negative test reveals that Alice is right: *Take some more tea* presupposes that the addressee has already had some – it remains true for *Don't take any more tea*.

In a sense presuppositions allow us to produce efficient discourse, as can be seen from (6-17), where use of presupposition invoking *more* reduces considerably what needs to be said. In a similar way, (6-18) presupposes that France has a king, otherwise it seems a strange thing to say (and some philosophers have argued that without this presumption the sentence can't be said to be either true or false).

- (6-18) *The present king of France is bald*

The examples we have just discussed would seem to suggest that presuppositions concern semantics rather than pragmatics, and there is disagreement among scholars as to which domain they belong to. I have discussed the phenomenon under pragmatics because presuppositions can be cancelled under certain conditions. For instance, the presupposition (6-13b) does not always hold for (6-13c) – as shown by (6-13d) – and nor does the corresponding presupposition hold for (6-19). (6-20) shows that the same cancellation is possible for *more*.

- (6-13) d. *The bus driver didn't manage to stop in time; in fact he didn't even try to.*
 (6-19) *How can five students have managed to fail such an easy test?*
 (6-20) *Alice didn't have more tea, if indeed she had any.*

Summing up

Meaning is that which is expressed by linguistic units and conveyed by the use of linguistic units in speech, writing and signing. It is a multifaceted phenomenon, embracing two domains, semantics and pragmatics. **Semantics** is concerned with the meanings expressed or encoded by linguistic forms, that is, with the meaning aspect of the linguistic sign. **Pragmatics** is concerned with meanings that are not encoded, but are inferred. Semantics is thus concerned with **sentence meaning**, pragmatics with **utterance meaning**. Sentence meaning is largely **compositional**, whereas utterance meaning is not.

The major concern of semantics is with **sense**, which involves **value** and **intension**. A linguistic item can be used either **literally** or **figuratively**; metaphor, metonymy and synecdoche are examples of figurative meanings.

We dealt with three issues in semantics. First was the relations between the senses of a lexical item: **polysemy**, **vagueness** and **homophony**. Second was the identification of the range of semantic relations among lexical items: **synonymy**, **antonymy**, **hyponymy** and **meronymy**. Third was how to specify the semantics of a linguistic unit; we outlined one approach, **componential analysis**, which factors the semantic meanings of lexical items into atomic components or features.

We also dealt with four issues in pragmatics: speech acts, reference, the cooperative principle and presuppositions. **Speech acts** are what speakers do when they utter a sentence; speech acts have an **illocutionary force**. Some speech acts overtly specify their illocutionary force; these are **performatives**. When the illocutionary force is directly indicated by linguistic form we speak of **direct speech acts**; otherwise it is an **indirect speech act**. Direct and indirect speech acts differ in terms of politeness. **Reference** is concerned with the link between utterances and people, things, places and times that are being referred to. **Deictic elements** play an important role in establishing reference. The **cooperative principle** is a principle of interpretation and inferencing shared by speakers and hearers, permitting the utterance meaning intended by a speaker to be reliably inferred by the hearer. It is constituted by four **maxims**: **Quantity**, **Quality**, **Relevance** and **Manner**. **Presuppositions** are implicit assumptions invoked by certain sentences as required truths in order for utterance of the sentence to be appropriate or reasonable.

Guide to further reading

Good basic texts on semantics are Hurford, Heasley and Smith (2007) and Elbourne (2011). Saeed (1997) and Löbner (2002) provide more detailed treatments of the subject; aside from lexical semantics (the focus of this chapter), they deal with sentence semantics and discuss a number of modern theories. (An important difference between the approach to sentence semantics in these books and the approach taken in this book is that they treat roles such as Actor and Undergoer as purely semantic, rather than both grammatical and semantic.) Goddard (1998) is the only theoretically coherent introduction I know of; unlike most other semantics textbooks, it contains numerous illustrations drawn from languages other than English. Lyons (1977) remains the most comprehensive treatment of the subject; however, it is a highly technical work and demands careful reading.

7 Doing things with words

Pragmatics

7.0 Overview

So far we have mainly looked at the way we form and express ideas by means of language. This is called the **ideational function** of language. A second, equally important function is the use of language for the sake of interaction. This is the **interpersonal function** of language, which will be focused upon in this and the next chapter.

In Chapter 7 we will be looking at what we “do” with language when we interact with each other. A minor case is that we talk to each other just to show that we have taken notice of one another: It is not what we say that counts, but the fact that we say something at all. In the majority of cases, however, we have very specific intentions while interacting and communicating and achieve something substantial with our use of language. In doing something with language we perform all kinds of speech acts. These speech acts realize communicative intentions, which pertain to two cognitive faculties: Our knowledge and our volition. In the domain of knowledge we exchange and ask for all possible kinds of information. This is done by assertions, statements, descriptions and information questions, all instances of informative speech acts. In the domain of volition we impose obligations on others or on ourselves: We give commands, make requests, promises or offers, all instances of obligative speech acts. There is a third group of speech acts whereby the uttering of the words in the appropriate circumstances, e.g. by the chairperson at the end of a meeting determines the ongoing situation. When the chairman says “I hereby declare the conference closed”, then the meeting is over. Since such acts constitute (new) social reality, they are called constitutive speech acts.

In this chapter, we will also look at the conditions that must be fulfilled for felicitous interaction, at the ways people must cooperate in communication to

understand each other, and at the strategies people use to avoid offending one another by being too direct.

7.1 Introduction: What is pragmatics?

Pragmatics is the study of how people interact when using language. **Language-in-use** is hereby defined as a part of human interaction. People live, work and interact with each other in social networks. They get up in the morning, see their family, go out to work or to school, meet their neighbours in the street, take buses, trams or trains, meet other people at work or in school, go to pubs and clubs, etc. In all these social networks of the home, the neighbourhood, the village, town or city, the school or job environment, sports clubs, religious meetings and so on, they interact with each other. One of the main instruments for interaction is talk.

In the next two sections, we will investigate the different intentions people may have for saying something and provide a cognitive classification of speech acts.

7.1.1 Communicative intention and speech acts

Not all talk is meant to convey intentions. Quite often we talk just for the sake of talking. Thus a lot of talk is just meant to show one another that we have acknowledged each other's presence. For example, in **small talk**, our main intention is not necessarily to convey information or our beliefs and wants, but to socialize as in (1). This is called the **phatic function** of language (from Greek *phatis* 'talk').

- (1) Conversation at a coffee stall between an old newspaper seller and the barman
- Man: You was a bit busier earlier.
Barman: Ah.
Man: Round about ten.
Barman: Ten, was it?
Man: About then. (Pause) I passed by here about then.
Barman: Oh yes. (From Harold Pinter: *A Slight Ache*).

In most other cases, we engage in the type of communicative interaction where we convey what is going on in our minds: What we see, know, think, believe, want, intend, or feel — in other words a mental state.

We can make our fellow humans aware of our mental states by using words. Whatever we are trying to accomplish with our language — informing, requesting, ordering, persuading, encouraging, and so on — can be called our **communicative intention**. For example, when I say to my rather pale-looking uncle, “You look a lot better today” I am just trying to make him feel better or, in other words, I am expressing my intention to comfort him. The actual words we utter to realize a communicative intention is called a **speech act**.

Traditionally, philosophers of language, the main or even sole interest in language use was to ascertain how we make true statements and how it is possible to find out about the truth conditions of what is being said. But the language philosopher Austin, author of *How to do things with words* in 1952, discovered that we do not only perform information acts, i.e. “say” things that can be considered either true or false as in (2a), but that we also “do” a lot of other things with words as in (2b–e):

- (2) a. My computer is out of order.
 b. Could you lend me your laptop for a couple of days?
 c. Yes, I’ll bring it tomorrow
 d. Oh, thank you, you’re always so kind.
 (Official person or VIP releases bottle at ship, after saying:)
 e. I name this ship the Queen Elizabeth.

In (2a) the speaker states what he sees or thinks is happening and informs someone else about this. Although we expect this statement to be true, it can, in fact, be true or false. For instance, the speaker may just have forgotten to plug the computer in. In the other speech acts (2b–e) the speaker is not really concerned with the truth or falsehood of what he says. In (2b) the speaker requests the hearer to do something and in (2c) the latter promises to do so. These are two speech acts in which the volition of the speaker is of paramount importance and an obligation is imposed on the partner (2b) or on the speaker himself (2c). In (2d) the first speaker expresses his feelings of thanks and praises his friend.

In (2e) the speaker is not stating an already existing fact, but creates a new fact by uttering the words to name the ship. Moreover, in order to be able to do so, the situation must be an official event, with officials present. The VIP speaker must release a champagne bottle so that it smashes on the ship’s bow, having shortly before uttered the appropriate statement (2e).

At first, Austin called a speech act such as (2e) a *performative act*, but later he came to the conclusion that whenever we say anything we always “perform”

a speech act because we “do” something with words: We state a belief, we request something of someone, we promise something to someone, we express thanks and so on. He was the first to realize that making an utterance is not foremost and solely a matter of truth or falsehood, but above all that each utterance is a speech act, i.e. that we “do” something with words, rather than only say something.

We can then pose the question as to how we describe the class of speech acts as in (2e). This point was taken up by Austin’s disciple, the philosopher John Searle (1969), who proposed a taxonomy of five types of speech acts: Assertives (3a), directives (3b), commissives (3c), expressives (3d), and declarations (3e).

- (3) a. *assertive* Sam smokes a lot.
- b. *directive* Get out. I want you to leave.
- c. *commissive* I promise to come tomorrow.
- d. *expressive* Congratulations on your 60th birthday.
- e. *declaration* I hereby take you as my lawful wedded wife.

The examples in (3) largely correspond with those in (2). By means of **assertive speech acts** as in (3a, 2a) we make an assertion or a statement, give a description or ask an information question. By means of a **directive speech act** we give an order as in (3b) or make a request (2b). By means of a **commissive speech act** we make a promise (3c, 2c) or an offer and by doing so impose an obligation on ourselves. By means of an **expressive speech act** we express congratulations (3d), our feelings of gratitude and our praise (2d). Finally, by means of a declaration or **declarative speech act** the speaker declares a (new) social fact to be the case as in the act of marrying (3e) or of naming a ship (2e). Note that the term *declarative* has been used in a different sense in Chapter 4, where it was used in a syntactic sense as *declarative mood* or *declarative sentence*, in contrast to the interrogative and imperative mood or sentence. In this chapter, the term *declarative* is used in a pragmatic sense as a *declarative speech act* or a declaration, in contrast to assertive, directive, commissive, and expressive speech acts.

7.1.2 A cognitive typology of speech acts

Some of the five speech acts in (3) are closer to each other than to others. Speech acts can therefore be grouped according to superordinate categories to which similar principles may apply. Thus alongside assertive speech acts, we also find information questions, e.g. *Does John smoke?* Both can be subsumed under the superordinate category of **informative speech acts**. Likewise, direc-

tives and commissives can be grouped together in a superordinate category, because in both cases the speaker imposes an obligation, either on the hearer (directive) or on himself (commissive). We will call the **obligative speech acts**. Finally, expressive speech acts and declarative speech acts also have a fundamental feature in common: Both of them require a kind of ritualized social context in which they can be performed. Thus we can only congratulate someone on a given social occasion, e.g. when it is his or her birthday and by performing the act of congratulation we constitute the social signal that we care about others and haven't forgotten their birthday. Therefore we can subsume both the expressive and the declarative speech act under the superordinate category of **constitutive speech acts**.

We will now briefly illustrate these major types and their subtypes.

Informative speech acts encompass all speech acts that convey information to the hearer, ask information of the hearer or state that someone lacks a piece of information of some sort. The information is about what one knows, thinks, believes, or feels.

- (4) a. I don't know this city very well.
- b. Can you tell me the way to the station, please?
- c. Yes, turn left, then turn right again. It's on the left.

Informative acts are not only quite varied, they also involve a large number of background assumptions, e.g. the assumption that the hearer may want to know why the speaker is asking the question or that the hearer does not know the answer. Thus in (4a) the speaker first explains why he is asking the question. And as (4b) illustrates, a speaker need not ask straight away "Where is the station?", but can also check whether such knowledge is present by saying "Can you tell me". Even more typically, the addressee does not just answer the question by saying "yes", but interprets the "yes/no" question as an information question and if he or she has this information, it is passed on. Note that the speaker in the answer (4c) uses the imperative — normally used for orders — to relay this information without obliging the hearer to do anything. This illustrates that there is not a one-to-one relation between the form of a linguistic expression (in this case an 'imperative') and its communicative intention.

In obligative speech acts, the motivation as well as the desired consequence is quite different. Imagine the following situation: Mark and Peter are leaving a party. As Mark has not drunk as much alcohol as Peter he says:

- (5) a. Mark: Peter, can you give me your car keys — I'll drive.
b. Peter (handing over the keys): All right, next time it's my turn — I promise.

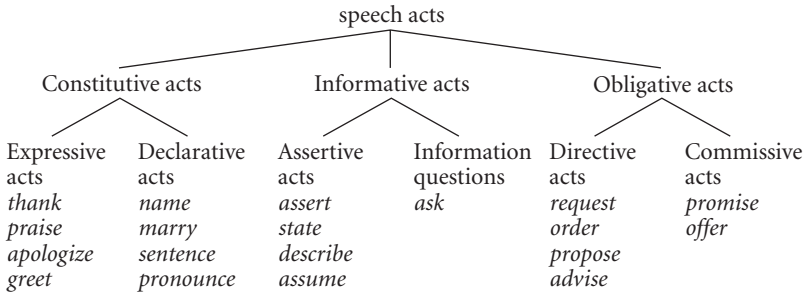
Mark's utterance (5a) consists of two obligative acts: A directive and a commissive. First of all, the request in (5a) is quite different from an information question as in (4b): Mark doesn't want Peter to say something, but to do something, i.e. to give him the keys. Secondly, Mark wants to do the driving. His first aim is to oblige Peter to do what he requests and he also gives a reason by offering to drive the car. With this offer Mark obliges himself to do the driving, provided that Peter hands over the keys to him. The same is true for Peter's utterance in (5b). First he complies with the request, not by saying so, but by handing over the keys, and then he promises to do the driving next time, thereby committing himself to a future action. Thus all obligative speech acts such as requesting, making offers, and promising have one thing in common: Speakers commit the hearer or themselves to some future action.

Constitutive speech acts are acts which constitute a social reality. This only pertains if something is uttered by the right person, in the right form, and at the right moment. This obviously holds for declarative speech acts as in (2e) *I name this ship the Queen Elizabeth* and (3e) *I hereby take you as my lawful wedded wife*. Only the VIP can name the ship and only the bridegroom can perform the act of (3e). The conditions that hold for such constitutive speech acts as a declaration equally hold for the expressive speech acts of thanking or congratulating as in (2d) *Oh, thank you. You are always so kind* and (3d) *Congratulations on your 60th birthday*. Only when someone has done something for you or promises he will do so, can you thank him or praise him. And only when it is somebody's birthday, can you congratulate him. Consequently, even though expressive speech acts (2d, 3d) and declarative speech acts (2e, 3e) express different communicative intentions, both types are subject to the same conditions for the success or felicity of the speech act.

The various types and subtypes of speech acts are summarized in Table 1, which also contains some typical verbs used in some of the subtypes.

In the next sections, we will discuss each of these main types of speech acts in more detail and we will show how they interact with felicity conditions, cooperativeness, and politeness. We will first discuss the category of constitutive speech acts.

Table 1. Types and subtypes of speech acts



7.2 Constitutive speech acts and felicity conditions

When someone expresses how he or she feels by saying “I congratulate you” or when someone performs a declarative act by saying “You are now husband and wife” certain felicity conditions have to be met. These **felicity conditions** are: (1) the act must be performed in the right circumstances, and (2) it is also enough to say the correct formula without doing anything else. Compare these constitutive acts with a commercial transaction like paying back a debt. It is not sufficient to say “I hereby pay you back 1,000 dollars”, one must actually hand over the money. In fact, it would even be enough to hand over the money without saying anything. Constitutive speech acts do just the opposite: The mere utterance of a ritual formula in the appropriate circumstances may change the situation. A typical example of this power of a constitutive speech act is (6b), in which the judge, simply by uttering the words, gives an event its legal status. The passive form of the phrase “Objection overruled” is in fact the ritual equivalent of the active sentence “I overrule the objection you have made”. But the judge needs only use the short ritual form in the passive at the appropriate moment in a court hearing, and the objection is indeed overruled.

- (6) a. Attorney: Objection, Your Honour!
 b. Judge: Objection overruled.

7.2.1 Subcategories of constitutive speech acts

Of the three superordinate categories of speech acts — informative, obligative and constitutive — this last category probably has the most subcategories. This holds for both expressives and declaratives. Cultures have a great many rituals. Many of these relate to the emotional aspects of life, which can be expressed

both non-verbally and verbally. For example, in Western culture, people often shake hands to greet people when they meet them. We may also perform such rituals with words, ranging from very informal to institutionalized formal levels.

At the informal end we have the many routinely performed acts of greeting, leave-taking, thanking, comforting, complimenting, congratulating, apologizing, and so on. Even the simplest greeting acts like *Good morning* are to be seen as expressive speech acts. Their original function was to wish good things to other people. The leave-taking formula *goodbye* derives from *God be with you*. This original sense has been so deeply entrenched in the language that it is no longer recognizable and has become a mere greeting ritual. But it still represents an important social reality. It is especially when people refuse to greet each other that we feel the expressive value associated with the ritual. For most expressives we usually have very brief expressions such as *Hello, Hi, (good) bye, bye-bye, bye now, see you later, take care, sleep tight, thanks, cheers, well done, congratulations, I'm sorry, OK*, and so on. One characteristic of such informal ritual acts is that they are often abridged forms as in *bye* (for 'good-bye'), *ta* (for 'thanks'), *ha-ye* (for 'hello'), *g'night* (for 'good night'), reduplicated forms as in *bye-bye, thank you, thank you*, or forms combined with interjections as in *oh, thank you*. It is in such informal situations that we are allowed the most creativity and new forms are quite typical here; for example *hi* instead of *hello*, *cheers* instead of *goodbye*, and *all right?* instead of *how are you?*

An example of a more formal expressive act can be found in the following fragment spoken by the BBC spokesperson on behalf of a British entertainer who had made fun of the great number of lesbians in the England women's hockey team:

- (7) "That's just his wacky sense of humour and his regular listeners understand that. He's not anti-gay and had no intention of offending anyone. If they have been offended, *we are very sorry and apologise on his behalf.*"
(The Daily Telegraph, 8–11–1996)

The fragment as a whole is an expressive act in that its communicative intention is to apologize. But within the fragment we discover sub-intentions. At first the spokesperson informs the audience of the underlying assumption of this apology: You cannot offend people if you do not intend to offend. But the spokesperson is willing to admit that people may feel offended and to those the BBC apologizes "on behalf of" the entertainer. This public apology on someone's behalf shows that the person performing the act must be authorized to make the apology. The use of the *we*-form reiterates that authorization.

This last sentence also makes another distinction clear. The two expressions *we are sorry* and *we apologize* illustrate that there are implicit and explicit speech acts. Both expressions make clear that we feel regret, but the expression *be sorry* is an implicit speech act in itself (by saying it, one expresses a feeling of regret and apologizes). The act being performed is not explicitly named by using *be sorry*. But the verb *apologize* does both. By saying *we apologize* we perform an expressive act simultaneously with the naming of that expressive act. It is for this reason that *apologize* is called a **performative verb**, defined as a verb denoting linguistic action that can both describe a speech act and express it. This explains why we can say that we are sorry, but not that we are sorry on someone else's behalf because *be sorry* only expresses, but does not describe the act of making an apology. If we want to apologize on someone's behalf we can only use *apologize*. Performative verbs can, of course, be found in all of the three major types of speech acts as shown in the list of verbs under Table 1.

At the other extremity of the formal-informal continuum, we have declaratives, which are highly formal and which require an institutional context and institutionally appointed people to perform them, such as refereeing at a football game, baptizing or marrying, leading court hearings, testifying and sentencing, notice-giving, bequeathing, appointing officials, declaring war and many more.

Such declarative acts are usually characterized by a highly “frozen” style. They often mention the one who performs the act, usually in the *I*-form, or use a passive construction as in *Objection overruled*. And, as illustrated in the next examples of marrying and sentencing, they must be in the simple present tense, since in constitutive acts the saying and the doing coincide. Moreover, as illustrated in (8a), they cannot usually be pronounced in isolation, but can only be used at a certain point in a more elaborate ritual. Thus in a marriage ceremony, the priest or official must ask the bride and bridegroom questions such as (8a), to which they have to answer *I do*, or a full sentence like “I hereby take you as my lawful wedded wife” and after that the official confirmation (8b) is given:

- (8) a. Do you take X to be your lawful wedded husband?
b. I now pronounce you man and wife.
- (9) I hereby sentence you to three years' imprisonment for your part in the crime.
- (10) The victim was pronounced dead on arrival.

As illustrated in (9), we may find adverbs like *hereby* indicating the moment and place of the performative act. Such formal, institutionalized expressions often include a performative verb such as *declare*, *give notice*, *pronounce*, etc.

The example in (10), however, is not an act of certifying someone's death by a doctor, but it again illustrates that performative verbs like *pronounce* may be used in different ways. In a sentence such as (8b) the performative verb *pronounce* is used to bring about the communicative intention of "constituting a new reality". In sentence (10), *pronounce* is used in a different context, merely to "describe" a situation which is performed as an act of giving information in a very formal context.

7.2.2 Felicity conditions

Felicity conditions are circumstantial conditions that allow a speaker to make a successful speech act. They relate to all three types of speech act. In an informative speech act like (10) the speaker, e.g. a reporter, must first of all have the correct information himself, and secondly be authorized to pass on the information to the person who asks for it. In a **directive speech act**, e.g. *Get out of here*, the speaker must be in a position to give commands to people lower in rank. For example, in most cultures employees or children would not be able to give such orders to their employer or parents.

But felicity conditions are especially evident in declarative acts. As the question in (8a) illustrates, various conditions may have to be fulfilled in order to make an institutionalized act, such as marrying, **felicitous**. The declarative act can only be effective if all the conditions are satisfied. If one of these conditions is not fulfilled, the act can be legally opposed and eventually be declared not to have been correctly performed and therefore not to have taken place at all. This is precisely the objective of a court case that is taken to a court of appeal. If the proceedings of a court case are found to have been conducted contrary to procedure, the whole act of sentencing has no effect and may be reversed.

Thus if there is no officially authorized person such as a priest, a town official, an ambassador or his attaché, a ship's captain or an aeroplane commander, to pronounce a couple husband and wife, the marriage has no official status. Felicity conditions such as these, however, hold not only for declarations, but also for every-day rituals in expressive acts. Thus, if we want to congratulate people on a birthday, marriage, or promotion, we have not congratulated them if we address the wrong person, if we perform the act at the wrong time, or if

the occasion itself has not taken place. In other words, we make an “infelicitous” attempt at congratulating.

- (11) a. Husband to wife: Happy birthday, dear.
 b. Wife: I wonder if you’ll ever remember when my birthday is.

In spite of his good communicative intentions, the husband has not congratulated his wife, since the conditions for the congratulating act were not fulfilled. It was an infelicitous congratulation, and consequently no congratulation at all.

Whatever type of constitutive acts we may be engaged in, there is a simple rule of thumb: It must include the right person, the right time, and the right place. Both the saying and the doing can only succeed if all the conditions are fulfilled. If not, there is no “doing”, no performing the act, but only the saying of some misplaced ritual words.

Felicity conditions hold for all the three main types of speech acts, not only for constitutive acts. In addition, still other conditions hold for informative and obligative acts, as we shall see in the next sections.

7.3 Informative speech acts and cooperative interaction

The exchange of information involves both giving and asking for information. In order to communicate as efficiently as possible, it is important in both cases that the speaker and hearer can reasonably guess what the other already knows, and what can therefore be presupposed and implied by the speaker and what has to be inferred by the hearer. In the next sections, we will look more closely at these presuppositions and implicatures and at the ways that speakers and hearers cooperate with each other to make meaningful interaction possible.

7.3.1 Conversational and conventional presuppositions

We would never ask a complete stranger an information question like (12a). On the contrary, such a question presupposes that we already know a lot about each other:

- (12) a. Jane: Hello, where are you taking the kids today?
 b. Peter: To the park, I expect. They love going there.

In such an interaction the partners know each other and they have met and spoken to each other before. This is known as **background knowledge**, which is knowledge of things taken for granted. Jane knows that Peter regularly takes out the children and goes to different places with them. Taking such things for granted in a conversation is a **conversational presupposition**.

Peter has not made up his mind yet where to go today, but thinks of going to the park. Both Jane and Peter take a lot of things for granted such as, for example, the existence of the park in the neighbourhood as one of the places to take the children to. This is **world knowledge** and is indicated by grammatical devices such as the use of definite articles. Since such knowledge is obvious from the grammar it is a **conventional presupposition**. Ordinary exchanges such as this contain presupposition elements that speakers can assume to be known or which are clear from the speech situation and which can therefore be taken for granted.

People who do not know each other personally, but who belong to the same national or cultural community, may also share **cultural presuppositions**, which are also part of our conventional presuppositions, for example about places, historical events, national institutions, elections, public figures, and so on. Thus in a television discussion about forthcoming elections the following statement makes perfectly good sense to the viewers:

(13) Mrs. Garvie: In my street, everybody votes Labour.

This statement is interpreted against a British cultural background in which there are regular democratic elections within a two-party system and in which it is possible to know the voting intentions of one's neighbours, if it is a fairly close-knit community. The same utterance in a completely different context could lead to all kinds of misunderstandings. For example, if Mrs. Garvie, as a British tourist in China, said (13) to a Chinese casual acquaintance, the latter cannot be supposed to know what she is talking about. The Chinese acquaintance may not even be able to conceive that "everybody" cannot be taken as literally everybody, nor that "everybody" includes women and young people but not children — he may not know that not everybody goes to the ballot. The example in (13) thus illustrates that we make a great deal of presuppositions on the basis of the cultural knowledge we have in common with our interaction partners in the same or a similar cultural community.

7.3.2 The cooperative principle and maxims of conversation

Considering the fact that in just a few words such as (13) so much information is implied, so much is assumed to be known, and that so much is not to be taken literally, it is amazing that anyone can interpret this utterance at all. But we manage to do so, and on many other occasions like it. This relies on our following a number of “silent” rules or principles, also called “maxims”.

According to the language philosopher Grice (1975), human communication is based on the following overriding **cooperative principle**:

- (14) Make your conversational contribution such as is required, at the stage [of the talk exchange] at which it occurs.

The use of the imperative form in (14) does not mean that speakers must do all this, but that these are the internalized rules for cooperative interaction. Within this guiding principle, Grice (1975:45–6) establishes four specific sub-principles called **maxims of conversation**, which he takes to govern all rational interaction.

- a. Quality: Try to make your contribution one that is true.
 - i. Do not say what you believe to be false.
 - ii. Do not say that for which you lack evidence.
- b. Quantity: Make your contribution as informative as is required (for the current purposes of the exchange).
Do not make your contribution more informative than is required.
- c. Relevance: Be relevant.
- d. Manner:
 - i. Be perspicuous (transparent and clear).
 - ii. Avoid obscurity of expression.
 - iii. Avoid ambiguity.
 - iv. Be brief (avoid unnecessary prolixity).
 - v. Be orderly.

Let us first have a closer look at each of these maxims. The first is the **maxim of quality**. It requires that we only give information for which we have evidence. Suppose we ask for the result of a sports contest, e.g. *Do you happen to know who won yesterday?* and our conversational partner does not know the result and gives one of the following answers:

- (15) a. No, I don't.
b. I bet Chelsea did.
c. Chelsea did.

In the first answer, our partner is “truthful” since he says he does not have the information. In the second answer, our partner is still “truthful”, since by using *bet* he indicates indirectly that he does not know the answer, but that he has good grounds to “assume” that Chelsea won. Only in the third answer is our partner not being truthful, since he presents things as if he has the correct information himself. Note that he is not necessarily lying, but only asserting something to be the case for which he has no evidence.

The second maxim is the **maxim of quantity**. It means that one gives all the necessary information one has for the present needs of the partner — not too much, and not too little. Suppose a driver has run out of petrol on a Sunday and asks you where the nearest petrol station is. You answer with one of (16):

- (16) a. There is a petrol station round the corner.
b. There is a petrol station round the corner, but it is closed on Sunday. The next one is 5 miles ahead.
c. The petrol station round the corner is closed on Sunday, but you can fill up there if you have a credit card.

If you know that the petrol station is closed on Sunday and say (16a), you give too little information and thus violate the maxim of quantity. Only the answers in (16b or c) would be cooperative answers.

The third maxim is the **maxim of relevance**, which Grice himself calls the maxim of relation. It can best be illustrated by a deviant case. We often do not answer information questions straightforwardly, probably because we do not know the answer or because we think that the questioner can interpret the answer himself or herself. Therefore, at first sight, the answer in (17b) does not seem to be a relevant one:

- (17) a. Ann: Did Tony Blair win the election?
b. Bill: The paper is on the table.

There is indeed no obvious link between Ann's question. and Bill's reply. But on closer inspection, as Grice says, speakers always tend to be cooperative, even if they do not seem to be so. On the assumption that Bill has been cooperative and hence that his utterance is relevant to the question, one can infer, via the maxim of relevance, that the paper contains the answer to the question.

The fourth maxim is the **maxim of manner** and it can also best be illustrated by a negative example. The following dialogue fragment from Lewis Carroll's *Through the Looking Glass* would have to be classified as uncooperative conversation since it seems to flout each sub-maxim of manner: Humpty Dumpty's utterances in (18c,d,f) are not perspicuous or transparent (i), they are ambiguous (ii), not brief (iii); only the maxim 'be orderly' (iv) is not violated.

- (18) a. "There's glory for you", (said Humpty Dumpty.)
 b. "I don't know what you mean by glory", Alice said.
 c. Humpty Dumpty smiled contemptuously. "Of course, you don't, till I tell you.
 d. I meant, 'There's a nice knock-down argument for you!'"
 e. "But 'glory' doesn't mean 'a nice knock-down argument'", Alice objected.
 f. "When I use a word", Humpty Dumpty said in a rather scornful tone, "it means just what I choose it to mean — neither more nor less."

Indeed, this seems like a very uncooperative conversation, in which the partners are fully "obscure" to each other. But this conversational exchange is only obscure if one takes Alice's "literal" point of view, which would exclude all metaphors from our normal cooperative strategies. What Humpty Dumpty suggests to Alice is that she might earn glory from a very good argument. On the basis of the conceptual metaphor ARGUMENT IS WAR, such a good argument has the force of a knock-down blow for the opponent in the discussion and, just like victory in a fight or war, a good argument also brings glory to the winner. So what Alice in (18e) criticizes is the metaphorical use of language. "Glory" indeed does not mean "a nice knock-down argument", as she objects, but the reverse is absolutely true; using "a nice knock-down argument" may indeed mean "glory" for her. We find here a blend of two conceptual metaphors: ARGUMENT IS WAR and WINNING A WAR/ARGUMENT BRINGS GLORY. It is in this sense that we use clusters of metaphors, and instead of obscuring what we say, they just express levels of insight which would be impossible to express with language used in a literal sense.

If we interpreted Grice's maxim of manner in too narrow a sense, the maxim would no longer be tenable. However, if we accept the insight that metaphor and metonymy are part of every-day language and are often necessary to express what we mean, we can see that a number of utterances that seemed to be totally obscure or ambiguous on the surface, are not so in actual fact. We

can therefore conclude that the maxim of manner must be extended to include figurative language. In addition, we should realize that the maxim of manner is highly culture-specific and that each culture has different norms and interpretations for the maxim of manner. For example, as we saw in Chapter 6.4, different cultures have very different cultural scripts for saying basically the same thing.

To conclude, even though cooperative principles and conversation “rules” may be realized in very culture-specific ways, it is probable that the cooperative principle can be regarded as a **universal** principle and that the maxims of conversation constitute some fundamental **pragmatic** or **interpersonal universals**.

7.3.3 Conversational and conventional implicatures

As the first maxim of conversation, i.e. the maxim of quality says, cooperative speakers are expected to speak the truth. Without this assumption conversation could not work. If speakers were to go about randomly making true and false statements about our world, without any indication to the hearer which are the true statements and which are the statements not to be taken too literally, the communicative process would break down.

But are speakers also expected to speak the whole truth? Are they expected to say as much as they can, as the maxim of quantity (make your contribution as informative as is required, but not more informative) would have us believe? The answer is no. Why would this be so? If speakers are too explicit about their communicative intentions, they enhance the hearer’s comprehension of those intentions but the hearer may feel overinformed and thus feel insulted in some way.

Therefore, people in interaction should not be bored with overinformation and hearers must infer to what extent information and communicative intentions in a conversation are only left implicit. Classical examples of implicit communicative intentions are complaints in the context of family scenes as in (19):

(19) (Wife to husband): You left the door of the fridge open.

Following the maxims of relevance, quantity, and manner, the hearer will “read” more into such an utterance than was explicitly said. Such an utterance will be interpreted as a request to do something about the situation rather than as a description of it. The description stands metonymically for the whole situation that fridges are normally closed and, since this is not the case, action should be taken to bring it about.

Sometimes, people's utterances seem totally irrelevant. However, Grice claims that even such apparent violations of the rules should be interpreted cooperatively. Consider the following example.

- (20) a. Mathilda: How do you like my new hairstyle, Francis?
 b. Francis: Let's get going, Mathilda.

The radical topic change that Francis makes is an obvious violation of the rule that speakers should say "nothing beyond the truth". A cooperative reply to Mathilda's question would have been "I like it a lot" or "I think it looks awful". Francis' blatant violation of this rule is not simply a case of misunderstanding, but has a meaning of its own. Francis evades a relevant answer to the question and the implication that Mathilda can draw from this is that a relevant answer to her question may very well be too painful.

The kind of implications that follow from the maxims are called **implicatures**. Implicatures come in various sorts, two of which are of special importance: conversational implicatures and conventional implicatures. A **conversational implicature** is the information inferred but not literally expressed in the speech act. The implicatures in (17, 19, and 20) are tied to the conversation, and this makes the implicature context-dependent. The implicature need not be true, or we say that it can be cancelled. The paper in (17) does not necessarily contain the election results about Tony Blair, since it may have been printed too early to give these results.

A **conventional implicature** or an **implicature by convention**, is an implicature that is tied to linguistic expressions. This is why a conventional implicature cannot be cancelled. One of Grice's examples of conventional implicatures is the contrastive meaning of a connective like *but*.

The difference in context-dependency is apparent in examples like (21) and (22):

- (21) The flag is red, but not completely red.
 (22) ?John is a Republican but honest; and I don't mean that there is any contrast between being a Republican and being honest.

In example (21) it is possible to use *but* in order to deny the implicature of the first clause, namely that the flag is completely red. The same holds for the part before the semi-colon in (22), which contains the conventional implicature that there is by definition a contrast between being a Republican and being honest. Therefore, the clause after the semi-colon presents a contradiction, and as a result, the whole sentence is rather questionable (indicated by the question mark).

Let us now look at a conversational implicature which also happens to contain *but*. Suppose two people, Peter and Carl, are playing tennis and after a little while Peter says:

(23) It's not a sugar spoon you're holding Carl, but a tennis racket.

Peter has used the equivalent of a *not-A-but-B* construction. Such a contrastive construction expresses a correction. Peter's utterance violates the maxim of quality, since he knows perfectly well that nobody is assuming that the thing in Carl's hand is a spoon. Carl therefore infers that the speaker, Peter, is violating a maxim, and, on the assumption that the speaker is cooperative, Carl will try to find out what he ironically intended to convey. The most likely interpretation here is that Carl has been playing the tennis racket as if it were a spoon, i.e. without a real feel for the racket. The absurdity of the suggestion that Carl may have thought that the thing in his hand is a spoon creates the irony of the example.

What happened in these cases is that a conversational implicature was derived, not on the basis of obeying one of the maxims, but on the basis of a violation of the maxims, which is also called **flouting** the maxims. Note that flouting is something different from deception. Flouting involves an open, and hence, obvious violation of the maxims, whereas deception has to do with violations of the maxims which are hidden to the hearer so that the speaker can make him believe that he is saying things which are true. In all cases of figurative, either ironic or metaphorical language, conversational implicatures or flouting, there is always cooperative interaction as long as the speaker's utterance remains relevant. Consequently, of all the maxims of conversation, the maxim of relation "Be relevant" can be considered the most important.

7.4 Obligative speech acts and polite interaction

In the previous discussion, we illustrated cooperative principles especially with informative speech acts. There is another basic principle in interaction, i.e. politeness. Although this principle also plays a role in other speech acts, it is most evident in **obligative speech acts** i.e. getting people to do things for you by means of directive speech acts or your offering or promising to do things for other people by means of commissive speech acts. For example, the orders in (24) would be considered very impolite in most situations.

- (24) a. The door!
 b. I told you to go and close the door!

The order in (24a) would only be acceptable if someone had forgotten to close the door and the second in (24b) could only be said to a child who has disobeyed a previous order. In the next sections, we will discuss why politeness is so intimately intertwined with obligative acts.

7.4.1 Difference between information questions and directives

Even though we use politeness strategies in most of our speech acts, there are differences in motivation and desired consequences between, for example, a directive act such as *May I have the salt, please?* and an information question like *What's the time, please?*

When asking for information, the speaker cannot be sure that the hearer has the necessary knowledge to be able to give the desired information. Therefore, for most information questions we would use the interrogative as in (25a). If the hearer says that he or she does not have the requested knowledge — (as in 25b) — he or she is not likely to be blamed for not being able to provide the information as there is no reason for the first speaker to suspect that the second speaker is not telling the truth:

- (25) a. Mike: Can you tell me when the next bus leaves?
 b. Lady: I am sorry, I don't know.

Since the lady answers that she cannot give the information, Mike probably assumes she really does not know and is not withholding the information for some other reason. Reasons for withholding information might include keeping a secret, promising not to tell, information about one's sex life or financial matters. In all these situations, the principle of politeness tells us not to intrude. But in any other non-exceptional situation, we feel we can ask all possible information questions. And if the hearer says he or she does not know the answer, we cannot really question this. Therefore asking information questions is less imposing than making requests or giving orders. As long as easy actions such as passing the salt are involved there is no problem, but things become more complex when real work is involved as in (26a).

- (26) a. Sarah: Mike, (can you) take the rubbish out, please.
 b. Mike: ?No, I don't want to, do it yourself.
 c. Mike: Sorry, I can't.

- d. Sarah: Why not?
- e. Mike: I'm late for my train already.

Based on general knowledge as to what people are able and willing to do, and judging from the perception of the situation, Sarah presumes Mike's willingness and cooperation and expects that he will help her. If he does not do so, she would expect some sort of explanation as in (26c). Therefore, even if Mike does not want to comply with Sarah's order, he is unlikely to say *I don't want to* as in (26b), which therefore is preceded by a question mark, noting an odd utterance. He does not want to appear rude. There are several such strategies available to the speaker to help avoid such unpleasant situations when involved in directive acts.

7.4.2 Politeness: Acknowledging the other's identity

Why is it so important to use sentence types with less impact that do not put such a strong obligation, as in (26a), on the hearer? Another example helps to clarify this:

- (27) a. Sue: It's my birthday tomorrow. Are you coming to my party?
- b. Monica: Well, I'd like to come, but, actually I've got rather a lot of work to finish for the next day.

Here both speakers respect each other's "face". First of all, Sue does not impose too much by avoiding an explicit directive in the imperative form like *Do come to my party tomorrow*, but she uses an implicit directive in the interrogative form to pass on the invitation. Monica also respects Sue's "face". She does not give a direct answer because such an answer could hurt Sue's feelings. Clearly, Monica does not want to come. So she tries to present the situation to Sue as one in which she does not have the choice of saying "yes" but is forced by some important circumstance to reject the invitation.

This example illustrates that when people talk to each other, they do not only negotiate the meaning of what they are saying to each other, they also continuously negotiate their relationship in that interaction. It is not only important to say to the other person what one thinks, wants or feels. It is just as important to take into account what the other person might think, want or feel about what one says. Will the others be upset if I say what I really want to say? Will they not like me anymore and want to break off the interaction? How can I say what I want to say so that we can continue the interactional relationship? These are questions that very much influence our choice of words in interaction.

In a communicative interaction, participants want to be acknowledged by others. They claim a specific identity as they want to be seen in a specific way, and thus they project a specific image of themselves. This interactional identity is commonly called *face* (where the most visible part of a person stands metonymically for the whole person and his or her identity).

In communicative interaction, we seek to establish and keep our face, not lose it. We hope that our wants and feelings are appreciated by the people we are talking to. We want to be liked and to feel good when interacting with others. In the majority of cases, we also hope to convey that our conversational partners should feel good about themselves, too. To do so, we use positive and negative politeness strategies, i.e. we say a bit more to signal our appreciation of the other's "face" wants.

Let us now have a look at the use of such strategies in conversation for either coming closer ("social accelerating") or distancing ("social braking"). At the beginning of a conversation, we might use ritual phrases like *How are you*, *Nice to see you*, and so on to show our interest in the other person and thus to establish a mutual basis for the present interaction. We signal to each other that the channel is open and we want to communicate. During this "phatic" phase of the interaction, we might engage in a little small talk about things like the weather, sports, or even politics, topics that are relatively neutral as to the wants and feelings of both partners. These "safe topics" are not too important as far as the topic of conversation is concerned, but they are all the more important to establish a mutual basis for interaction.

However, most interactions do not focus on "safe topics" only. One basic reason for taking part in interactions is to convey to others what we think and what we want (the other) to do. Every "less safe" speech act that is directed towards a hearer might threaten his or her face, no matter whether we use informative or obligative acts. When carrying out obligative speech acts, for example, we want to do something or want the other to do something for us. If we do this by means of an explicit form such as the imperative as in (28a), we use a **direct speech act**, i.e. we state our communicative intention openly and directly. This might threaten the other's right to autonomy. If we have the feeling that a direct speech act might be perceived as a face threat by the hearer, there is quite a wide range of implicit directives, which are **indirect speech acts** as in (28b–e) from which we might select something appropriate and less threatening to the other's face.

- (28) a. Shut the door.
b. Can you shut the door, please?
c. Will you shut the door, please?
d. Would/could you please shut the door?
e. Let's shut the door, shall we?
f. There's a draught in here.

As already shown in Chapter 6.4, in Anglo culture there are scripts blocking the imperative (28a) and prescribing the interrogative (28b, c, d). Though it may be perfectly acceptable among friends, the use of the imperative in (28a) is not appropriate when the speaker and hearer do not know each other well or when the hearer is of a higher social status or has power over the speaker. The use of the imperative as in *Shut the door* has the strongest impact on the hearer, but it is normally not used. Still, the use of the plain imperative does not count as a face threat per se. There are situations that require such a use of directive speech acts. Imagine for example that someone opens the door of an office, causing a terrible draught, and papers are flying all around the room. This might count as a kind of emergency situation and the secretary might shout: *Shut the door!* Or imagine other direct speech acts like instructions in recipes. We would expect that they read something like *Cook the potatoes and turnips until tender, then drain well*. It would seem rather odd to employ strategies of politeness in this context. The same holds true for instructions in a working environment and task oriented acts: *Give me the nails*, or computer instructions: *Insert diskette and type: Set-up*.

If the speaker is a student, and the hearer a professor, the request to shut the door would be realized rather differently by indirect speech acts, as for example in (28b, c, d). Such, more polite, utterances say more than is necessary and thus seem to flout the maxim of quantity. There are two types of politeness strategies like these. **Positive politeness strategies** signal to the hearer that the speaker appreciates the hearer's needs. For example, a speaker can use an **inclusive we** to include both the speaker and the hearer in the action, where, in actual fact, only the hearer "you" is meant to do something as in (28e) *Let's shut the door* or in *We really should close the door*. It can even be employed in prohibitions. So a very polite British policeman might say: *We don't want to park here, do we?* Others include paying compliments like *Oh these biscuits smell wonderful — did you make them? May I have one?* or using in-group address forms such as *Give us a hand, son*.

Negative politeness strategies, on the other hand, show the hearer that the speaker respects the hearer's desire not to be imposed upon as in (28b) *Can you shut the door please*. Here, rather than ordering, the speaker asks if the hearer is able to do something. Another possibility would be to ask if the hearer is willing as in (28c). An even more polite form would be the use of the expressions such as *Would you* or *Could you* in (28d). Here the speaker seems to be expressing doubt as to whether the hearer is able or is willing to help so that he need not feel obliged at all. Both, positive as well as negative politeness strategies say something more than really necessary to prevent a possible face threat.

At the politest end of the scale of indirectness, we can express implicit communicative intentions as in the case of (28f) *There's a draught in here*. This highlights the reason why the speaker performs the act. As discussed in the context of (19) and (20), the hearer must infer the conversational implicature, i.e. the door is to be closed and the new hairstyle is not good, respectively. Such implicatures work via the principle of metonymy in that only one element in the interactional situation, i.e. the reason to act, is explicitly mentioned, but this stands for the whole of the speech act, i.e. the carrying out of the implicit request. The **face-threatening act** is still performed, but in an indirect mode.

Moreover, it may also be the case that a request would be thought of as offering such an enormous threat to the face of the hearer (and because of his inappropriate behaviour also a threat to the face of the speaker) that it cannot be uttered at all. If a VIP is making an after-dinner speech, you would probably not utter the request to have the door closed, but avoid the speech act altogether and close it yourself.

If we look at the range of utterances in (28a–f), we can see that positive and negative politeness strategies follow the iconic principle of quantity as introduced in Chapter 1: The more linguistic material is employed, the more polite the strategy tends to be.

7.5 Conclusion: Interplay between sentence structure and types of speech act

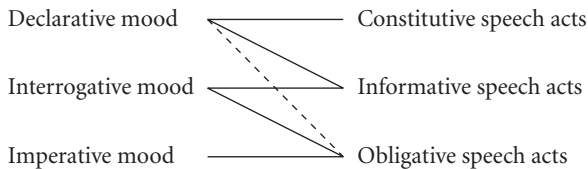
In Chapter 4 (Section 4.4.1), it was pointed out that there are three basic sentence patterns associated with moods: (a) the subject-verb order for declaratives, with which we make statements, (b) the verb-subject order for interrogatives, with which we ask questions, and (c) the subjectless imperative, with which we give orders:

- (29) a. Mary has shut the door.
 b. Has Mary shut the door?
 c. Shut the door, Mary!!

However, as we have seen now in this chapter, while looking more closely at language as it is actually used in conversation, we have given many examples where the communicative intention does not match with the expected sentence pattern. For example, a declarative statement like *You have left the fridge open* may be meant as an implicit order like “Please, close the fridge”. It is especially with obligative speech acts that we often use alternate patterns. To be less direct, we often use a declarative or interrogative sentence pattern.

Table 2 shows some of the possible combinations: Those that are most typical — though not necessarily most frequently used — are connected with full lines, and those which are less prototypical are connected with interrupted lines. We see then that the constitutive (declarative and expressive) speech acts are expressed with only the declarative pattern, but informative speech acts may be expressed with declarative and interrogative patterns, and obligative speech acts may be expressed with all three types: The declarative, interrogative and imperative patterns, each with different stylistic values and effects.

Table 2.



These various possibilities are illustrated in the examples of speech acts in (30).

- (30) a. Declarative mood
 Const.: I name this ship the Queen Elizabeth.
 Inform.: My laptop broke down.
 Oblig.: You left the door open.
- b. Interrogative mood
 Inform.: Do you know when the bus comes?
 Oblig.: Could you close the door, please?
- c. Imperative mood
 Oblig.: Close the door, please.
 Const.: Have fun!

7.6 Summary

Whereas Chapters 1 to 6 focus on the **ideational function** of language, Chapter 7 focuses on the **interpersonal function**. With the exception of its **phatic function**, **language-in-use** aims at the realization of a specific **communicative intention**, which is realized in the **speech act**. All this is the business of **pragmatics**, the subfield of linguistics analyzing what we do with language. The three main types of 'doing things with language' are constitutive speech acts such as apologizing or sentencing someone, informative speech acts and obligative speech acts.

In **constitutive speech acts** we can distinguish between every-day or informal **expressive speech acts** such as congratulations, apologies, giving comfort and formal **declarative speech acts** such as declaring a meeting open. They have in common that saying the right words at the right time by the right person is the doing of the act and therefore they crucially depend on their **felicity conditions** i.e. the conditions to make a speech act **felicitous**. In many cases the verb indicating the subtype of a constitutive or other type of speech act can be used to both express and describe the speech act and is therefore a **performative verb**.

In **informative speech acts** we either give information by means of **assertive speech acts** or ask for information by means of information questions. We do this on the basis of the **background knowledge** which determines the **conversational presuppositions** the speaker and the hearer make. Otherwise we do this on the basis of **conventional presuppositions**, using the clues of definite articles as in *I'm going to the park* for all the elements the speaker can take for granted because of **world knowledge** or **cultural knowledge**.

With informative speech acts there may be an enormous distance between what is literally said and what is communicatively meant. In order to establish a relation between those two realities, the **cooperative principle** is proposed by Grice. It is assumed that the partners are fully cooperative in some way and that they follow **maxims of conversation**. These are the **maxims of quality, quantity, relevance and manner**. The cooperative principle can be seen as a **language universal** and the maxims of conversation constitute **pragmatic universals**, also called **interpersonals universals**.

As well as implementing these four maxims, we are also called upon to interpret a number of utterances on the basis of the implications they contain. Implications depending on the speech act situation itself are **conversational implicatures**; if they are of a more general nature and depend on grammatical form they are **conventional implicatures**. In a number of cases, we even seem

to violate the maxims of conversation, which is called **flouting**, but even then we are cooperative, but express our communicative intention very indirectly.

Obligative speech acts carry an obligation placed on the hearer (**directive speech acts**) or on the speaker himself (**commissive speech acts**) and therefore require tact and politeness. A **direct speech act**, especially in the imperative, may be too abrupt and therefore many **indirect speech acts** are used to save the hearer's face. **Negative politeness strategies** inquire after the hearer's ability or willingness to carry out a request, whereas **positive politeness strategies** propose common action, e.g. by means of **inclusive we**.

7.7 Further reading

Good introductions to the field of pragmatics for beginners are Grundy (1995), and for intermediate students: Levinson (1983) and Blakemore (1992). Cognitive approaches to speech acts in terms of metonymy are Thornburg and Panther (1997), Panther and Thornburg (2003), and Ruiz de Mendoza (2002). The classics of the field are the relatively simple and highly accessible books by Austin (1952) and Searle (1969). The epoch-making paper on the cooperative principle is Grice (1975). The most innovating work on politeness is a long paper by Brown & Levinson (1987). A highly technical, but important study on relevance is Sperber & Wilson (1986). A reader containing many of the basic pragmatic papers is Davis (ed., 1991).

WEEK TEN

Goals

The goals of the chapter are to:

- explain how and why languages change over time;
- introduce some of the main types of change in phonology, morphology, syntax and semantics;
- introduce the notion of regularity of sound change;
- give examples of some important changes in the historical development of English and other Indo-European languages; and
- identify some of the ways by which languages acquire and renew their grammatical resources.

Key terms

amelioration	dissimilation	reanalysis
analogical change	extension	regularity
assimilation	grammaticalization	regularization
bifurcation	Grimm's Law	sound change
bleaching	hyperbole	structural pressure
borrowing	insertion	syntactic change
chain shifts	metathesis	taboo
cognates	morphological change	understatement
deletion	pejoration	

15.1 Major characteristics of language change

Language change is ubiquitous; with the exception of extinct languages, no language remains static over a long period of time. You are probably aware of changes that have occurred in your own language within your lifetime: new words that have come into use, and others that have gone out of use, or at least out of fashion. You are probably also aware of differences between the speech of your generation and that of your parents' and grandparents' generations.

Modern human beings have changed relatively little biologically since they first appeared in Africa around 200,000 years ago. Languages change much more quickly, so that they are usually

recognizably different within a few centuries, and certainly over a period of a millennium. Compare the following three versions of the Lord's Prayer from different periods in English: **Old English** (from around 450 to about 1100), **Middle English** (about 1100–1500) and **Modern English** (around 1500 to present). (Note that *þ* and *ð* represent the voiceless and voiced dental fricatives [IPA θ and ð], *y* represents the high front rounded vowel in the Old English version, and *c* usually indicates the voiceless velar stop [IPA k].)

(15-1) *Fæder ure þu þe eart on heofonum; Si þin nama gehalgod to becume þin rice gewurþe ðin willa on eorðan swa swa on heofonum. urne gedæghwamlican hlaf syle us todæg and forgyf us ure gyltas swa swa we forgyfað urum gyltendum and ne gelæd þu us on costnunge ac alys us of yfele soþlice.*

Old English, 11th century

(15-2) *Oure fadir þat art in heuenes halwid be þi name; þi reume or kyngdom come to be. Be þi willa don in herþe as it is down in heuene. yeue to us today oure eche dayes bred. And foryeue to us oure dettis þat is oure synnys as we foryeuen to oure dettouris þat is to men þat han synned in us. And lede us not into temptacion but delyuere us from euyl.*

Middle English, Wycliffe, dated 1384

(15-3) *Our Father which art in heaven, hallowed be thy name. Thy kingdom come. Thy will be done in earth as it is in heaven. Give us this day our daily bread. And forgive us our trespasses, as we forgive them that trespass against us. And lead us not into temptation. But deliver us from evil. Amen.*

Early Modern English, from the *Book of Common Prayer* 1559

You probably experienced little trouble understanding the third version, even though there are a few words that are no longer in common usage (*art, thy, trespasses*), and some of the grammar is a little unusual. Knowing the meaning of the passage, you will probably not experience enormous difficulties in reading the Middle English version, though it is clearly more divergent from Modern English. But the Old English version is likely to remain largely uninterpretable – 1,000 years have seen sufficient changes to result in effectively a new language: to speak Old English, speakers of Modern English would need to learn it just as they would Spanish or Finnish.

How fast do languages change? This is a bit like asking how fast cars go. It is impossible to give a figure: the rate of change varies considerably; languages sometimes change rapidly, sometimes slowly. Thus, the changes in the 500 years from Early Modern English as represented in (15-3) seem less striking than the changes in the 400 years separating (15-2) from (15-1). It also depends on what aspect of the language you are considering. Some parts of languages tend to be more resistant to change than others: for example, some lexical items are more susceptible to change than others (see p. 388); pronouns tend to change rather slowly compared with the average lexical item; and bound morphemes tend to change more slowly than free morphemes.

The speed of change can also depend on other factors. Nick Reid has documented a case of particularly rapid change that occurred in the Australian language Ngan'gityimerrri (non-Pama-Nyungan) verbal construction in the 50 years from 1930 to 1980 (Reid 2003). He suggests that one reason why the change could happen so rapidly is because of the small size of the speech

community: a drastic change such as occurred might be expected to take considerably longer to travel through a larger and geographically widely spread speech community, say the community of Mandarin Chinese speakers.

Any aspect of a language can change over time: phonetics, phonology, morphology, syntax, semantics, pragmatics and lexicon. We have already encountered in Chapter 4 processes of extending the lexicon of a language, including acronyming, compounding, reduplication, borrowing and invention. These processes represent – along with the loss of words – the major means by which lexical changes occur.

15.2 Sound change

In the 17th century, speakers of Parisian French began to pronounce their rhotic as the uvular trill [ʀ], instead of the apico-alveolar trill [r]. This phonetic change subsequently spread by **diffusion** to other languages in Western Europe, hopping from urban area to urban area, and gradually spreading from the urban areas to adjacent rural areas. Today a uvular or pharyngeal rhotic has replaced, or partly replaced, the former apical rhotic in many dialects of French, German, Danish, Dutch, Swedish and Norwegian.

Speakers were probably aware of this phonetic change as it was in progress. Not all phonetic changes are like this. Many are slow and imperceptible at first, and become apparent only with the passage of time.

Grimm's Law

Grimm's Law¹ – named after Jacob Grimm (1785–1863), who formulated it in 1822, based on work by others, including Rasmus Rask (1787–1832) – describes some important sound changes that happened to stops in proto-Indo-European, the language from which most European languages ultimately derive (see §16.3), in the development of the Germanic languages. Three interrelated sets of changes occurred.

- Voiceless stops became voiceless fricatives: *p, t, k* became *f, θ, h*.
- Voiced stops became voiceless stops: *b, d, g* became *p, t, k*.
- Voiced aspirated stops became plain voiced stops: *bh, dh, gh* became *b, d, g*.

These changes did not occur in the developmental history of other Indo-European languages, for instance, Romance languages. Thus if we examine words in, say, English and French that derive from the same word in proto-Indo-European – such words are called **cognates** – we should find voiceless fricatives in English where there are voiceless stops in French, voiceless stops in English where there are voiced stops in French and voiced stops in English where there are voiced aspirated stops in French. In fact, however, the Romance languages also underwent their own sets of sound changes, complicating the picture. In Table 15.1 we give one cognate in English and French illustrating the first two sets of changes, omitting *b*, which was rare in proto-Indo-European. In this table we follow the standard convention of prefixing a star to forms in the proto-language.

Table 15.1 Some cognates in English and French illustrating Grimm's Law

Grimm's Law sound change	English	French cognate
* <i>p</i> > <i>f</i>	<i>foot</i> <i>fish</i>	<i>piéd</i> <i>poisson</i>
* <i>t</i> > <i>θ</i>	<i>three</i> <i>thou</i>	<i>trois</i> <i>tu</i>
* <i>k</i> > <i>h</i>	<i>heart</i> <i>hound</i>	<i>cœur</i> <i>chien</i> (initial /ʃ/ from /k/)
* <i>d</i> > <i>t</i>	<i>two</i> <i>tooth</i>	<i>deux</i> <i>dent</i>
* <i>g</i> > <i>k</i>	<i>knee</i> (/ni/ from /kni/) <i>corn</i>	<i>genou</i> (initial /ʒ/ from /g/) <i>grain</i>

The three sets of sound changes in Grimm's Law are interrelated. If the voiced aspirated stops first changed to plain voiced stops, and then later these changed to voiceless stops, then these to fricatives, all Proto-Indo-European stops would show up as fricatives in Germanic languages. Since this did not happen, the changes must have been linked together in a **chain shift**, as depicted in Figure 15.1. We can imagine either the top change dragging the other changes along after it, as it were, filling the spaces left over as a result of the changes; or alternatively the bottom change could be imagined as pushing the other changes ahead of it, preventing massive collapse of phonemic contrasts.

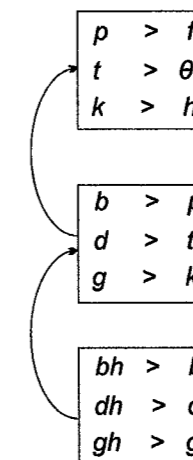


Figure 15.1 Grimm's Law chain shift

Some common types of sound changes

This section mentions and exemplifies five common types of sound change.

Loss or deletion

Loss or deletion of segments is a not uncommon type of sound change. English examples include loss of voiced stops following nasals at the end of a word: the final /b/ of *lamb* and *womb* have been lost, as has been the final /g/ of *strong* (cf. *stronger*). Loss of word-final segments is called **apocope**. Loss of a segment from the beginning of a word is **aphaeresis**; word initial /k/ preceding an /n/ in English has been lost, as in *knife* and *knee*, the spellings of which reflect previous pronunciations. Segments can also be lost within a word – this is called **syncope** – as happened to the middle consonant of many three-member consonant clusters in Scandinavian languages. For example, the Swedish place name *Väsby* derives from *väst* ‘west’ and *by* ‘town’.

Insertion

Insertion or **epenthesis** involves the addition of phonological segments into a word. The stops in *thunder* and *number* are epenthetic; speakers of English often add an epenthetic schwa between the two final consonants of *film*. Latin words beginning with an *s* followed by a stop began in the 2nd century CE to add an initial short *i* vowel: *scola* became *iskola* (cf. French *école* ‘school’) and *stabula* ‘stable’ became *istabula*.

Assimilation

Assimilation is the process whereby a segment changes to become more like a nearby segment, usually adjacent to it. This is a very common type of sound change. Latin *octo* ‘eight’ became *otto* in Italian, *noctem* ‘night’ became *notte*, and *factum* ‘done’ became *fatto*. (The letter *c* in Latin represents /k/.) The first stop in the consonant cluster in these words has changed to become more like – indeed, identical with – the following stop by adopting its place of articulation. This is called **regressive assimilation** because it is as though a property – place of articulation – of the second stop moves backwards (regresses) to the preceding stop in the cluster.

An example of **progressive assimilation**, where the phonetic characteristic shifts forward, is the change in the history of Icelandic from **findan* ‘find’ to *finna*, and **munθ* ‘mouth’ to *munn*. Here the nasal component of articulation has shifted forward from the nasal to the following stop or fricative, resulting in a double nasal consonant.

The above examples illustrate total assimilation – one segment becomes identical with another. Partial assimilation occurs when one segment becomes more like, but not identical with, another. Regressive partial assimilation is illustrated in the change from the velar stop /k/ to the alveo-palatal affricate /tʃ/ before front vowels in the history of English. For instance, **kinn* changed to *chin*, and **ke:si* to *cheese*.

Do you understand why the change from /k/ to /tʃ/ in these two examples is assimilation? Recall that front vowels have the high point of the tongue forward in the mouth, whereas velar stops have the back of the tongue relatively high in the mouth, making contact with the velum. The articulation of the stop changed so as to closer approximate the following vowel by anticipating its tongue position. (Remember that when velars precede front vowels they tend to shift their point of articulation forward to the pre-velar region, as in words like *key*. Alveo-palatal articulation is a more extreme form of assimilation.)

Dissimilation

Dissimilation is the reverse of assimilation: neighbouring segments become less alike. Dissimilation is most frequent with laterals and rhotics. The second rhotic in the Latin words *arbor* ‘tree’ and *rôbur* ‘strength’ changed to a lateral in Spanish *arbol* and *roble*.

Metathesis

Metathesis is the inversion of the order of adjacent or nearby phones. English examples include *ask* from Old English *acsian* (in fact, *aks* was regular until the 17th century, and is still found in some dialects), *bird* from Old English *brid*, and *horse* from Old English *hros* (other sound changes have affected the last two words in many dialects).

Metathesis is not common and often affects only certain words. But occasionally it is systematic. In Ilocano (Austronesian, Philippines) word initial /t/ and word-final /s/ have been fairly consistently switched. Corresponding to Tagalog *tanjis* ‘cry’ and *tigis* ‘decant’, which preserve the original sequence of these two phonemes, are Ilocano *sa:ɲit* and *si:git*.

Generality of sound changes

Sound changes can be limited to particular phonological environments, though they are sometimes unconditional, and apply everywhere. For instance, at some point in time the palatal lateral /ʎ/ in Hungarian changed unconditionally to /j/.

Sound changes are generally regular. If /k/ changes to /tʃ/ before front vowels, this usually happens to every /k/ in this environment, and not just to a scattering of them. Metathesis and dissimilation are the most frequent exceptions to the regularity of sound change.

If sound changes are so regular, why do we have exceptions to Grimm’s law such as *genue* and *pedicure*, which are obviously related to the French words *genou* ‘knee’ and *ped* ‘foot’ cited in Table 15.1? Shouldn’t these words show up with initial *k* and *f* respectively? (See end of chapter for answer.)

15.3 Morphological change

Acquisition and loss of bound morphemes

One way of acquiring new bound morphemes is through borrowing of words, and later factoring out of common components. Following the Norman invasion of England in 1066 English acquired a large number of lexical items from French, many of which had derivational affixes attached to them. As the borrowings became increasingly numerous and integrated into the language, these affixes were identified, and came to be attached to native English words as well. Derivational morphemes such as *able*, *ment*, *dis* and *re* entered the English language in this way.

This is not the only way new bound morphemes can appear. Sometimes bound morphemes are borrowed as such, and not as parts of lexical items. Jeffrey Heath's seminal study (1978) identifies a number of bound morphemes borrowed between languages of Arnhem Land. Among his examples is the verbal derivational morpheme *thi* 'become', borrowed into Ngandi (non-Pama-Nyungan) from its unrelated neighbour Ritharrngu (Pama-Nyungan). And in the Kimberley region, the bound comitative postposition *-ngarri* 'with' has been borrowed independently as a bound morpheme across languages belonging to at least three different families.

Another important process of morpheme acquisition is grammaticalization, discussed in §15.5.

Morphemes can also be lost over time, going slowly out of use until they completely disappear, or only relics remain. Old English verbs took a third person plural agreement marker *n* as in *stodon* 'they stood', which was lost over time as a result of a regular sound change.

Analogical change

Languages often regularize their morphology, replacing irregular forms by regular forms, thus making the regular morphological rules more productive. For instance, *shoe* once had plural *shoen*, which is now completely replaced by *shoes*; in Middle English the plural of *cow* was *kine*, which has completely gone in most dialects, being replaced by the regular *cows*.

What is going on here resembles the process of solving a simple mathematical equation involving proportions: *shoe* is to *x* as *loo* is to *loos*. Clearly *x* must be *shoes*:

$$\frac{shoe}{x} = \frac{loo}{loos} \text{ therefore } x = shoe \times \frac{loos}{loo} = shoe \times s = shoes$$

The new form is constructed on analogy with another morphological opposition; this is called **analogical change**.

The term **analogical levelling** is used for regularizations in which an irregular morphological opposition is replaced by another opposition modelled after a more regular pattern. Another type of analogical change is **analogical extension**, whereby a minor morphological pattern is used as the basis for analogical remodelling. Otto Jespersen (1922: 131) cites a now famous example of a Danish child 'who was corrected for saying *nak* instead of *nikkede* ["nodded"], [and] immediately retorted "stikker ["prick"], stak ["pricked"], nikker, nak," thus showing on what analogy he had

formed the new preterit'. In some dialects of American English the past tense of *dive* is *dove* rather than the regular *dived*. This form is formed by analogy with a minor pattern, as in *drive* ~ *drove*.

The word *mouse* has recently been extended to an item of computer equipment. The most usual plural of this *mouse* seems to be not *mice*, but the regular *mouses* – in a Google search for *mouses* (23 November 2013), the first hit was *Shop for mouses on Google*. But *mice* remains the standard plural of *mouse* in its ordinary sense, as well as an alternative plural for the computer item. This is an illustration of the process of **bifurcation**. Both regular and irregular plurals remain, but they have acquired different meanings.

Reanalysis

Reanalysis is the process by which a word with a certain morphological structure comes to be analysed differently over time (see also §4.3). *Quince* was originally the plural of *quin*, but the plural suffix was reanalysed as a part of the stem; the plural is now *quinces* – which historically has two instances of the plural suffix! Likewise for the Dutch word *schoenen* 'shoes', the earlier plural form of which was *schoen*. The auxiliary verb *have*, pronounced as /əv/ in many environments, may be being reanalysed in some varieties of English as *of* following a modal auxiliary (e.g. *may*, *could* etc.). Thus it appears as /əv/ when stressed in expressions like *would have gone*, pronounced (and sometimes written) as though *would of gone*. The verbal suffix *ing* is in some environments reanalysed as the participial *-en*.

In some Austronesian (see §16.3) languages of the Pacific, ordinary nouns are preceded by a free morpheme *a* that indicates the following word is a noun. It seems that the proto-language also had a similar morpheme **a*. But in Paamese it has been reanalysed as part of the root form of some nouns, as in *atas* 'sea' from **tansik*, and *ani* 'coconut' from **niu*.

15.4 Syntactic change

Changes in word order

Latin had relatively free word order. The three words of our earlier Latin example (3-2) (repeated as (15-4) below) can occur in any order, and the result is an acceptable sentence with the same experiential structure and meaning (see p. 119):

(15-4)	<i>serv-ī</i>	<i>consul-em</i>	<i>audi-unt</i>	SOV
	slave-PL:SUB	consul-SG:OBJ	hear-3PL:PRS	
	'The slaves hear the consul.'			

- (15-5) *serv-ī* *audi-unt* *consul-em* SVO
 slave-PL:SUB hear-3PL:PRS consul-SG:OBJ
 'The slaves hear the consul.'
- (15-6) *consul-em* *serv-ī* *audi-unt* OSV
 consul-SG:OBJ slave-PL:SUB hear-3PL:PRS
 'The slaves hear the consul.'
- (15-7) *consul-em* *audi-unt* *serv-ī* OVS
 consul-SG:OBJ hear-3PL:PRS slave-PL:SUB
 'The slaves hear the consul.'
- (15-8) *audi-unt* *serv-ī* *consul-em* VSO
 hear-3PL:PRS slave-PL:SUB consul-SG:OBJ
 'The slaves hear the consul.'
- (15-9) *audi-unt* *consul-em* *serv-ī* VOS
 hear-3PL:PRS consul-SG:OBJ slave-PL:SUB
 'The slaves hear the consul.'

In the modern daughter languages, the Romance languages, however, word order is fixed SVO, as in:

- (15-10) *les* *esclaves* *entend-ent* *le* *consul* French
 the:PL slave:PL hear-3PL the consul
 'The slaves hear the consul.'

This rigidification of word order doubtless resulted from loss of noun cases in modern Romance languages. With the loss of cases, word order was apparently pressed into service for distinguishing between subjects and objects. A similar thing happened in the history of English.

Saying that languages like Latin and Old English had 'free word order' should not be interpreted literally. First, in these languages it was phrase order rather than word order as such that was 'free': words belonging to the same phrase usually remained together. Second, different word orders conveyed different pragmatic nuances. Third, it is usually the case that not all word orders in a language are equally common: often one is preferred in use, even if all are grammatically acceptable.

Word order can also be borrowed. In parts of Papua New Guinea, some Papuan languages have apparently borrowed SVO word from neighbouring Austronesian languages, while some Austronesian languages have borrowed SOV word order from their Papuan neighbours. Thus it is believed that word order in the Austronesian languages of the Central and Milne Bay Provinces was originally SVO, but this changed to SOV under the influence of nearby Papuan languages.

Changes in grammatical constructions

Grammatical constructions can, like morphology, change as a result of borrowing, reanalysis and extension.

Borrowing of grammatical constructions

Pipil has borrowed the Spanish comparative construction, including the morphemes *más* 'more' and *que* (/ke/) 'than' (Campbell 1998: 230–1). Thus compare (15-11) with the Spanish counterpart (15-12). Prior to contact with Spanish, Pipil had different ways of expressing comparatives, all of which have been replaced by the Spanish-style construction.

- (15-11) *ne* *siwa:t* *mas* *galá:na* *ke* *taha* Pipil
 the woman more pretty than you
 'That woman is prettier than you.'

- (15-12) *esa* *mujer* *es* *más* *linda* *que* *tú* Spanish
 the woman is more pretty than you
 'That woman is prettier than you.'

Reanalysis of grammatical constructions

Mandarin Chinese has a special grammatical construction called the *bǎ*-construction, a type of passive in which the word order is SOV instead of the normal SVO, and the object is marked by the preposition *bǎ*, as in:

- (15-13) *wǒ* *bǎ* *zhāng-sān* *dǎ* *le* Mandarin Chinese
 I OBJ Zhang-san hit PFV
 'I hit Zhang-san.'

Written records show that *bǎ* was a verb meaning 'take' in Archaic Chinese. Gradually it developed into a preposition, while retaining its use as a verb until the Tang dynasty (618–907 CE). The modern construction comes from a sentence involving two verbs forming a so-called serial verb construction – in the case of (15-13), this would have had a meaning like 'I took Zhang-san and hit him.' This also accounts for the unusual word order of the construction: the object is in the expected place for the erstwhile verb *bǎ*.

Extension of grammatical constructions

A frequent type of extension is for a reflexive construction to extend to cover passive senses. Old Spanish had a reflexive construction involving the reflexive morpheme *se*, as in (15-14).

- (15-14) *Juanito* *se* *vistió* Old Spanish
 Johnny reflexive dressed
 'Johnny dressed himself.'

Over time this construction came to be used in contexts where a passive interpretation was also possible, and ultimately in contexts where only the passive interpretation is possible, as in (15-15) – which does not mean that the 2,000 people captured themselves!

(15-15) *cautiváron-se* *quasi* *dos* *mil* *personas* Spanish
 they:captured-reflexive almost two thousand persons
 ‘Almost two thousand persons were captured.’

15.5 Grammaticalization

The English adverbial derivational suffix *-ly* derives from Middle English *lic* ‘like’, and ultimately from Old English *gelic*. This is an example of **grammaticalization**, a process by which a lexical word becomes a grammatical item.

One of the Danish passive constructions involves a suffix *-s* to the verb, as in (15-16). This suffix derives from an earlier free reflexive form *sig* ‘self’, which later cliticized and extended to reciprocals (‘do to one another’) and middles (so called because they are intermediate between actives and passives). The clitic ultimately reduced to the verbal inflectional suffix *-s*, and extended to cover passive senses.

(15-16) *dørene* *låse-s* *klokken* *seks* Danish
 the:doors lock-passive o'clock six
 ‘The doors will be locked at six o'clock.’

Grammaticalization generally involves **phonological reduction** and **semantic bleaching**, reduction in the meaning of the item, whereby the meaning becomes less concrete. Both are illustrated in the grammaticalization of English derivational *-ly* and the Danish passive suffix *-s*.

Some examples of common types of grammaticalizations are:

- Verbal derivational morphemes sometimes come from lexical verbs. For example, most varieties of the Western Desert dialect continuum (see p. 159) have a verbal derivational morpheme *-rri* ‘become’, which comes from a verb meaning ‘to fall’, which previously occurred in compounds.
- Complementizers (elements used as connectives in certain types of complex sentence, like *that* in *I regret that he is sick*) often come from the verb ‘say’, as in Ewe *bé* ‘that’, ‘say’.
- Copulas (words like *to be* that connect subject and predicate in clauses like *John is sick*) often derive from verbs of position or stance, like ‘stand’, ‘sit’, ‘lie’: Quechua *tiya-* ‘to be’ comes from **tiya* ‘to sit’.
- Copulas frequently come from demonstratives or pronouns: the copula *shì* of Mandarin Chinese derives from *shì* ‘that, the afore-mentioned’.
- Auxiliary verbs often derive from main verbs, as in the case of English auxiliary verbs *have* and *will*, which were once used exclusively as main verbs meaning ‘to possess’ and ‘to desire’.
- Definite markers not infrequently come from demonstratives: the Danish definite markers

-en (as in *mand-en* ‘the man’) and *-et* (as in *bord-et* ‘the table’) derive from postposed demonstratives.

- Indefinite articles often grammaticalize from ‘one’, as in the case of English indefinite *a ~ an*.
- Relative pronouns (as in *the child who was hit*) often come from *wh*-question words, as in the case of English *who*, *where* and *when*.
- Future tense markers often have a source in verbs like ‘want’, ‘go’ and ‘have’: for example, French and Spanish inflectional futures derive from the Latin verb *habere* ‘to have’.

Processes of grammaticalization are generally **unidirectional**: they proceed in one direction only. For example, verbs like ‘want’ and ‘go’ often become future tense markers, but the reverse does not occur. Free lexical words may become bound affixes, and show reduction in semantic content. The reverse process is rare, though not impossible: the English derivational suffix *-ism* has recently become an independent word meaning ‘doctrine, belief system’; and the possessive enclitic *-s ~ -z ~ -əz* probably derives from an inflectional genitive case marker. Such processes are the exception, not the rule.

15.6 Semantic change

It is not just the forms (signifiers) of linguistic signs that change over time, but also the meanings (signifieds); indeed, these can change drastically. As a result, cognates can be obscured, and appear unlikely. For instance, English *silly* is cognate with Danish *salig* and German *selig*, both of which mean ‘blessed, blissful’. In fact, *silly* comes from Old English *sælig* ‘happy, blessed, blissful’, which took on the sense ‘humble, simple’ in Middle English, then ‘feeble, weak’, and then ‘weak-minded, stupid’ in Early Modern English.

Semantic changes are not random, although they are not as regular as sound change, and are frequently restricted to individual lexemes. Like other changes, semantic changes can be classified into a number of recurrent types. We have encountered some of these already: extension (§4.3); narrowing (§4.3); bifurcation (§15.3); and bleaching (§15.5). Four other types of change are common; we discuss them in the following subsections.

Pejoration

Pejoration is the process by which a word acquires negative connotations. Speakers come to evaluate the word less positively, ultimately giving it a more negative meaning. The changes in meaning of *silly* illustrate this. Pejoration is also involved in the development of the modern words *moron*, *negro* and *midget*. A considerable number of terms for women in English (and other languages) began as relatively neutral terms, and acquired increasingly negative connotations over time. *Hussy* was originally a shortened form of *housewife*; *slut* previously denoted a woman of untidy habits; *mistress*, a borrowing from Old French *maistresse* ‘woman in control’, at one time denoted a ‘woman who employed others in her service’; and *madam* began as a polite term of address to women. For the first two terms the pejorative senses triumphed; for the second two, both neutral and pejorative senses are still available.

Amelioration

The reverse process, in which a word comes to acquire (more) positive connotations, is **amelioration**. *Fond* comes from the past participle of *fornen* 'to be silly, foolish' in Middle English. *Knight* comes from Old English *cniht* 'boy', which shifted to 'servant', then 'military servant', and thence to its modern meaning 'member of lower nobility'. Parallel developments are found in other European languages. Spanish *caballero* 'knight, nobleman' began as a term for 'horse-rider'; *caballo* 'horse' in turn comes from Latin *caballus* 'workhorse, nag'.

Hyperbole

In **hyperbole** a word loses a strong aspect of meaning through frequent exaggerated use. Intensifying adverbs like *terribly*, *awfully* and *horribly* have, through overuse, lost the senses of the words from which they are derived, *terrible*, *awe* and *horrible*, and are now general intensifiers meaning little more than 'very'. *Starve* comes from Old English *steorfan* 'to die', and *quell* from *cwellan* 'to kill, to slay, to put to death'.

Understatement

Understatement is another type of exaggeration that can lead to semantic change through overuse. Verbs of killing sometimes derive from weaker verbs of violence that do not necessarily imply death, via understatement: *kill* derives from a verb meaning 'to hit, strike, knock'; French *meurtre* 'murder' from a verb meaning 'to bruise'. Another example is *bereaved*, from Old English *be-rēafan* 'to rob, plunder'.

Direction of semantic change

What typically happens in semantic change is that an additional meaning is acquired in a certain restricted context of use; this new meaning tends to increase in frequency of occurrence, until it takes over and the original sense goes out of use. English *write* can be traced back to a proto-Germanic lexeme meaning 'to cut, scratch'. The meaning was extended to include also 'to write', the context being through runic writing, which was scratched on stone and wood. This is reflected in Old English *writan* 'to cut' and 'to write', and Old Norse (Indo-European, Europe) *rita* 'to score' and 'to write'. In Modern English the original sense 'to cut, scratch' has been lost, and only the extended sense 'to write' remains. As this illustrates, to establish an extended meaning and context for a lexeme often requires understanding of technology and cultural practices.

We conclude this all-too-brief discussion of semantic change by mentioning a few instances of not-infrequent changes that tend to go in a single direction, typically from more concrete to less tangible, and more abstract.

- Body-part terms often develop into spatial terms (e.g. *at the foot of*).
- Spatial terms frequently acquire temporal senses (e.g. *after* and *before*).

- Perception verbs often develop into verbs of comprehension (e.g. from *see* or *hear* to 'understand').
- Terms for handedness and/or sides of the body often develop into terms of moral evaluation or qualities; typically the left side develops in the negative direction to badness and evil (for instance, *sinister* derives from a Latin word meaning 'left'), the right to goodness and virtue (think of *right*).
- Terms for obligation, ability and permission often develop into terms expressing degrees of probability (e.g. *must*, which originally indicated obligation, has developed a sense 'necessarily true').

15.7 Causes of language change

Why do languages change? Numerous reasons have been put forward over the centuries, some plausible, others quite fanciful. Among the latter are anatomical, ethnic, racial and geographical factors. To give one example, it has been suggested that consonants in languages spoken in mountainous regions change more rapidly than they do in languages spoken in coastal regions because of the greater breathing effort required. Yet Danish has undergone extensive consonantal changes, although its primary speech community resides on a very flat coastal terrain. Perhaps, as Otto Jespersen joked (1922: 257), it is due to the number of Danes holidaying in Switzerland and Norway (these days on Crete)!

In the following sections we outline some of the more plausible reasons why languages change. In most cases, a change is likely to be motivated by a combination of factors, rather than just a single factor. Before we begin discussing the causes, it may be well to remark that changes over time are generally considered to emerge from variation that existed in earlier varieties of the language, prior to the change. This synchronic variation serves as it were as fuel for diachronic change, which did not happen instantaneously.

Physiological tendencies

Simplification or ease of articulation has often been suggested as a reason for sound changes. Loss of segments results in shorter words, and less effort in production; assimilation reduces the difference between segments in sequence, and so also the effort in production. It is not far from this view to the idea that laziness, sloppiness and indolence are the major causes of sound change. Speakers of English will be familiar with these as everyday explanations of the contemporary changes in the language, habitually remarked on by media watchdogs of 'correct' English.

But there are problems with simplification and ease of articulation as explanations of sound change. To begin with, what is simple or easy? Crowley (1992: 201–2) observes that the two segments in the sequence /gl/ in Kuman (Papuan, New Guinea) were fused together to form the velar lateral /L/. This 'simplification' results in a segment that is relatively unusual in the world's languages, and which is far from easy for non-native speakers to articulate. A similar 'simplification', this time at the allophonic level, is found in some dialects of Australian English where the

lateral /l/ of *milk* is realized as the velar allophone [L]. (In some dialects /l/ has become even more like the high back vowel in some positions, and lost its consonantal features entirely.)

As in these examples, simplification in one place often leads to complexity elsewhere. Loss of final vowels or initial consonants in a language will result in shorter words, and less production effort. But it can lead to complexity in syllable shapes – for instance, the emergence of V and CVC syllables, where previously all syllables were CV.

It is not that the simplification explanation is totally misguided. Rather, it needs reformulation in more explicit and physiologically appropriate terms. We can think of speech production as involving muscular gestures or movements that are coordinated in a complex way, rather like the instruments in a symphony. A variety of physiologically and psychologically natural processes affect the gestures when they are put together; these concern the nature of the gestures, their presence and their timing. We can see these in the emergence of the Kuman velar lateral: the velar gesture and the lateral gesture (i.e. lower the sides of the tongue) have been retimed from sequential to simultaneous, and along with this the stop gesture and the apical gesture have disappeared. Nasalized vowels arose in French in a similar fashion. Between the 9th and 14th centuries final /n/ began to be lost in words like *bien* 'well' and *fin* 'end'. The lowering of the velum was retimed to occur during the vowel; the final gesture, the blockage of air through the oral cavity, eventually disappeared.

A similar explanation accounts for the insertion of segments in some circumstances. It is difficult to coordinate the articulatory gestures in sequences such as [ml] and [mt] so that the velum is raised at precisely the same time that the bilabial contact is released and the apical contact initiated. Closure of the nasal cavity prior to the opening of the lips in the production of the [m] will result in insertion of a [b]. The English word *bramble* acquired its second bilabial stop in this way.

This type of explanation is based on physiological processes for which no further explanations are proposed – we have not attempted to explain why some gestures were lost, some gained and others became simultaneous: they just happened. The actual changes are not predictable like the motion of the planets; at best they are more or less explicable in hindsight. In most circumstances different outcomes could have eventuated, some more likely, others less likely. It is not suggested that all sound changes can be explained in this way.

Functional considerations

Languages change to meet new needs and purposes. We have already seen illustration of one such process in the acquisition of new items of vocabulary for new and novel things and meanings. In a similar way lexemes can be lost – or undergo meaning change – as the objects they denote become outmoded. Thus a *lure* was originally a special pipe used to call back hawks in the medieval sport of falconry; now it refers to anything used as an enticement.

Morphological and syntactic change can also be motivated at least in part by functional considerations. The shift from free word order in Old English to fixed word order in Modern English (see §15.4) has a functional motivation: the need to keep the subject and object distinct, in the face of loss of case-marking on nouns.

With endless repetitions of lexical items, they tend to lose whatever expressive value they may once have had. Some instances of morpho-syntactic change are motivated by considerations of expressiveness, which can be considered as a type of functional motivation for change. Many Australian languages have compound verb constructions involving compounding of a morphologically almost invariant preverb and an inflection-taking verb, as in Miriwoong *dilyb ge-ma-n-tha* (break he-it-get-past) 'he broke it off'. There is no reason to suppose that these compound expressions were introduced into the languages because of lexical gaps in ancestor languages. Rather, it seems that they began life as constructions involving an ideophone – a sound-symbolic word like *bang!* – paired with a verb. Over time this mode of expression came to dominate and eventually won out over plain verbs, which had become lifeless old ways of talking about events.

Identity

An important motivation for language change is to establish and maintain group identity and cohesiveness on the one hand, and, on the other hand, to signal its distinctiveness from other groups. Youth and occupational groups often employ some lexical items peculiar to themselves, or give existing lexemes new senses. Youth 'slangs' or jargons distinguish members from older people because they change so rapidly. But it is more than mere fashion that motivates such lexical changes: the fashion serves to distinguish group members from outsiders.

Phonetic change can also be motivated by identity considerations. In a pioneering study of the centralization of the beginning of the diphthongs /ai/ and /au/ in Martha's Vineyard, a small island off the coast of Massachusetts, USA, William Labov showed that the extent to which the change is employed is correlated with social attitude. The change has taken greatest hold on speakers who identify themselves as islanders, and have the most negative attitudes to mainlanders. It has been adapted to a lesser degree by speakers with more neutral attitudes, or more positive attitudes to mainlanders.

The idea here is that a minor variation in speech can be adopted by speakers as a marker of their identity as a group; the variation can then spread through the language variety of the speech community. The variant itself is effectively arbitrary; it is the expansion of the variation leading ultimately to change in the variety that is explained, not the particular variant that emerged.

Foreign influence

Extensive contact between speakers of different languages can result in language change. This is especially the case when speakers of one language are politically dominant, and there is widespread bilingualism or multilingualism in the speech community. The widespread changes that happened to English in the aftermath of the Norman invasion of England in 1066 resulted from the political dominance of French, and its high status in the public domain. In this case, English was the **stratum** language, the language of the politically subordinate group. In colonial times, English was usually the **superstratum** language. The new Englishes that arose in colonial contexts show features of the substratum languages. This is the case for Indian English, which shows phonetic characteristics of the substrate Indo-European and Dravidian languages. Some features of the

English of African Americans that are not shared with standard American English have been put down to influences from the languages spoken by the slaves transported to America centuries ago, such as Ewe and Mandinka (Niger-Congo, Senegal).

In situations of extensive community-level bilingualism it often happens that lexemes, morphemes, grammatical constructions and even phonemes are borrowed. Such borrowing has happened on a large scale in Aboriginal Australia, where multilingualism was the norm in traditional times. In such environments, even bound morphemes are not infrequently borrowed between unrelated (or very distantly related) languages. In the small village of Kupwar in southern India three languages have been in close contact for some six centuries, Kannada (Dravidian), Urdu (Indo-European) and Marathi (Indo-European). Many villagers are bi- or tri-lingual. While the lexical items of the three languages have tended to remain separate, and few lexical borrowings have occurred, their syntax has converged; the local varieties of the languages are rather different grammatically from the standard varieties, and more similar to one another.

Taboo

Lexical replacement is sometimes motivated by phonological similarity to a taboo word. The word *coney* was the word for 'rabbit' in Middle English. It came to be used as a term first of endearment then of abuse of women; ultimately it was used for the female genitals. Because of this association, it was dropped as a term for 'rabbit', and now remains only in the last sense. A similar thing has happened to *cock* 'rooster' in many dialects of English, with its extension to 'penis'; perhaps *pussy* will also follow a similar trajectory.

Another example is provided by Proto-Uralic **kuńće* ~ **kuće* 'star' and **kuńće* ~ **kuće* 'urine', which merged together in Old Hungarian, becoming homophones *húgy* 'star' and *húgy* 'urine'. The former lexeme became obsolete, and was replaced by *csillag*; the latter remained. These examples illustrate a general tendency, namely that the term denoting the taboo or 'touchy' body part or product is retained at the expense of the other term, which is replaced by a new term.

We mentioned in §4.5 the tabooing of names of recently deceased persons and similar-sounding words in Australian languages. While the tabooed word usually comes back into use within a few years, it is likely that in some cases the replacement term sticks, and the original tabooed term is dropped for good.

Social upheaval

It is sometimes suggested that major linguistic changes correlate with periods of social upheaval. With rapid breakdown of the existing social system, and the communication networks constituting it, the language system might also show disruption and rapid change. There is doubtless some truth to this suggestion. The Norman invasion of England was such an event, and it did give rise to a number of quite substantial changes in English. The decimation of many indigenous groups in Australia and the Americas led to the obsolescence and death of many languages; in some cases the languages were only partially learnt by children, and survived as varieties with simplified grammar and reduced lexicons.

However, it is unlikely that all cases of rapid language change (the rate languages change is variable, as mentioned at the beginning of the chapter) can be put down to social upheaval, or that social upheaval inevitably leads to rapid language change, except perhaps in the lexicon. As we saw in Chapter 13, the so-called information revolution of recent years has given rise to numerous new lexical items, even new ways of using language. But it does not seem that the phonological and grammatical systems of English have simultaneously undergone substantial changes.

Regularization

Languages often change so as to regularize their grammar, reducing the number of irregularities and partially regular patterns in the morpho-syntax. The processes of neatening and extending the patterns characteristically occur at certain points in first language acquisition (see §10.1). Speech 'errors' of adult speakers sometimes result from over-regularization, for instance when an adult says *strived* instead of *strove* or *striven*. Such 'errors', especially when they occur in infrequent words, may become the accepted forms, ousting the existing irregular form, and giving rise to analogical levelling (§15.3). The result is greater transparency in the system.

Structural pressure

There is some tendency for paradigmatic systems within a language to be regular or symmetrical. That is, languages tend to prefer regular systems such as the Sanskrit system shown in (15-17) over irregular ones such as the hypothetical one shown in (15-18).

(15-17)	p	t	t̪	c	k	Sanskrit
	p ^h	t ^h	t̪ ^h	c ^h	k ^h	
	b	d	d̪	ʃ	g	
	b ^h	d ^h	d̪ ^h	ʃ ^h	g ^h	
(15-18)	p	t	t̪	c	k	
	p ^h		t̪ ^h			
			d̪	ʃ		
	b ^h	d ^h	d̪ ^h			

Asymmetrical systems tend to become symmetrical by filling in gaps. This is what is meant by **structural pressure** as a factor in language change. This seems to have been at least part of the motivation for the emergence of /ʒ/ in English. In the 18th century, English had the irregular system of fricatives as shown in (15-19).

(15-19)	f	θ	s	ʃ	h
	v	ð	z		

In the 19th century a partner for /ʃ/ emerged through insertion of /j/ following the original /z/ in words like *treasure* and *pleasure*; this sequence subsequently fused into the single fricative segment /ʒ/.

This leaves /h/ out on a limb. There is no evidence of any pressure in English for the emergence of its voiced counterpart /ɦ/. Instead, there is a tendency for /h/ to disappear from the phonological system of English: it has been lost completely in some varieties, and has been retained in others mainly through strong social pressures, including the influence of writing.

Presumably at least part of the reason why English has not developed /ɦ/ is because the voiced glottal fricative is unusual in the world's languages. The tendency towards regular paradigmatic systems is always balanced against such considerations. In many Australian languages we find a neat patterning of stops and nasals at each point of articulation. But laterals tend to break the pattern: velar laterals are absent, and lamino-dental laterals are rare, even in languages that distinguish this place of articulation for stops and nasals.

The best we can say is that there is some tendency for languages to fill in structural gaps. On the other hand, changes can result in gaps in what were perfectly regular systems. Proto-Indo-European *p was lost in proto-Celtic, resulting in a less regular system in the stop consonants. The gap was filled in differently in different branches of Celtic. Motu (Austronesian, New Guinea) has recently lost its velar nasal, creating an irregularity in the otherwise regular system of nasals and stops that distinguished three points of articulation. There is as yet no evidence of any change that might lead to filling this gap.

Summing up

No living language remains static for long, and all aspects of language are subject to change, though some features are more resistant to change than others. And, overall, language change occurs at very different rates.

Common processes of **sound change** are: **loss** or **deletion**, **insertion**, **assimilation**, **dissimilation** and **metathesis**. Sometimes a group of sounds is affected by a linked set of changes in a **chain shift**; **Grimm's law** is an example. An important property of sound change is its **regularity**. This permits us to identify **cognates**, words in related languages that can be traced back to the same word in an ancestor language.

Morphological change can happen through **borrowing**, **analogical change** (including **levelling** and **extension**) and **reanalysis**. In some cases both the new analogized form and the original form coexist, and take on different meanings; this is called **bifurcation**. The same three types are also found in **syntactic change**. In addition, word order changes sometimes result from morphological changes such as loss of case-marking.

Semantic change tends not to be as regular as sound change. A variety of processes can result in semantic change, including: bifurcation, tabooing, euphemism, dysphemism, metaphor, metonymy and synecdoche. Types of semantic change include **extension**, **narrowing**, **bleaching**, **pejoration**, **amelioration**, **hyperbole** and **understatement**.

Grammaticalization is the process by which new grammatical words and morphemes emerge in a language, often from lexical items. Grammaticalization is normally accompanied by **semantic bleaching** and **phonological reduction**. It is normally **unidirectional**: lexical items become grammatical items, but the reverse process is rare.

Causes of language change are numerous and varied. They include **physiological** and **psychological** tendencies, **functional** and **structural** pressures, maintenance of **identity**, **foreign influences**, **social upheaval** and **taboo**.

Guide to further reading

Aitchison (1981) is an excellent and entertaining introduction to language change. The best introductory textbook is, in my opinion, Crowley and Bowern (2010); Campbell (1998) is also good. More advanced textbooks include Anttila (1972) and Hock (1991). Luraghi and Bubenik (2010) is an accessible collection of articles covering the major topics in language change. Joseph and Janda (2003) is more comprehensive and pitched at a more advanced audience.

See the *Guide to further reading* for Chapter 4 for works on the history of English; of these, Burridge (2004) is recommended for the variety of examples it provides of each type of semantic change, and its lively style. Etymological information on English words can be found in dictionaries of etymology, such as Ayto (1990) and Onions (1966). Simpson and Weiner (1989) also includes a good deal of etymological information, as well as extensive exemplification of word usage from written sources since the earliest times. Many useful (and not so useful) etymological resources can be found on the web, including a free online etymological dictionary of English at <http://www.etymonline.com/>. Also useful is Eugene Cotter's *Roots of English: an etymological dictionary*, which can be downloaded from <http://ablemedia.com/ctcweb/showcase/roots.html>; this dictionary, however, is restricted to terms of Latin and Greek origins.

Numerous recent works deal with grammaticalization, though few are suitable for beginners. With some reservations, I suggest Hopper and Traugott (2003), Heine and Kuteva (2002) and the comprehensive Narrog and Heine (2011). Three articles in Joseph and Janda (2003) deal with grammaticalization: Bybee (2003); Heine (2003); and Traugott (2003).

WEEK ELEVEN

your own home soil.
 your schools scold me for illiteracy
 while your Cuban/American bankers
 sell me the island in spanglish.

Language change and the history of English

Orientation

12.1

Like most other languages spoken in Europe today (the notable exceptions being Hungarian, Finnish, Turkish, Estonian, Maltese and Basque), English is a member of the Indo-European family of languages. That is to say that its historical roots go back to a common proto-language or *Ursprache* which is believed to have been spoken in the fourth millennium BC, probably in a region north of the Black Sea, and then spread out over large regions of Europe and Southern Asia, dividing into numerous more or less distantly related “daughter” languages. Within this group, English is a member of the Germanic branch and particularly close to members of the “West-Germanic” group, i. e. Frisian, High and Low German, Yiddish, Dutch, Flemish and Afrikaans (the language developed by the Dutch-descended white settlers of present-day South Africa).

The Indo-European ancestry of most modern European languages

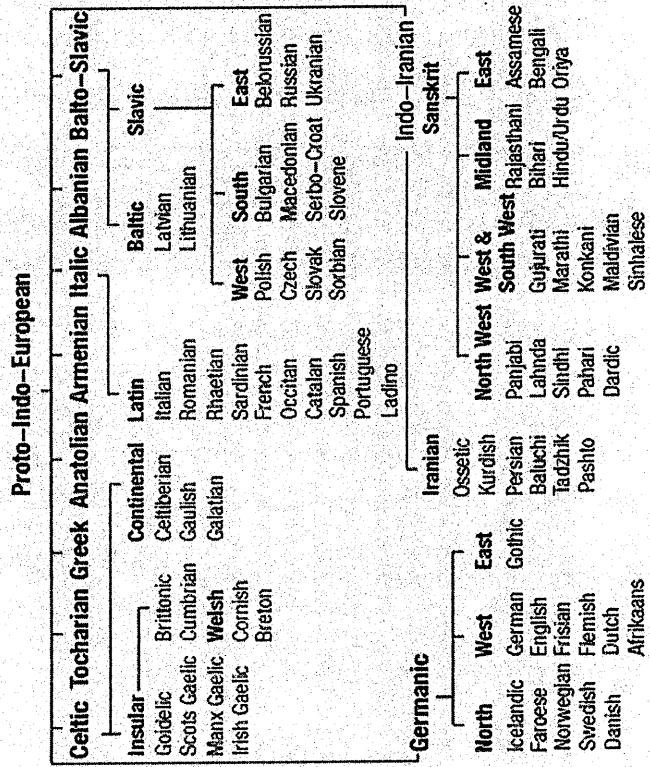


Table 12.1
 The major subgroups of the Indo-European family of languages (source: http://www.bbc.co.uk/wales/history/images/language_family_tree.gif)

English and its relatives

The relationship between English and the North-Germanic languages is a little more distant, but still close. Additionally, it was re-inforced through intensive language contact in historical times, in particular the Old English period (on which see below). While these close relationships are often apparent even to lay observers, the more distant ones, for example those obtaining between English and Pashto (historically a member of the Iranian branch of Indo-European and currently the language of the majority ethnic group of Afghanistan), reveal themselves only to the specialist.

Sound laws

The most important tool for the historical-comparative linguist reconstructing the history of a language family is the **sound-law**. Sound-laws are regular and systematic correspondences between sounds that do not just hold between individual pairs of words in two languages but across entire series of words. Note, for example, the following correspondences between English and German:

Table 12.2
English-German correspondences

English /p/	German /pf, f/
pan	Pfanne
pound	Pfund
path	Pad
ship	Schiff
ripe	reif
open	offen
weapon	Waffe

Interpreting this evidence in isolation, there are two possible conclusions: (a) At some stage in the history of German, the stop consonant /p/, inherited from Germanic, became /pf/ at the beginning of words before following vowels and /f/ inside the word and word-finally; or (b) at some stage in its history, English collapsed an inherited distinction between /pf/ and /f/ by replacing both with /p/. In context, story (b) is impossible to maintain, and (a) is the incontrovertibly correct interpretation. The development is part of a larger sound change, commonly referred to as "Hochdeutsche Lautverschiebung," which sets apart Old High German from Old English and all other Germanic languages (see Exercise 8 below for further illustration).

Internal and external evidence used in dating sound changes

There are, of course, numerous apparent exceptions to the sound law that we have just found out. For example, the German equivalents of *pill* and *place* are not *Pfille* and *Pfplatz*, as would be predicted by our sound law, but *Pille* and *Platz*. Since both are loanwords (from Latin and French), this need not bother us. On the contrary, it helps us date the change. The shift from /p/ to /pf/ must have taken place **before** these words were taken over into German.

In comparison to the other Germanic languages, English has been very innovative. While the Indo-European proto-language is assumed to have been of the synthetic type, most daughter languages have developed toward the analytical end of this typological continuum. Thus, the modern Romance languages are more analytical than Latin, and modern Bulgarian is more analytical than Old Church Slavonic, the oldest attested member of the Slavic branch. To return to the Germanic languages: even modern German is somewhat more analytical than Old High German. In English, however, the trend toward analyticity has been massive. This can be seen, for example, in the inflectional paradigm of the definite article. In Old English, the oldest historically attested form of the language, the article had four (marginally five) cases, three genders and separate forms for the singular and plural:

Table 12.3
Inflectional paradigm of the definite article in Old English

	Singular			Plural
	masculine	feminine	neuter	
nominative	se	sēo	þæt	þā
Genitive	þæs	þære	þæs	þāra
Dative	þām/þāem	þære	þām	þām/þāem
Accusative	þone	þā	þæt	þā
(instrumental)	þy/þon		þy/þon	

Taking the noun *stān* (*stone*) as an illustration, we could have distinguished between *se stān* "the stone" in the singular nominative, and *þām stāne* "the stone" in the dative singular, as in *on þām stāne* "on the stone." This complexity was reduced drastically by c. 1100, when all these forms had collapsed into one: *þe*, identical in all but spelling to our present-day *the*. The reason why the levelling of inflectional paradigms proceeded so much faster in English than in most other Germanic languages is probably language and dialect contact. There must have been a lot of dialect mixing as various Germanic tribes started invading and settling England from the fifth century AD. There was further mixing and contact with the North Germanic languages of the Viking invaders who played such an important role in the history of Britain from the 8th to the 12th centuries. In that type of linguistic environment, new generations of speakers are very likely to simplify inflections, for example by generalising endings which are frequent at the expense of rare ones, or by dropping them altogether.

The beginnings of the English language are shrouded in some mystery. We know that various continental Germanic tribes living on the North Sea coast – in particular the Angles, Saxons, Jutes and Frisians – started invading and colonising Britain from the early 5th century onwards. The reason was a

The major periods in the history of English

political power vacuum left by the Romans, who withdrew from Britain at the time. Over time, the various continental dialects which these settlers brought with them melded into a new idiom which was called "English." This designation is derived from the name of one particular settler group, the Angles, but was eventually used more loosely, to cover the language of all settlers of Germanic descent (just as the name *England* (from *Engla land*, "land of the Angles," came to denote the country as a whole). From around 700, we have written evidence of this new language. Conventionally, we distinguish the following major periods in the history of English.

12.1.1 | Old English period (c. 500 – c. 1100)

Old English

Old English, or Anglo-Saxon, was the Germanic vernacular spoken in Britain, co-existing with several Celtic languages, but more profoundly influenced by Latin, the language of Christianity, culture and learning at the time, and by Old Norse, the language of the Vikings. The Vikings arrived as raiders from the end of the 8th century, but eventually settled alongside the local population, providing opportunity for intensive language contact.

In its grammar, Old English was clearly of the synthetic type, with complex inflectional paradigms for the noun, the adjective and the verb. Its vocabulary was largely Germanic, with some loans from Latin which by now are usually fully assimilated phonetically and thus no longer recognisable as such (e.g. *mini*, from Vulgar Latin *munita* = *moneta*; or *street* from (*via strata*). Culturally, Anglo-Saxon England was an important centre in early Medieval Europe, with the influence of English and Irish missionaries and scholars extending over large areas of central Europe. St. Boniface (c. 675–754), the "Apostle of the Germans," for example, grew up as Wynfrith in the Southwest of England and was educated in Exeter before departing to the Continent. One of the most important scholars at the court of Charlemagne, Alcuin (c. 732–804) was also of English origin and obtained his education at York, another early medieval English centre of learning.

By the late 10th century, the West Saxon dialect of Old English had developed a written standard which was in use all over England – an exceptional achievement at a time

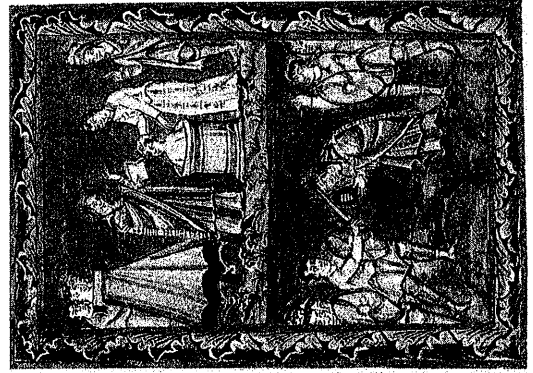


Fig. 12.1 | St. Boniface's baptism and martyrdom, from the 11th century, Fulda Sacramentary

in which Latin tended to be the preferred choice for writing elsewhere. This tradition of writing in English, however, disappeared soon after the Norman Conquest (1066).

What do the sources that students of Old English deal with actually look like? The illustration below shows an extract from the Old English text of *Beowulf*, a heroic epic encompassing almost 3200 lines. This poem is part of the Germanic oral tradition and was passed on from generation to generation before it was written down, possibly at some stage in the 10th century. It is preserved in exactly one manuscript, which almost went up in flames in a fire about 200 years ago. It is on display in the British Library in London.

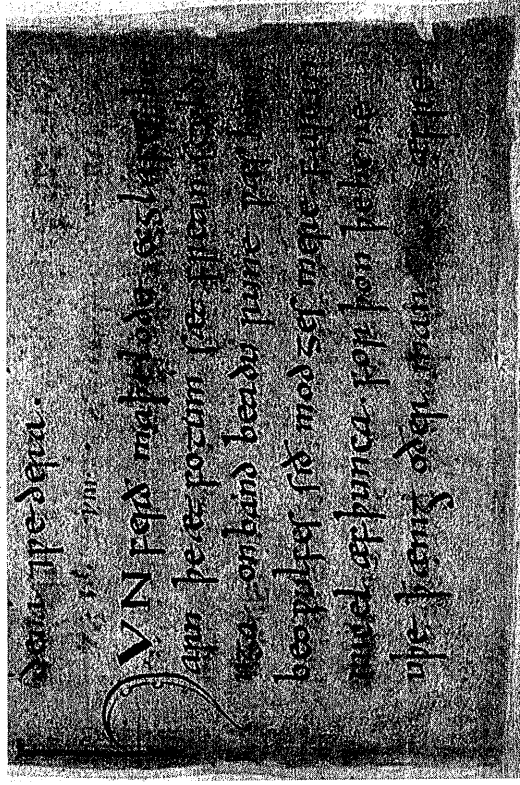


Fig. 12.2 | *Beowulf*, lines 500 ff. (British Library, MS Cotton Vetellius A. XV)

The text reads "(H)unferð maðelode Ecglafoes bearn þe æt fōtum sæt frēan Scyldinga ...;" or in modern translation, "Unferth spoke, the son of Ecglafoe who sat at the feet of the Scyldings' lord." Note that the usual way in which this is presented in modern editions would be:

Hunferð maðelode, Ecglafoes bearn,
þe æt fōtum sæt frēan Scyldinga

This arrangement makes clear the metrical structure of the alliterative "long lines" of the poem to the modern reader (a complicated business which we cannot go into in an introduction to linguistics). Another courtesy of the editors is that they introduce punctuation, almost completely absent in the original, and that they place bars over long vowels such as the <ō> in *fōtum* "feet," so that we can read the text more easily.

Note, by contrast, that the lines just run on without punctuation in the original version, and the line-breaks may occur even inside a word. The language is very far away from Modern English. In fact, there is continuity only between *æt fōturm*, which is the preposition *at* followed by the dative plural of *fōt* “foot,” and the following verb *sat*, which was spelled slightly differently from Modern English (*sæt*) but pronounced similarly. The word *bearn* survives in some non-standard Modern English dialects as *bairn* (“child”). The mere writing, however, is not too difficult to decipher. Runic signs are used for the dental fricative “<TH>” phoneme that was not represented in the Roman alphabet; the shapes of some letters are slightly unusual by modern standards; but with a little practice such one-thousand-year-old texts are fairly easy to read.

12.1.2 | Middle English period (c. 1100 – c. 1500)

Middle English

In a dispute over the succession to the English throne in 1066, William Duke of Normandy (“the Conqueror”) took his chance and beat the English forces in the famous Battle of Hastings. The Norman invasion of England ushered in a period in which the ruling elites in England were speakers of French or at least bilingual in French and English. English, by contrast, became a language of low prestige, spoken by the mass of the population, particularly the rural peasantry.

While the Norman invasion and the long period of French influence in the later Middle Ages did not have a profound impact on the development of English grammar, it led to the addition of several thousand French loan words to the English vocabulary. This first massive wave of borrowing paved the way for subsequent ones so that present-day English has become a language which easily incorporates words from diverse sources into its vocabulary. Very often, the new words did not entirely replace the old ones, but both live on as near synonyms with some degree of semantic or stylistic differentiation (e.g. *begin* – *commence*, *loneliness* – *solitude*). Grammatically, Middle English resembles present-day English in that it has few inflections and mainly relies on analytical strategies to code grammatical relations.

Towards the end of the Middle English period, English gained in prestige again and started to replace French and Latin in the more prestigious domains of communication, including writing. This gradually led to the emergence of a new written standard, based on the speech of London and the East Midlands, which is the direct historical antecedent of the present-day standard variety.

This is what a Middle English text looks like. The text is from the opening of the General Prologue to Geoffrey Chaucer’s *Canterbury Tales*. Chaucer (c. 1343–1400) is the most famous English poet of the later Middle Ages; the *Canterbury Tales* are his most widely read and studied work.

Facsimile of Middle English manuscript – Geoffrey Chaucer, *Canterbury Tales*

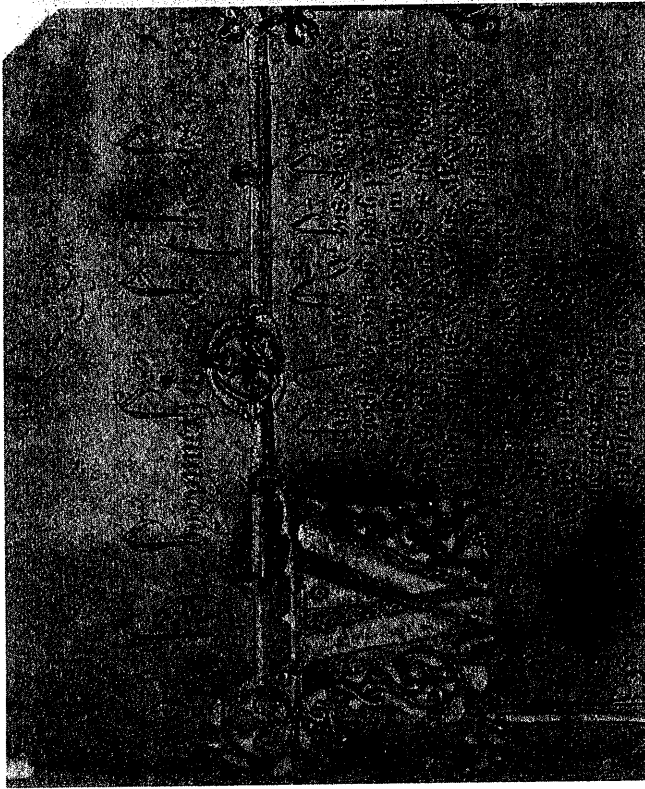


Fig. 12.3
Geoffrey Chaucer,
“General Prologue”
(from the Hengwrt
Manuscript, early
15th century, National
Library of Wales,
Aberystwyth)

The headline of this text reads “here bygynneth the book of the tales of caunterbury,” which – except for the archaic third-person singular ending – translates straightforwardly into Modern English. Then follows the text of the prologue: “Whan that averill with his shoures soote the droghte of march hath perced to the roote ...” which translates into Modern English: “When April with its sweet showers has pierced the drought of March to the root.” Unlike the preceding Old English text, here it is probably more difficult to decipher the writing than to get the basic message. Of course, little traps remain. Note, for example, that the neuter possessive pronoun *its* did not exist yet, and the reference to April is by means of *his*. This was normal grammar in those days and has nothing to do with metaphorical personification.

Early Modern English period (c. 1500 – c. 1750)

| 12.1.3

Early Modern English

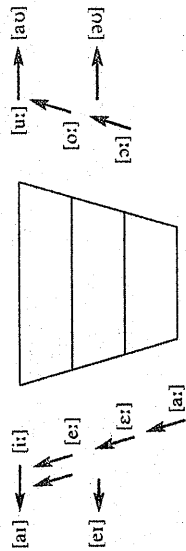
For England, this was the period of the Renaissance, the Reformation and the beginnings of colonial expansion, which all left their impact on the history of the language. The renewed interest in the classical languages, Latin and Greek, brought many borrowings which added a whole new layer to the vocabulary of English, namely the “hard words.” These are words which are usually not found in informal speech but allow speakers to express fine nuances of mean-

ing in more formal situations and in written texts. Readers wishing to prove this point are welcome to look up words such as *pathos*, *pathetic*, *sympathy*, *empathy*, *sympathetic*, *empathetic*, *sympathise* or *empathise* in their dictionary or to test whether they can spot the difference between *discrete* and *discreet*.

Among the noteworthy grammatical innovations of the Early Modern period were the introduction of the auxiliary verb *do* in questions and negations and the establishment of the modal auxiliaries as the distinct grammatical category that they represent now.

Phonetically, the Early Modern English period is the heyday of the *Great Vowel Shift*, a series of inter-connected sound changes which affected all long vowels and diphthongs. For example, the Middle English long monophthong [i:] in *time* [ti:m] turned into the modern diphthong [aɪ] via the intermediate stage of [ɛɪ]. As English spelling conventions were largely fixed before the Great Vowel Shift, there is considerable mismatch between pronunciation and spelling in standard English today. The standardisation of English spelling received a further boost from the introduction of the new printing technology into England by William Caxton in 1476, and the prestige of English grew steadily, for example because it replaced Latin in the religious services of the Church of England. Towards the end of the Early Modern English period Dr. Samuel Johnson published his monumental *Dictionary* (1755), a further landmark both in lexicography and the standardisation of English.

Fig. 12.4 | Great Vowel Shift



Facsimile of 18th century manuscript

The student of Early Modern English has plenty of printed material to use as data. For some purposes, however, manuscript sources – such as informal handwritten letters – remain important. This is what a late-18th-century manuscript looks like.

The text is easy to read: “And for the support of this declaration we mutually pledge to each other our lives[,] our fortunes, and our sacred honour.” It is interesting to note that this version preserves a spelling <honour> which today would be considered British. Note, incidentally, that as you have this text in front of you, you are looking at the historical origin of the American idiom “put your hancock here” (for “could you please sign your name here”). John Hancock’s forceful signature clearly outshines the other Founding Fathers’.

Fig. 12.5

Draft version of the United States Declaration of Independence, 4 July 1776, signatures of John Hancock, Sam Adams and Philip Livingston (National Archives and Records Administration, Washington DC)

And for the support of this declaration, we mutually pledge to each other our lives our fortunes, & our sacred honour.

Modern English period (since c. 1750)

There are no drastic changes marking the transition from Early Modern English to Modern English. What we find is a reduction of variability in the grammar of the standard and the elaboration of analytical grammatical structures, particularly in the tense and aspect system of the verb. Thus, while in Early Modern English forms such as *I do not know* and *I know not*, or *I read* and *I am reading*, were still in variation, this was cleared up in the 18th century. *I know not* disappeared (or survived as a stylistic archaism) and the use of the auxiliary *to do*, a new and increasingly common option in the preceding period, became obligatory in Modern English in questions and negations involving main verbs. The expanded form *be reading*, on the other hand, ceased to be a stylistic variant of the simple form *read* and came to express the aspectual notion of an activity in progress.

Widespread literacy, increasing access to education and increasing social mobility all helped strengthen the position of standard English. With the advent of the audiovisual media (radio, television), standardisation increasingly affected the way English was spoken – at least in the public domain. As has become obvious in Unit 10, there is now a plurality of standard accents, and from being the language of the majority of the population of the United Kingdom English has developed into the pluri-centric world language that it is today.

Demonstration/discussion

Among the texts which have been translated into English at all stages of its recorded history is, of course, the Bible. A comparison of parallel translations thus opens an interesting window on the history of the language. This is the text of the parable of the prodigal son (Luke 15, 11 ff.) in Modern English, followed by an Early Modern English, a Middle English and an Old English version (all from *The Bible in English*, CD-ROM, Chadwyck-Healey Ltd):

12.1.2

Analysis of parallel texts – working our way back into the history of the English language

12.1.4

Modern English

Text 12.1
New English Bible
(1960s)

11. Again he said: "There was once a man who had two sons; and the younger said to his father, 'Father, give me my share of the property.'
13 So he divided his estate between them. A few days later the younger son turned the whole of his share into cash and left home for a distant country, where he squandered it in reckless living.
14 He had spent it all, when a severe famine fell upon that country and he began to feel the pinch.
15 So he went and attached himself to one of the local landowners, who sent him on to his farm to mind the pigs.
16 He would have been glad to fill his belly with the pods that the pigs were eating; and no one gave him anything.
17 Then he came to his senses and said, "How many of my father's paid servants have more food than they can eat, and here am I, starving to death!"

Text 12.2
King James Bible
("Authorised Version"; 1611)

- 11 And hee said, A certaine man had two sonnes:
12 And the yonger of them said to his father, Father, giue me the portion of goods that falleth to me. And he diuided vnto them his liuing.
13 And not many dayes after, the yonger sonne gathered al together, and tooke his iourney into a farre countrey; and there wasted his substance with riotous liuing.
14 And when he had spent all, there arose a mighty famine in that land, and he beganne to be in want.
15 And he went and ioyned himselfe to a citizen of that countrey, and he sent him into his fields to feed swine.
16 And he would faine haue filled his belly with the huskes that the swine did eate: & no man gaue vnto him.
17 And when he came to himselfe, he said, How many hired seruants of my fathers haue bread inough and to spare, and I perish with hunger?

- 11 Forsothe he seith, Sum man hadde tweye sones;
12 and the yongere seide to the fadir, Fadir, gyue to me the porcioun of substaunce, ethir cate], that byfallith to me. And the fadir departide to him the substaunce.
13 and not affir manye dayes, alle thingis gederid to gidre, the yongere sone wente in pilgrymage in to a fer cuntree; and there he wastide his substaunce in lyuyng lecherously.
14 and affir that he hadde endid alle thingis, a strong hungir was maad in that cuntree, and he bigan to haue nede.
15 and he wente, and cleuyde to oon of the citeseys of that cuntree. And he sente him in to his toun, that he schulde feede hoggis.
16 And he coueite to fille his wombe of the coddis which the hoggis eeten, and no man yaf to him.
17 Sothli he turned agen in to him silf, seyde, Hou many hirid men in my fadir hous, han plente of looues; forsothe I perische here thurgh hungir.

Text 12.4
West Saxon Gospels,
10th century

- 11 He cwæð soðlice. Sum man hæfde twege sunes.
12 þa cwæð se ylder to his fader. Fader syle me minne dæl minre ehte. þe me to gebyrð. Ða dælde he him his ehte.
13 Ða æfter feawa dægen ealle his þing ge-gaderede se gingre sune. & ferde wræclice on feor landen. & for-spilde þær his ehte libbende on his gælsan.
14 Ða he hyo hæfde ealle amerde. þa wærð mycel hunger on þam rice. & he wærð wædle.
15 Ða ferde he & folgede anen burh-sittenden men on þære rice. þa sende he hine to his tunne þæt he heolde his swin.
16 Ða ge-wilnede he his wambe fellen of þam bean-coddan þe þa swin æten. & him man ne sealde.
17 Ða be-þohte he hine & cwæð. Eala hwu fela erdlinga on mines fæder huse hlaf genoh hæbbeð. & ich her on hungre for-wurðe.

King James Bible

On the whole, we can read and understand text 12.2 fairly well. There are minor differences in spelling – for example the use of the letter <u> for <v>, and vice versa – which take some getting used to, but they are not a major obstacle to comprehension. There are obvious grammatical differences to modern English usage, particularly with the verbs. The third-person singular ending *-eth* (as in *falleth*) has now gone out of use. In two places (“the swine did eat,” “I perish”), we would have to use the progressive obligatorily today. Note also that in the expression “the swine did eat” the auxiliary *do* is used not in its modern contrastive-emphatic sense, but vacuously. This was fairly common during the experimental period in which *do* was gradually establishing itself in questions and negations. The modal idiom “would faine haue” (= “would be glad to have”) has fallen out of use, and so has the preposition *unto*. As for semantic and lexical change, the passage has a few cases, though none is particularly drastic. The word *swine*, for example, is not usually used in its literal sense today to denote pigs, but metaphorically, as a term of abuse.

John Wycliffe

In contrast to the King James Bible, text 12.3 is no longer immediately comprehensible to a modern reader. The spelling conventions take some more getting used to than in the 1611 version here. For example, it takes some time to realise that in *cleuyde* the <u> stands for <v> and that *cleuyde* therefore corresponds to modern *cleaved*; or that *maad* is an alternative spelling for *made*. Somewhat surprisingly, the grammar of the text corresponds to modern usage rather closely. What is difficult, though, is the vocabulary. *Hoggis*, the term used to denote the pigs, is still in current use, especially in American English (“large pig kept for its meat”). The term *coddis*, in our text (for *husks*), however, has vanished from Standard English and barely survives in some traditional dialects (as in *peascods*, for example). *Womb(e)*, whose meaning today is restricted to the sense of “uterus,” still had the much more general sense that is today preserved in the German *Wampe*. The verb *depart*, meaning “leave” today, is used in the transitive sense of “divide” in this text.

West Saxon Gospels

The sense of alienation created by this text, however, is nothing in comparison to what faces the modern reader who is confronted with an Old English text, e.g. text 12.4. Grammatically, this is a synthetic language, with elaborate inflections and free word order. Note, for example, the contrasting forms of the possessive pronoun *my* (Old English *min*). It has an accusative masculine singular ending in *minne dæl*, a feminine genitive singular ending in *minre ehte*, and a masculine genitive singular ending in *mines fæder huse*. Another nice example of a fully inflected noun phrase is *on þam rice*, the dative singular of *se rice*. Old English word order is very different from later stages of the language, and in fact rather similar to modern German, in that the finite verb is very often placed in second position in main clauses, as is shown by *Ða dælede he him his ehte* (“then dealt he him his share”) or *þa sende he hine to his tune þæt he heolde his swin* (“then sent he him to his town that he held his swine”). We also find another typically “German” word order, the clause-final position

of the finite verb in subordinate clauses, for example in ... *minre ehte þe me to gebyreð* (= “of my share which to me belongs”).

In the lexicon, there is considerable continuity, which however is often hidden by strange spelling conventions, extensive sound changes and some grammatical change: *dagen* → *days*, *dæl* → *deal*, *dælede* → *dealt*, *hunger* → *hunger*, *feor landen* → *far lands*, *folgede* → *followed*, *hlaef* → *loaf*, etc. Some words, however, have disappeared from the language. *Cwæð*, from *cwædan* (“say”), barely survives in the archaism *quoth*. *Ward*, from *weorðan* (“become,” cf. German *werden*) has died out completely.

Problems and challenges

There is no reason to assume that the types of linguistic change which have characterised the history of English in the past should have come to a halt in the present. Change is still going on all around us – except that, as participants, we are less likely to perceive it clearly. But it is not just that some changes escape our notice. In those instances (they are none too rare) in which speakers are aware of ongoing diachronic developments and see them as decay and corruption of the language, the responses can be very emotional and exaggerated, and out of all proportion to the often trivial linguistic stimulus. All this makes the observation of changes in progress a challenge which any student of English should eagerly take up – all the more so as, with the present plentiful supply of corpora and other digital archives and databases, the infrastructure for the systematic study of such developments has never been better.

the decline of /ʊə/

/ʊə/ gradually gets replaced by /ɔ:/...
so that *yours* sounds like *yaws*...
poor like *pour* (or *paw*)...
and *sure* like *shore*

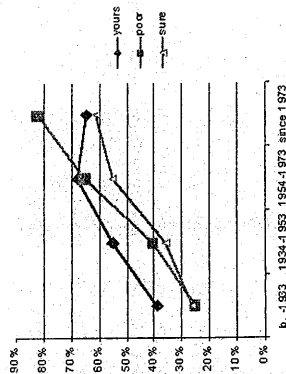


Fig. 12.6

The decline of the diphthong /ʊə/ in British English R.P. (source: <http://www.phon.ucl.ac.uk/home/wells/>)

As an illustration of ongoing sound change, consider the pronunciation of words such as *poor* or *sure* in present-day British R.P. Older speakers prefer a diphthong ([pʊə]), whereas younger speakers tend to use a long monophthong

Ongoing phonetic change

([pɔ:]). John Wells, who offers a very attractive web-resource documenting ongoing changes in British pronunciation, has investigated the phenomenon systematically.

What this diagram shows is a reversal of preferences which took place in the very recent past, around the middle of the 20th century. People born before 1933 prefer the diphthongal pronunciation in all cases. Those born between 1934 and 1953 prefer it for the two lexical words *pour* and *sure*, but have shifted to [ɔ:] in the grammatical closed-class item *yours*. The monophthongal pronunciation is the preferred one for all items for everybody born since 1954, with the trend gathering force for the youngest speakers. Extrapolating from these data, we can venture the prediction that the formerly dominant diphthongal pronunciations will disappear entirely as the speakers using it pass on.

Lexical innovation is where linguistic change in progress is most obvious to the lay observer. It is also an area in which corpora have long been used systematically, both as resources for the regular updates of dictionaries and in academic linguistic work on new words. As an illustrative example, consider the very short history of the proper name/noun *Google* and the even shorter history of the verb *to google*, derived from it by conversion.

Google is best known as the name for the popular web search engine created in 1998 by former Stanford students Larry Page and Sergey Brin. In the span of a few years, the word developed an additional verbal use through conversion or zero-derivation, the highly productive modern English word-formation process effecting change of part-of-speech class without corresponding form change on the base, and a generic use. As is shown by pairs such as *Hoover/to Hoover* and *Xerox/to xerox*, this twofold extension – from proper name to common noun and from noun to verb (which need not necessarily have occurred in this order) – is not without precedent in the recent history of English.

In coining the name, the developers of the search engine may have been inspired by an existing word, which the OED lists as *googol*, an informal term for ten raised to the one-hundredth power (10¹⁰⁰). The entry has a 1990 citation which credits the term to one “Dr. Kasner’s nine-year-old nephew [...] who was asked to think up a name for a very big number.” Whether the millions of users who popularised the Google search engine in a very short time were aware of the established use of a very similar term in the mathematical community may, however, be doubted.

As for the verb *to google*, it has developed two distinct senses in its very short career: (1) “to search for information on the Internet/World-Wide Web (mostly but not always implying use of the Google search engine),” and (2) “to use the web to find out information about a particular person (as in *to google someone on the Web*).” As most corpora of present-day English were compiled before the term became popular, its current usage is best analysed on the basis of web-data. Below you find the first ten instances of *googled* culled from the BBC website during a recent search (21 December 2007):

BBC China | 地理英语 Real English | To google 搜索 Google
Jo: To google means to use a search engine like google or yahoo to find information. Jo: Yes I do, I google all the time.

News - Health - Google 'aids doctors' diagnoses

A team of Australian doctors **googled** the symptoms of 26 cases for a study in the New England Journal of Medicine. Google searches found the correct diagnosis in just over half of the cases.

10 Nov 2006

News - Asia-Pacific - Google 'saved' Australian hostage

Iraqi kidnappers "**googled**" their Australian hostage to check his identity before letting him free.. 19 Oct 2004

News - UK - Google calls in the 'language police'

People now talk about "googling" and "being **googled**". I've since been told: "That girl **googled** you because she knows who you are now."

20 Jun 2003

Radio 1 - News - Is it right to check the details of potential staff on the internet?

Amrit you google your employer when looking for a job. They google you when looing for an employee. what were you expecting?

Programmes - Click - ClickBack

Apparently, we're not allowed to say "I **googled** it", we have to say "I conducted a Google search on it". The Google itself probably looked like the image on the right.

15 Sep 2006

News - Science/Nature - Fame or misfortune beckons for weblogs?

Blogger fits with the Google way of doing things," he said. Catch-up With Google's backing, Blogger's future suddenly looks much brighter, irrespective of Google's motives.

18 Feb 2003

News - Business - Can Yahoo revive its digital dreams?

Compared to market leader Google, Yahoo is nearly an also-ran. No wonder people say that they have "**googled**" something.

19 Jun 2007

Programmes - Click Online - Search engine race gets personal

Google's Lorraine Twohill says: "We started with 10 TV networks. First came the MSN no-frills Search, and now we have Yahoo's new-look search, which has unashamedly been **googled**."

12 Aug 2005

Slink - Sex, Love & Life - Agony Aunt Dr. Mel

So I **googled** it and someone had the same problem and they were told to put their finger up the hole and if it felt rough then you had this type of cancer. Katy, 15 A: Dear Katy Google is great.

Note that many of the citations are about the use of the new verb itself – a sure sign that not all speakers are comfortable with this innovation yet. Some spell it with a capital <G>, some with a lower-case <g>, and some use distancing quotation marks.

Traditional corpora are more than sufficient to study ongoing grammatical change, which is usually much slower than lexical innovation. Take, for example, the interesting case of modern English *wanna*, a contraction from *want to*. In most cases, the contracted form has the same meaning as the full form. Consider, for example, the following instance from the British National Corpus:

"Ma, you wanna hear me sing my song?"

Here, *wanna* can, of course, be replaced by *want to*: "Ma, (do) you want to hear me sing my song." The sentence can easily be put into the past tense: "Ma, did you want to hear me sing my song." The meaning of *want* in this sentence is roughly equivalent to "wish": "Ma, (do) you wish to hear me sing my song?"

Fig. 12.7
Uses of googled on
the BBC website
(www.bbc.co.uk)

Ongoing lexical
change

Ongoing grammatical
change

Now consider the following conversational exchange, also from the BNC:

Hugh: I think the process we should go through is [unclear]

Terry: You wanna be careful there because I'm not tak- I'm not necessarily taking [...]

As in the example above, *want to* can replace *wanna*: "You want to be careful ...". However, an interpretation of *want* as "wish" is not appropriate. Terry is not interested in what Hugh wishes or desires, but tells him that he **should** or **ought** to be careful. In other words, the lexical verb *want* has moved some way towards becoming a modal idiom expressing an obligation – weaker than *must* and about as strong as *should*. This is why it does not make sense to put the sentence into the past tense. Modals have no past tense. "You wanted to be careful" loses precisely the modal meaning which is at stake here and reverts to the lexical meaning of "wish, desire," which does not fit.

Similar processes – lexical items developing grammatical functions – are very common in the history of languages and generally referred to as **grammaticalisation**. Grammaticalisation processes are usually reflected in increasing discourse frequencies, which is exactly what we get when we look at corpora. These are the frequencies for the use of *wanna* by age-group in the BNC:

Age	Frequency
0-14	1178
15-24	700
25-34	496
35-44	368
45-59	330
60+	159

Table 12.4
Frequency of *wanna* in the BNC ("spoken-demographic sub-corpus") by age group (frequency represented as x per 1,000,000 words)

As in the case of the pronunciation of the vowel in the *poor*-class of words, we get a perfect age-gradient. The younger a speaker is, the more likely he or she is to use *wanna* instead of the full form *want to*. As we have seen above, it is not the case that the emerging modal use of *want* necessarily requires the use of the contracted form *wanna* in each and every case, but there clearly is a statistical correlation which shows up in the data.

In popular prejudice, especially in Britain, *wanna* is commonly regarded as an Americanism, or as an instance of sloppy articulation. A little bit of linguistic theory (grammaticalisation) and some hands-on corpus analysis has shown us that this is a very superficial way of looking at complicated and systematic developments. In your studies, you're gonna wanna look at similar instances of linguistic change, but you gonna gotta be careful in doing so.

References and further reading

- An easy-to-read introduction to language change is
Aitchison, Jean. 2002. *Language change – Progress or decay?* 3rd ed. Cambridge: CUP.
- The two standard histories of the English language are:
Hogg, Richard, and David Denison. 2006. *A history of the English language*. Cambridge: CUP.
Mugglestone, Lynda, ed. 2006. *The Oxford history of English*. Oxford: OUP.
- For an introductory treatment of the subject which has been popular with generations of students compare:
Baugh, Albert C., and Thomas Cable. 2006. *A history of the English language*. 5th ed. London, New York: Routledge.
- Recent and ongoing changes are surveyed in:
Mair, Christian. 2006. *Twentieth-century English: History, variation, standardization*. Cambridge: CUP.

Practice

- 1 Consult a corpus of present-day English of your choice and list the senses of *swine* which figure prominently in your data. How does what you find in **your** corpus compare to a typical entry for the word in a major dictionary?
- 2 The Wycliffe translation of the parable of the prodigal son (text 12.3) contains the following sentence, which is puzzling at first sight:
 Fadir, gyue to me the porcioun of substaunce, ethir catel, that byfallith to me.
 (Father, give me the portion of substance, or cattle, that belongs to me.)
 Consult the OED entry for *cattle* to make sense of this passage.

- 3 Consider this passage from Shakespeare's *As You Like It*:

Touchstone: He sir, that must marry this woman. Therefore, you clown, abandon – which is in the vulgar leave – the society – which in the boorish is company – of this female – which in the common is woman. Which together is abandon the society of this female, or clown thou perishest; or to thy better understanding, diest; or to wit, I kill thee, make thee away, translate thy life into death, thy liberty into bondage. [...] (*As You Like It*, V, 1, 47ff.)

Shakespeare has Touchstone use synonyms in a way that is clearly intended to produce a humorous effect. Explain the joke.

Consult an etymological dictionary to find out which of the synonyms used are of Germanic/Old English, French or Latin origin. How does origin relate to stylistic level?

WEEK TWELVE



Linguistic relativity

Phillip Wolff* and Kevin J. Holmes

The central question in research on linguistic relativity, or the Whorfian hypothesis, is whether people who speak different languages think differently. The recent resurgence of research on this question can be attributed, in part, to new insights about the ways in which language might impact thought. We identify seven categories of hypotheses about the possible effects of language on thought across a wide range of domains, including motion, color, spatial relations, number, and false belief understanding. While we do not find support for the idea that language determines the basic categories of thought or that it overwrites preexisting conceptual distinctions, we do find support for the proposal that language can make some distinctions difficult to avoid, as well as for the proposal that language can augment certain types of thinking. Further, we highlight recent evidence suggesting that language may induce a relatively schematic mode of thinking. Although the literature on linguistic relativity remains contentious, there is growing support for the view that language has a profound effect on thought.

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INTRODUCTION

Folk psychology tells us that human cognition depends on language, and further, that this dependency creates differences in thought across language communities. Although often mistaken, folk psychology appears to be at least partially correct in this case. In academic circles, such intuitions are referred to as linguistic relativity, the Whorfian hypothesis, or the Sapir–Whorf hypothesis. Linguistic relativity comprises three main ideas.^{1–3} First, it assumes that languages can differ significantly in the meanings of their words and syntactic constructions—an assumption that is strongly supported by linguistic, anthropological, and psychological studies of word and phrasal meaning across languages.^{3–5} Second, the proposal holds that the semantics of a language can affect the way in which its speakers perceive and conceptualize the world, and in the extreme, completely shape thought, a position known as *linguistic determinism*. Finally, given that language can affect thinking, linguistic relativity holds that speakers of different languages think differently.

In the early 1990s, linguistic relativity was all but given up for dead, especially after it was realized that the proposal, as it was often understood, gave

rise to several logical paradoxes.⁶ However, a recent resurgence of research in this area has uncovered subtle and intriguing interactions between language and thought, leading to a number of more nuanced versions of the proposal.

LINGUISTIC RELATIVITY AND ITS MANIFESTATIONS

It has often been claimed that linguistic relativity is a weaker form of linguistic determinism. But the strong–weak distinction oversimplifies the more complicated picture that is emerging in recent research on the relationship between language and thought. Linguistic relativity can now be said to comprise a ‘family’ of related proposals that do not necessarily fall along a single strong-to-weak continuum. In this article, we examine the arguments and evidence for several branches of the ‘family tree’ shown in Figure 1. Our overall conclusion will be that the proposals we call *language as language-of-thought* and *linguistic determinism* can be rejected on both theoretical and empirical grounds, but that recent findings support a range of alternative ways in which language might have significant effects on thought, leading to possible differences in thought across language communities.

Language as Language-of-Thought

Language surely affects thought if the units of thought are words from natural language. This

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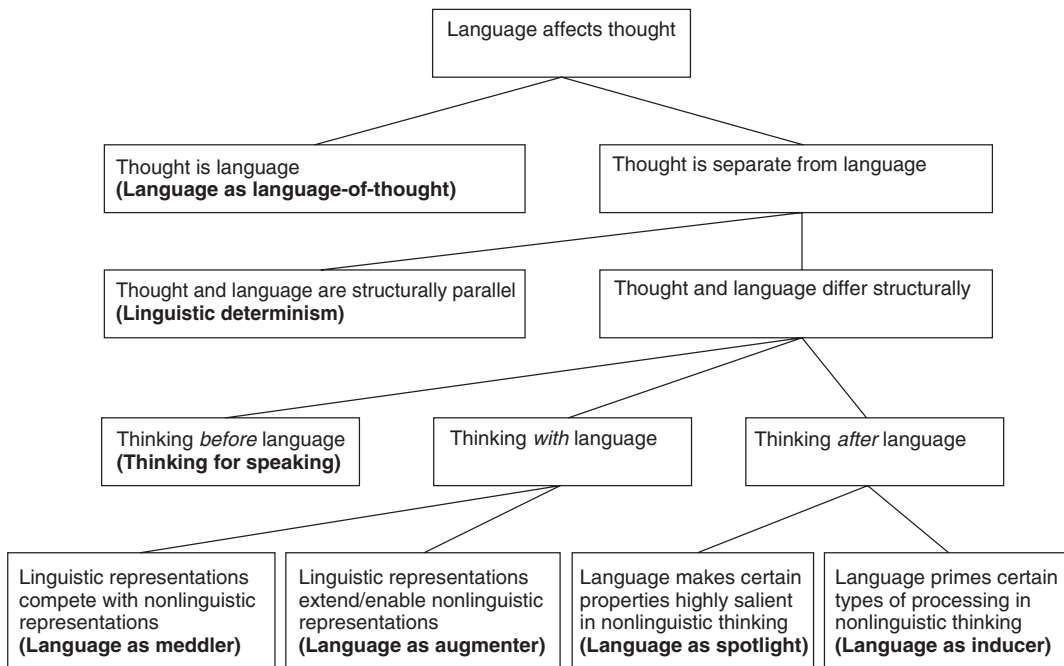


FIGURE 1 | Classes and subclasses of hypotheses on how language might affect thought.

version of how language influences thinking has been advanced by a number of theorists, including Plato, ‘[T]he soul when thinking appears to me to be just talking. . .’⁷ (p. 252), and Kant, ‘Thinking is speaking to ourselves’⁸ (p. 278). Max Müller perhaps stated the position most directly when he asserted, ‘Language is identical with thought’⁹ (p. ii). In psychology, the conflation of language with thought is exemplified by the views of behaviorist John Watson, who proposed that thought should be equated with the production of (subvocal) speech.¹⁰

Clearly, this version of the language–thought interface cannot be right.^{6,11,12} As argued by Pinker,⁶ people can have thoughts that are difficult to express, but this would never be the case if thoughts were represented entirely in natural language. People can also understand linguistic expressions that are ambiguous, such as *Kids make nutritious snacks*, but their very ability to recognize this ambiguity implies a finer level of representation than that encoded in the meanings of words.⁶ If people thought entirely in words, words expressing new concepts could never be coined because there would be no way of imagining their meanings. Further, research indicates that infants and nonhuman primates are capable of relatively sophisticated forms of thinking, even in the absence of language.^{13–20} These arguments point to a medium of thought for categorization, reasoning, and memory—conceptual representations, or *mentalese*—that is independent of the kinds of representations used

to specify the meanings of words and constructions in language (see Refs 6,11,12,21).

Linguistic Determinism

The concept of linguistic relativity was championed in the 1950s by the amateur linguist Benjamin Lee Whorf.²² Whorf argued for what has come to be known as linguistic determinism, the view that language determines the basic categories of thought and that, as a consequence, speakers of different languages think differently.^a In linguistic determinism, the shaping role of language is held to be so strong that it can even overwrite pre-existing perceptual and conceptual capabilities,²³ in a manner analogous to the way infants lose the ability to notice phonetic distinctions absent in their native language.²⁴ Linguistic determinism differs from *language as language-of-thought* in that it separates language from the conceptual system.^{25,26} While this distinction represents an important advance over the previous proposal, linguistic determinism can still be rejected because it makes untenable predictions about the relationship between language, thought, and the world.

Linguistic determinism holds that differences in language cause differences in thought. This view implies a relatively tight connection between language and thought and a loose connection between thought and the world (see the left side of Figure 2). This

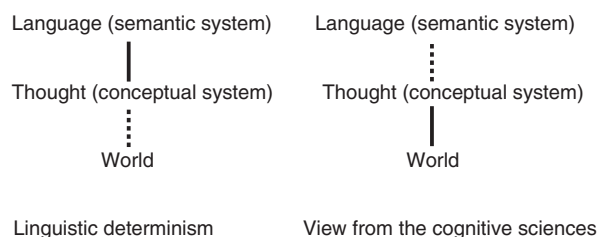


FIGURE 2 | In linguistic determinism, the relationship between language and thought is tight, while the relationship between thought and the world is loose. Research in the cognitive sciences suggests the opposite pattern: a loose relationship between language and thought, and a relatively tight relationship between thought and the world.

pattern of relationships is expected because thought is held to be determined by language, not the world.

Research from the cognitive sciences suggests a different pattern of relationships, namely that the connection between thought and the world is tighter than the connection between thought and language^{12,27–30} (see the right side of Figure 2), especially in the case of nominal concepts.^{31,32} Evidence for a loose connection between language and thought comes from cross-linguistic studies showing that differences in word meanings across languages are greater than differences in the underlying concepts. For example, as shown by Malt et al.,³³ speakers of English, Spanish, and Chinese diverged significantly when labeling pictures of common storage containers but performed comparably when making similarity judgments about the same containers. A similar pattern of results was observed in an experiment comparing French-speaking and Dutch-speaking Belgians.³⁴ The two groups of Belgians resembled each other in their similarity judgments for storage containers but diverged in their naming patterns, despite sharing essentially the same culture. This kind of disconnect between language and thought has been observed in other domains as well. For example, Munnich et al.³⁵ found that Korean and English speakers' memory for spatial locations was far more similar than their naming patterns, and Gennari et al.³⁶ observed that English and Spanish speakers' memory for motion events was more similar in comparison to how they named such events (see also Ref 37).

The lack of alignment between language and thought raises severe problems for linguistic determinism, but these problems do not imply that language cannot have an effect on thought. Indeed, it is because language and the conceptual system differ that we might expect a tension between them, driving each system to exert an influence on the other.

THINKING BEFORE LANGUAGE

One type of thinking that might be influenced by language is the thinking that occurs immediately prior to using language—that is, the thought processes associated with producing speech. Such an influence might be expected to produce differences in thought across languages because languages differ with respect to the aspects of experience to which their users must attend. In English, for example, but not in Indonesian or Mandarin, verbs must specify tense, so presumably English speakers must attend to when an event occurred. In Turkish, descriptions of past events must indicate whether they were witnessed or nonwitnessed.³⁸

Thinking for Speaking

In using language, then, speakers must engage in a special kind of mental activity—attending to certain aspects of experience—that Slobin^{38,39} has called *thinking for speaking*. Thinking for speaking has been observed in people's attentional patterns and memory for motion events.^{36,40} The effect stems from the well-known phenomenon that certain languages (e.g., English, German, Russian, Chinese) tend to encode manner in the main verb (e.g., *jog, roll, march*) and path in a variety of other linguistic structures, while other languages (e.g., Greek, Spanish, French, Japanese) do just the opposite. In a study by Papafragou et al.,⁴⁰ eye-movement patterns of native speakers of English and Greek were monitored as they watched motion events. When participants were instructed to watch the events in preparation for describing them verbally, Greek speakers were much more likely than English speakers to focus on path over manner. When participants simply watched the motion events freely, however, the eye-movement patterns were largely the same for the two language groups (except at the very end of the events; see the section 'Motion' under *Language as Meddler* below). In similar research by Gennari et al.,³⁶ similarity ratings for motion events by English and Spanish speakers conformed to language-specific patterns when they were instructed to verbally describe the events, but not when there was no verbal encoding.

THINKING WITH LANGUAGE

In thinking for speaking, the effect of language on thought occurs immediately before the production of language. However, much recent research points to another kind of effect of language on thought, namely, one in which processes associated with language are activated along with nonlinguistic processes. Thus,

in this kind of effect, thinking occurs *with* language. One of the hallmarks of this kind of language effect is that it can be eliminated by having people engage in a verbal interference task—that is, a secondary task that recruits verbal processing. There appear to be two general classes of this kind of language effect.

Language as Meddler

In one class, the effects of language occur from the spontaneous recruitment of linguistic codes in tandem with nonlinguistic codes. Linguistic codes, in effect, meddle with nonlinguistic codes in the process of making a decision. When the linguistic and nonlinguistic codes are consistent with each other, speed and accuracy are facilitated, but when they conflict, speed and accuracy may be compromised.⁴¹

Motion

An effect of linguistic meddling is suggested by Papafragou et al.'s⁴⁰ study, described in the previous section. The eye-movement patterns of the English and Greek speakers differed not only in the linguistic condition, but also in the non-linguistic condition, at the very end of the animations. Participants shifted their attention to aspects of the scenes not typically encoded in verbs in their language, perhaps, as suggested by Papafragou et al., to compensate for relatively greater early attention to typically encoded aspects. Thus, at the end of the animations, English speakers attended preferentially to path (from an earlier relative preference for manner) and Greek speakers attended equally to both manner and path (from an earlier preference for path). Papafragou et al. speculated that these cross-linguistic differences reflected different approaches to the linguistic coding of the scene in memory. Importantly, these attentional differences do not constitute a type of thinking for speaking because the very point of the nonlinguistic condition was to examine what people would do when they were not asked to put the scenes into words. Instead, these differences exemplify an effect of language on thought that occurred from the unprompted, spontaneous generation of linguistic codes, which consequently meddled with how participants attended to the scenes. Greek speakers also had poorer memory for the events than English speakers, a difference the authors attribute to processing costs associated with trying to attend to both manner and path. But once again, the effect on memory was not due to any promptings from the experimenter or to task demands, but rather, apparently, from the spontaneous generation of linguistic codes.

Color

The color domain has been of central interest in research on the relationship between language and thought. In the 1970s, such research cast a pall over the possibility that language might influence thought with the findings that inventories of color terms shared significant commonalities across languages⁴² and that any linguistic differences did not correspond to differences in categorization behavior.⁴³

Several recent studies indicate, however, that language may have an influence on color cognition. Work with the Berinmo, a small tribe in New Guinea whose language has 5 basic color terms (compared to 11 in English), is a case in point. Controlling for a confound in previous research,⁴⁴ Roberson and colleagues found that the Berinmo's recognition memory was better for the focal colors of their own language than for those of English.^{44–47} In a similar line of research, Winawer et al.⁴¹ found that an obligatory color distinction in Russian between *sinii* (dark blue) and *goluboy* (light blue) led to differences in color discrimination. Russian speakers, but not English speakers, performed faster on a matching task when the colors belonged to different linguistic categories than when they belonged to the same category. Moreover, these cross-linguistic differences disappeared under conditions of verbal interference. A similar effect was found for English by Gilbert et al.;⁴⁸ participants were faster to locate a target when its linguistic category differed from that of the surrounding distractors (e.g., a green among blues), and slower when the target and distractors shared the same linguistic category (e.g., a green among other shades of green), but only when the target was presented in the right visual field. This lateralization effect was presumably due to the fact that presentation in the right visual field entails that the stimulus will initially be processed in the left hemisphere, the side of the brain where language processing typically occurs. Further, as in the study by Winawer et al., the effect was eliminated by a verbal interference task.

The findings described above suggest that language can meddle with cognition via the interaction of perceptual and linguistic codes.^{41,47,49} The results do not imply a change to the underlying perceptual machinery or memory representations because the effects of language on cognition were disrupted by verbal interference tasks (but see Ref 50). It should be noted that, the effects in these studies cannot be attributed to task demands. Some linguistic relativity experiments have used tasks with questions for which there were no objectively correct answers; under these conditions, participants might use linguistic codes to choose between two alternatives because they have

no other basis for making a decision.^{11,28,36} However, the color tasks described above all had objectively correct answers. Despite the fact that language was not needed to solve these tasks, linguistic codes were generated nonetheless.

Language as Augmenter

In the case of language as meddler, a decision can be made on the basis of either linguistic or nonlinguistic representations. In certain cases, however, linguistic representations may combine with nonlinguistic representations to enable people to perform tasks that could not be completed with either type of representation alone. In such cases, as argued by Gentner^{51,52} and Frank et al.,⁵³ language may augment thought by offering new conceptual tools. This idea can be illustrated by problems like the one in Figure 3. If the first gear in Figure 3 turns clockwise, in which direction will the last gear turn? This problem could be solved by mental simulation; that is, by imagining the first gear turning to the right, then the second gear turning to the left, and so on.⁵⁴ Alternatively, people might notice that each successive gear turns in the opposite direction from the previous one and generate the parity rule that ‘odd and even gears turn in different directions’.⁵⁵ This rule, which may depend on linguistic coding, can then be applied more quickly than the laborious process of mentally rotating each gear. In problems like this one, the constant meddling of language may pay off because it gives rise to a new way of representing the problem, allowing for quicker and more accurate answers.

Number

A similar kind of re-representation seems to occur in the domain of number. There appear to be three main systems for representing numerical quantities. One of these systems involves a fast ‘subitizing’ procedure that allows everyone from infants to adults to recognize small numbers of items (≤ 4) automatically without having to count.⁵⁶ A second system allows animals, infants, and adults to discriminate larger quantities, but only approximately, such as the rough amount of sand in a bucket or fish in a net.^{57,58} These two systems are thought to be innate. The third system



FIGURE 3 | Series of gears in which the first turns clockwise. In which direction will the last gear turn?

allows for the specification of exact quantities, such as the quantity 31. An exact number system must be explicitly learned, and several sources of evidence suggest that this third system depends on language. In a study by Dehaene et al.,⁵⁹ Russian–English bilinguals were trained on exact and approximate number addition in either Russian or English. After training, performance on the exact addition problems was faster in the trained language than in the untrained language, suggesting that the results of training were stored in a language-specific format. Performance on the estimation problems, in contrast, was unaffected by the language of training, suggesting the use of mental codes that were independent of language. A functional magnetic resonance imaging (fMRI) study supported these results by showing that the exact number task recruited neural networks typically associated with language processing, whereas the estimation task recruited areas in both parietal lobes not typically associated with language processing.

While the results from Dehaene et al.⁵⁹ suggest an effect of language on cognition, they do not demonstrate linguistic relativity. Exact number calculation was no better or worse in Russian or English. To make the case for an effect of linguistic relativity per se, it needs to be shown that the effects differ across languages. Such evidence has recently been found in work on languages with so-called *one-two-many* number systems. Number words in Pirahã, a language spoken by a small tribe in Brazilian Amazonia, map only roughly onto the quantities ‘one’ and ‘two’. As observed by Frank et al.,⁵³ the Pirahã’s word for one, *hói* (falling tone), may be used to describe as many as 6 items, the word for two, *hoí* (rising tone), as many as 4–10 items, and the word for many, *baagi*, between 7 and 10 items. Effectively, then, Pirahã lacks words for exact quantities.

Gordon^{25,60} investigated the potential consequences of this absence of number words on tasks requiring exact quantities. In one such task, Pirahã speakers were asked to line up batteries on a table across from a set of nuts arranged in a line. In a more difficult version of this task, they were asked to match the items along an axis orthogonal to the one used by the experimenter. The main result was that the Pirahã were unable to perform the task accurately, but their responses were not random: as the number of items increased, the Pirahã tended to put out more items, though rarely the exact number. The results suggest that the Pirahã tried to solve the task using an approximate number system. Gordon’s findings align well with Dehaene et al.’s⁵⁹ study in indicating that exact magnitude calculation requires language. The most critical findings in Gordon’s study were replicated in

a set of studies by Frank et al.,⁵³ who conclude, like Gordon,^{25,60} that the Pirahã's conceptual gaps were due to gaps in their language.

An important question raised by Gordon's and Frank et al.'s findings concerns the exact way in which language might impact number cognition. Pinker and Jackendoff⁶¹ and Bloom⁶² have suggested that children may learn the number system by co-opting the mental machinery of language used for iterative and recursive processing. Concepts like five and six, and odd and even, depend on a system of generative rules to give them meaning. The fact that exact number is learned much later than language, and is effectively unique to humans, supports the view that language might be used to reason about numbers. Among other capacities, language may support the formation of rules, and perhaps even more importantly, the embedding of rules within other rules.

False Belief Understanding

This type of language effect is potentially significant because rule embedding appears to be essential in a number of domains, including, for example, the representation of false beliefs.^{63–65} An especially compelling case for the role of language in false belief understanding has recently been made with Nicaraguan adults who learned Nicaraguan Sign Language (NSL).⁶⁴ NSL first appeared in 1970 with the creation of special-education schools. The first cohort learned an early form of the language, which was elaborated by the second cohort. Although the language skills of these two groups differed, the sociocultural history of the two groups was essentially the same: both attended the same schools for the same number of years, had the same teachers, and had comparable social networks. Pyers and Senghas⁶⁴ found that the second cohort knew significantly more mental state signs (e.g., *think*, *know*) than the first cohort, indicating a more developed lexicon for this domain. False belief understanding was measured using a low-verbal task in which participants were shown a sequence of picture cards and asked to choose the last card to complete a story. The surprising finding was that false belief understanding was significantly stronger in the younger second cohort signers than in the older first cohort signers. As emphasized by Pyers and Senghas, the participants in the two groups were comparable, except in their language ability, suggesting that the difference in false belief understanding was due to language. Following de Villiers and de Villiers,⁶³ Pyers and Senghas suggest that the capacity to represent false beliefs may depend, at least in part, on people's ability to represent embedded propositional structures, as when people

say *I know that she thinks X, but what is actually true is Y*. The development of false belief understanding may be rooted in more fundamental executive functioning abilities (e.g., dimension switching),⁶⁶ which undergo marked developmental change during the preschool years.^{67–69} Interestingly, children's performance on dimension-switching tasks (e.g., sorting first by shape, then by color) improves substantially when language is used to highlight the conflicting dimensions.^{68,69} As with false belief understanding, language may improve performance by enabling children to represent embedded rule structures—in this case, the higher-order rules that govern when each individual sorting rule should be applied.⁷⁰

Spatial Analogies

If language aids in the formation of embedded knowledge structures, it is likely to have a significant role in many other cognitive activities. As argued by Gentner,^{51,52} hierarchically structured relational knowledge allows people to discover abstract commonalities that can lead to more explicit and uniform units of thought. In a spatial analogy study, Loewenstein and Gentner⁷¹ had 3.5-year-old children watch as a star was placed behind a card on the top, middle, or bottom shelf of a small shelving unit. They were then asked to find the star in an almost identical shelving unit nearby. Children's performance on the task improved if, during the hiding event, the experimenter indicated the star's location using relational words such as *on*, *under*, *top*, or *bottom*. The results suggest that relational language helped the children align the two sets of spatial relations.

Category Learning

Beyond supporting the representation of embedded rule structures and relational knowledge, language may extend nonlinguistic cognition in several other ways. As suggested by Waxman and Markow,⁷² language may serve as an invitation to form new categories (see also Ref 73). It may also facilitate category learning. This type of influence was demonstrated in a set of studies by Lupyan et al.,⁷⁴ in which participants learned to distinguish between approachable and nonapproachable alien creatures. These categories could be learned on the basis of visual information alone, so learning labels for the categories was not necessary for completing the task. Nevertheless, category learning was much faster when it was accompanied by auditory or written labels than not. In a subsequent work, Lupyan⁷⁵ has shown that categories learned with labels are more resistant to interference from novel stimuli and more flexible in their ability to incorporate new members.

THINKING AFTER LANGUAGE

The effects of linguistic meddling and augmenting occur when thought and language work in tandem—that is, when thinking recruits linguistic representations online. Yet another major way in which language might affect thought is as an influence *after* the use of language. The long-term use of a language may direct habitual attention to specific properties of the world, even in nonlinguistic contexts. At a more general level, language use may also induce a given mode of processing, which may persist even as people engage in other nonlinguistic tasks. Unlike the effects described in the previous section, these effects of ‘thinking after language’ should be less attenuated by verbal interference tasks, since they occur after language is no longer in use, rather than involving the recruitment of linguistic codes during processing.

Language as Spotlight

After exposure to words and constructions that highlight specific properties, attention may linger on those properties. In effect, language may act as a spotlight, making certain aspects of the world more salient than others.

Grammatical Gender

Work by Boroditsky and colleagues demonstrates how such effects might occur as a result of exposure to grammatical gender.⁷⁶ Grammatical gender is a feature of nouns in many languages (English being a notable exception), whereby all nouns are assigned a gender. In both German and Italian, for example, the words for ‘hammer’, ‘spoon’, and ‘screwdriver’ are masculine, while the words for ‘fork’, ‘bottle’, and ‘scissors’ are feminine.⁷⁷ Languages often conflict in their assignment of grammatical gender. For example, the word for ‘key’ is masculine in German and feminine in Spanish, while the word for ‘bridge’ is feminine in German and masculine in Spanish.⁷⁶ This cross-linguistic variability suggests that grammatical gender is not determined by the correlational structure of the world, but rather, in large part, by factors that are specific to particular languages. Given that the categories of masculine and feminine are language-specific, it can then be asked whether these language-imposed categories have consequences for the kinds of properties people attend to when thinking about objects. Boroditsky and her colleagues found support for this possibility. In particular, they found that Spanish and German speakers’ ability to learn associations between proper and common nouns (e.g., *Tom* and *apple*) was disrupted when the grammatical gender of the common noun differed

from the biological gender of the proper noun’s referent. They also demonstrated that attention to different aspects of an object could be manipulated experimentally by having English speakers learn a novel language with grammatical gender and that the effects of grammatical gender extended to people’s judgments about the similarity of unlabeled pictures. Interestingly, these effects persisted even when people were engaged in a verbal interference task, suggesting that the results were not due to the online recruitment of language, but rather to attentional biases acquired through the frequent, habitual use of language.

Spatial Frames of Reference

Another way in which language might affect how people attend to the world is to promote a particular framework for conceptualizing space. Much research supports the proposal that representations of space utilize one of three possible frames of reference.^{5,78–84} An absolute (or geocentric) frame of reference involves a coordinate system in which the main axes are placed within the larger environment (e.g., a house facing east). An intrinsic (or object-centric) frame of reference places the axes in objects (e.g., the front of a car). Finally, a relative (or egocentric) frame of reference defines the axes with respect to the viewer’s own body (e.g., the comb to my left). Findings from several sources indicate that all three frames of reference are available to humans across cultures.^{78–81} Levinson and his colleagues have argued, however, that there are cross-cultural differences in people’s preference and proficiency with these frames of reference, and further, that these biases stem from linguistic differences.^{5,78,79,82} As documented by Majid et al.,⁵ languages vary in the frequency with which they encode the three frames of reference. In English, the dominant spatial frames are the relative and intrinsic, whereas in Tzeltal, a Mayan language spoken in Mexico, the dominant frames are the absolute and intrinsic. Levinson and his colleagues speculate that, over development, these arguably innate concepts become progressively re-represented to match the structures used in the learner’s language. Levinson⁸² conducted one of the earliest tests of this hypothesis with speakers of Dutch and Tzeltal. Participants were shown three objects organized in a row; then they were rotated 180° and instructed to ‘remake the array just as it was’. As predicted, the Dutch speakers arranged the items according to an egocentric frame of reference, while the Tzeltal speakers appeared to use an absolute frame (see also Ref 79).

These findings are consistent with the possibility that the regular use of language can lead people to prefer one construal of the world over others. It should

be emphasized that Levinson et al.'s findings do not imply that people are unable to use frames of reference that are not regularly encoded in their language. Indeed, as demonstrated by Li et al.,⁸⁴ Tzeltal speakers can, in fact, use their non-dominant frame of reference, the egocentric frame, without any apparent difficulty. Still to be determined is whether, at the time of encoding, participants in Levinson et al.'s experiments used language to help encode the spatial relations. If so, the results from these experiments might be better classified as a type of thinking *with* language, in which language acts as a meddler or augments.

Spatial Relations

The idea that language might lead people to focus on certain aspects of experience at the exclusion of others has also been examined with respect to the encoding of local spatial relations. As documented by Bowerman,⁸⁵ the encoding of spatial relations varies greatly across languages. For example, verbs of placement in Korean distinguish between tight and loose fit and ignore the distinction between containment (e.g., 'put in') and support (e.g., 'put on'), while the converse is true for English prepositions.^{86–89} Work with infants suggests an ability to distinguish tight from loose fit as early as 5 months (Refs 14,87,88 but see Ref 90). However, Choi⁸⁸ has found that by 3 years of age, sensitivity to the distinction between tight and loose fit diminishes greatly in English-speaking children. Similarly, McDonough et al.⁸⁷ found that whereas Korean-speaking adults remained sensitive to the distinction between tight and loose fit, English-speaking adults were relatively insensitive to this distinction. Importantly, the results from Choi and McDonough et al. involved preferential-looking paradigms, so they do not indicate that English-speaking 3-year-olds and adults are unable to perceive or conceptualize the distinction between tight and loose fit, only that they are not biased to focus on this dimension.¹⁴ Together, the findings on local spatial relations suggest that early on, infants are sensitive to a wide range of spatial distinctions, but that over development, they may develop biases toward certain distinctions, specifically those encoded in their language, over others. However, the findings do not imply that people lose the fundamental ability to perceive spatial distinctions not regularly made in their language.

Objects and Substances

One final area in which language might bias people to attend to particular aspects of experience is with respect to the distinction between objects and substances. Languages differ in how they partition

the world into discrete objects (books, flowers) and unbounded continuous masses (rice, sand). In English, names for objects typically imply individuation. For example, when referring to multiple chairs in a room, we must use the plural marker. In languages like Japanese and Yucatec Maya, such markers are usually not needed; it is as if the noun for chair means 'chair stuff'.^{27,91,92}

Several studies have investigated whether this difference in how objects are linguistically individuated might have an impact on thought. In categorizing objects, speakers of languages like English might be biased to focus on shape, since objects can be individuated on the basis of shape. In contrast, speakers of languages like Japanese and Yucatec Maya might be biased to attend to material, since their nouns do not explicitly individuate objects. These predictions were borne out in several studies in which people were asked to determine whether a particular entity (e.g., a ceramic lemon squeezer) was more similar to another entity that shared its shape (e.g., a wooden lemon squeezer) or its material (e.g., bits of ceramic), as indexed by novel noun generalization or explicit similarity judgments. For example, Imai et al.^{92,93} and Lucy and Gaskins⁹¹ found that English-speaking children and adults tended to choose according to shape, while Japanese and Yucatec Maya children and adults tended to choose according to material. Recent work by Li et al.⁹⁴ replicated these findings with speakers of Japanese, Mandarin, and English. However, this same research showed that such cross-linguistic differences did not prevent speakers of languages like Japanese from being able to think about fixed regular-shaped objects as individuated entities. As in the case of spatial frames of reference and spatial relations, language may lead people to spontaneously focus on certain aspects of experience, but it does not appear to rigidly prevent people from considering aspects of experience not encoded in their language.

LANGUAGE AS INDUCER

When language acts as a spotlight, certain aspects of the world are highlighted, in particular, those that are encoded in the meanings of specific words and constructions. However, there is another, perhaps more general way in which language might affect thought: specifically, language may prime a particular mode of processing that continues to be engaged even after language is no longer in use. This possibility was supported in a recent set of studies on the simulation of motion in static scenes. In a replication of Freyd et al.,⁹⁵

Holmes and Wolff⁹⁶ found that when an object supporting another object was suddenly removed (e.g., a pedestal beneath a potted plant disappeared), people appeared to simulate the effect of gravity on the unsupported object, as evidenced by their insensitivity to downward changes in the position of the unsupported object. Holmes and Wolff also observed that this mental simulation of gravity was much more likely to occur when participants were presented with schematic line drawings of a scene, as opposed to photorealistic images. However, when participants were instructed to write a verbal description of the photorealistic images, the simulation of gravity subsequently occurred for these stimuli as well. Further, there was a positive correlation between the proportion of relational terms (e.g., verbs and prepositions) participants used in their descriptions and the magnitude of the simulation effect. Interestingly, this influence of language was found to be scene-independent: relational language promoted mental simulation even when people described a completely different scene than the one on which they were tested. The results suggest that language, and relational language in particular, can induce people to conceptualize experience in a relatively schematic manner, a mode of processing effective in facilitating mental simulation.

CONCLUSION

Our survey of the field suggests that at least two versions of the Whorfian hypothesis can be dismissed, namely those based on language as language-of-thought and linguistic determinism. On the other hand, five other versions of the Whorfian hypothesis have garnered empirical support: those in which thinking occurs before language use (*thinking for speaking*), those in which linguistic and nonlinguistic codes compete with each other (*language as meddler*) or in which linguistic codes extend nonlinguistic

thinking (*language as augmenter*), and those in which thinking is directed toward properties highlighted by language (*language as spotlight*) or in which language engages a schematic mode of processing (*language as inducer*). Our conclusions are based, in part, on several recurring findings in the field. First, we did not find empirical support for the view that language determines the basic categories of thought or that it ‘closes doors’. Once people are able to make a particular conceptual distinction, this ability is retained, even if it is not explicitly encoded in one’s language. For example, English speakers retain the ability to distinguish tight and loose fit, even though this distinction is not encoded in their spatial preposition system.¹⁴ There is evidence, however, that while language may not close doors, it may fling others wide open. For example, language makes certain distinctions difficult to avoid when it meddles in the process of color discrimination⁴⁷ or renders one way of construing space more natural than another.⁸² Lastly, language can sometimes build new doors. For example, language may underlie our ability to represent exact numbers^{25,53,60} and entertain false beliefs.⁶⁴ Thus, language may not replace, but instead may put in place, representational systems that make certain kinds of thinking possible. Although the mechanism differs from that which Whorf originally proposed, current research suggests that language can still have a powerful influence on thought.

NOTE

^aIt should be noted that Whorf only argued for linguistic determinism in a portion of his writings. In other parts, he seemed to be arguing for the idea that language can act as a meddler or spotlight.

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WEEK THIRTEEN

Goals

The goals of the chapter are to:

- introduce the notions of linguistic universals and typology;
- discuss empirical requirements for investigations of universals and typology;
- distinguish and exemplify four main types of linguistic universal;
- describe two widely used typologies of human languages;
- discuss some important typologies of the phonology, morphology, syntax and lexicon of the world's languages;
- introduce the notion of markedness and illustrate its relevance to linguistic typology; and
- discuss reasons for the similarities and differences among human languages.

Key terms

absolute universals	free word order languages	non-implicational universals
absolutive case	fusional languages	number
accusative case	implicational universals	polysynthetic languages
agglutinating languages	inalienable possession	prefixing languages
alienable possession	intransitive	suffixing languages
animacy hierarchy	isolating languages	tone systems
argument structure	markedness	transitive
case systems	motion verbs	typology
ditransitive	neutralization	universals
ergative case	nominative case	
fixed word order languages	non-absolute universals	

14.1 Preliminaries to the study of the unity and diversity of languages

Two complementary perspectives on variation in language

It is difficult not to be impressed by the extraordinary diversity within the world's languages. Some languages distinguish just three vowels, while others distinguish a score or more. There are languages with no more than ten phonemes, and languages with over ten times as many. English and French use only the pulmonic airstream mechanism in 'ordinary' words, while Goemai uses the glottalic airstream as well. In Mandarin Chinese words are morphologically simple, while Yup'ik words show great complexity, and a single word may express what requires a multi-word sentence in Mandarin Chinese.

Yet the variation is not unlimited. There are certain properties that most or all languages share; these are known as **language universals**. To give a simple example, all languages use egressive pulmonic air; no language uses only ingressive pulmonic air, only velaric or only glottalic air. Furthermore, although there are languages that use glottalic but not velaric air, it seems that all languages that use velaric air also use glottalic air (though sometimes just as an accompaniment to clicks). No language contrasts sounds produced with any of these airstreams and sounds made with esophageal air (air from the stomach). These are universal properties of the sound systems of human languages. Discovering language universals is an important task for modern linguistics; so also is explaining them. Figure 14.1 depicts the situation graphically, and shows that we can group languages into types according to whether all phonemes contrast on the pulmonic airstream, or they contrast just glottalic, or glottalic and velaric airstreams as well.

Language typology deals with grouping together or classifying languages in ways like this. Some linguists classify languages into click languages (in which sounds produced on velaric air contrast with sounds produced on pulmonic air) and non-click languages. Thus Shua, Zulu and Xhosa would be click languages, English, Saliba and Warlpiri non-click languages. You

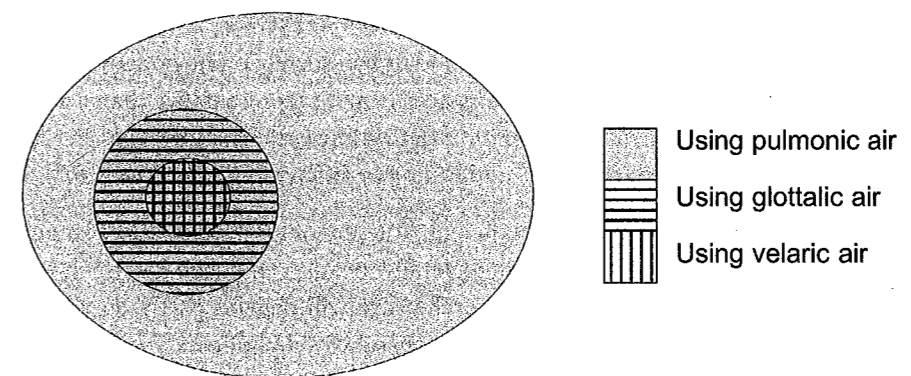


Figure 14.1 Language types according to airstream mechanisms used contrastively.

might reasonably question whether presence vs. absence of contrasting airstream mechanisms in a language really is a useful way of grouping languages. Perhaps it is like classifying animals according to whether they have fur, hair or bristles – possible, but of no great interest because few other characteristics cluster with them.

Typologists also investigate the classification of component systems of languages. For instance, one could classify vowel systems into nasal (having a phonemic contrast between vowels with nasalization and vowels without) and oral (without such a contrast). This approach is sometimes referred to as **linguistic typology**, to maintain a terminological distinction from the classification of entire languages (language typology). Typologists today mostly do linguistic typology.

Typology and universals are really just different perspectives on the same thing: how to get a handle on the limitations on variation among languages. Typology views it from the perspective of variation within commonality; universals, from the perspective of unity within variation. For convenience, I will use the term *typology* as a cover term for both perspectives; it is usually clear which sense is relevant.

Requirements

Claims about cross-linguistic variation and similarity must be based on and evaluated in reference to not just one single language, but many languages. Ideally, you might say they should be based on **all** languages of the world. Otherwise, perhaps the one language you omitted is the exception. But given that the world's languages number almost 7,000 and most of them have not been described well, the ideal is beyond our present reach.

Granted that we must be selective, how do we choose the languages? To begin with, it will depend on the sort of question one is asking: there is no single all-purpose procedure that works for all types of question. For instance, we can ask questions about languages of the world generally, the languages of a particular region, the languages of a family (see §16.2), or languages that have a particular property (e.g. have clicks, or nominal cases). Your sampling procedure will be different for each of these questions: if you are enquiring into the languages of a region it would make no sense to include many languages outside of it.

Let us suppose we are interested in questions about the world's languages generally. Two considerations are pertinent:

- a. A selection of languages cannot be judged as good or bad merely on how many languages are included. A selection of 50 very different languages is more representative than a selection of 100 quite similar ones. We can make a selection that maximizes diversity by choosing languages that are widely distributed geographically and belong to different families (see §16.2).
- b. Considerations of diversity alone are insufficient. You obviously need to select languages for which you have access to good data, which generally means a language for which a comprehensive grammar is available. What is comprehensive will depend partly on what you are investigating. For some studies (e.g. possession of nasal vowel phonemes) even a brief sketch grammar might be adequate. On the other hand, if you are investigating noun cases or parts-of-speech systems you will need more comprehensive grammars.

Even if you are able to find languages with excellent grammars, your investigation can be hampered by terminological and theoretical differences. For instance, descriptive linguists use the term *subject* in a range of ways, and to disregard this would be fatal to your study.

14.2 Universals of language

A distinction can be drawn between characteristics that are shared by all languages (so far as we know) and characteristics that are exhibited by many though not all languages. Thus we can talk – with some poetic licence – of **absolute** and **non-absolute** universals. The shared characteristics can be either specific linguistic features such as vowels, or relationships between features such as 'if a language uses the velaric airstream, it also uses the pulmonic airstream'. (Note that the inverse implication does not hold: if a language uses the pulmonic airstream it need not use the velaric airstream.) Correspondingly, we can distinguish **non-implicational** from **implicational** universals.

Table 14.1 Four types of language universal

	Absolute universals	Non-absolute universals
Non-implicational universals	A characteristic shared by each and every language without exception. <i>All languages have X</i>	A characteristic shared by many (or most) languages, a tendency <i>Languages tend to have X</i>
Implicational universals	A logical relation of implication between two characteristics that is found in every language <i>In all languages if X then Y</i>	A logical connection between two characteristics that is found in most/many languages <i>If a language has X it tends to have Y</i>

Table 14.1 shows the four types of universals these distinctions give rise to, and summarizes their distinguishing attributes. In the following subsections examples will be given of each of the four types.

Absolute non-implicational universals

Some examples of absolute non-implicational universals are:¹

- All languages have syllables, consonants and vowels.
- All languages have at least one stop phone.
- All languages have lexical words and distributional words (minimal free forms).
- All languages distinguish between grammatical units of at least three sizes: word, phrase and clause.

These probably seem quite unexciting. Nevertheless, they are not logical necessities, and systems can easily be imagined that do not display the properties. They may therefore be more significant than first appears.

Non-absolute non-implicational universals

These are robust tendencies that admit some exceptions. Here are a few:

- Most languages have CV syllables.
- Most languages have nasal phones.
- Most languages have an alveolar stop, and most have the high front vowel.
- In most languages a part-of-speech distinction can be drawn between nouns and verbs.

These generalizations hold for a high proportion of the world's documented languages. A few exceptional languages have no CV syllables: Breen and Penselfini (1999) argue that in Arrernte (Pama-Nyungan, Central Australia) all consonants occur in final position. Some Lakes Plain languages (Papuan, Papua) lack nasal phones entirely, while in some Asmat languages (also Papuan, Papua) nasals and corresponding stops are in allophonic variation. Hawaiian (Austronesian, Hawai'i) lacks alveolar stop phones. Some languages lacking the noun-verb distinction were mentioned in §4.1.

Absolute implicational universals

Absolute implicational universals are not easy to find, but here are three:

- If a language has phonemic mid-vowels it has phonemic high vowels.
- If a language has voiceless nasals it also has voiced nasals.
- If a language distinguishes dual number (a grammatical category indicating 'two') in pronouns it also distinguishes plural number.

There are two things to be wary of when formulating absolute implicational universals like these, which connect properties within languages. First, if the 'if' clause expresses an absolute universal, then the consequence must also be an absolute universal. (Can you see why?) It is preferable to simply state the latter as an absolute universal. Thus rather than 'if a language has vowels, it has consonants' it is preferable to state the absolute non-implicational universal 'all languages have consonants', since even though the implicational universal is valid, the non-implicational universal makes a stronger claim. Second, if the consequence is an absolute universal, then it makes little sense to formulate an implicational universal. Occasionally, one sees an implicational universal like 'if a language has voiceless vowels, it also has voiced vowels', or 'if a language uses the velar airstream, it also uses the pulmonic airstream' (p. 329). Since we have already seen that all languages have vowels and use pulmonic air, it is preferable to state the stronger absolute universals that all languages have voiced vowels and that all use the pulmonic airstream. Logically, (almost) anything could serve as the condition for an absolute truth: 'if a language has duals, it has voiced vowels!' (Even 'if pigs could fly, a language has voiced vowels!') Note that our second absolute implicational universal above almost runs foul of this: it is saved by the fact that there are a small number of languages without nasals.

Non-absolute implicational universals

Non-absolute implicational universals are abundant. Here is a sample:

- If a language has front rounded vowels, it will usually have front spread and back rounded vowels.
- If a language has phonemic affricates, it usually has phonemic fricatives as well.
- If one of two number categories is marked by an affix to a noun, it tends to be the plural.
- If a language has bound morphemes marking number and case in nouns and either both follow or both precede the noun, the marker of number almost always comes between the noun and the case morpheme. In other words, if they are adjacent the number-marker is closer to the noun.

There are exceptions to each of these implications, though they are few. In such circumstances it pays to look carefully at the exceptions to see whether they really are exceptions, or to try to specify the condition in another way. Some grammars fail to make the distinction between affixes and clitics, and this could be the source of exceptions. Alternatively, it might be that the markers in question are not genuine number or case makers – that is, they might mark similar though not identical categories.

14.3 Typology

The bulk of this section deals with morphological typology, one of the best-studied areas of typology. We begin in the first subsection with two morphologically based classifications of languages. Following this we explore (in the second subsection) the typology of three morphological categories: number, possession and case. Syntactic typology has also attracted a considerable amount of attention. However, our treatment (in the third subsection) is brief, partly because a greater knowledge of syntax is required than presented in Chapter 5, and partly due to analytical and theoretical problems that render the empirical basis somewhat shaky. Actually, the division between morphological and syntactic typology is made here for expository purposes, and many phenomena can be equally treated either way: what is represented morphologically in one language may be expressed syntactically in another.

Rather less attention has been devoted by typologists to phonetic/phonological typology and lexical/semantic typology, and I restrict myself to a few brief remarks on these underdeveloped but fascinating domains.

Two morphological typologies of languages

Morpheme integrity

A widely used typology of the world's languages, with roots in the 19th century, distinguishes four morphological types:

- **Isolating** languages have no (or few) bound morphemes. Every word is monomorphemic. Haitian Creole (a French-based Creole spoken on the island of Haiti) is an isolating language, as the following example illustrates:

(14-1) *m pa konprann sa l(i) ap di m lan* Haitian Creole
 1sg not understand what 3SG PROG say 1sg DET
 'I don't understand what he/she is telling me.'

- **Agglutinating** languages allow morphologically complex words, which are easy to segment into morphemes. The boundaries between morphemes are clear-cut: it is obvious where one morpheme ends and the next begins. Hungarian, Finnish and Turkish are agglutinating languages; so also is Guaraní (Tupi, Bolivia and Paraguay):

(14-2) *pe-mitã-kuña o-u-va hina che-nupã* Guaraní
 that-child-woman 3SG:ACT-come-REL PROG 1sgINACT-hit-VOL
kuri
 RPST
 'That young woman who is coming wanted to hit me.'

- **Fusional** or **inflectional** languages have morphologically complex words in which it can be difficult to separate morphemes from one another: the boundaries between them are blurry. In contrast with agglutinating languages words are not easily analysed into morphemes that follow one another like beads on a string. The extinct Indo-Aryan language Pali (India) was a fusional language. Consider the following case forms of the noun *kaññā* 'girl':

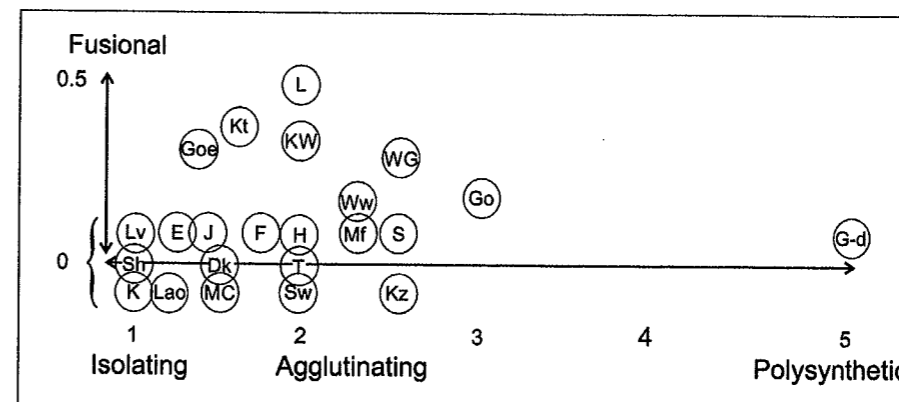
(14-3)	singular	plural	Pali
Nominative	<i>kaññā</i>	<i>kaññā, kaññāyo</i>	
Accusative	<i>kaññam</i>	<i>kaññā, kaññāyo</i>	
Instrumental	<i>kaññāya</i>	<i>kaññāhi</i>	
Genitive	<i>kaññāya</i>	<i>kaññānam</i>	
Dative	<i>kaññāya</i>	<i>kaññānam</i>	
Ablative	<i>kaññāya</i>	<i>kaññāhi</i>	
Locative	<i>kaññāya, kaññāyam</i>	<i>kaññāsu</i>	
Vocative	<i>kaññe</i>	<i>kaññā, kaññāyo</i>	

Although it is easy to distinguish a root *kaññā* 'girl' that remains largely invariant, the affixes are not easily segmented into separate morphemes marking number and case.

- **Polysynthetic** languages are morphologically rich languages with long and complex word forms that often convey information requiring a multi-word clause in other languages. Yup'ik is a polysynthetic language; so also are many other languages of North America, including Koyukon (Athabaskan, Alaska):

(14-4) *to-ts'eyh-ghee-ø-tonh* Koyukon
 water-boat-PRF-CL-put:long:object
 'He launched a boat.'

The above examples illustrate some reasonably clear-cut instances of languages of the four morphological types. However, the reality is messier, as can be seen from the data and discussion in Box 14.1, which gives translations of 'I'll bring back the honey' – in some cases slightly modified because of absence of a word for 'honey' – in 23 languages. It is better to see the four types as ideal points along a continuum between the extremes of isolating and polysynthetic languages. Based on our sample clause, the languages in Box 14.1 can be placed roughly as shown in Figure 14.2. Of course, one would want to take more than a single sentence into account in locating languages in this morphological 'space'. With more data, Mandarin Chinese would doubtless end up closer to the isolating end of the scale than English.



Key: E – English; Dk – Danish; F – Finnish; G-d – Gun-djeihmi; Go – Gooniyandi; Goe – Goemai; H – Hungarian; J – Japanese; K – Kisi; KW – Ku Waru; Kt – Kuot; Kz – Kwaza; L – Latin; Lao – Lao; Lv – Laven; MC – Mandarin Chinese; Mf – Michif; S – Sabot; Sh – Shua; Sw – Swahili; T – Taba; WG – West Greenlandic; Ww – Warrwa

Figure 14.2 Location of the 23 sample languages on two dimensions of morpheme integrity.

Box 14.1 'I'll bring back the honey' in 23 languages

'I'll bring back the honey'	Morphs: Words	Fused morphs: Morphs	Language
<i>nga-yiuk-yi-rurunde-ng</i> 1SG-honey-APP-return-NPST	5/1=5	0	Gun-djeihmi, (Gunwinyguan, Australia)
<i>ngalinya barn-ja-wi-larri</i> honey return-SUB-FUT-1SG>3SG/CL	6/2=3	1/6=0.17	Gooniyandi

'I'll bring back the honey'	Morphs: Words	Fused morphs: Morphs	Language
<i>nū'ty waje-'nā-da-ki</i> honey bring/get.back-FUT-1SG-DEC	5/2=2.5	0	Kwaza (isolate, Southwestern Amazon)
<i>mā-ā-ket-u beenyto</i> FUT-1sg-bring-hither meat	5/2=2.5	0	Sabaot (Nilo-Saharan, Africa)
<i>warna nguy ka-na-ngka-ya-ngany</i> honey return 1SG/FUT-CLFUT-say-APP	7/3=2.3	1/7=0.14	Warrwa
<i>li myel ni-wii-ashee-peet-aw</i> the honey 1SG-FUT-back-bring-3SG	7/3=2.3	0	Michif (Mixed language, Canada)
<i>re-fer-ebo mel</i> back-carry-1SG/FUT honey/ACC/NEUT	4/2=2	2/4=0.5	Latin
<i>po-yl lyi-p me-b</i> sugarcane-DEF get-NF/1 carry-NF/1 <i>ya-d o-bu</i> here-DAT come-FUT/1SG	10/5=2	3/10=0.3	Ku Waru (Papuan, New Guinea)
<i>neqi oqquti-ssa-ara</i> meat bring:home-FUT-1SG>3SG/IND	4/2=2	1/4=0.25	West Greenlandic (Eskimo-Aleut, Greenland)
<i>k-mul-ak madu</i> 1SG-return-APP honey	4/2=2	0	Taba
<i>vissza-hoz-om a méz-et</i> back-return-1SG DEF honey-ACC	6/3=2	0	Hungarian
<i>ni-ta-let-a asali hapa/huko</i> 1SG-FUT-bring-IND honey here	6/3=2	0	Swahili
<i>tuo-n hunanja-n takaisin</i> bring-1SG honey-ACC back	5/3=1.7	0	Finnish
<i>eba inə t-ana-ŋ</i> FUT again 1SG/FUT-bring:back-3SG/FUT <i>ilumə</i> honey	6/4=1.5	2/6=0.3	Kuot
<i>wǒ yào ba mífēng ná-huí-lái</i> 1SG FUT CON honey take-back-moving	7/5=1.4	0	Mandarin Chinese

'I'll bring back the honey'	Morphs: Words	Fused morphs: Morphs	Language
<i>jeg tage-r honning-en med</i> 1sgNOM take-NPST honey-N.ART with <i>tilbage</i> back	7/5=1.4	0	Danish
<i>watashi ga hachimitsu o tot-te</i> 1SG NOM honey ACC get-GER <i>ku-ru yo</i> come-NPST PART	9/7=1.3	0	Japanese
<i>I'll bring back the honey</i> 1SG-FUT bring back the honey	6/5=1.2	0	English
<i>hen t'ong mang nshi wa</i> 1SG IRR take/sg honey return:home/SG <i>n-ni</i> comitative-3SG	7/6=1.17	2/7=0.29	Goemai
<i>kuu³ s³ qaw³ nam⁰-pheng⁵ khn²</i> 1SG IRR take liquid-bee return <i>maa²</i> come	7/6=1.17	0	Lao (Tai-Kadai, Laos)
<i>dane ke ta: ʔo ʔa:~</i> honey PROG 1sgNOM bring:back	4/4=1	0	Shua
<i>l có liánj cùwó nánùn</i> 1SG FUT honey bring here	5/5=1	0	Kisi
<i>ʔaj ma cək tbiħ daak sut</i> 1SG FUT take bring water bee	6/6=1	0	Laven (Austro- Asiatic, Laos)

Qualifications

- i. A single example is given for each language; there will always be other ways of expressing the same meaning, for example, in Gun-djeihmi the word 'honey' could appear outside of the verb; the free pronoun 'I' could also occur. The clauses given are minimal expressions of the meaning in the language, in the absence of context.
- ii. Zero morphemes (see §3.6) have been excluded.
- iii. Some word boundaries are uncertain: the nominative and accusative postpositions in Japanese, for instance, are sometimes treated as bound morphemes.

Discussion

The fuzziness of the boundaries between the four morphological types is apparent. For example, English and Mandarin Chinese both have a single complex word made up of easily separated pieces. Thus they are not strictly isolating, but have some agglutinative tendencies. And while most of Gooniyandi's morphology is agglutinative, there is a fusional tendency: the form *-l* in the verb means 'I (acted on) it', 1sgNOM/3sgACC; it cannot be divided into two separate morphemes.

Each clause has between one and seven words, with the two extremes instanced just once. It seems reasonable to use the ratio of morphs per word to give a rough idea of the degree to which a language is isolating or polysynthetic. These are shown in the second column; the figures suggest that this ratio varies continuously rather than takes discrete values; with a larger set of languages we would expect to find many more intermediate values. The languages are listed in the table in order of decreasing value for this ratio.

In the third column are figures suggesting how fusional the language is. This figure is the proportion of morphs that are fused: that is, the ratio of the complex or fused morphs to the total number of morphs. However, since 1sg is fused in every language – often also with NOM – 1sg and 1sgNOM were treated as single morphs; to do otherwise would result in losing the distinction between the language that combine just these categories, and those that combine one or more others with them. By this index, Latin emerges as a good example of a fusional language, both grammatical morphs expressing complex components of meaning.

Affixing typology

The examples in Box 14.1 reveal an unexpected pattern. Within a word, grammatical morphemes are much more likely to follow a lexical root than to precede it. Using terminology loosely, suffixes outnumber prefixes by a considerable margin: there are some 31 readily segmentable suffixes, but only 12 prefixes, less than half the number. This pattern is not an accident of the small and unrepresentative selection of languages in our sample. Bybee et al. (1990) found suffixes outnumbered prefixes by almost three to one in a larger and more representative corpus of languages.

The difference between prefixes and suffixes is so striking that some linguists have proposed it as a typological parameter, though of course it is limited to languages that are not strictly isolating. The exact manner of defining the two categories varies, but what seems to work best (and was first formulated by Capell 1938) is: suffixing languages have suffixes only; prefixing languages have prefixes and/or suffixes. A range of other characteristics tend to correlate with this distinction.

The other types of affix – infixes, circumfixes and suprafixes (i.e. prosodic 'affixes') – are far less frequent than prefixes or suffixes.

Morphological typology

Grammatical number

We mentioned in §14.2 an absolute implicational universal that if a separate dual number is distinguished in the pronoun system of a language there will also be a plural category. No pronominal systems distinguishes dual against an undifferentiated non-dual (i.e. everything else, singular and plural). Duals only emerge if there is already a category contrast between singular and non-singular pronouns.

We can extend this generalization with the observation that if a language has a trial category (specifying 'three') or a paucal category (specifying 'a few') in its pronouns then it will also have the dual category. A useful way of summarizing these linked generalizations is in terms of a **hierarchy**, as shown in (14-5).

$$(14-5) \text{ singular/non-singular} < \text{ dual} < \left\{ \begin{array}{l} \text{trial} \\ \text{paucal} \end{array} \right\}$$

This hierarchy is interpreted as follows: if a pronoun system distinguishes a certain number category, it will also make all number distinctions to the left of it. The categories trial and paucal are unordered (the curly brackets indicate 'or') with respect to one another: a language can have trials without paucals, paucals without trials. Notice also that at the leftmost end of the hierarchy is shown not a single category, but two in contrast. This is because 'singular' and 'non-singular' only make sense in contrast to one another.

This hierarchy also captures generalizations about number inflection in nouns. But there is an important feature of number marking that it does not capture. Recall that in §14.2 it was observed that if a number category is marked by an affix, it will usually be the plural: few languages express singular by an affix, while the plural has none.

This brings us to the important notion of **markedness**, the idea that grammatical categories are not equal, that some are more 'natural' than others. The notion of markedness is a complex one that brings together a number of considerations that we cannot delve into here. Instead we outline properties that tend to distinguish unmarked categories from marked categories, using the category of grammatical number for exemplification.

In the case of number inflection of nouns, the plural category is **marked**, while the singular is **unmarked**:

- the unmarked category tends to be realized by shorter or simpler forms than marked categories (singular forms are usually the shorter; in the typical case, they have no formal representation);
- the unmarked category tends to be used most often within a language (singulars are more frequent than plurals in English discourse);
- the unmarked category tends to admit the most distinctions on cross-cutting dimensions (e.g. more case distinctions are usually made in the singular than in the plural; gender distinctions are often restricted to the singular);

intransitive subject is marked by zero, as is the transitive object in (14-11), but the subject of the transitive clause is marked by *-nan*. This is typical of an ergative-absolutive system: the absolutive is generally unmarked.

(14-10) *ɲinɲeq-∅ gətɔ-ɛtə qət-gʔi* Chukchee
 boy-ABS/SG lake-DAT went-3SG
 'The boy went to the lake.'

(14-11) *gəm-nan walə-∅ tə-mne-gʔen* Chukchee
 I-ERG knife-ABS/SG 1SG-sharpen-3SG
 'I sharpened the knife.'

Languages are not always consistent in their case-marking systems, and it is not uncommon to find a nominative-accusative system in one part of the grammar, and an ergative-absolutive one elsewhere, or even complete absence of case marking on some subjects and objects. Thus, Latin's daughter languages French, Spanish and Italian have nominative-accusative case marking for pronouns, but not nouns. In Anguthimri (Pama-Nyungan, Australia) nouns inflect on an ergative-absolutive basis, while pronouns inflect according to a nominative-accusative system.

The distribution of the two case-marking systems is not random. In cases like those just mentioned, the **animacy hierarchy** of Figure 14.3 accounts for the case-marking system used on a nominal or pronominal. The way this is to be read is that if a nominative-accusative case system is used at some point, it will be used everywhere to the left of that point, and correspondingly if an ergative-absolutive system is used at some point, it will be used everywhere to the right. This is in agreement with the Anguthimri facts mentioned above, and with Malayalam (Dravidian, India), where nominative-accusative marking covers the whole range of animate nouns, but not inanimate nouns.

This hierarchy has proved useful beyond case-marking. It is also relevant to the grammatical category of number. If a number contrast is obligatory at some point, it will be maintained everywhere to the left of that point. Some languages – for example, Kharia (Munda, India) – distinguish number for animates, but not inanimates, or for pronouns, but not nouns.

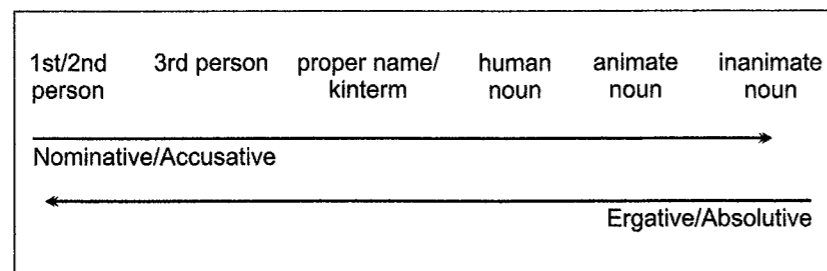


Figure 14.3 The animacy hierarchy.

Syntactic typology

Universality of grammatical relations

Whether or not grammatical relations are universal is highly contentious. Many linguists would agree that having grammatical relations is a universal property of human languages, that no language lacks them. Disagreements centre on the identity and definitions of the relations, and no set is unanimously agreed to. This is partly because of theoretical differences: recall that some linguists regard grammatical relations as purely formal and meaningless categories, whereas others regard them as meaningful. Adopting such fundamentally different perspectives, two linguists describing the same language would come up with quite different descriptions, and identify different grammatical relations. Even if our two linguists shared the same theoretical perspective, they might well come up with different defining criteria.

Whatever criteria we adopt, it is unlikely that any two languages will share precisely the same grammatical relations. The best we can hope for is sufficient similarity to allow certain relations in different language to be equated. The universality of grammatical relations is thus a claim about things that are sufficiently alike to be regarded as instances of the same category.

Many linguists consider Subject and Object to be universal grammatical categories in this sense. In any language we can find grammatical relations with enough in common with Subject and Object in, say, English, to allow us to regard them as instances of the same categories. Other linguists – myself included – consider the roles Actor and Undergoer to be better candidates for universality.

We will not pursue the issue of the universality of grammatical relations further, but turn instead to word order, and outline a word order typology that enjoys a prominent – in my view a far too prominent – place in linguistic typology.

Word order typology

Argument structure

A clause consists of obligatory or essential elements that must be there in the structure, along with optional elements that may or may not be present. In *They followed his dripping blood until nightfall* three elements are structurally essential: the NP *they*, the VP *followed* and the NP *his dripping blood*; the final PP *until nightfall* is not essential. (See §5.3 on phrase types.)

It is important to note that we are not claiming that essential elements cannot be omitted: for example, there is nothing wrong with *They saddled the horses and followed his dripping blood until nightfall*. But in such instances, *they* is presumed in the second clause, and filled in, so to say, by the hearer (see §5.4). The NP *his dripping blood* can also be left out, as in *They followed until nightfall*; but if it is, we have a different type of clause, referring to an event we might gloss 'come after', where it is not implied that they were directing their motion towards anyone in particular as a goal. The NP is essential in a transitive construction. The situation for *until nightfall* is clearly different.

The obligatory elements form the **core** of a clause. The core of the majority of clauses in most languages is made up of a VP plus one or two, sometimes three, NPs, as in the following examples:

(14-12) *omushaija a-naaba* Nkore-Kiga (Niger-Congo, Uganda)
 man he-wash
 NP VP
 'The man washes.'

(14-13) *enjangu y-aa-rya eshonzi* Nkore-Kiga
 cat it-PST-eat fish
 NP VP NP
 'The cat has eaten the fish.'

(14-14) *mugimba a-ka-ha ishe ekitabo* Nkore-Kiga
 Mugimba he-PST-give father book
 NP VP NP NP
 'Mugimba gave his father a book.'

These three types of clause are called **intransitive**, **transitive** and **ditransitive** respectively, according to the number of obligatory NPs. Let us group together the first obligatory NP in each clause – denoting the most active entity in the event – and call it S (short for notional subject). We also group the last NP in (14-13) and (14-14) as O (notional object) – it is the thing that is the least active in the event. The second NP in (14-14), the IO (notional indirect object), will be henceforth ignored to simplify the story.

This operation we could perform in any language, basing the grouping on meaning in the first place. The word order typology we discuss in the next subsection is concerned with the order of these notional elements – S and O are not grammatical relations, but labels for convenience groupings of obligatory elements – and the lexical verb (V).

Order of essential elements

Some languages, like English, Irish Gaelic (Indo-European, Ireland), Ewe, Shua and Mandarin Chinese, have a **basic word order**: an ordering of the elements S, V and O that is strongly preferred in ordinary neutral declarative clauses (see §6.3). In English this word order is of course SVO; exceptions do occur (e.g. *That I do not like* and *Believe you me*), but are relatively rare, and are pragmatically marked.

But not all languages show this degree of rigidity in the order of words. Some are quite flexible or free, showing few grammatical restrictions, and no overwhelming preference for any particular order. Languages like this can be called **free word order** languages, in contrast with **fixed word order** languages, that have a basic word order. These labels are not to be understood literally: word order in free word order language is never totally chaotic; and in fixed word order languages some variability is always possible (e.g. thematization may be relevant – see §5.4).

The majority of Australian languages are free word order languages in this sense. Indeed, many allow not just any order of S, O and V, but also permit the actual words to occur in any order. Thus, words belonging to the S NP need not necessarily appear next to one another, as in the following

Jiwarli (Pama-Nyungan, Australia) example, where the words of the bolded NP are separated by the verb:

(14-15) *kutharra-rru ngunha ngurnta-inha jiluru* Jiwarli
 two.NOM-now that.NOM lie-PRS egg.NOM
 'Now those two eggs are lying (there).'

Not all of the six possible orders of S, O and V are equally frequent across the range of fixed word order languages. Table 14.2 lists the word order types together with an indication of their approximate frequency, and some languages with the orders. Notice that S precedes O in about 96 per cent of fixed word order languages.

Table 14.2 Frequencies of word order types (data from Tomlin 1986: 22 and Haspelmath et al. 2005)

Word order	% of languages	Examples
SOV	40.5%	Amharic, Japanese, Hindi, Kurmanji Kurdish (Indo-European, Turkey), Malayalam, Mende (Niger-Congo, Liberia), Mongolian (Altaic, Mongolia), Shua, Nama (Khoekwadi, South Africa), Georgian (South Caucasian, Georgia), Cherokee, Hittite (Indo-European, Anatolia), Korean
SVO	35.4%	English, Danish, Spanish, Ewe, Kinyarwanda (Niger-Congo, Rwanda), Hungarian, Mandarin Chinese, Hausa, Finnish (Uralic, Finland), Lingala (Niger-Congo, Democratic Republic of Congo)
VSO	6.9%	Biblical Hebrew (Afro-Asiatic, Israel), Irish Gaelic, Ge'ez (Afro-Asiatic, Ethiopia), Tamazight (Afro-Asiatic, Algeria), Welsh, Tagalog
VOS	2.1%	Malagasy, Tzotzil (Mayan, Mexico)
OVS	0.7%	Hixkaryana (Carib, Brazil), Panare (Carib, Venezuela)
OSV	0.3%	Urubú (Tupi, Brazil), Nadëb (Maku, Brazil)
Free	14%	Acehnese, Pipil (Uto-Aztecan, El Salvador), Kisi, most Australian languages

What makes the word order typology interesting is that there are correlations with other grammatical features. For example, among languages with adpositions (prepositions and postpositions), those with VO order tend to have prepositions, while those with OV order tend to have postpositions. English and Japanese illustrate this correlation, respectively. Another correlation is that VO languages tend to position the negative before the V, while OV languages tend to place the negative after the V.

Phonological typology: Tone systems

One characteristic frequently employed in typologizing languages and phonological systems is

phonemic tone. Tone systems themselves are not unitary phenomena, and two types are often recognized, following Pike (1948): **contour tone** systems, and **register tone** systems. In contour tone systems direction of tone movement is relevant, not just its relative level. Thai, Lao, Mandarin Chinese, Hakka (Tibeto-Burman, China), Cantonese and many other languages of South East Asia are contour tone languages. Mandarin Chinese for example distinguishes four contour tones: high level, high rising, low falling rising and high falling. Cantonese distinguishes nine contour tones.

In register tone systems it is the relative height of the tone on a syllable that is crucial, not the direction of movement. Many African languages have register tone systems, including Yoruba (Niger-Congo, Benin), Twi (Niger-Congo, Ghana), Bemba, Sango (a Creole, Central African Republic), among others. Bemba, for example, has two phonemic tones, high and low, illustrated by the minimal pair *imbá* 'sing' and *imbá* 'dig'.

Another type of tone system, **pitch accent**, uses pitch differences to mark accented vs. unaccented syllables. Languages with pitch accent systems include Ancient Greek, Japanese, Una (Papuan, Papua) and many other languages of the island of New Guinea.

In contour tone systems and register tone systems, usually each syllable of a word has a tone value (in some cases, none), whereas in pitch accent systems usually just one syllable of a word has a distinctive tonic value.

Lexical–semantic typology: Verbs of motion

A motion event is made up of four main components: (a) the Motion component itself, the change in location from one position to another; (b) the Figure that moves; (c) the Path over which it moves; and (d) the Manner in which it moves. All languages allow expression of these four components in a sentence referring to a motion event, with component (a), the Motion pure and simple, being represented in the verb. Leonard Talmy has suggested (e.g. 2007) that a lexical–semantic typology of languages is possible based on which of the three other components typically and colloquially conflate with (a) Motion in the verb.³ The three types are: Motion+Figure, Motion+Path and Motion+Manner.

English and other Germanic languages (including, for example, German, Dutch, Frisian, Danish, Norwegian and Swedish) typically make the Motion+Manner conflation. In English, aside from basic motion verbs like *walk*, *swim*, *fly* and *crawl*, many other verbs allow the combination of these components: *float*, *roll*, *limp*, *stumble*, *slide* and so on.

This conflation of Motion and Manner is not a preferred pattern in Japanese, Korean, Turkish, Tamil or Romance languages. In Spanish, there is no verbal expression conveying the combination 'move+float', as in *the bottle floated into the cave*. Instead, the notion of floating is expressed by a separate word:

(14-16) *la botella entró a la cueva flotando* Spanish
 the bottle entered to the cave floating
 'The bottle floated into the cave.'

In Spanish, in contrast to English, the typical conflation is of Motion with Path: *salir* 'move out', *subir* 'move up', *bajar* 'move down', *cruzar* 'move across', *volver* 'move back' and others. Although

English has a number of such verbs, including *return*, *pass*, *ascend*, *descend*, these are not the most frequent or colloquial expressions in the language, and indeed these have been borrowed from Romance languages.

The third pattern, the Motion+Figure conflation, is represented in just a few English verbs, like *ooze* and *flow*, that specify liquid Figures. Languages like Navajo (Athapaskan, USA) and Atsugewi (Hokan, USA) typically manifest this conflation. According to Talmy, Atsugewi has a series of verbs referring to different types of moving Figure: *lup* 'a small, shiny, spherical object such as an eyeball, or hailstone to move', *qput* 'dirt to move', *swal* 'a linear flexible object suspended at one end (e.g. a sock on a clothes line, a flaccid penis) to move', *caq* 'a slimy lumpish object (e.g. a toad, a cow turd) to move', etc.

Interesting as this typology is, one can raise questions as to its viability. For one thing, it can be questioned whether it is sensible to construe it as a typology of entire languages: this might get around the rather unsatisfactory dismissal of English Motion+Path verbs as 'less colloquial' modes of expression. One can also question whether the Motion component really is located in the verb in English clauses like *the bottle floated into the cave*. Perhaps it is the expression of direction (e.g. *into the cave*, *away* etc.) that engenders the Motion sense, which might rather be located at the level of the construction itself. That is to say, the typology might be better regarded as a typology of constructions than a lexical–semantic one.

14.4 Explaining unity and diversity of language structure

Suggesting explanations of the observed range of variation across languages is an important part of the work of a typologist. Knowing 'what' is essential to any scientific investigation, but we also want to know 'why': how can we account for the observed restrictions on structural variation? Three main types of explanation are commonly invoked: (a) common origins; (b) the shared biological structure of human beings; and (c) the shared uses of language. We discuss these in the following subsections.

Common origins

One possible explanation of the unity of human languages is that they all come from a single language spoken in the long-distant past. Retained structural characteristics of that language might account for the universal features. Since we do not know whether or not all languages have a common ancestor, this is a highly speculative explanation. It is also difficult to see how the various correlations between features that we observed above can be explained. Thus, an explanation by common origins does not shed any light on why, across languages, the distribution of

nominative–accusative and ergative–absolutive case marking of nouns and pronouns follows the animacy hierarchy. For these reasons, explanations by common origins are usually given little credence.

Human biology

Human physiology imposes constraints on what is possible in language. Given the structure of our speech organs, apico-pharyngeal consonants and glottal nasals are impossible. Likewise the difficulty of making certain tongue gestures could either rule out certain phones (e.g. apico-velars), or render them less likely than phones produced with simpler gestures (e.g. co-articulated stops involve more complex gestures than stops produced at one place of articulation, and are less common cross-linguistically). The universality of pulmonic phones can probably be explained physiologically: the lungs provide the largest and most convenient source of air. The universality of consonants and vowels and the near universality of CV syllables might also have physiological explanations.

But biological explanations are not limited to phonetic and phonological universals. Some lexical, morphological and syntactic universals also have biological explanations, though these are rooted in the structure of the human brain and psychology rather than the vocal tract.

A psychological explanation for the predominance of suffixing over prefixing has been proposed by Cutler et al. (1985). It goes like this. The brain begins processing the acoustic information it receives immediately, rather than waiting for an entire utterance to be received (which is why we can be garden-pathed – see §9.2). Thus the brain begins to attempt to guess a word (indeed more) before it has been heard in its entirety. This strategy is most efficient when the most significant information occurs early. Experimental evidence indicates that information in the root is more critical to comprehension than information in affixes (Cutler et al. 1985; Hawkins and Cutler 1988), making processing most efficient when affixes follow the root.

The fact that sentences are not mere ordered strings of morphemes but are hierarchically structured into word, phrase and clause units also has its basis in human cognition. A general property of human cognition is that processing of sequences is facilitated by the imposition of structure. Once a sequence has more than a handful of items, it must be structured for us to work efficiently with it. (Think for example of how you express telephone numbers by dividing them into groups, rather than treating them as undifferentiated lists.) An unstructured sequence of morphemes of the length of a typical sentence would be an unprocessable jumble of signs.

Functional unity of language

All languages serve similar functions in human life, including conveying information, and expressing social relations; they also have similar communicative demands put on them, for example, the necessity of keeping track of who is doing what to whom. It seems plausible to expect some universals of language to be explicable in terms of such considerations. Here are two universals that could be explained functionally.

All languages recognize a category of negative clause that contrasts grammatically with a positive or affirmative category. This can be plausibly attributed to the fact that language is used to

communicate information about what did not happen, to enquire about what did not happen, to issue commands not to do things, to express surprise that something did not happen and so on. Moreover, it is presumably essential to also make it perfectly plain that it did not happen and so on. Thus, it would not do to have a vague category that covered both negative and positive, and distinguish between them pragmatically.

In all languages there are ways of grammatically signalling that what is said is someone else's utterance, for example by using clauses of speech (as in *He said 'the farmer loves the duckling'*), and/or by quotative morphemes (generally particles or enclitics that go inside a clause and mean something like 'it is said' or 'allegedly', as in *the farmer allegedly loves the duckling*). There are functional reasons for such constructions and morphemes: speakers need to be able to signal, and not just allow the interpretation, that an utterance is not their own. Here again, a single vague category would not suffice communicatively.

Summing up

Linguistic **universals** and **typology** provide two complementary perspectives on variation in language structure. Both must necessarily be based on empirical evidence from the world's languages. Which languages one includes depends on the question being asked. If one is making universal or typological generalizations about the world's languages, this should be based on a **representative sample** of languages.

Universals are categorized into four types, according to two independent contrasts: **absolute** and **non-absolute**, and **implicational** and **non-implicational**.

A widely used (though imperfect) **language typology** is morphological, distinguishing four types of language according to **morpheme integrity**: **isolating**, **agglutinating**, **fusional** and **polysynthetic**. Another morphological typology distinguishes languages according to the type of affix they prefer, giving a contrast between **prefixing** and **suffixing** languages.

Linguistic typology is concerned with classifying linguistic phenomena such as constructions, rather than languages. Such typologies can be concerned with any linguistic level. Three morphological typologies were discussed: **number**, **possession** and **case**. Our syntactic typology distinguished **free word order** languages from **fixed word order** languages, and within the latter, six types according to the possible orders of subject, object and verb. This typology is interesting because there are correlations with other aspects of grammar. We briefly discussed a phonological typology of **tone systems**, which distinguishes **contour tone** systems, **register tone** systems and **pitch accent** systems. We also discussed a lexical-semantic typology of **motion verbs**, according to whether the verb conflates **manner**, **path** or **figure** with the motion component.

One way of representing cross-linguistic correlations between linguistic categories is by a **feature hierarchy**. These show the relative **markedness** of the features, from most **marked** to **unmarked**. Markedness is a complex notion that takes into account a range of considerations including formal size and complexity, frequency of use in a language, frequency of occurrence across languages and number of cross-cutting dimensions distinguished.

Goals

The goals of the chapter are to:

- overview the linguistic diversity of the world;
- show the enormous discrepancies in the numbers of speakers of the world's languages;
- discuss what it means for languages to be genetically related;
- introduce the comparative method, the principal method of establishing genetic relations among languages, and two other less reliable methods;
- overview seven of the world's major (putative) families; and
- identify three types of contact language that do not fit neatly into genetic groups: pidgins, creoles and mixed languages.

Key terms

Afroasiatic	genetic relations	pidgins
Austronesian	groups	proto-languages
basic vocabulary	Indo-European	reconstruction
cognate sets	Khoisan	Sino-Tibetan
comparative method	language isolates	sound correspondences
contact languages	lexicostatistics	stocks
creoles	mass comparison	subgroups
expanded pidgins	mixed languages	Trans-New Guinea
families	mutual intelligibility	
family trees	Niger-Congo	

16.1 Number and variety of the world's languages

How many languages are spoken in the world today?

Current estimates put the number of languages somewhere around 7,000. The latest edition of *Ethnologue* (see p. 405) lists some 7,105 languages, of which 137 are deaf sign languages. This is

an increase of 193 languages over the previous edition, the 16th edition; and almost 1,000 more than the 11th edition, dated 1988, which listed 6,170 languages. From about the same time, Ruhlen (1987: 3) speaks of around 5,000 languages. Evidence that the languages of the world are multiplying rapidly? No – in fact, quite the contrary is the case: the world's linguistic diversity is, like its bio-diversity, rapidly declining (recall §7.5).

The discrepancies in the counts are partly due to gaps in our knowledge, especially about languages spoken in remote and inaccessible (from the Westerner's perspective) regions. Indeed, most of the world's languages lack detailed grammatical descriptions and dictionaries. But more significant is the question of what is being counted – what constitutes a single language? The word *language* is used in a variety of different senses.

In popular parlance, a political sense is usually invoked: people often speak of languages as the forms of speech that are associated with nations. Different nations, according to this view, have different languages. Italian is the language of Italy, German of Germany, French of France and so on. Different varieties of speech found within a nation would be regarded as dialects of the language. In other parts of the world the relevant political unit might not be a nation, but a 'tribe', or some other unit.

Linguists often use the term in a different way, and employ the criterion of **mutual intelligibility**. If speakers of one form of speech can understand the speakers of another without having to learn it, the varieties are said to be mutually intelligible, and they are dialects of a single language. British English and Australian English are mutually intelligible, and so are dialects of a single language, English, according to this definition.

Sometimes linguists use the term *language* to refer to forms of speech that share a certain percentage of common (or very similar) words and morphemes, and the term *dialect* for forms that share a higher percentage of common words. For example, American English, Australian English and British English share a considerable number of words, and would count as dialects according to this conception.

These three senses do not always coincide. The mutually intelligible varieties of speech spoken in Britain and Australia are associated with different nations, and would represent different languages by the political criterion – and indeed they are sometimes spoken of as different languages: e.g. 'the Australian language' as distinct from 'the British language'. Hindi and Urdu are mutually intelligible, but often regarded as distinct languages, Hindi being the language of Hindu speakers in India, Urdu the language of Muslim speakers in Pakistan.

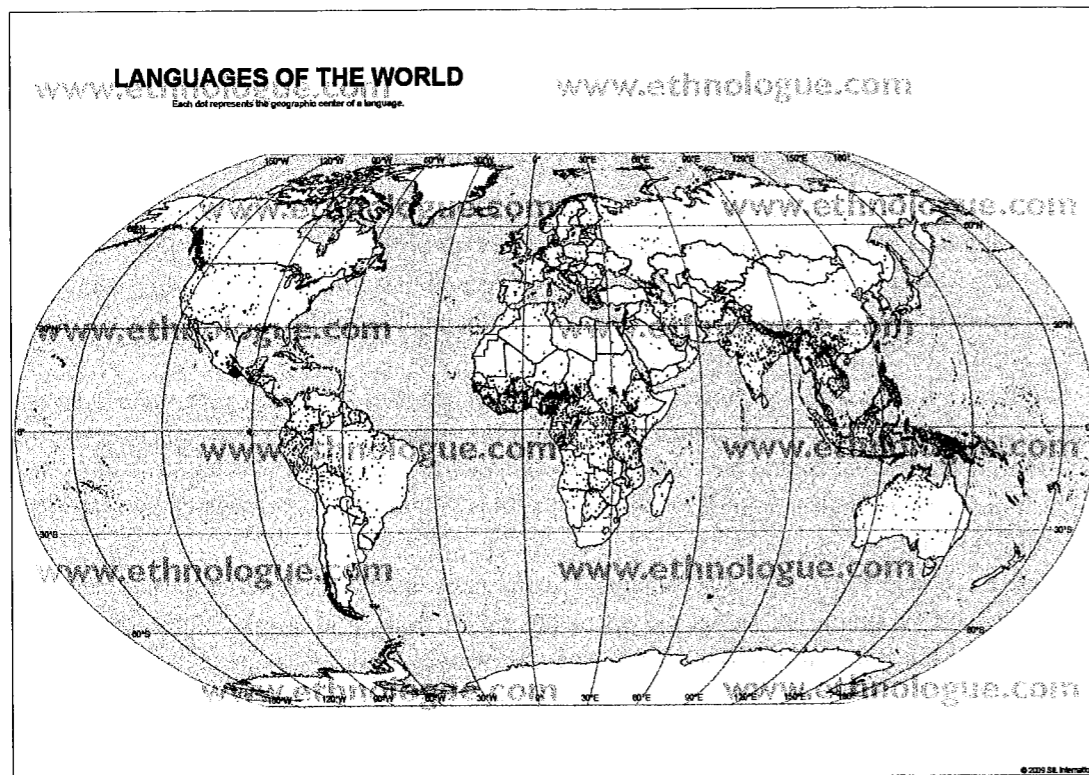
By contrast, Mandarin Chinese and Cantonese are frequently spoken of as 'dialects' of Chinese, not only in the West, but also in China itself, even though they are not mutually intelligible. This is because of the long political unity of the communities of speakers and the shared writing system. A similar situation arises in diglossic situations (see §7.4), where the members of a community speak mutually unintelligible varieties depending on the circumstances.

The number of languages one distinguishes in the world will depend on which sense of the term language one deploys. To make things more problematic, linguists often do not make it clear which sense they are using, and even mix senses. So someone making a list of languages cannot always be sure what sort of things the named varieties are, and be certain they are not counting chalk and cheese.

Distribution of languages

Languages are not spread evenly across the globe. As can be seen from Map 16.1, there is a high density of languages in the equatorial region, even though this spreads across continents and islands separated by expanses of sea. The density in northerly regions is significantly lower.

It is not difficult to guess that the low linguistic density in Greenland and Siberia is a result of low population densities. But population density is not the only consideration. Mainland China and Europe are much more densely populated than Australia and the island of New Guinea, but their language densities are considerably lower. In fact, over 1,000 languages are spoken in New Guinea and on nearby islands, making it the most linguistically dense region of the world.



Map 16.1 Distribution of the world's languages. (Source: Lewis 2009; http://archive.ethnologue.com/16/country_index.asp.)

Why so many languages?

It is believed that anatomically fully modern human beings, of the genus *homo sapiens sapiens*, emerged in east Africa around 200,000 years ago. They spread out from there to the rest of Africa, Asia, Europe, Australia (some 60,000 years ago), and later into America (perhaps as recently as 13,000 years ago, possibly over 20,000 years ago). Languages change rapidly, and the physical separation of populations over time would result in the division of languages into dialects, and

ultimately into mutually unintelligible languages. Even if the earliest populations in Africa spoke a single language, the social and geographical separation of human populations during the past 200 millennia could account for the modern diversity of languages. Perhaps we should put the question the other way around: why so few languages?

Numbers of speakers of the world's languages

It is impossible not to be struck by the enormous discrepancies among languages in terms of their numbers of speakers. A small number of languages are spoken by enormous numbers of speakers: over 40 per cent of the world's population have as their mother tongue one of the nine languages with more than 100 million speakers: Mandarin Chinese, Spanish, English, Hindi, Arabic, Portuguese, Bengali, Russian (Indo-European, Russia) and Japanese.

At the other end of the spectrum, around 3,500 languages (i.e. around half the total number of languages) have less than 10,000 speakers each (according to the latest edition of *Ethnologue*). Strikingly, the speakers of these languages together constitute less than 0.3 per cent of the world's population. Of these languages, over 400 are nearly extinct, with just a few elderly speakers. Numerous other languages have gone out of use in recent years. In the more than three decades during which I have been working on Kimberley languages, at least five have lost all their fluent speakers, and are effectively dead. Two or three others have reached the critical stage, and have at best a handful of speakers and part-speakers.

16.2 Relations among the languages

How are the world's languages related?

Some languages belong together in the sense that they derive from a single ancestor language – called a **proto-language** – that was spoken long ago, and that subsequently split into varieties that over the passage of time became mutually unintelligible. Languages that derive from a single proto-language are said to be **genetically related**, and to belong to a single language **family**.

It is not known for sure whether or not all languages of the world ultimately come from a single ancestor language spoken in the very distant past, say at the dawn of the emergence of modern human beings. Languages change so rapidly that convincing evidence of relatedness does not remain for more than about 10,000 years – beyond that length of time, it is increasingly difficult to separate chance similarities among languages from similarities shared from a common ancestor language. The term **stock** is sometimes used for a hypothetical grouping of more or less well established families into a larger and more tentative set.

We now discuss some of the methods linguists use to establish language families. It should be cautioned that genetic relatedness of languages has, in principle, nothing to do with the biological-genetic relatedness of their speakers. Speakers of genetically related languages need not be closely related biologically; a child will acquire the language spoken in its social environment, not the language spoken by its biological parents, if they are not present in the social environment. Thus,

English is spoken as a mother tongue by humans of diverse biological ancestry. On the other hand, speakers of genetically unrelated languages may belong to the same genetic groups. Hungarian is not genetically related to the neighbouring languages, although the speakers of Hungarian are not distinguishable as a population in terms of biological-genetic features from speakers of nearby languages.

Nonetheless, some large-scale statistical correlations between genetic groupings of languages and biological genetic groups seem to exist: they are not totally independent (see Cavalli-Sforza 2001). However, the correlations are imperfect, and striking mismatches do occur.

Methods for establishing language families

Various methods have been developed and used by linguists to establish language families and thus the genetic relatedness of languages. Among them the **comparative method** is a well-honed and stringent set of techniques that provides convincing evidence for genetic relatedness. If languages can be shown to be genetically related by careful application of this method, few linguists would question their relatedness. We discuss this method in the next subsection. The following subsections then describe two more contentious and less reliable methods.

Genetic relatedness is not the same thing as typological similarity. Languages sharing typological characteristics need not be genetically related; Hungarian and Walmajarri are both agglutinating languages, though there is no reason to believe they are genetically related (if they are, the connection may go back to proto-world, the original language of human beings!). On the other hand, languages deriving from a common ancestor language need not be very similar typologically; the Indo-European languages show considerable typological diversity: for instance, while most are accusative, there are ergative languages (see §14.3) in the Indo-Iranian branch.

Comparative method

The idea underlying the comparative method is that genetic relatedness of a set of languages can be established by **reconstructing** a proto-language that could plausibly serve as an ancestor of each of the languages, and showing in detail how the modern languages could have developed from this proto-language through a credible series of changes. Reconstruction involves hypothesizing what the proto-language might have been like by attempting to undo the changes that occurred between the proto-language and its descendants.

To reconstruct a proto-language you begin by compiling sets of cognates among the languages, that is, you gather together lexical and grammatical items that are similar in form and meaning that can be assumed to have derived from a common ancestor. From these cognate sets you identify recurrent correspondences in the forms of the cognates and propose a form in the proto-language from which the modern forms could have derived by plausible sound changes.

Consider the words cited in Table 16.1, from four languages from the far north west of Australia. (The words are spelt in the orthography for the language, which in each case is phonemic; *j* indicates a palatal stop, *y* a palatal glide, *rl* a retroflex lateral, *oo* in Bardi and Nyikina orthographies is the high back vowel [*u* in the other languages], and *rr* an apical tap; double letters [other than *oo*] indicate long vowels.)

Table 16.1 Some basic words in four languages of the north west of Australia

	Bardi	Nyulnyul	Nyikina	Warrwa
'boomerang'	<i>jiwa</i>	<i>jiib</i>	<i>jiba</i>	<i>jiiba</i>
'camp'	<i>booro</i>	<i>bur</i>	<i>booro</i>	<i>buru</i>
'down'	<i>jimbin</i>	<i>jimbin</i>	<i>jimbin</i>	<i>jimbin</i>
'two'	<i>kooyarra</i>	<i>kujarr</i>	<i>koojarra</i>	<i>kujarra</i>
'be sitting'	<i>miyala</i>	<i>mijal</i>	<i>mijala</i>	<i>mijala</i>
'(his) mouth'	<i>ni-lirr</i>	<i>ni-lirr</i>	<i>nilirr</i>	<i>nilirr</i>

The forms in each row appear to be cognates; they are similar enough in phonological form and in meaning to be plausibly traced back to single words in an ancestral proto-language.

Not only are the word forms phonologically similar but also there are systematic correspondences in the phonemes that comprise them. Aside from the cases of identity of phonemes in the corresponding places in the words, we have:

- where Bardi, Nyikina and Warrwa have a final vowel, Nyulnyul has none;
- where Nyulnyul, Nyikina and Warrwa have a palatal or bilabial stop (/j/ or /b/) between vowels, Bardi has a glide (/y/ or /w/);
- where Bardi, Nyulnyul and Warrwa have the long high front vowel /ii/, Nyikina has a short high front vowel.

We can now guess what original sounds in the proto-language might have given rise to the phonemes in the modern languages, bearing in mind the principle that the sound changes that give rise to the modern forms should be credible.

First, we would guess that what remains constant across the languages – including initial /b/ and /k/ – was identical in the proto-language. No sound change is required to explain the modern forms, and there would be no reason to propose that, for instance, the recurrent initial /b/ comes from some other segment, for instance an initial prenasalized stop. (Of course, we cannot rule out the possibility that the initial /b/ did come from a prenasalized stop; but there is no evidence for this, and it is pointless to make such unwarranted and untestable speculations.)

Second, it is natural to guess that the proto-language had final vowels where Bardi, Nyikina and Warrwa have final vowels, and that these were lost in Nyulnyul. This is more likely than that the

other languages gained final vowels, especially in the light of the words for 'down' and '(his) mouth' – which should have final vowels in Bardi, Nyikina and Warrwa if these languages had gained their final vowels.

Third, it is reasonable to guess that the correspondence between glides in Bardi and stops in the other languages goes back to stops in the proto-language. It is more likely that stops between vowels would weaken to glides than that glides would strengthen to stops. This involves assimilation, and is attested in many other historical cases.

Fourth, the final correspondence we would naturally guess goes back to a long high vowel in the proto-language. In fact, vowel length in Nyikina is not phonemically contrastive, and it is most natural to guess that it was lost in that language rather than gained in the other languages.

With these observations in mind, we can reconstruct the six words in the proto-language as follows (recall that in historical linguistics the star before the word indicates it is a reconstructed form):

'boomerang'	* <i>jiiba</i>
'camp'	* <i>buru</i>
'down'	* <i>jimbin</i>
'two'	* <i>kujarra</i>
'be sitting'	* <i>mijala</i>
'mouth'	* <i>lirr</i>

(The reconstruction of 'mouth' as **lirr* is based on the observation that we can also reconstruct a prefix **ni-* meaning 'his, hers, its'.)

The comparative method is ultimately based on the assumption of the arbitrariness of the linguistic sign. Occasional resemblances in words are not unexpected between any pair of languages – for instance, Kaqchikel (Mayan, Guatemala) *mes* 'mess, disorder, garbage' and English *mess*. But large numbers of similarities in forms and meanings between a pair of languages is unlikely to be accidental, except in onomatopoeic words. For this reason, one initially excludes obvious onomatopoeic words from cognate sets when applying the comparative method.

A large number of lexical similarities between two languages does not necessarily mean that they are genetically related, and that the words can be traced back to a proto-language. One language might have borrowed heavily from the other. In applying the comparative method, it is important to determine whether apparent cognates are genuine, or borrowings; this can be very difficult. One additional assumption – for which there is much independent evidence – is helpful in this context. It is that basic everyday words (such as terms for the major parts of the body, everyday artefacts, low numerals, primary kinship terms, and basic observable phenomena of the world) are less likely to be borrowed than less basic words (like technical vocabulary, words for high numbers and for unusual plant and animal species). For this reason one first begins to apply the comparative method to basic vocabulary, as we did in our four-language sample.

The demand that sound correspondences be recurrent further reduces the likelihood of lexical similarities being accidental. Nevertheless, even as stringent a method as the comparative method can't provide absolute proof of genetic relatedness. There remains a small chance that two languages could show numerous recurrent similarities in their basic vocabularies by accident, just

as it is possible (though very unlikely) you will throw a straight sequence of a hundred, or even a thousand, heads.

Reconstructed proto-languages are idealizations; reconstructions are limited by accidents of what survives in the descendant languages, and indeed which daughter languages survive. One of the few cases where we have extensive written evidence of a 'real' ancestral language is the Romance languages, which are known to be descendants of Latin. Proto-Romance as reconstructed from the modern languages is not the same as Latin. For instance, Latin distinguished cases for nouns, but none of the modern daughter languages do, and cases can't be reconstructed for proto-Romance.

Mass-comparison

Applying the comparative method is an exacting process, requiring a detailed knowledge of the languages being compared, not to say a considerable amount of time and effort. As a first step in determining whether languages are genetically related one might relax the criteria somewhat. The method of **mass-comparison** is a way of getting an initial idea of the classification of a number of languages by comparing basic vocabulary items, excluding onomatopoeic forms. A good deal of phonetic and semantic similarity among the languages – in other words, a fair number of potential cognates – is indicative of possible genetic relatedness.

To give an illustration of the method, consider the short list of basic words in six languages of Africa presented in Table 16.2 (next page).

Which languages would you group together as likely members of a family? Write down your suggested groupings before reading on.

Glancing through the list reveals few similarities between the Afrikaans words and any others. Nor are there many resemblances between the Kanuri words and words of any other languages, with the exception of the word for 'big'. But there are many similarities among the words in the other four languages. Particularly striking are similarities of the words for 'tree' and 'three' (identical in the four languages, except that the word is free in Swahili, but bound in the other three languages). Less obvious, but nevertheless discernible (if you make some intermediate chains of linkages), are the similarities in the forms of the words for 'sun', 'woman' and 'man'. The words for 'dog' and 'big' are each also very similar in three of the four languages. It thus seems reasonable to tentatively group these four languages together as members of a single family.

This type of evidence is less convincing than evidence obtained by application of the comparative method. Many linguists regard mass comparison as a useful heuristic tool in initial hypothesis generation, but insist that it should be followed by application of the comparative method. Nevertheless, a number of language families are supported by no more than this sort of evidence – and some by much less!

A major problem with mass-comparison is that putative cognate sets obtained by eyeballing

Table 16.2 A selection of basic words in six African languages

	Afrikaans	Bemba	Kanuri	Chichewa	Shona	Swahili
'woman'	<i>vrou</i>	<i>úmwaanakashi</i>	<i>kámú</i>	<i>mkazi</i>	<i>mukádzí</i>	<i>mwanamke</i>
'man'	<i>man</i>	<i>úmwaáúmé</i>	<i>kwâ, kwângâ</i>	<i>mwamuna</i>	<i>murúmé</i>	<i>mwanamme</i>
'sun'	<i>son</i>	<i>ákasuba</i>	<i>kângâl</i>	<i>dzuwa</i>	<i>zúvá</i>	<i>jua</i>
'fish'	<i>vis</i>	<i>ísabi</i>	<i>búnyi</i>	<i>nsomba</i>	<i>hóvé</i>	<i>samaki</i>
'dog'	<i>hond</i>	<i>ímbwa</i>	<i>kèri</i>	<i>galu</i>	<i>imbwá</i>	<i>mbwa</i>
'bird'	<i>voël</i>	<i>icúúni</i>	<i>ngúdò</i>	<i>mbalame</i>	<i>shiri</i>	<i>ndege</i>
'three'	<i>drie</i>	<i>-tatu</i>	<i>yàskè</i>	<i>-tatu</i>	<i>-tatú</i>	<i>tatu</i>
'water'	<i>water</i>	<i>ámeenshí</i>	<i>njî</i>	<i>madzi</i>	<i>mvúrá</i>	<i>maji</i>
'big'	<i>groot</i>	<i>-kulu</i>	<i>kúra</i>	<i>-kulu</i>	<i>-kúru</i>	<i>kubwa</i>
'good'	<i>goed</i>	<i>-suma</i>	<i>ngèlà</i>	<i>-bwino</i>	<i>-naka</i>	<i>nzuri</i>
'tree'	<i>boom</i>	<i>úmutí</i>	<i>kèská</i>	<i>mtengo</i>	<i>mutí</i>	<i>mti</i>

wordlists for items with similar forms and meanings will result in the inclusion of 'false friends', words that resemble one another in form and meaning, but are not genuine cognates, and exclude real cognates, the forms of which have diverged through phonological change. Thus, one would group together French *feu* 'fire' and German *feuer* 'fire' in applying mass-comparison, although the French word comes from Latin *focus* 'hearth', while the German word derives from proto-Indo-European **pūr* 'fire' which became **fūr-i* in proto-Germanic. These two words are not cognates: Latin *f* derives from proto-Indo-European **bh* but German *f* comes from proto-Indo-European **p* by Grimm's law (see §15.2). (One might hope that the weight of numbers will ultimately even things out, false friends adding where distant cognates subtract. But this can only be described as wishful thinking.)

Lexicostatistics

Lexicostatistics is a statistical method for distinguishing **groups** and **subgroups** in language families, i.e. sets of genetically related languages that are particularly closely related because they derive from proto-languages that are daughters or granddaughters of the proto-language of the family. Lexicostatistics is based on the idea that basic vocabulary is relatively resistant to change, and will be renewed rarely compared to non-basic vocabulary. If the rate of replacement of basic vocabulary is roughly constant regardless of the language, the proportion of shared basic words between a pair of related languages can give an indication of how long the languages have diverged from one another, provided borrowings are excluded.¹ From this, it is possible to determine groupings and subgroupings of the languages within the genetic set.

Application of this method depends on having first established the genetic relatedness of the

languages, and that one can reliably distinguish between borrowings and shared retentions from a proto-language. This means in practice that the comparative method has already been employed to reconstruct the proto-language, its lexicon, and the historical sound changes giving rise to the modern forms.

Variants of the lexicostatistical method have been used in a number of regions in order to gain an initial picture of language relatedness, well before any application of the comparative method is feasible. One such variant was applied extensively in Australia in the 1960s, on the presumption – which still remains a hopeful (or rather, hopeless!) guess – that the languages form a genetic unity. Pairwise counts were made of shared apparent cognates between languages, obvious borrowings being excluded. With no independent evidence of genetic relatedness, the known varieties were grouped into families, groups, subgroups, languages and dialects. Recent work by some Australianists has shown that application of this quick and dirty version of lexicostatistics sometimes gives a quite good picture of groups and subgroups, one that is in relative accord with the results obtained by the comparative method, when subsequently undertaken.

16.3 Six major language families and one disputed family

The languages of the world can be divided into a number of families of related languages, possibly grouped into larger stocks, plus a residue of **isolates**, languages that appear not to be genetically related to any other known languages, languages that form one-member families of their own. The number of families, stocks and isolates is hotly disputed. The disagreements centre around differences of opinion as to what constitutes a family or stock, as well as the criteria and methods for reliably establishing them.

Linguists are sometimes divided into lumpers and splitters according to whether they lump languages together into large stocks, or divide them into numerous family groups. Merritt Ruhlen is an extreme lumper: in his classification of the world's languages (1987) he identifies just 19 language families or stocks and five isolates. More towards the splitting end is *Ethnologue*, which identifies some 136 top-level genetic groupings, as well as one constructed language, 137 deaf sign languages, 75 isolates and 53 unclassified languages. However, in terms of what has actually been established by application of the comparative method, the *Ethnologue* system is wildly lumping!

Some families, for instance Austronesian and Indo-European, are well established, and few serious doubts exist as to their genetic unity. Others are highly contentious. Both Ruhlen (1987) and *Ethnologue* identify an Australian family, although (as just mentioned) there is as yet no evidence that the languages of the continent are all genetically related. At least as contentious is Joseph Greenberg's (1987) putative Amerind stock of Native American languages.

In the following subsections, we present an overview of six major putative families: Indo-European, Austronesian, Afroasiatic, Niger-Congo, Sino-Tibetan and Trans-New Guinea. Each of these families has over 300 languages, and together they account for almost two-thirds of the world's languages, and over 80 per cent of the speakers. In the final subsection we discuss



Greenberg's Khoisan grouping, which is believed by experts to comprise at least three independent genetic lineages. The website for this chapter includes a brief survey of the world's languages organized geographically.

Indo-European

The Indo-European languages have been recognized as forming a family since at least the late 17th century, when Andreas Jäger observed in 1686 that Persian and many of the languages of Europe are descendants of a single language. Since Jäger's time, many more languages have been shown to belong to the family. Indeed, Indo-European languages are spoken throughout most of Europe, across Iran, through Central Asia, and into India. With the European colonial expansions of the 15th to 19th centuries, they spread into the Americas, Australia, New Zealand, Africa and Asia, in the process diversifying into numerous dialects. They have become major languages in many of the former colonies, and are spoken by almost three billion (i.e. 3×10^9) speakers.

The family consists of just over 400 languages (436 according to *Ethnologue*), which can be grouped together into a number of subfamilies or branches, as shown in the family tree representation of Figure 16.1 (opposite page). Map 16.2 shows the approximate locations of some of the main groups.

More historical-comparative work has been done on Indo-European than any other language family, and many lexemes have been reconstructed for proto-Indo-European, as well as some of its grammar. Proto-Indo-European was an inflecting language (like ancient Indo-European languages such as Latin, Hittite and Ancient Greek), with a complex verbal system with different inflections for different persons and numbers of the subject, tense, aspect, mood, as well as case-marking for nouns.

Proto-Indo-European is widely believed to have been spoken in the south-east of Europe, perhaps in the region of Turkey, some 6,000 to 8,000 years ago. Opinions differ, however, and some argue for a more northerly location in the steppes of Russia. From its homeland the language spread east and west, in the process fragmenting into numerous mutually unintelligible languages.

It is now widely believed that the early period of Indo-European expansion that took the languages as far as India in the east and Ireland in the west, was not via military-style invasions like the Roman conquests of 2,000-odd years ago. One influential idea is that the expansion of the languages accompanied the spread of agriculture from a centre in the near east, beginning some 6,000 to 8,000 years ago (Renfrew 1987, 1989). According to one version of the story, farmers gradually spread outwards, using land previously occupied by hunters and gatherers, eventually ousting them. Another version has it that agriculture and the language of the agriculturalists spread by diffusion, without major population movements. Renfrew's story is not without difficulties, and according to some scholars there are problems with the timing of some events. A recent competing view suggests that Indo-European spread instead with the domestication of the horse and the invention of the wheel (e.g. Anthony 2007).

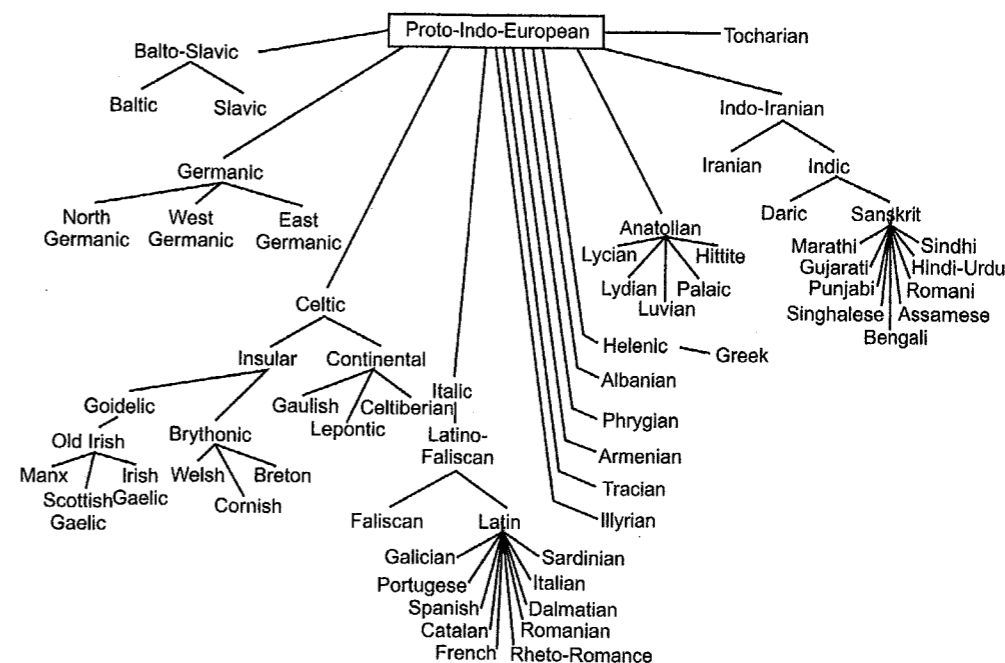
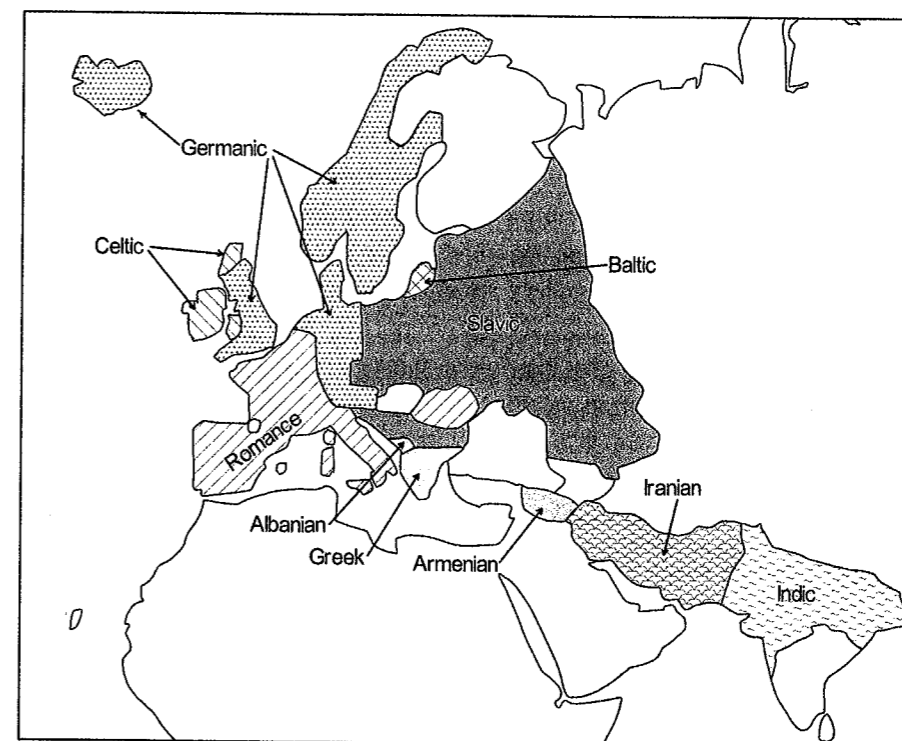


Figure 16.1 The Indo-European family tree (simplified and redrawn from Campbell 1998: 168).



Map 16.2 Main groups in the Indo-European family.

Austronesian

Austronesian is the largest universally accepted language family in the world with over 1,200 languages, spoken by some 300 million speakers from Madagascar in the west to Easter Island in the east, Taiwan in the north and New Zealand in the south, with the exception of Australia and most of the island of New Guinea. (The Niger-Congo family (see pp. 396–8) is the only larger family, but it is more contentious.)

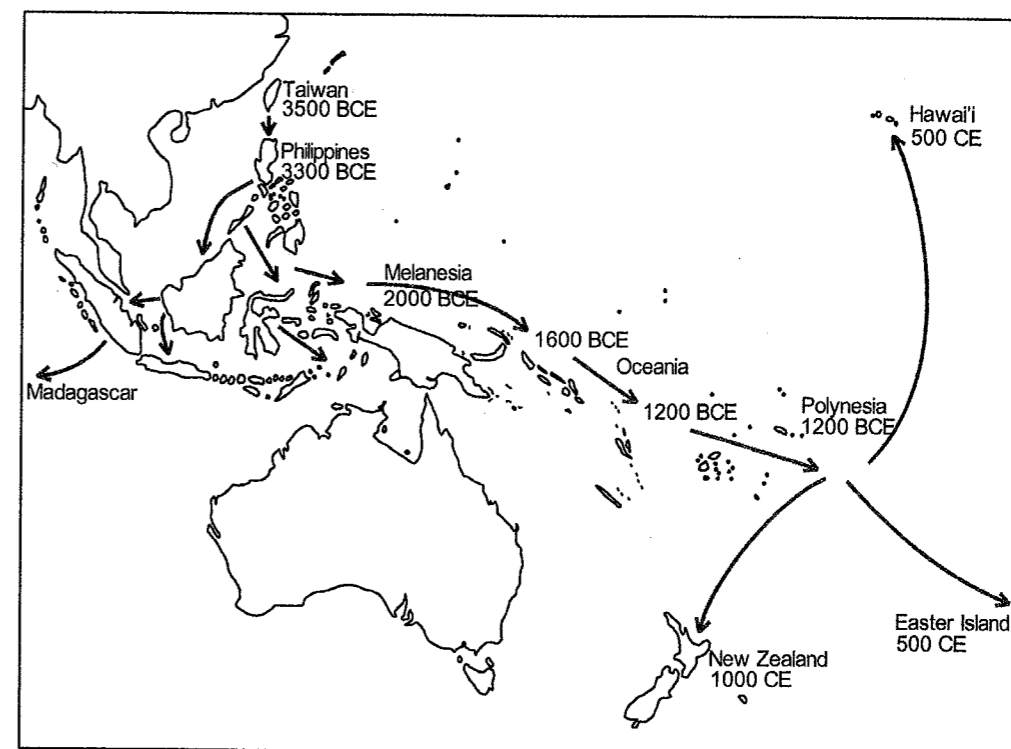
As for Indo-European, a good deal of proto-Austronesian has been reconstructed. There are, however, differences of opinion concerning how the family is structured. One view is that it is divided into four groups, three of which – Atayalic, Tsouic and Paiwanic – are located on the island of Taiwan. Other proposals identify up to nine groups on Taiwan. Just one branch, Malayo-Polynesian, accounts for the bulk of the languages of the family, and includes all Austronesian languages outside Taiwan. Malayo-Polynesian is subdivided into four groups: Central Malayo-Polynesian, South Halmahera-West New Guinea, Oceanic (eastern group) and Western Malayo-Polynesian. Regardless of the actual structure of the family, it is clear that there is considerably greater diversity in the languages of Taiwan than in all of the rest of the languages. It is generally assumed that the region of greatest diversity is the most likely homeland, the region where the proto-language was spoken, since it is in this region that the languages have been longest that they have had the most opportunity to diversify. Taiwan is thus the most likely homeland for Austronesian.

Evidence from archaeology is largely in agreement with linguistic evidence that Taiwan was the homeland of Austronesian, and that the languages began spreading from there some 5,500 or so years ago. The languages spread via migrations of people travelling over the sea, and taking farming with them. The island of New Guinea was reached some 4,000 years ago, and New Zealand about 1000 CE. Map 16.3 gives an idea of the dispersal of Austronesian languages.

It has recently been proposed that the Austronesian languages are genetically related to the Sino-Tibetan languages (see p. 398), forming a large Sino-Tibetan–Austronesian family. Laurent Sagart (2005) makes a plausible (though not widely accepted) case for this macro-group, identifying some 60 cognates in basic vocabulary among Austronesian and Sino-Tibetan languages, as well as recurrent sound correspondences. He avers that there is archaeological evidence in agreement with his proposals, and that the initial spread of the proto-language for this family was from mainland China to Taiwan, accompanying a migration of agriculturalists driven by population expansion. The archaeologist Peter Bellwood (2005) is in basic agreement, though he places the ultimate mainland China homeland in a different location.

Afroasiatic

Afroasiatic consists of some 366 languages (according to *Ethnologue*) spoken in northern Africa and south-west Asia by over 360 million people – see Map 16.4. It is regarded as the best established of the four families that African languages are sometimes divided into; the other three families are Niger-Congo (on which see next subsection), the more contentious Nilo-Saharan and the highly contentious Khoisan (see final subsection).



Map 16.3 Dispersal of Austronesian languages (adapted from Gray and Jordan 2000: 1053).

Afroasiatic is generally divided into six groups: Berber (consisting of around 30 languages spoken in Morocco, Algeria, Tunisia, Mali, including Tamazight, Zenaga and Kabyle); Chadic (made up of nearly 200 languages spoken in Nigeria, Chad, Cameroon, including Hausa, Miya and Ngizim); Cushitic (with about 50 languages in Ethiopia, Eritrea, Somalia, Kenya and Tanzania, including Somali, Dahalo and Afar); Egyptian (one language, Coptic, which became extinct in the 14th century, though it is still used as a language of religion); Semitic (consisting of some 80 languages spoken in Ethiopia and the Middle East, including Arabic, Hebrew, Aramaic, Amharic and Tigré); and Omotic (with 30 or so languages spoken mainly in Ethiopia, including Dizi, Bench and Ganza).

Semitic is the only group spoken widely outside of Africa. It is also the best-studied group. A notable feature of Semitic languages is a root structure consisting of three consonants; grammatical information is expressed largely through intervening vowels. For instance, the root form for 'book' in Arabic is *k-t-b*; thus *kitab* 'book', and *kutub* 'books'.

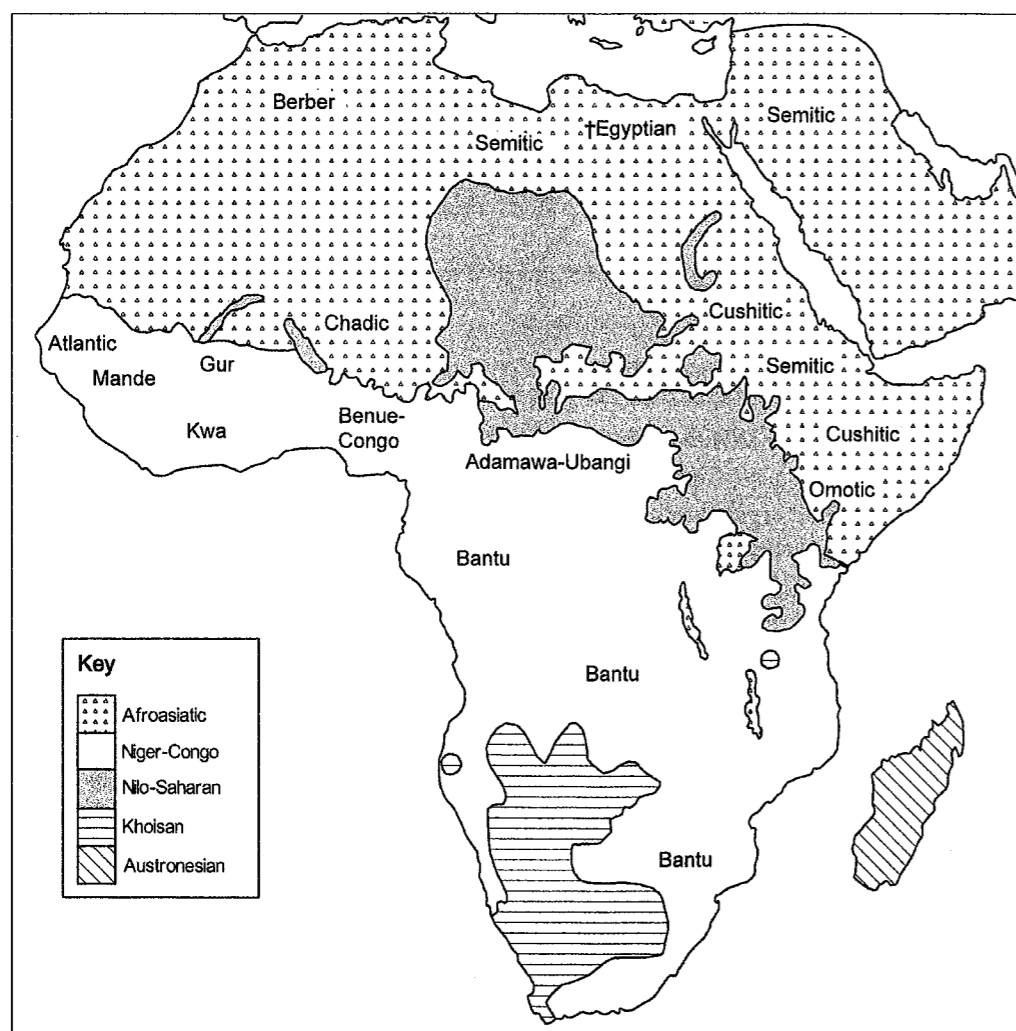
It is generally believed that proto-Afroasiatic was spoken around 10,000 years ago in northeast Africa, and spread out from there, perhaps moving into south-west Asia around 8,000 years ago. Shared agricultural vocabulary is lacking across the family, suggesting that the languages dispersed before the advent of agriculture. On the other hand, cognate pottery terms are widely distributed, suggesting that pottery was known at the time of the proto-language.

Niger-Congo

Consisting of just over 1,500 languages, the Niger-Congo family is the largest language family in Africa, indeed in the world. This must be tempered by the observation that some linguists have expressed doubt concerning the status of Niger-Congo as a genetic unit. This is because the proto-Niger-Congo has not been reconstructed, and thus the genetic unity of the languages is not established fact. Nonetheless, the majority of specialists accept it as a viable genetic grouping, and regard it simply as a matter of time until this will be convincingly demonstrated.

Niger-Congo languages are spoken over a vast area of the continent, as shown in Map 16.4, and by almost 450 million speakers.

The composition of the family is controversial, and has been revised more than once. A recent classification of the family is shown in the family tree of Figure 16.2. Some nodes on this tree



Map 16.4 Putative language families of Africa.

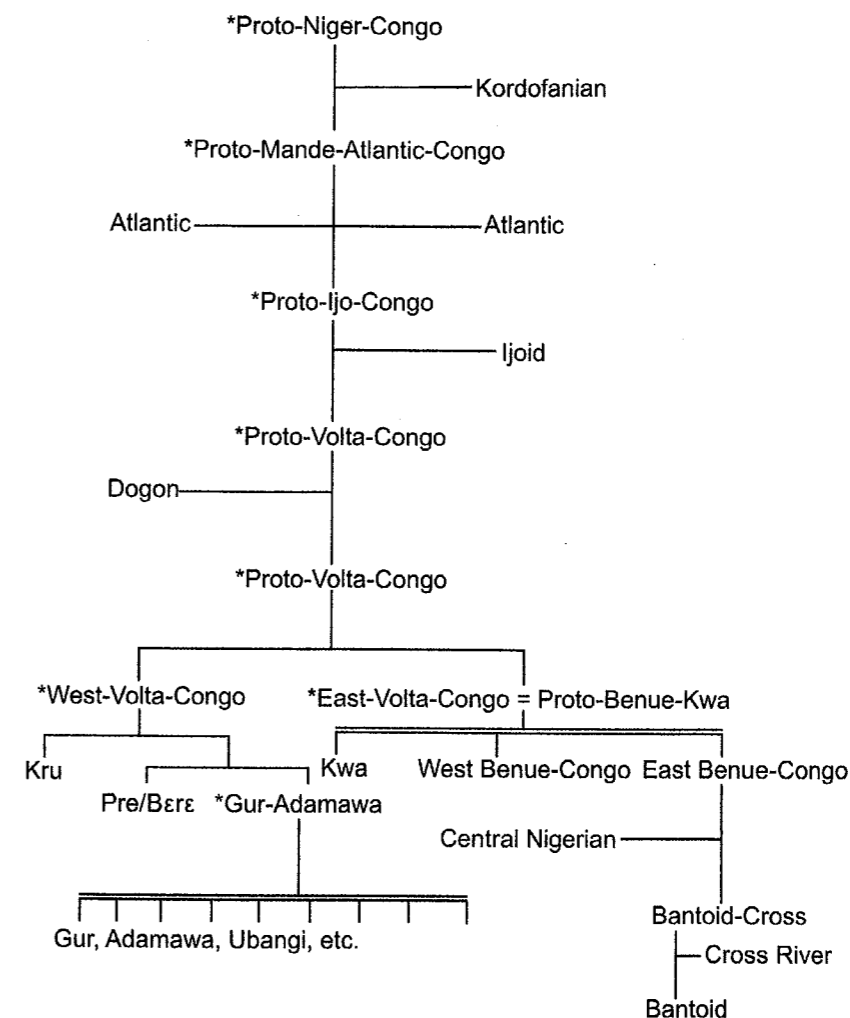


Figure 16.2 One representation of the Niger-Congo family (based on Williamson and Blench 2000: 18, redrawn and simplified).

represent individual languages (e.g. Pre/Bere), some represent small groups of languages (like Dogon), while others represent very large groups (e.g. Bantoid).

The well-known Bantu languages are a subgroup of the Bantoid group. They comprise over 400 languages (including Swahili, Fang, Setswana, Southern Sotho, Luganda and Shona), with perhaps 60 million speakers. It is believed that Bantu is a young group that began diverging when speakers spread out from Cameroon perhaps 4,000–5,000 years ago. Bantu speaking people migrated over the next 3,000 years, taking West African yam agriculture with them. Today Bantu languages are spoken across a third of the African continent.

One characteristic of Niger-Congo languages is their possession of an elaborate system of noun classes (see note 2, Chapter 7), distinguishing humans, animals, plants, masses and liquids, abstracts and so on. The classes are marked by affixes, usually prefixes, that occur sometimes on

the noun, but usually on adjectives and verbs in agreement with the noun they apply to, as shown by the following example, where *ki-* and *-ki* are the class markers:

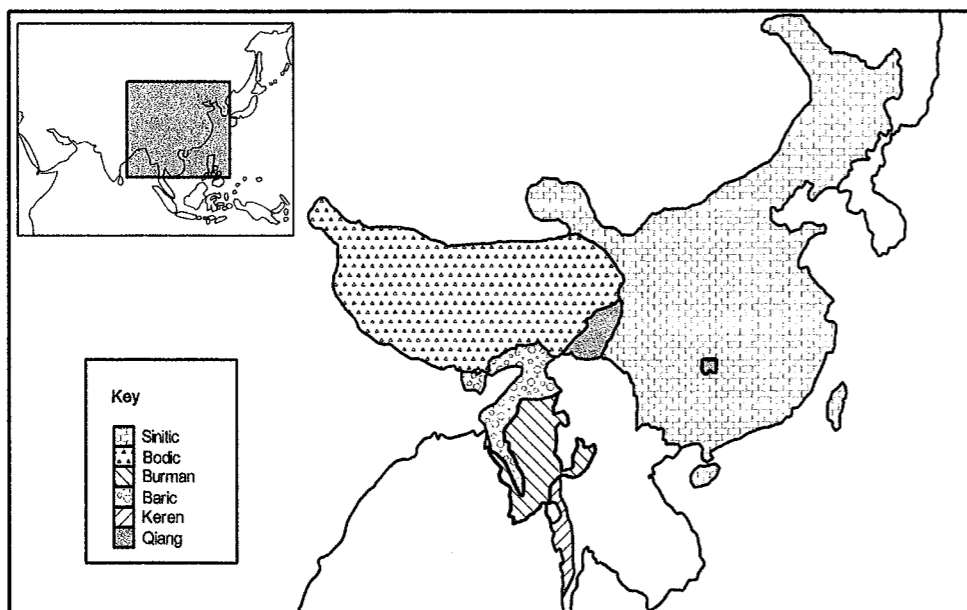
(16-1) *ki-tu hi-ki ki-kubwa ki-lianguka* Swahili
 ki-thing this-ki ki-large ki-fell
 'This large thing fell.'

Sino-Tibetan

Comprising over 400 languages, Sino-Tibetan is the second largest language family of the world in terms of numbers of speakers, with a bit under half the number of speakers of Indo-European. It includes Mandarin Chinese, the language with the largest number of native speakers.

Sino-Tibetan falls into two groups. One, Sinitic, consists of just 14 languages, including Mandarin Chinese, Cantonese (Yue), Hakka, Northern Min, Southern Min and Gan. The other group, Tibeto-Burman, has some 450 languages, mainly spoken in China, Nepal and India. Groupings within Tibeto-Burman include, according to the traditional classification: Baric (e.g. Meithei in India), Bodic (e.g. Tibetan), Burmese-Lolo (e.g. Burmese), Keren (various Keren languages spoken in Myanmar and Thailand, the most widely spoken being S'gaw Karen), Nung (e.g. Norra, Nung) and Qiang (e.g. Northern and Southern Qiang, spoken in China). Map 16.5 shows the location of the family and most of the groups.

With the exception of Baric languages, Sino-Tibetan languages are mostly tone languages. Tone cannot, however, be reconstructed for proto-Sino-Tibetan. Rather, certain syllabic endings of the proto-language gave rise to the tones of the modern languages.



Map 16.5 Location of the Sino-Tibetan family.

Trans-New Guinea

As already mentioned, the region of island of New Guinea is the most linguistically diverse region in the world, populated by some 1,200 languages. These are usually divided into two groups, Austronesian and Papuan (which refers collectively to the non-Austronesian languages of the region). Papuan languages fall into 30 or more distinct genetic families and some two dozen isolates. Most of these families are quite small, with an average of 25 languages and an average of less than 3,000 speakers.

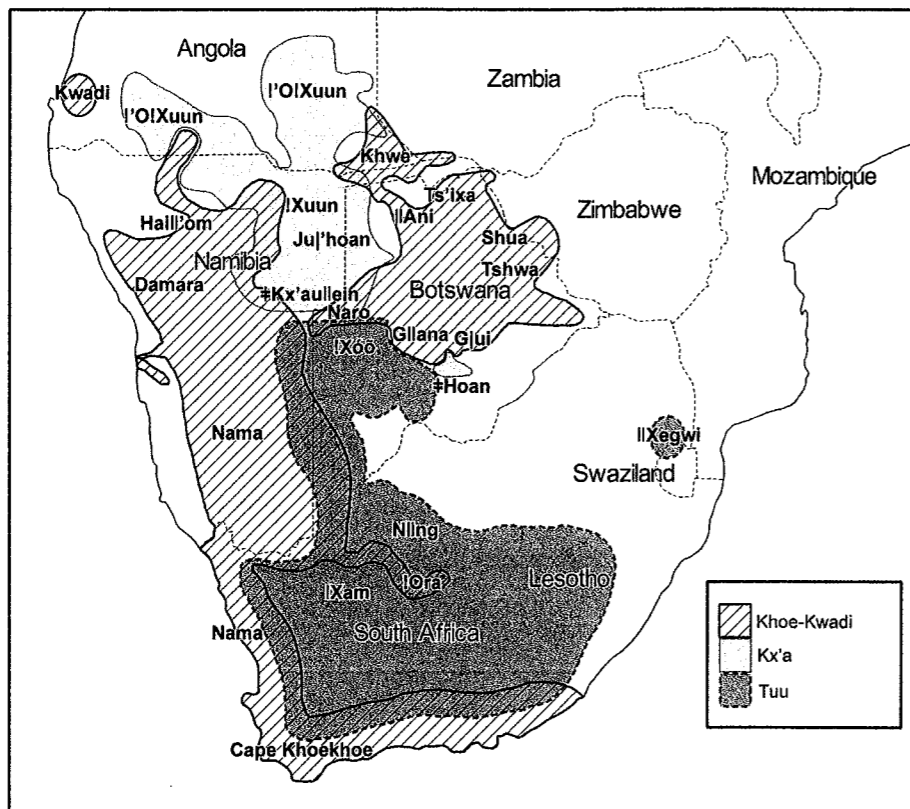
The largest Papuan family (or stock), Trans-New Guinea, consists, according to *Ethnologue*, of some 475 languages belonging to dozen groups and spoken mainly along the mountainous cordillera of New Guinea. Proto-Trans-New Guinea has not been reconstructed; indeed, there is considerable diversity of opinion as to the structure and composition of the putative family. The *Ethnologue* grouping is a 'lumping' one basically following Wurm (1975); more recently, Foley (2000) has suggested that it consists of around 300 languages, and Ross (2005) has proposed a version with 400 or so languages. Other Papuanists accept the core of the Trans-New Guinea grouping, with a good deal of uncertainty as to which languages and groups belong to it. Even in its most reduced form Trans-New Guinea fits into the category of large language family.

Khoisan

The term *Khoisan* (also spelt *Khoesan*) is a cover term for a group of languages of Africa that have clicks as part of their normal phoneme inventory, but are not Bantu or Cushitic. Greenberg's classification of African languages (1963) identified Khoisan as one of four genetic macro-units covering the continent. However, there is no evidence that the languages form a genetic unit, and specialists use the label *Khoisan* as a convenience label for a residue class of languages that don't fit into the better-supported family units.

Ethnologue lists 28 languages as Khoisan, of which two (Hadza and Sandawe) are spoken in Tanzania, the remainder in southern Africa. Those spoken in southern Africa are generally accepted by experts as comprising three distinct genetic lineages (e.g. Vossen 2013: 3): Khoe-Kwadi (14 languages, including Hailom, Nama-Damara, Khwe, Shua, Ts'ixa and Kwadi),² Kx'a (seven languages, including Ju|'hoan and #Kx'au|'ein) and Tuu (six languages, including !Xóó, N!ng and !Xegwi). Map 16.6 shows the locations of most southern African Khoisan languages. Current consensus among experts is that Hadza and Sandawe are language isolates; there is however some evidence that Sandawe may be very distantly related to Khoe-Kwadi.

Khoisan languages are famous for their possession of click consonants. Some languages, for instance !Xóó – the language with the largest known consonant inventory in the world, with well over 100 distinct consonant phonemes – distinguish five different click phonemes: bilabial (⦿), dental (ǀ), (post)alveolar (ǃ), palatal (ǁ) and lateral (ǁ). Each of the clicks may be accompanied by some further modification by changes to the manner of the velar or uvular closure. (Check your understanding of click articulation, p. 40.) In !Xóó each click admits up to 16 accompaniments, including voicing, aspiration, nasalization and glottalization. Vowel systems in Khoisan languages usually distinguish five phonemic vowel qualities. However, additional colouring of vowels is



Map 16.6 Location of Khoisan languages of southern Africa.

normally possible. Almost all Khoisan languages show distinctive nasalization of vowels; in addition, glottalized, breathy and pharyngealized vowels are commonly phonemic.

16.4 Contact languages

According to the simple model of language diversification alluded to in §16.1, new languages emerge as the eventual result of geographical, temporal or social separation of speakers of a single language. This model underlies the notion of genetic relatedness of languages, the notion that each language has a single parent language from which it ultimately separated. The reality is more complex. Languages are not like biological species, which cannot normally interbreed; rather, languages do interact significantly with other languages spoken in their environment. We have already mentioned one way this can happen, namely through borrowing of lexical items or grammar. Sometimes borrowing between languages is so extensive that it obscures the genetic picture. Indeed, it can render the family tree diagrams we have been using inappropriate or misleading. For some language situations linguists have proposed that, instead of the tree model, a bush model is preferable, in which there are many complex interconnections between languages.

Another thing that can happen is that new languages come into being as the result of interaction between two or more languages – or, rather, between speakers of two or more languages. The new languages, called **contact languages**, thus can't be traced back to a single parent language that either split or incorporated many characteristics of a neighbouring language, and neither the tree nor the bush model is appropriate. This section focuses on cases of this type, which though in some sense exceptional, are not rare – there are hundreds of them.

Pidgins

Pidgins are rudimentary or simplified forms of speech that sometimes arise in contact situations, when speakers of mutually unintelligible languages come into contact with one another in a limited range of social interactions. These interactions might be for purposes of trade or labour, including slavery, for instance, on plantations, on boats, or in mines. In keeping with their reduced range of circumstances of use, pidgins show structural reductions compared to ordinary human languages: reduced lexicons – often restricted in terms of the semantic domains they cover, though specialized in some domains – and reduced grammars, as well as diminished stylistic ranges.

Many pidgins arose in the wake of European colonialism, in the Pacific region, the Americas and Africa. The lexical items of these pidgins often derive from the language of the colonizers, but are usually pronounced according to the sound systems of the languages of the colonized, who represent the majority of speakers. Pidgins often show considerable variation across speakers in vocabulary and pronunciation, depending on the speaker's mother tongue.

Fanagalo, a pidgin spoken in South Africa, arose in interactions between European settlers and Zulu people, and was later used in mines. Fanagalo is somewhat unusual for a pidgin in that most of its words (about 70 per cent) come from Zulu, rather than from the languages of the colonizers (24 per cent comes from English and 6 per cent from Afrikaans). Words are phonologically simplified in Fanagalo, with Zulu clicks replaced by *k*, and English interdentals replaced by either an apical stop or the labiodental fricative (e.g. *bath* appears as *baf*). The following examples are illustrative of the syntax. Note the presence of a subject pronoun between the subject and the verb (a characteristic shared with many English-based pidgins in the Pacific), the SVO word order, and the placement of the question word in initial position (as in English and Afrikaans – in Zulu it appears in the usual position for an NP in that grammatical role).

(16-2) *lo foloman yena funa lo nyuzipepa na lo ti* Fanagalo
 the foreman he want the newspaper and the tea
 'The foreman wants the newspaper and tea.'

(16-3) *yinindaba wena hayikona shefile nambla* Fanagalo
 why you not shave today
 'Why haven't you shaved today?'

Not all pidgins arose in contexts of European colonization. Pidgin Yimas, a pidginized form of Yimas (Papuan, New Guinea), for instance, arose in pre-contact times in the context of trade along the Arafundi River. And Hiri Motu, a pidginized variety of Motu, was once used on annual trading

expeditions (called *hiri*) by Motu speakers into areas occupied by speakers of Papuan languages. The term *Hiri Motu* (or *Police Motu*) is now used for a different pidgin Motu that arose around 1900 in the predominantly Motu-speaking Port Moresby area, where speakers of many different languages were brought into contact primarily in the police force.

Creoles

Sometimes pidgins become useful in a wider range of interactive contexts, and may take on the role of auxiliary languages and perhaps be given official status. Such pidgins gain extra words and grammar to cope with the additional uses they are put to; being more complex than pidgins they are called **expanded pidgins**. An example is the English-based pidgin Tok Pisin, now an official language in New Guinea, and frequently used in parliament and in commerce. Tok Pisin is spoken by as many as 4,000,000 people as a second (or later) language, and is often used between speakers of mutually unintelligible Papuan languages. However, it has also become the mother tongue of a small number of people (perhaps 50,000) living mainly in urban areas of Port Moresby. When this happens – when a pidgin language acquires mother tongue speakers – it is said to have been **creolized**, and is a **creole**.

Unlike pidgins, creoles are full languages, structurally and functionally comparable with ordinary human languages. The process of creolization is associated with increases in the range and depth of vocabulary and in the structural complexity of the former pidgin (e.g. by adding subordinate clause constructions, tenses and so on), as well as expansion in stylistic range. Some investigators hold that creoles share more with one another grammatically than they do with other natural languages, and that these similarities are indicative of general linguistic abilities shared by all people.

Also based on English is Torres Strait Creole or Broken, spoken by some 18,000 Torres Strait Islanders and Aboriginal people living on northern Cape York, Australia. Broken creolized from Pacific Pidgin English around the turn of the 20th century. The following are a few illustrative clauses. Notice that the ‘predicate marker’ in (16-4) derives from English *he*, and connects the subject to the following verb, like *yena* in (16-2) above.

- (16-4) *ai luk wan gel i kam* Broken
 I see a girl predicate:marker come
 ‘I can see a girl approaching.’
- (16-5) *em pinis skras-e koknat lo madu* Broken
 she completive scrape-transitive coconut instrumental scraper
 ‘She has already scraped out the coconut with the scraper.’
- (16-6) *dem piknini go luk ama blo dempla* Broken
 plural:definite child future visit mother possessive they
 ‘The children will visit their mother.’

Ethnologue lists 93 creoles, spoken by almost 40 million people in Africa, the Americas, Asia and the Pacific region. Many, like Tok Pisin, are based on European languages – that is, they derive

from former pidgins that drew their lexicon mainly from a European language. A number are based on other languages. Cutchi-Swahili and Asian Swahili are spoken in Kenya and Tanzania, and are based on Swahili (Nilo-Saharan). Tetun Dili, also called Tetun Prasa, is spoken by around 50,000 people in East Timor, and based on Tetun (Austronesian). Africa is the home of three Arabic-based creoles: Babalia, with about 4,000 speakers in Chad; Sudanese Creole Arabic or Juba Arabic, with about five times as many speakers in Sudan; and Nubi, with about 26,000 speakers in Kenya and Uganda. Six Malay-based creoles are spoken in Indonesia and Malaysia.

Mixed languages

The third group of contact languages is **mixed languages**, hybrid languages components of which come from different sources: some aspects (e.g. the lexicon) may come from one language, while others (e.g. the grammar) come from another.³

Perhaps the paradigm example of a mixed language is Michif, an endangered language spoken by a few hundred elderly people in Canada and northern USA. Michif nouns come mainly from French (about 90 per cent), and noun phrases follow the grammatical structure of French. But the verbs almost all come from Cree, an Algonquian language, and the complex verbal morphology of Cree is largely retained. Even more strikingly, two phonological systems coexist in Michif with little if any influence on one another. The Cree component retains Cree phonology, while the French component retains French phonology. Michif syntax is closer to Cree syntax than French syntax, except in the NP. The following sentence, from the beginning of a short Michif text, is illustrative. It is given in the standard orthography for each language; French morphemes are bolded.

- (16-7) *un vieux opahikê-t ê-nôhchikê-t, êkwa un matin* Michif
 an old trap-he COMP-trap-he and a morning
ê-waniskâ-w ahkosi-w, but kâyapit ana
 COMP-wake:up-he be:sick-he but still this:one
wî-nitawi-wâpaht-am ses pièges
 want-go-see:it-he:it his traps
 ‘There was an old trapper who was trapping. One morning he woke up sick, but still wanted to go and look at his traps.’ (Bakker 1994: 28–30)

It is not known how old Michif is, although it seems that it has been around since at least the early decades of the 19th century. Peter Bakker (1994: 23) observes that it could not have arisen as a contact pidgin between speakers of French and speakers of Cree. He suggests instead that the first speakers were fluent in both French, which they learnt from their fathers, and Cree, which they learnt from their mothers; he suggests further that Michif may have been invented by adolescents.

Another mixed language is Ma’a, spoken in Tanzania by Mbugu people. The Mbugu speak two languages, Ma’a and Mbugu, the latter a Bantu language. Ma’a has basically Bantu morphology and syntax, but possesses a considerable number of non-Bantu lexemes, the majority of which come from Southern Cushitic. There are also a handful of phonemic segments in Ma’a that do not occur in Mbugu. Maarten Mous regards Ma’a as a special register created by speakers of Mbugu in order to set themselves off as distinct from their Bantu neighbours (Mous 1994). Other explanations

have been proposed. For instance, Thomason and Kaufman (1988) suggest it is a Cushitic language that borrowed extensively from a Bantu language.

Some varieties of Romani (Indo-European, Europe to Near East) appear to be mixed languages, including in the Near East Qirishmal (Eastern Persia) and Armenian Romani, and in Europe, Basque Romani, Norwegian Romani and now-extinct Dortika in Greece. These varieties preserve Romani lexicon, but employ the grammatical structures of the surrounding languages.

Summing up

It has been estimated that some 7,000 languages are spoken in the world today. This is not a precise figure, due in part to lack of accurate information especially on languages spoken in areas remote from European habitation and in part to the different criteria used in identifying languages.

The distribution of languages across the globe is not uniform, and there is a concentration of languages in the band between the two Tropics. The Pacific region is the most linguistically diverse region of the world. Languages also differ strikingly in their numbers of speakers. A few languages are spoken by large numbers of speakers, while many languages have very small numbers of speakers.

The languages of the world can be grouped into **families of genetically related languages**, plus **isolates**. The languages of a family can be traced back to a single **proto-language**, which, over time and perhaps migrations of the speakers, differentiated into separate languages. Within a language family it is often possible to identify **groups** and **subgroups** of more closely related languages. The structure of a family can thus be represented by a **tree model**. Ideally the tree represents also the history of the separation of the languages. Hypothetical groups of families or **stocks** have been proposed by some linguists; these remain quite tentative.

Sometimes new languages, **contact languages**, arise through contact between two or more languages, rather than divergence of a single language over time. In such circumstances, the language cannot always be traced back to a single parent language, raising problems for the tree model. **Pidgins**, **creoles** and **mixed languages** are examples of this sort of 'hybrid' language.

The most reliable method of establishing genetic relations among languages is the **comparative method**, which **reconstructs** a proto-language and shows how the modern languages could have developed from it via a series of plausible changes. Reconstruction is done by setting up sets of **cognates** in the languages on the basis of which a **proto-form** is proposed, together with regular **sound changes**. Two other methods sometimes used to establish genetic relations, **mass comparison** and **lexicostatistics**, are less reliable.

The number of language families in the world is hotly contested. Some linguists have suggested as few as 19, others around 100. Even the latter figure involves many highly dubious groupings, like Khoisan, Australian, Papuan and Amerind. Among the best supported families are Afroasiatic, Indo-European and Austronesian. In between lie a number of intermediate cases of likely families, such as Pama-Nyungan and Trans-New Guinea that remain to be validated.

Guide to further reading

Ethnologue: Languages of the World (Lewis, Simons and Fennig [2013]), currently in its 17th edition, is intended to provide a comprehensive listing of the known living languages of the world. It provides basic information on the languages, including alternative names and spellings of the names, numbers and locations of speakers, main references and family membership. This information is of varying degrees of reliability, depending on the information available on the language, and what is conveyed to the editor by experts. The 17th edition is currently available only on the web (<http://www.ethnologue.com>); a three-volume printed book is currently in press.

A good overview of the linguistic diversity of the world is Comrie (2001), which provides basic information on many language families. There are a number of more comprehensive book-length treatments of the world's linguistic diversity. My recommendation is Pereltsvaig (2012), which provides much intriguing information on a range of languages and their speakers. Anderson (2012) is an accessible overview. Garry and Rubino (2001) contains basic information on 191 languages from all over the world, including the viability of the language, use in education, genetic classification and basic grammar. Each description is by a linguist with some knowledge of the language, and it is a very useful resource. An older, but still useful survey, is Lyovin (1997), which gives grammatical information on a selection of languages. Ruhlen (1987, revised version 1991), is a highly speculative classification of the world's languages, and few of the proposed groupings are accepted by experts.

Numerous textbooks discuss the comparative method. Among them Crowley and Bower (2010) stands out for its lucid style and absence of Indo-European bias. An excellent article on the comparative method is Rankin (2003).

Numerous attempts have been made in recent years to link archaeological, biological and linguistic reconstructions of the human past, including Renfrew (1987, 1994); Cavalli-Sforza (1991, 2001); and Anthony (2007).

Bakker and Matras (2013) contains readable and up-to-date articles on contact languages. Good introductions to pidgins and creoles are Mühlhäusler (1997) and Arends et al. (1995). Siegel (2008) discusses the emergence of pidgins and creoles; Bhatt and Veenstra (2013) is a collection of articles exploring whether creoles are typologically distinct from other languages. Information on Fanagalo given in the text comes from Childs (2003: 207–10), which should be consulted for further details; the CD-ROM accompanying that book contains a short stretch of spoken Fanagalo.

The best sources on mixed languages are Bakker and Mous (1994), and Matras and Bakker (2003), which cover mixed languages from all over the world.

Issues for further thought and exercises

- 1 We have said that many of the world's languages are currently highly endangered; some hundreds are likely to go out of use in the next century. On the other hand, there are a few languages with extremely large numbers of speakers. Do you think that eventually the entire

WEEK FOURTEEN

Goals

The goals of the chapter are to:

- explore the relation between language and thought, and discuss the Sapir–Whorf hypothesis, the hypothesis that the structure of the language we speak influences how we think about the world;
- mention some modern revisions to the Sapir–Whorf hypothesis;
- present some fundamental facts about speech production and perception, and comment on what they indicate about the mental organization of language;
- introduce some important experimental methods used in studying speech processing;
- overview the basic physiology of the brain;
- introduce the main questions in the study of neurolinguistics; and
- outline the main methods of investigating neurolinguistics.

Key terms

anomic aphasia	exchange errors	positron emission tomography (PET)
aphasia	functional magnetic resonance imaging (fMRI)	psycholinguistics
arcuate fasciculus	garden path sentences	Sapir–Whorf hypothesis
Broca's area	global aphasia	slips of the tongue
Broca's aphasia	lateralization	split-brain patients
categorical perception	lexical lookup	spoonerisms
cerebral cortex	localization	Wada test
conduction aphasia	magneto-encephalograms (MEGs)	Wernicke's area
contralateral control	neurolinguistics	Wernicke's aphasia
dichotic listening test	neuron	
electroencephalograms (EEGs)		

9.1 Language and cognition

We begin with the relation between language and other forms of cognition. On this hotly debated issue there is as yet no consensus amongst linguists or psycholinguists. At one extreme is the

notion that language forms a distinct module separate from other cognitive processes; this view tends to be associated with linguists and psychologists working within formal theories of language, such as Noam Chomsky, Jerry Fodor and Stephen Pinker. At the other extreme is the idea that there is no distinction between the cognitive processes employed in language and those employed in other domains of thought; this view is associated with investigators working within many functionally oriented paradigms, including Ronald Langacker, George Lakoff and Talmy Givón. We will not enter this debate, but merely comment that the balance of evidence seems to favour an intermediate position: a degree of separateness, along with commonalities with other cognitive phenomena.

Language and thought: The Sapir–Whorf hypothesis

We discuss instead a related question: is there a relationship between the language one speaks and the way one thinks about and conceptualizes the world? One highly influential idea holds that the answer is in the affirmative: the structure of the language we speak does correlate with the way we think. This idea goes back a long way, at least to the ancient Greeks. More recent proponents include Wilhelm von Humboldt (1767–1835), Franz Boas (1858–1942), Edward Sapir (1884–1939) and Benjamin Lee Whorf (1897–1941). It is now generally referred to as the **Sapir–Whorf hypothesis**, often just the **Whorfian hypothesis**.

The Sapir–Whorf hypothesis can be separated into two components. The first is the principle of **linguistic relativity**, according to which lexical and/or grammatical differences between languages correlate with non-linguistic cognitive differences. For instance, the existence of a number of terms in a language for objects from a conceptual domain – say ‘mound’, ‘ridge’, ‘hill’, ‘mesa’, ‘plateau’, ‘cape’ and ‘mountain’ – would correlate with habitually thinking about these geographical projections as different. If a single term is used the range of objects will tend to be regarded as the same. The principle of relativity holds that language and habitual modes of thought are correlated; it does not presume a causal relation between them.

The second aspect of the Sapir–Whorf hypothesis is the stronger principle of **linguistic determinism**, the notion that differences in the lexical and grammatical systems of languages cause differences in cognitive styles of their speakers, in their habitual ways of thinking. Thus the presence of different lexemes ‘mound’, ‘ridge’, ‘hill’, ‘mesa’, ‘plateau’, ‘cape’ and ‘mountain’ in a language would imply a different conceptualization of the world to that found among speakers of a language where the lexical distinctions were not drawn.

Whorf is usually understood to have advocated a strong version of linguistic determinism, though his stance was often equivocal. His thinking was more sophisticated than simple examples like the above suggest. He considered that it was not only lexical features that are relevant, but, more importantly, grammatical structures. Thus he contrasted the linear notion of time shared by speakers of English and other ‘Standard Average European’ (SAE) languages, in which time progresses ever onwards into the future, with a cyclic view of time he attributed to speakers of Hopi (Uto-Aztecan, USA). An aspect of this difference, Whorf averred, was related to the presence of tenses in English, which is consistent with a time line extending indefinitely into the future, and the absence of tenses in Hopi, which is consistent with a cyclical view of time. (His analysis of Hopi

as a tenseless language has been criticized – albeit not very convincingly – by later investigators, notably Malotki 1983.)

This single difference between Hopi and English is not telling and Whorf sought not just single isolated lexical or grammatical features, but sets of interlocking linguistic phenomena. In the case of the Hopi notion of time, he linked the absence of tenses with other facts about the language, including expressions used for quantifying time. Rather than measuring by numbers of units such as days, Hopi speakers used expressions like ‘the fourth day’. The difficulty here is that it is not obvious how either linguistic feature, absence of tenses and use of ordinal expressions in the quantification of time, would imply or induce a notion of cyclical time. And putting them together does nothing to strengthen the case. On the other hand, why doesn’t the presence of lexical cycles of hours of the day, days of the week and months of the year conflict with the alleged SAE linear notion of time?

Revisions to the Sapir–Whorf hypothesis

The Sapir–Whorf hypothesis was subjected to intensive empirical testing by linguists, anthropologists and psychologists in the 1950s and 1960s. One semantic domain that was tested early on was colour terms, since languages were known to differ in the range of distinctions they make. A classic study by Eleanor Heider investigated colour perception among the speakers of Dani (Papuan, Papua), which distinguishes just two colour terms (Heider 1972). The investigation revealed that Dani speakers could distinguish colours not distinguished lexically, and recognized focal colours – the shades considered to be the most typical of the colour in a language that has a lexical item for it – better than non-focal colours.¹

This argues against an extreme determinism, that the structure of one’s language determines perception. It does not, however, refute a weaker version that language may affect the ease of distinguishing and remembering colours. And indeed, the weaker version has been supported by some empirical findings. One experimental study (Kay and Kempson 1984) involved speakers of English and Tarahumara (Uto–Aztecan, Mexico), a language that does not have separate terms for ‘blue’ and ‘green’. Three colour chips were presented to each participant on each trial, from which the participant was to pick the odd one out. In some trials two chips were quite close in actual physical colour (i.e. wavelength of reflected light), but would be classified as *blue* and *green* by speakers of English; a third chip was a focal green, but more distant in physical colour from the other green than that green was from the blue. Whereas the Tarahumara speakers chose as the odd one the chip that was most different in physical colour, speakers of English selected the one that would be labelled *blue*.

Following something of a lull from the early 1970s, the Sapir–Whorf hypothesis has recently made a comeback and reappeared in new guises, stimulating some intriguing new research. One revision that has yielded interesting results is encapsulated in Dan Slobin’s aphorism **thinking for speaking**: the nature of the language we speak influences the way we think for speaking (Slobin 1996a). The focus is on the dynamic processes of thinking rather than on ‘thought’ in the abstract.

Slobin examined stories told by children about a wordless picture book, and argued that speakers of different languages attend to different aspects of the depicted situations in constructing

the stories. They are forced to do so by grammatical features of their language. Thus, speakers of English attend to whether an event is in progress, and pay a good deal of attention to paths of motion; speakers of Spanish, by contrast, pay attention to whether an event is completed or not. This is a consequence of differences between English and Spanish in the semantic structure of motion verbs, and the grammatical categories distinguished in verbs.

If the thinking for speaking version of the Sapir–Whorf hypothesis can be sustained, one could then look further, and examine whether there are extensions to other cognitive domains. Research by Stephen Levinson and John Haviland over the past two decades has advanced this style of argument for spatial terms in some languages: that the spatial distinctions and categories speakers need to attend to for speaking are carried over to other domains of cognition.

The Pama–Nyungan language Guugu Yimithirr uses the cardinal terms ‘north’, ‘south’, ‘east’ and ‘west’ to specify relative locations of objects and directions of travel rather than body-centred terms ‘left’ and ‘right’. The system of cardinals is used even for identifying parts of the body: if I was facing north, I would refer to an itch in my west ear rather than my left ear. To speak Guugu Yimithirr properly requires that you pay attention to the cardinal directions. Levinson (1997) argues that this extends beyond thinking for speaking, and that Guugu Yimithirr speakers carry this type of thinking over to spatial behaviour generally. For example, suppose you are facing a table on which three objects have been laid out, as shown in Figure 9.1. You are asked to turn around 180° to face the other table, and place the three objects in the same arrangement on this table. How do you place them?

Most speakers of English and Dutch orient the objects on the second table according to a body-centred system, so that the doughnut goes in the centre, with the star to the right, and the pencil to the left of it. But speakers of Guugu Yimithirr usually place the objects so they maintain their absolute cardinal orientations. So if you were facing west to begin with, the star will be placed to the north on the second table, the doughnut in the middle, and the pencil to the south. Speakers of

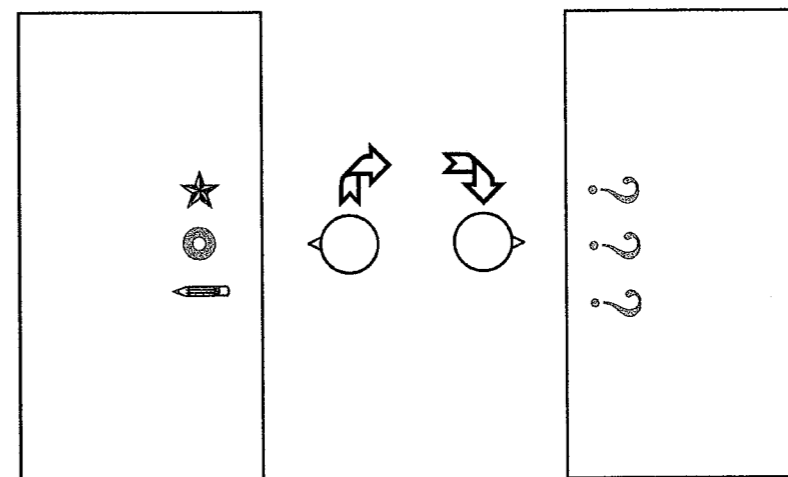


Figure 9.1 A version of Levinson’s spatial arrangement experiment.

Guugu Yimithirr and English (or Dutch) tend to place the star on opposite sides of the doughnut. It seems that the cognitive system employed for speaking about space also influences thinking about space for other types of behaviour.

9.2 Language processing

Imagine a communication system with a fixed set of symbols and a fixed set of meanings that they can convey, such as a system of semaphore flags signalling messages about a limited range of movements of a vehicle. Production and understanding of signs within such a system by a human operator might be a simple process of linking existing meanings with pre-determined flags or flag positions. Such a psychological process could not work for speech production or comprehension, where the range of possible meanings is not laid out in advance: speakers make new meanings that have never been made before, occasionally using new forms not previously used or not yet conventionalized. Speakers must have mental models that permit them to construct and interpret novel forms, as well as to assign appropriate meanings to them. For language processing therefore, human beings must have not just an internalized lexicon, but also grammar of their language, that they access in production and comprehension.

A major concern of psycholinguistics is to develop models of these mental grammars and lexicons, and the psychological processes by which they can be accessed in speech production and comprehension. In this section we outline some of the basic features of speech processing that must be accounted for in any model.

Comprehension

Perception of speech sounds

Four difficulties in perception of speech sounds

A crucial component of the comprehension of speech is processing the sounds that reach the hearer's ears. This is no trivial task. Recall from §2.1 and Figure 2.1 that speech sounds form a continuous stream, rather than a sequence of discrete sounds; the boundaries between the sounds are indistinct, as are the boundaries between words.

True, there are sometimes indications of boundaries in the speech signal. Words are occasionally separated from neighbouring words by pauses. And an allophone of a phoneme can indicate the position of that segment within a word. For example, *great ape* and *grey tape* can be distinguished by an aspirated [t^h] in *grey tape*, that does not normally occur in *great ape*. On the other hand, realization of the /t/ as [d] or [r] would be most likely in *great ape*. (This is not to say that these minimal pairs are always distinct in pronunciation.) By the same token, allophony also contributes to processing difficulties since it means that quite different stretches of sound – for example, [nɒtʔætʔɔːt], [nɒtætɔːt], [nɒdædɔːt] and [nɒrædɔːt] – must be recognized as representing the same sequence of words, *not at all*. The third form, moreover, admits another interpretation. (What is it?)

Another source of difficulty in processing comes from the enormous variations within the sound waves between speakers. The sound waves of *The farmer kills the duckling* spoken by a child, a female speaker of British English and a male speaker of New Zealand English would be quite different from the sound wave of my production. The hearer has to factor out the differences in the acoustic signal that reaches the ears and recognize that the distinct sound waves represent the same sentence – while at the same time recognizing that other equally minor differences in the sound wave indicate different sentences.

The fact that speech often occurs in a noisy environment gives rise to a further difficulty in processing. We must ignore large components of the sound that reaches our ears (the TV blaring, children screaming, traffic on a nearby highway, etc.) in processing speech, while at the same time not necessarily ignoring them entirely.

An interesting variant on the observation that speakers ignore components of the sounds that reach their ears as irrelevant to language is that when you first hear speech in a click language such as Xhosa (listen to Miriam Makeba's *The click song* – available on YouTube) or Jul'hoan (Kx'a, Namibia) (watch the movie *The gods must be crazy*), the clicks will probably sound like non-linguistic noises going on at the same time as the spoken word. Speakers of non-click languages have strategies for separating speech sounds from non-speech sounds that do not always give the correct results when applied to a click language.

Categorical nature of speech perception

An important feature of the perception of speech sounds is that it is **categorical**. When you hear a stretch of speech you categorize the phones as phonemes, ignoring the physical differences between them. You do not perceive a bilabial stop as now having a long VOT (see §2.3), now an average length VOT, now a very short VOT: a speaker of English perceives it as either a /b/ or a /p/; a speaker of Warrwa would, by contrast, categorize it as the single phoneme /b/, regardless of the length of VOT.

Experiments have been done in which aspects of the sound signal of speech (or artificial machine-generated speech) are modified by small degrees, and presented to experimental subjects. For instance, the VOT of the initial stop of [ba] might be varied in increments of 10 ms from -10 to +80 ms. When you listen to the sequence of syllables, you do not hear a gradual increase in VOT; rather, at a certain point you hear a definite switch from /ba/ to /pa/. By contrast, if you listen to a musical tone that varies from 200 Hertz (cycles per second) to 1000 Hertz, you don't hear it as suddenly jumping at some point from low to high pitch.

Role of vision and other senses

In a face-to-face conversation you not only hear your interlocutor, you also see them. Indeed, conversational partners typically spend a good deal of time looking at their interlocutors' faces while speaking to them. The visual channel provides additional information to the hearer that can



assist in the perception of the spoken word, especially in a noisy environment. Try turning your television sound down to a point where you can only just hear what is being said by a newsreader, and then turn away. What do you notice? A particularly good illustration of the relevance of visual cues comes from the so-called McGurk effect, named after Harry McGurk, the psychologist who first observed it.

Despite the term *lip-reading*, it is notable that it is not just visual information from the lips that is taken into account by hearers. Other more subtle information is also integrated. For instance, movements of the speaker's jaw provide information about velar consonants and back vowels, for which, of course, direct visual evidence of the dorsum of the tongue is not usually available. Small differences in air pressure changes in the mouth associated with voiced vs. voiceless stop consonants are manifested in small but perceptible movements of the cheeks.

Interestingly, although information concerning the spoken word is distributed across the face of the speaker, it is the eyes of the speaker that the hearer tends to look at. Direction of gaze provides a rich source of information about what the person is thinking about, which can be used in top-down processing (on which see next subsection). (Recall how Sherlock Holmes used Watson's eye-gaze in *The Resident Patient* [Adventure VIII in Doyle 1894] to interpret his unspoken thoughts.) Generally, peripheral vision is sufficient to garner the speech-relevant information from the lips, jaw and other areas. However, when background noise increases eye-gaze tends to shift downwards to the lower part of the face, where the best source of visible speech information is found.

Recent research reveals that information from other senses is also integrated with the auditory signal in speech perception. The interpretation of heard syllables was shown in one experimental investigation to be affected by touch, when the subject placed fingers on the lips, cheek and neck of a speaker.

Further support for the integration in the human brain of information from different sensory modalities comes from brain scanning (see pp. 220–2). In one experiment subjects who had had no formal experience with lip-reading saw the face of a person saying the numbers one to nine. The primary auditory regions of their brains showed similar activity as when they heard the numbers spoken. Another experiment revealed that hearing the voice of a familiar person induces activity in the fusiform gyrus, an area of the brain that is involved in recognizing faces.

Identification and recognition of words

Recognition of words involves more than just **bottom-up processing**, processing of the incoming sound waves on a phoneme-by-phoneme basis. Hearers also use clues from the wider context, including the sentential environment. Processing involves **top-down** aspects as well. Experimental subjects make fewer errors in identifying words in sentences than when the same words are presented in isolation. Further evidence is provided by experiments in which segments of speech

are removed without affecting comprehension. In one study the [s] representing the plural morpheme -s in sentences such as *Cats like fish* was replaced by a cough. Hearers reported hearing the sibilant even though it was not present in the actual sound wave; in fact, when told that a sound was missing, they could not accurately identify which one it was.

Other factors are known to affect the identification of words. Frequency is one: high-frequency words are processed more quickly and easily than low-frequency words, and are more readily identified in noisy conditions. Also relevant is the existence of phonologically similar words, which slow down identification through interference. In one experiment it was shown that if word frequency is held constant, words with many phonologically similar neighbours – that is, words differing from the target word by a single phoneme – are identified more slowly than words with few neighbours.

Recall from §6.2 that words often have a number of different senses, and may be homophonous with other words. Experimental evidence suggests that even when they appear in a sentence, words immediately invoke a range of polysemous senses, as well as homophonous words; the appropriate sense or lexical item is selected only after a slight delay. The experiments use lexical decision tasks, in which sentences with a polysemous word like *bug* are presented to subjects through headphones; shortly after the word *bug* is heard, a target form is presented on a screen, to which the subjects should respond by indicating (usually by pressing a button) as quickly as possible whether or not it is a word. The word *bug* in a sentence such as *For several weeks after the exterminator's visit they did not find a single bug in the apartment* immediately facilitates the recognition of both *insect* and *spy*, decreasing the time taken to recognize them as words. However, after a few hundred milliseconds only *insect* is facilitated, suggesting that within this very brief space of time the other interpretations have been discarded as irrelevant.

Comprehension of sentences

Comprehension of sentences involves not just **lexical lookup**, the identification of the component words (as discussed in the previous subsection), but also **parsing**, the assignment of a grammatical structure to the sentence.

Parsing begins immediately from the very beginning of an utterance: hearers do not wait until the entire utterance has been produced before they begin processing it, as any self-respecting grammarian would. Evidence from conversational interaction indicates that interactants continually monitor what is being said, projecting what is to follow; they switch speaker and hearer roles so rapidly that there is often no gap in speech. This would be impossible if processing was delayed until the end of utterances.

There is a downside to beginning parsing so soon. In sentences like *The horse raced past the barn fell* – called **garden path sentences** – beginning parsing from the start of the sentence results in *raced* being interpreted as the main verb in the intransitive clause *the horse raced past the barn*. But then the next word is inconsistent with this analysis; the only possibility is that *raced past the barn* is part of an NP with *the horse* (i.e. *the horse that was raced past the barn*).

Intonation and prosody often provide cues to parsing spoken sentences, including garden path sentences.

Production

Production of sentences does not proceed on a one-phone-at-a-time or a one-word-at-a-time basis, with each phone or word being processed sequentially. Rather, entire sentences are planned ahead of time, before any part is produced. That this is so finds support from speech errors or **slips of the tongue**. As it turns out, these are not random. Many errors involve exchanges with later elements, indicating that larger units must have already been conceptualized.

Exchange errors occur at all levels. At the phonological level are **spoonerisms**, named in honour of the Oxford don Reverend A. Spooner (1844–1930), who was renowned for this type of error. Among the famous spoonerisms attributed to him are *Let us drink a toast to our very queer dean*; and *You've hissed all my mystery lectures and tasted the whole worm*. The transpositions of these two examples are typical, and involve switching of phonemes from identical positions in syllables in nearby lexical words, indicating the significance of the syllable as a processing unit. One does not find errors like *to our very near queed*, where the transposed phonemes are from different syllabic positions. Moreover, it is typically consonants in syllable-initial position that are transposed.²

At the morphological level are errors in which lexical morphemes are transposed; the bound morphemes normally remain in place, as in *slicely thinned* for *thinly sliced*, where each lexeme gets the morphological marker appropriate to its position and role.

At the syntactic level are transposition of lexemes within syntactic constructions, as in *He is writing a mother to his letter*. Such errors are like spoonerisms in that transposed words normally come from the same phrasal position.

These errors reveal another important characteristic of speech errors: choice of phonologically conditioned allomorph (see §3.4) is in accordance with the replacing item, not the replaced item. Thus the allomorph of *-ed* in *thinned* is /d/, the allomorph appropriate to *thin*, not to *slice* (which takes voiceless /t/); and if instead of *mother* in the example of the previous paragraph we had *aunt*, *an* would have been chosen as the allomorph of the indefinite article, not *a* – *He is writing an aunt to his letter*, not *He is writing a aunt to his letter*.

Exchange errors are not the only types of error that occur in speech. Another type is anticipatory errors, where a later form is anticipated, as in *kindler and gentler*. There are also wrong word choices, where a phonologically or semantically similar word occurs instead of the intended word, for example, *sexton* instead of *sextant*. Errors can also be mixed, involving both phonological and semantic components, as in *The competition is a little strougher* where *strougher* is a blend of *stronger* and *tougher*.

Based on speech errors, it has been suggested that syntactic constructions are planned about two clauses in advance, whereas phonological structures are constructed about one clause ahead (Garrett 1988). Of course, the content of the message to be communicated must also be planned ahead, a task which is typically more attention-demanding than the relatively automatic and unconscious processes involved in linguistic planning. But the two must be carefully coordinated so that the right information is processed and expressed in language at the right time. The language production system and more general processes of cognition must work together in concert, and cannot be entirely separate.

Relations between production and comprehension

Speech comprehension and production are both complex processes that are only partly understood. They are not mirror-images – comprehension is not production put into reverse; the available evidence suggests that at least some of the psychological mechanisms involved are different. For one thing, as we have seen, in production entire utterances are planned ahead of time. In comprehension, by contrast, parsing begins with the first word and must be to some extent incremental; if it were the precise reverse of production, it would necessarily operate on complete utterances.

On the other hand, comprehension and production cannot be entirely separate processes. Speakers monitor their own speech production and correct errors – recall the feedback loop in the speech chain model (see §2.1). This suggests that the comprehension system is involved at least to some extent in speech production. Conversely, according to one theory of speech perception, the motor theory, processing does not just involve processing of acoustic signals reaching the brain from the ear. It also involves matching these signals against mentally reconstructed sub-vocalized sequences of articulations; thus the acoustic signal would be analysed at least in part via reconstruction of its production.

9.3 Language and the brain

Basic structure of the human brain

The human brain, which is roughly spherical in shape, is divided into two hemispheres, the left hemisphere and the right hemisphere; these are connected by a bundle of nerves called the corpus callosum. Bodily senses and control are largely **contra-lateral**; that is, each hemisphere manages the opposite side of the body.

The outer layer of the brain, the **cerebral cortex**, is a layer about 2–4 millimetres in thickness, made up of the cell bodies of several billion brain cells or **neurons**. Many cognitive functions are located in the cortex. The cerebral cortex is deeply folded and fissured, and is divided into four main lobes in each hemisphere: the frontal lobe, the parietal lobe, the occipital lobe and the temporal lobe. These are shown in Figure 9.2.

Also shown in Figure 9.2 are the brain stem, which controls the automatic functions necessary to keep the body alive (e.g. the beating of the heart), and the cerebellum, which helps control movement and cognitive processes requiring precise timing.

The branch of psycholinguistics concerned with the brain is called **neurolinguistics**.

Localization and lateralization

In 1848 in Vermont in the USA, Phineas Gage, a railway foreman, was tamping gunpowder into a blasting hole in a rock when it exploded. The three-and-a-half-foot (a bit over a metre) long tamping rod was projected through Phineas' left cheek and out through the top of his forehead,

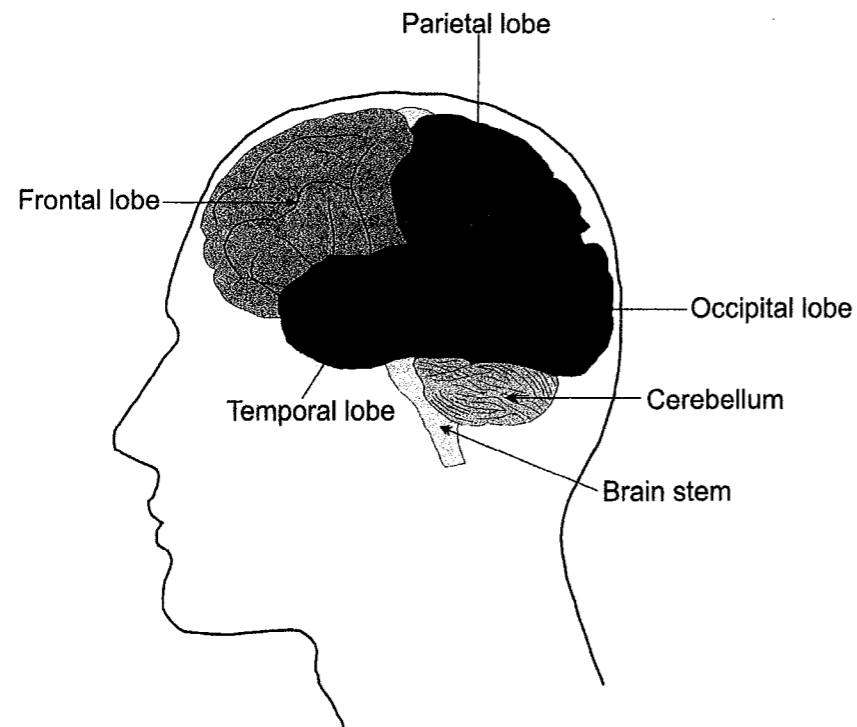


Figure 9.2 Major structures of the human brain.

falling some fifty metres distant. Remarkably, Phineas never lost consciousness, was fully aware of what had happened, and survived for many years after the injury. His language abilities were unaffected; however, within a few months of the accident his personality had changed dramatically.

This story is consistent with **localization** of certain cognitive functions in particular regions of the brain. In particular, it suggests that the extreme front part of the brain is the site for emotions; language ability must be localized elsewhere, as must vision and motor control of the limbs.

Furthermore, in most individuals the left hemisphere is more dominant in language processing than the right. Most right-handers show left-hemisphere domination, as do most left-handers (though the proportion is slightly lower). This feature is known as **lateralization**.

Although neurolinguists disagree about the precise details and extent, it seems certain that language is localized and lateralized to some degree. Two areas in the dominant hemisphere are particularly important in language processing:

- **Broca's area**, named after Paul Broca, a 19th-century French physician and anthropologist, is a small patch in the anterior (front) part of the temporal lobe of the language-dominant hemisphere about two centimetres across. If you put your finger to your head just above the left temple, that's about where it is. Broca's area is believed to be associated with speech production.

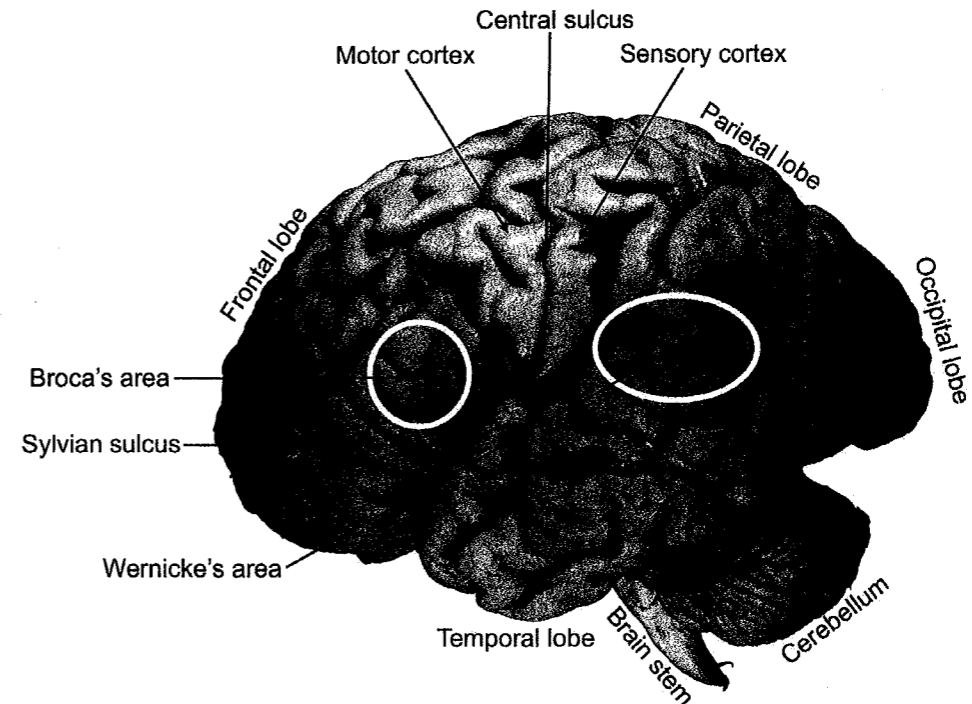


Figure 9.3 Some of the major areas of the left hemisphere of the brain. (Reproduced with permission from <http://www.brains.rad.msu.edu>, and <http://brainmuseum.org>, supported by the US National Science Foundation.)

- **Wernicke's area**, named after the German physician Carl Wernicke, is a slightly larger area than Broca's, and located further towards the posterior (back) of the brain. Put your finger just above and slightly behind the left ear. Wernicke's area is believed to be associated with speech comprehension.

Figure 9.3 shows the approximate locations of Broca's and Wernicke's areas, as well as some other major brain areas of the left hemisphere. Broca's and Wernicke's areas are connected by a bundle of neurons called the **arcuate fasciculus** (not shown).

As just mentioned, the extent to which language is localized in the brain is an issue of contention. Recent neuroscientific research has shown that there is a considerable degree of plasticity in the human brain. For instance, one region can take over the functions of another region that has been damaged. More surprisingly, experience can change both the physical structure and functional organization of the brain. There is also evidence of substantial variation among individuals.

Evidence for localization and lateralization

In what follows we discuss five different types of evidence that argues in favour of some degree of localization and/or lateralization of language functions in the brain. This evidence is mostly indirect, coming from circumstances in which things fail to function properly.

Aphasia

Aphasia is an impairment of language function (as distinct from muscular paralysis of the speech organs) due to brain damage, often as a result of a stroke, a tumour or head injury. The original evidence for Broca's and Wernicke's areas as language centres came from post-mortem studies of aphasic patients. Broca and Wernicke both found associations between certain types of aphasia and damage to the regions of the brains of their patients named after them.

Broca's aphasia

In 1861 Paul Broca described the results of an autopsy he performed on a patient by the name of Leborgne, who had suffered severe aphasia for more than two decades. Leborgne was able to utter no more than a few swear words and the syllable *Tan*, after which he is often named. By use of gestures, however, he was able to answer some questions, and he understood much of what was said to him. The autopsy revealed extensive damage in the region now known as Broca's area.

Broca subsequently found similar damage to the brains of almost a score of other aphasic patients displaying similar impairments in speech production. In this type of aphasia – called **Broca's aphasia** or **agrammatic aphasia** – the person experiences difficulties in the production of fluent speech and the almost exclusive use of lexical words at the expense of grammatical morphemes, which are rarely used. Comprehension of speech by Broca's aphasics is typically much better than production. Production difficulties are illustrated in the following utterance by a patient who was asked why he had returned to hospital:

(9-1) *Ah ... Monday ... ah Dad and Paul ... and Dad ... hospital. Two ... ah ... doctors ... and ah ... thirty minutes ... and yes ... ah ... hospital. And er Wednesday ... nine o'clock. And er Thursday, ten o'clock ... doctors. Two doctors ... and ah ... teeth*

Deaf patients with damage to Broca's area show similar deficits in sign language, namely, dysfluency and agrammaticism, but relatively intact comprehension. This suggests that Broca's area is specialized for language, rather than speech as such.

Wernicke's aphasia

Not long after Broca's studies, Carl Wernicke investigated a number of aphasic patients, and found extensive damage in what is now called Wernicke's area. This type of aphasia, called **Wernicke's aphasia** or **fluent aphasia**, is characterized by severe difficulties in comprehension, but quite fluent speech, which is often incomprehensible and may include nonsense words. The following example is an attempt to refer to a kite. Notice that the speaker is clearly trying hard to convey meaning, and that the difficulty lies primarily in finding appropriate words.

(9-2) *It's blowing, on the right, and er there's four letters in it, and I think it begins with a C – goes – when you start it then goes right up in the air – I would I would have to keep racking my brain how I would spell that word – that flies, that that doesn't fly, you pull it round, it goes up in the air.*

Other types of aphasia

Wernicke also described a third type of aphasia, now called **conduction aphasia**, in which the arcuate fasciculus suffers damage. Comprehension and fluency of the speech of conduction aphasics is usually little affected. However, sufferers experience difficulties in repeating words spoken by another person, and in monitoring their own speech, thus leading to frequent hesitations and pauses.

Anomic aphasia is the inability to name things seen. Strangely, this does not necessarily extend to things perceived by other means, for example, by touch or smell. This type of aphasia manifests itself in a variety of different forms: some people lose words for only vegetables, or just words for inanimates. One case reported is of two women who had no trouble with nouns, but severe difficulty with verbs. For words with dual membership, such as *milk*, they experienced no difficulty with the word used as a noun, but couldn't cope with it as a verb. There is no evidence of any specific site for brain damage giving rise to anomic aphasia. In the following example, notice that the patient cannot find the noun *comb*, although she uses the verb *comb*.

(9-1) Doctor: *Can you tell me what this is?* [Showing, a pen]
 Patient: *Geez, you know ... isn't that funny, oh I know, it's one of those things ... it's ... it's funny, you know ... I know that it is ... you know ... it's hummmm ... it's one of those things.*
 Doctor: *How about this?* [Produces a comb]
 Patient: *Ooohhh .. isn't that funny ... I'm getting old ... it's so terrible, ohhh ... you know ... I just ... it's that funny, oh geez ... you know ... I know, it's that thing you use to comb your hair with.*

Mark Ashcraft, a cognitive psychologist, describes an episode in which he suffered from a temporary restriction of blood flow to part of his brain while working late in the office one evening. He suddenly found himself unable to understand familiar labels on the computer printouts, and could not remember any of the terms of his profession. He describes the episode as follows:

The most powerful realization I had during the episode, and the most intriguing aspect to me since then, was the dissociation between a thought and the word or phrase that expresses the thought. The subjective experience consisted of knowing with complete certainty the idea or concept I was trying to express and being completely unable to find and utter the word that expresses the idea or concept. (Ashcraft 1993: 49)

Global aphasia, as the label suggests, involves disturbance to all language functions, to all processing components. Global aphasia typically involves damage to large portion of frontal and temporal lobes.

Summary of aphasia types

Table 9.1 summarizes the main features of the five types of aphasia, according to the standard or classical model.

Table 9.1 The five classical types of aphasia

Syndrome	Symptoms	Location of brain lesion
Broca's aphasia	Utterances typically short, with grammatical morphemes usually omitted; speech effortful and non-fluent. Comprehension much better.	Broca's area; front part of the temporal lobe and back part of the frontal lobe
Wernicke's aphasia	Poor comprehension, but fluent production that is often incomprehensible. Use of nonsense words common.	Wernicke's area; back part of temporal lobe
Conduction aphasia	Problems with repetition of speech, though comprehension is usually good. Sound and meaning appear disconnected. Reasonably fluent, though rhythm of speech may be disrupted by pauses and hesitations.	Arcuate fasciculus; bundle of fibres connecting Broca's and Wernicke's areas
Anomic aphasia	Inability to name things or events. Use of circumlocutions.	No specific location
Global aphasia	Disturbance to all language functions.	Large part of frontal and temporal lobes

Problems of interpretation

The account of aphasia presented in the previous subsections that links the type of aphasia with language centres in the brain can be criticized on more than one count. As Sigmund Freud pointed out, we can't conclude that a function is localized in a certain area of the brain because damage to that area results in aphasia. It could be that the area is involved in a crucial way in the task that is widely distributed across areas of the cortex; for instance, it could be where several lines of connection cross.

Henry Head, who studied language disturbances resulting from gunshot wounds to the head in the 1920s, found a wide range of aphasic symptoms among individuals with similar injuries. He concluded that the classification into Broca's, Wernicke's and conduction aphasias was not clear-cut.

One can also question the extent to which it is valid to draw conclusions about localization of brain function from autopsies. It could be that many changes to brain functions, as well as changes to the damaged region itself, took place between the onset of aphasia and the death of the patient. Indeed, aphasics often develop ways of compensating for their injuries, revealing a remarkable degree of plasticity in brain function.

Split-brains

Studies of patients who have had one of their hemispheres removed provide some evidence of lateralization of language processes. Removal of the right hemisphere, an operation sometimes performed in cases of malignant brain tumours, usually does not result in the loss of language, though other cognitive processes may be affected.

Another clinical procedure that used to be used on patients suffering from epilepsy was to surgically cut the corpus callosum connecting the two hemispheres of the brain, in the hope that this would prevent the spread of the seizure from one hemisphere to the other. It also prevents the sharing of information between the two parts of the brain. With the corpus callosum severed, the two hemispheres are largely independent; this condition is called **split-brain**. Certain information will reach only the right hemisphere, and other information only the left hemisphere.

If the image of an object is presented to the right visual field of a split-brain patient, this will be processed by the left hemisphere, and the object can be named. If it is presented to the left visual field, it will be processed by the right hemisphere, and cannot be named. In one experimental study, a word was presented to the left visual field of a split-brain patient, who was to select by feel the correct object from a group of objects behind a screen. This could be done, though when asked what the object was, the person would reply 'I don't know.' This was the left hemisphere doing the talking, unaware of what the right hemisphere knew. This experiment reveals that the right hemisphere is capable of at least some linguistic processing, such as identifying an object by name. Some studies have shown that the right hemisphere is capable of processing concrete lexemes, but poor at more abstract items, though this finding is controversial.

Dichotic listening

The **dichotic listening test** is an experimental technique for determining which hemisphere is dominant in language processing in an individual. It relies on the contralateral processing of sensory input by the brain. The subject wears a set of headphones through which two different signals – which might be syllables, numbers or words – are input simultaneously.

Most people show a right-ear advantage: that is, it is the signal played into the right ear that most people tend to correctly identify. If *boy* is played in the left ear, and *girl* in the right, it is most likely that the subject will report hearing *girl*. This is consistent with left-hemisphere dominance for language processing for most people. This is because the signal received through the left ear is sent first to the right hemisphere, and only then via the corpus callosum to the left hemisphere for processing. The signal coming from the right ear will be processed earlier, since it goes directly to the left hemisphere.

By contrast, when the sounds played in the headphones are not speech sounds, for example, music, coughs, traffic noise and so on, a left-ear advantage tends to be shown. So, if the sound of laughing is played in the left ear, and coughing in the right ear, subjects are more likely to perceive the laughing input.

These specializations of the ears appear to have more to do with the nature of the processing than the physical type of sound that is input. Thus speakers of Thai, a tone language (recall §2.5), reveal a left-hemisphere advantage when distinguishing CV syllables contrasting in tone, whereas English subjects show a right-hemisphere advantage. It has been suggested that the fundamental distinction is between the analytical processing performed in the left brain (which includes many aspects of the processing of the linguistic signal) and the holistic processing of the right brain of most people.

Wada test

The Japanese neurosurgeon Juhn Wada devised a test to determine which hemisphere is dominant in language processing by injecting sodium amytal into the carotid arteries of neck. The result is deactivation of the ipsilateral (same side) hemisphere of the brain, and immediate contralateral paralysis of the body. The patient is asked to count backwards, beginning as the injection is given. Counting is always interrupted when the sodium amytal takes effect, momentarily if it affects the non-dominant hemisphere, and for a longer period of one to three minutes if it affects the dominant hemisphere.

Studies such as Rasmussen and Milner (1977) reveal evidence of correlations between handedness and language lateralization. One study conducted by Loring and others in 1990 using tasks such as counting, comprehension, naming and repetition showed that of 103 patients 79 had exclusive left hemisphere language representation, 2 had exclusively right hemisphere dominance and 22 had bilateral language representation (Loring et al. 1990). Bilateral representation was much higher in left-handers than right-handers.

Brain scanning

Recent advances in technology permit us to study the human brain in operation in relatively normal circumstances. Of the numerous brain-scanning technologies currently available, two are described in this subsection that provide evidence relevant to localization. They give quite precise information about the location of brain activation, although both suffer from significant imprecision in timing of the activation.

Positron Emission Tomography

Positron emission tomography scanning or **PET scanning** involves injection of a harmless radioactive isotope (often oxygen-15) into the bloodstream. Since neurons in the more active areas of the brain require more oxygen, blood flow to that region increases. The PET scanner detects the locations of the radioactive isotope; greater concentrations will be recorded in regions where blood flow is higher. Thus the regions of the brain that are most active in the performance of a task can be mapped in three dimensions.

A typical experimental design used in PET is illustrated by Petersen et al.'s investigation (1989; see also Petersen and Fiez 1993) of processing of single words under different conditions. In the first condition the subject fixated visually on a small point on a monitor while brain activity was measured. In the second stage the subjects fixated on the same point, while words were either presented on the monitor just below the point, or aurally through headphones. In each case, the words were presented at the rate of 40 per minute. Next, subjects were required to say the words they read or heard. In the final stage, the subjects were requested to give a verb describing an appropriate action for each displayed noun. For example, they might say *eat* in response to the word *cake*. The brain activity associated with the various component tasks can be determined by subtraction. Thus, taking away the level of brain activity associated with the perception of the fixation point from the level of activity associated with the visual or aural perception words can be expected to give an indication of the activity associated with the comprehension of the spoken or

written words. Taking the level of activity involved in perception from the level involved in speech production will indicate the activity involved in production of the words, and so on. With this sort of experimental design it is possible to determine the regions of the brain that are most active in specific language-related tasks.

Unsurprisingly, the visual and auditory regions were active in the viewing and hearing conditions; Wernicke's area and large parts of the sensory cortex were also involved in the hearing condition. Broca's area was active in the task of generating verbs, as was an area in the temporal lobe. The speaking words condition was associated with activation in a region between Broca's and Wernicke's areas, and involving parts of the motor and sensory cortexes.

PET scanning suffers from disadvantages, most of which are too technical to discuss here. One that we can mention is that since it involves the injection of a radioactive isotope, ethical considerations limit the number and duration of tests to which an experimental subject is exposed.

Functional Magnetic Resonance Imaging

Unlike PET scanning, **functional magnetic resonance imaging** or **fMRI** is a non-invasive technique: that is, it does not require the injection of anything foreign into the bloodstream. In fMRI, brain activity is measured indirectly through changes in oxygen levels in the blood stream, measured via different magnetic properties of oxygenated and deoxygenated blood. fMRI has certain advantages over PET: it is faster, gives better spatial resolution, and does not suffer from such severe restrictions on the amount of time, or number of times, a patient can be put in the scanner. It is also cheaper.

fMRI is a more recent technology than PET, and a number of investigations carried out with PET have been repeated with fMRI, using the same experimental designs and methods, including cross-task subtraction. The results of the two imaging techniques appear to be in general agreement.

Like all technologies, fMRI is imperfect, and suffers from disadvantages and limitations as far as neurolinguistic research is concerned. The machinery is noisy, thus decreasing its usefulness in speech perception. Worse, subjects must remain virtually immobile: even tiny movements of the head resulting from jaw movements in speech can affect determination of the location of activity.

Concluding comments

Modern technology permits observation of the normal human brain in action in conditions increasingly approaching those of natural speech production. Findings from neuroimaging techniques such as PET and fMRI are in overall agreement with findings from earlier post-mortem dissection studies of aphasic patients, and show that Broca's and Wernicke's areas are active in language production and comprehension tasks.

This does not argue, as mentioned above, that these are **the** language areas. The balance of evidence suggests that language processing and other cognitive tasks are intertwined in the brain, and that strict localization is likely only for elementary cognitive processes, not complex ones such as language. There is a growing body of evidence that language processing is not completely restricted to the dominant hemisphere; the non-dominant hemisphere plays important roles as

well, for instance in interpreting metaphoric and figurative language, and humour. One fMRI study revealed a more prominent degree of lateralization in males than females in a rhyme-judgement task.

The role of other brain structures than the cortex is increasingly recognized. Subcortical structures are also important. Damage to some of these areas can lead to certain types of aphasias; moreover, aphasia resulting from damage to Broca's area seems not to be long-lasting if it is restricted to the cortex. There is also evidence that the cerebellum plays a role in language processing beyond mere motor control and coordination.

The Swiss Army knife model of the human brain, in which distinct regions are dedicated to different functions, is now considered to be a misrepresentation. The human brain shows a considerable degree of plasticity in language and other cognitive functions. As already mentioned, it is capable of recovery at least to some extent from damage through deployment of other areas (the neurons themselves are rarely replaced). Studies of individuals who had one hemisphere removed in early childhood have revealed that the other is capable of taking over most language functions.

Neurolinguistics is not just concerned with questions of localization and lateralization, but with other aspects of brain functioning in language production and perception as well. Two other brain-scanning technologies have been used extensively in neurolinguistic investigations, although they provide no reliable information on localization or even lateralization. These are electroencephalography and, more recently, magnetoencephalography.

Electroencephalograms or **EEGs** measure electrical activity in the brain resulting from the firing of neurons through electrodes placed on the scalp. In experimental studies involving this technology, the subject is presented with a language task, and brain activity is recorded over a number of trials to determine whether there are consistent changes in activity associated with performing the task.

In one experimental procedure subjects are presented with sentences that end in either an expected or an unexpected way – for example, *the pizza was too hot to eat*, or *the pizza was too hot to drink*. A large change in electrical activity is observed some 400 milliseconds following the presentation of an anomalous word; this does not occur following an expected word. This change, known as the N400 component (the N stands for negative), is a reliable indication of an incongruent or unexpected stimulus.

Magnetoencephalography is a variant of EEG technology. **Magnetoencephalograms** (MEGs) measure magnetic fields rather than electrical fields. Similar experimental procedures are employed as in EEG studies. EEGs and MEGs give very precise indications of timing of brain activity. EEGs give quite imprecise indications of the location of the activity in the brain; MEGs provide more accurate indication of location.

Among the exciting recent developments is the combination of fMRI with EEG or MEG in an attempt to match the high spatial resolution of the former with the excellent temporal resolution of the latter.

Summing up

Psycholinguistics enquires into such issues as the relation between language and other mental phenomena, and the processes by which we comprehend and produce speech. The field is characterized by major differences of opinion and approach. According to some, language is represented by a distinct **mental module**, largely separate from other modules. Others hold that there is nothing unique about language. Many hold views in between these two extremes.

Another hotly debated issue concerns the relation between language and thought. According to the **Sapir-Whorf hypothesis** the structure of the language one speaks influences one's conceptualization of the world; it comes in stronger and weaker versions: **linguistic determinism** and **linguistic relativity**. A recent reinterpretation is Slobin's **thinking for speaking**.

Speech **comprehension** involves recognition, integration and identification of units and information at all linguistic levels – as well as information from other perceptual modalities than the auditory. Experimental findings support the idea that comprehension involves both **top-down** and **bottom-up** processing. Evidence from **garden path sentences** indicates that parsing begins immediately, at the first word of an utterance. Sentence **production** is more difficult to study than comprehension, and much of the evidence comes from **slips of the tongue**, which reveal that utterances are planned ahead.

The study of language in the brain and the brain functions involved in language processing is **neurolinguistics**. Two areas of the left (or language-dominant) **hemisphere** are especially important: **Broca's** and **Wernicke's areas**. Evidence for this **localization** comes from studies of **aphasia** and **brain scanning**.

Different types of aphasia – including **Broca's**, **Wernicke's**, **conduction**, **anomic** and **global** – are distinguished according to impairments to different aspects of language; these tend to be associated with damage to different brain regions.

Brain scanning technologies permit language processes to be studied in action, though all have limitations. **Electroencephalography** (EEG) and **magnetoencephalography** (MEG) provide excellent information about timing, but poor locational information; **positron emission tomography** (PET) scanning and **functional magnetic resonance imaging** (fMRI) provide accurate information about the location of brain activity, but are imprecise on timing events. Findings from experiments with PET and fMRI agree well with results of post-mortem studies of aphasics.

Guide to further reading

Probably the best place to begin reading about the Sapir-Whorf hypothesis is with Whorf (1956). The hypothesis has engendered an enormous literature, both pro and con. Lee (1996) attempts to come to grips with what Whorf was really saying. Gumperz and Levinson (1996) and Gentner and Goldin-Meadow (2003) contain many articles exploring and extending Whorf's ideas.

Good introductory textbooks on psycholinguistics are Aitchison (2008, 2012); Gleason and Ratner (1998); Whitney (1998); Menn (2011); Traxler (2012); Warren (2013); and Harley (2013).

WEEK FIFTEEN

Goals

The goals of the chapter are to:

- describe how languages vary systematically according to social factors, and identify the main types of variation;
- show how speakers vary their ways of speaking – including the language they choose to speak – to construct personal identities and social roles for themselves in speech interactions;
- identify some of the factors relevant to language choice in bilingual communities;
- discuss how and why habits of language use can change over time, and possible consequences of these changes to the vitality of a language; and
- overview the increase in rate of language endangerment and extinction in recent centuries, and concerns of speakers and linguists to arrest these processes.

Key terms

accents	isogloss	registerial variation
accommodation	language choice	respect varieties
bilingualism	language	secret varieties
code-switching	endangerment/ obsolescence/death	social varieties
dialects	language maintenance/ revival	speech community
dialectal variation	language shift	standard dialect
gender variation	register	style
identity		

7.1 Language as a social phenomenon

Social domains of language use

All speech occurs in an interactive context in which participants – speakers and hearers – make choices from the linguistic system. These include lexical and grammatical choices that express appropriate experiential meaning, that is, meaning concerned with the construal of the world of experience (see §5.4). This is only part of the story. As discussed in §4.5, words are not always neutral signs, but often express attitudinal values, as for instance when one says *pass away* instead of *die*. This is not the only way that words can be charged with non-experiential meaning. Words

can also convey social information about the speaker. For instance, if an Australian is thanked for doing someone a favour, they would be likely to respond with *No worries*, while an American is likely to say *You're welcome*. On one level these expressions mean the same thing, but choice of one rather than another is consistent with the norms – the typical speech patterns – of Australian English versus American English.

A person's membership in a social group – for example, the British community, a rural farming community, or an immigrant community in an urban area – will correlate with the use of certain linguistic forms and patterns of behaviour in preference to others. Some linguistic forms and behaviours represent part of the relatively stable aspect of a person's social identity; they indicate who the speaker is. Here variation in language is according to the speaker.

But not all choices are like this. A speaker of Australian English might say *Please take a seat* or *Grab a chair* when offering the addressee a place to sit. These forms do not mark the speaker as being an Australian so much as correlate with the particular aspects of the immediate context of speech, and the temporary roles they adopt. Imagine a university lecturer and student in a formal interview concerning the student's failure in a test. After a greeting, the lecturer might invite the student to sit down with *Please take a seat*, which could well sound ominous to the student, and hint that something unpleasant was to follow. Later, the two may happen to meet in a bar; the lecturer might invite the student to join her with *Grab a chair*. Here the choice of different expressions has to do with the speech context, and the respective roles the interactants take on; it does not concern the speaker's social identity in the sense of their group membership. This is variation according to use.

These two social features and their linguistic correlates are summarized in the first two columns of Table 7.1. In the third column are indicated the most general social functions or macro-functions associated with the linguistic devices within their domains of use. The languages and social varieties one controls, as well as the varieties associated with uses, go together to construct a participant's identity as a person: they concern who the person is, the dimension of 'being'. This contrasts with the 'doing' dimension where the concern is with how the language system is used to accomplish things in speech. In this chapter we focus on the former dimension, 'being things with words', ignoring the latter, 'doing things with words', which is dealt with under pragmatics (§6.3) and discourse (Chapter 8).

Table 7.1 A model of the major phenomena relevant to language use

Social phenomenon	Linguistic manifestation	Social macro-function
Community	Languages and social varieties	Being; construction of personal identity
Interactive context	Varieties according to use	Being; construction of social role
Interactive event	Discourse	Doing; using language as a tool for action

These rather terse observations will be elaborated more fully in the remainder of this chapter, beginning with the 'being; construction of personal identity' macro-function. To be sure, Table

7.1 gives an oversimplified picture: the distinction between social varieties and varieties according to use is not as clear-cut as a simple contrast between temporary social role and permanent personal identity. Nevertheless, it provides a useful initial perspective on the complex phenomena of language variation and use. Before embarking on this enterprise, however, it is important to say a few words about the notion of speech community, since this plays a crucial role in the story.

The speech community

A **speech community** is a coherent group of people who share the same language or languages and more or less the same norms of language use. The members of a speech community form a network of interacting individuals who communicate linguistically with one another frequently, and more intensively than they engage with outsiders.

The term 'speech community' is somewhat elastic, and may be used of groups of radically different sizes depending on one's focus. From the broadest perspective, the speakers of English form a single speech community, with overall more frequent in-group interactions than out-group interactions; they also share what is in some sense the same language, and use it in at least some common ways, even if there are some differences in how they use it in specific circumstances. So also might the speakers of British English or Cockney be regarded as forming speech communities. What is required for a group of speakers to represent a speech community is a degree of unity and cohesiveness both on the level of the language system(s) and on the level of interpersonal interactions. A random selection of a million speakers of English drawn from the UK, the USA, New Zealand and India would fail to meet this condition, and does not form a speech community. Nor do the speakers of English and Cantonese together form a speech community.

7.2 Social varieties and variation

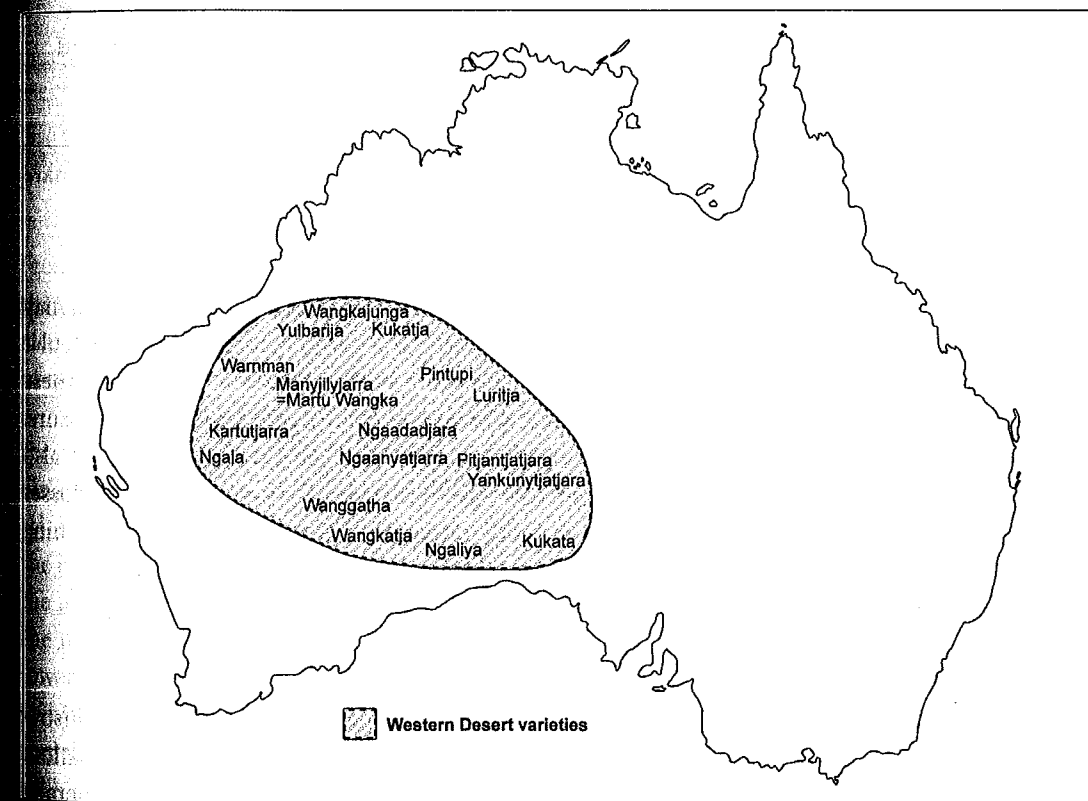
Regional variation

No language with a reasonable number of speakers spread over a relatively wide territory will be completely homogenous, and differences in pronunciation, lexicon and/or grammar are likely to be associated with different regions. Such variation is called **dialectal variation**; varieties of a language with their own peculiarities of grammar, phonology, phonetics or lexicon that are associated with particular geographical regions are **dialects**. The term **accent** is used in reference to varieties that differ only phonetically or phonologically; the term 'dialect' is used more generally when there are differences in lexicon and grammar, and possibly also phonetics as well.

The Austronesian language Taba, spoken by some 30,000–40,000 people living mainly on Makian Island, near the island of Halmahera in Indonesia, shows minor dialectal differences in each village. These include a small number of lexical differences; a phonological difference (in the speech of some villages /o/ is found where others have /a/), and a grammatical difference (in some dialects the singular/plural contrast is made only on human nouns, while in others it is made for all animate nouns).

The differences between neighbouring dialects of a language are insufficient to make speech in one dialect unintelligible to speakers of another; dialects are variant forms of a single language, not distinct languages (see also §16.1). However, if a language is spread over a very large region, speakers from opposite extremes of the region may not be able to understand one another, or may experience difficulties in understanding one another, and misunderstandings may be frequent. Nevertheless, neighbouring varieties will be mutually intelligible, and the language can be seen as a chain of mutually intelligible dialects. Such situations are called **dialect continua**. An example is the so-called Western Desert language (Pama-Nyungan) spoken over the vast desert region of Australia shown in Map 7.1. The named varieties in this map differ from one another in both lexicon and grammar. Geographically close varieties are similar enough to be mutually intelligible; distant ones such as Yulbarija in the far north-west and Kukata in the extreme south east are more divergent, and not everything said in one would be understood by a speaker of the other.

Mutually unintelligible forms of speech like Mandarin Chinese and Cantonese are thus separate languages; they are not dialects in the linguistic sense, contrary to popular usage, and terminology in common use in Chinese linguistics in China.



Map 7.1 Varieties of the Western Desert language.

Standard dialects

Sometimes one dialect of a language will be recognized as the most important or **standard dialect** of the language. This is usually the most prestigious dialect, which is regarded as the most 'correct' form. For languages with longish traditions of writing such as English and French, the standard is the variety promoted in schools, and children are usually taught to write in; it is also the variety most likely to be heard on national broadcasting networks. The standard is usually the variety that is codified in grammars, dictionaries and style guides. In the case of English, somewhat different standards have emerged in different countries, so we have Standard American English, Standard Australian English, Standard British English, Standard New Zealand English and so on. If a general Standard English can be identified, it would be something of an abstraction, characterized by features common to the national standards.

Not all languages have standard dialects. The traditional languages of Australia did not have standard varieties; it is only in post-contact times that some traditional languages have acquired standard varieties. These are often the varieties that have, by a quirk of history, been the ones that missionaries have worked in, and perhaps produced Bible translations in, or that educators have happened to choose as the standard for literacy materials.

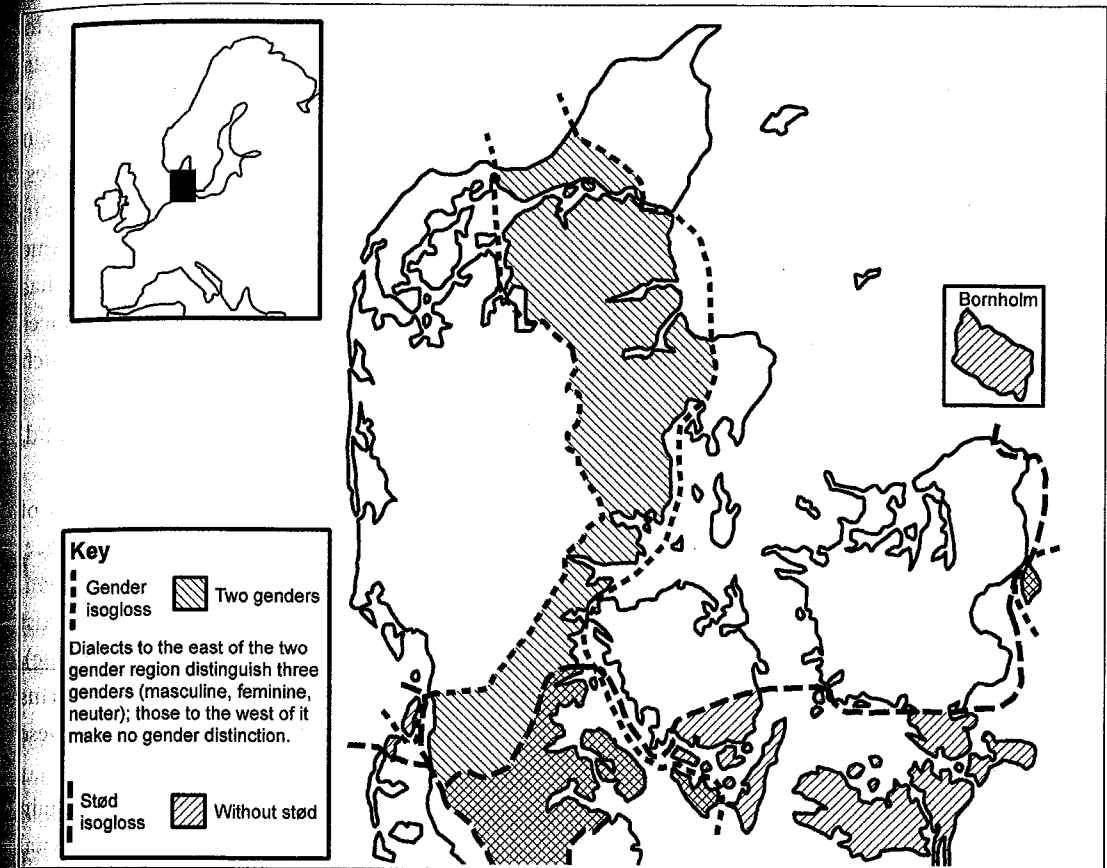
Notice that linguistic usage of the term *dialect* differs from popular usage, where a dialect is understood to be a non-standard or substandard variety of a language and the standard variety is not regarded as a dialect. In linguistics, both standard and non-standard varieties are dialects, and neither is privileged over the other.

Isoglosses

In dialectology, the study of dialects, it is standard practice to use **isoglosses**, lines drawn on a map to mark the boundaries of regions in which a particular feature is found, whether it is a particular lexical item, a characteristic feature of pronunciation, a grammatical feature or whatever. These are a bit like isobars on a weather map, which bound regions of the same barometric pressure. Map 7.2 shows the isogloss for the Danish *stød*,¹ which runs in an east–west direction. It also shows isoglosses for genders,² which run in a north–south direction. As this indicates, isoglosses do not always coincide. Generally, however, boundaries of major dialects are marked by bunching of isoglosses.

Variation according to social group

Many societies in today's world are stratified according to socio-economic status. In industrialized Western societies stratification depends primarily on income, education and occupation. Sociolinguists commonly identify two classes according to these variables: working class (generally with lower levels of education and in manual or semi-skilled employment) and middle class



Map 7.2 Two isoglosses in Danish. (Redrawn from Haberland 1994: 314, 315)

(generally with higher levels of education, and working in non-manual professional jobs). Both of these can be further divided into upper, middle and lower. Sometimes lower and upper classes are also distinguished. These classes (in Western societies) form a scale of variation rather than a set of rigidly distinct and precisely delimited classes.

One investigation, undertaken by William Labov in the late 1960s, studied social stratification in the speech of New York City residents according to a number of linguistic variables (Labov 1972). One was the phonetic realization of /θ/, which in New York City has three variants, [θ], [t̪θ], and [t]. Across various styles of speech, Labov found a consistent correlation between social class and the phonetic variable. For a given level of formality, the higher the speaker's socio-economic status the greater was the tendency to use the fricative allophone [θ], and the lower the speaker's status, the more affricate and stop allophones they used. Moreover, there was a fairly large gap between lower- and working-class speakers on the one hand, and middle-class speakers on the other.

Use of these linguistic variables is a matter of frequency; it is not an all-or-nothing affair. No social class in New York City is totally consistent in use of any of the allophones. Furthermore, for each class, use of the prestigious variant [θ] increases with the degree of formality of speech. The variation thus concerns the notion of style (see box on p. 165).

Variation according to gender

Men and women probably speak differently in all human societies. Some differences have a biological foundation: across populations males tend to have larger vocal tracts and folds than females, and thus the fundamental frequency tends to be lower in the speech of males than females. However, biology does not fix even this, and the differences can be exaggerated, as is the case in Japanese where the pitch differences between the genders are more marked than in English, due to female Japanese speakers tending to use higher pitches than English-speaking females. This has been confirmed experimentally by Y. Ohara (1997). Ohara recorded conversations and sentences read in Japanese and English by the same speakers, and found that the women used higher pitch when speaking Japanese than English, while men used the same pitch in both languages.

Differences in speech between the genders are often a matter of degree rather than kind, although in some languages there are features that are unique to either males or females.

In English the situation is of the former type, a matter of degree rather than kind. A number of linguistic features tend to pattern differently for men and women. It is documented, for instance, that women tend to have, and habitually use, larger vocabularies of colour terms than men, including terms such as *mauve*, *lavender*, *crimson*, *violet*, *beige* and so on. Differences also exist in usage of non-standard grammatical forms such as double negatives (as in *I never did nothing*), use of the /ɪn/ allomorph of the *-ing* verb suffix (as in *eating*), and non-standard past tense forms such as *seen* instead of *saw* (as in *I seen it the other day*). Numerous studies have shown these non-standard features to be more common in the speech of males than females.

In some languages categorical differences are found in the speech of males and females, certain forms being peculiar to one gender. In Gros Ventre (Algonquian, USA) alveolar and palatal affricates in men's speech correspond with velar stops in women's speech. Sidamo (Afroasiatic, Ethiopia) has lexical items peculiar to men's and women's speech. For example, the word for 'four' is *rore* in women's speech, and *foole* in men's speech.

In the Australian language Yanyuwa (Pama-Nyungan) there is an even more fundamental grammatical difference between male and female speech. In the variety spoken by females seven noun classes (see note 2) are distinguished, while in the variety of male speakers just six are distinguished. A contrast is made between male and masculine classes in women's speech that is not made in men's speech. (The nature of the difference between the male class and the masculine class in the variety spoken by women need not concern us.) This difference shows up in a number

Table 7.2 Bound pronouns in women's and men's varieties of Yanyuwa

	Women		Men
	Male	Masculine	Male-Masculine
Nominative	<i>ilu-</i>	<i>inju-</i>	<i>ilu-</i>
Accusative	<i>anya-</i>	<i>i-</i>	<i>ø-</i>

of places in the grammar of the two varieties, including in the bound pronouns (see Table 7.2). It also shows up in the gender prefixes to nouns and their modifiers: where the prefix *ki-* is found in the speech of males, either *nya-* (male class) or *ji-* (masculine class) is found in females' speech.

It is sometimes said that men's and women's speech constitute distinct varieties of Japanese. This seems to be an exaggeration, however, and the differences are apparently, as in English, in degree rather than kind. Thus there is an expectation that Japanese women will use more polite forms – such as sentence-final politeness particles – than men. But in public contexts men also frequently use polite forms, while women (especially in the younger generations) typically use fewer polite forms amongst close friends, in intimate contexts.

Other dimensions of variation

Other social dimensions of social variation include age, ethnicity and religion. Let us look briefly at each of these.

Different generations of speakers often show differences in speech, for instance in use of 'slang' terms such as *buck* 'dollar', *wicked* 'good', *cool* 'good, up to date'. Some slang terms (e.g. *buck*) have long lives, and may end up as standard lexemes; *dwindle* is an example: it was a slang term in Shakespeare's time. Many do not survive long, and their use can be characteristic of a particular generation group, the youth of a certain time. This is the case for terms such as *cool* vs. *wicked*, or *stik* for 'good'.

Different ethnic groups in countries such as the USA, Britain and Australia often speak slightly different varieties of English, showing divergences in phonetics/phonology, lexical items and/or grammar. Perhaps the best-studied ethnic variety is the English of African Americans, generally now called African American Vernacular English (AAVE). This variety shows characteristics distinguishing it from Standard American English. (a) The auxiliary *be* is usually absent where standard English has an unstressed *be*, as for instance in *He fast in everything he do*; (b) The verb *be* is used to indicate habitual activity, as in *He be late*, which means 'he is always late'; *He late* by contrast refers to a single instance; and (c) Word-final consonant clusters of Standard English are often absent in AAVE, the cluster being typically replaced by its initial consonant, as in *foun* (*found*) and *lef* (*left*). Although this happens in casual speech in other varieties of English, it is more pervasive in AAVE.

Sometimes religious differences are associated with differences in language varieties. Hindi (spoken in India) and Urdu (spoken in Pakistan) are mutually intelligible varieties of a single language, often referred to as Hindi/Urdu. They differ somewhat in lexicon, and employ different writing systems. But the contrast is based ultimately on religion: Hindi is associated with the Hindu religion, Urdu with Islam.

Accommodation

Speakers often change the way they speak according to the person they are speaking with, adopting features of one another's speech – or what they believe to be characteristics of one another's speech. Thus they adjust the variety they use so as to be more like the variety of their addressee. This is called **speech accommodation**, and is a way of reducing the social distance between the interlocutors. Speakers of any dialect of English who reside for long periods of time in a region where a different dialect is spoken normally accommodate to the dialect of their region of residence; on return to their home region, they reaccommodate to their native dialect. Their speech tends to converge to the dialect spoken around them. I notice this in my own speech when returning to Australia every second year, and then on my subsequent returns to Denmark. When the sociolinguist Peter Trudgill examined his own speech in interviews with Norwich informants, he found that his use of some accent features closely resembled those of the accent of his informants (Trudgill 1986).

A speaker can also choose to emphasize his or her social distance from an interlocutor by refusing to accommodate, by diverging from the patterns of the other's variety. A person who speaks both a standard and a non-standard dialect of English might shift from speaking the standard to speaking the non-standard in order to signal social distance from the interlocutor, for instance, to underline a refusal to comply with a request.

7.3 Varieties and variation according to use

Where variation in language depends on the more immediate context of the utterance rather than characteristics of the speaker, we speak of different **registers** or **registerial variation**. Registers thus do not construct the speakers' personal identities, but rather their and their addressee's role in that speech interaction. They are linguistic varieties according to use.

According to Michael Halliday (e.g. 1978), three factors are relevant to the specification of registers:

- **Field**, the subject matter of the discourse. For instance, the field of this book is linguistics.
- **Tenor**, the relations among the interactants in the discourse. This includes for example the degree of distance or formality they adopt.
- **Mode**, the medium or channel employed. This can include the choice between speech and writing; it can also include the manner of speaking, for instance, speaking over the telephone rather than in person, and the role of other systems such as gesture.

Different values for these factors (according to Halliday) give rise to different registers or registerial variants.

Examples of different registers in English include legal, bureaucratic, scientific, religious and medical 'Englishes', which are characterized by lexical peculiarities. Differences in the frequencies of use grammatical constructions or categories may also exist: scientific English shows heavy use of nominal modes of expression and nominalizations (nominal stems derived from roots of

other parts-of-speech, for example, *variation* from *vary*). The other two factors are also relevant: there will be differences according to the relation between the interactants and whether speech or writing is used. For instance, the register of this book, a written piece, differs from the registers I use in writing for an audience of professional linguists and when lecturing.

Other registers found in some languages include secret varieties, respect varieties, baby-talk and animal talk (speech directed to animals). In what follows we discuss the first two of these.

The notion of **style** overlaps with the notion of register. A style is a variety associated with a particular social context of use, and differs from other styles in degree of formality. Thus styles in a language range from the most informal and colloquial to the most formal.

Secret varieties

Professional and occupational registers like those mentioned in the previous section serve gate-keeping functions: non-members of the group are excluded from full understanding of the message due to the technical terminology and possibly arcane modes of expression. In some cases this function comes to the fore, and a register's motivation is principally to exclude outsiders and render the meaning obscure. Registers of this type are called 'secret languages' or 'anti-languages'.

An example is the secret register called *kpélémétyé* used by young Kisi men in Liberia. Based on Kisi (Niger-Congo, Sierra Leone), only males of a certain age use it, and no female speakers or non-Kisi speakers understand it. The words of this secret register are formed from ordinary Kisi words by a variety of somewhat obscure processes of modification, the most obvious of which is transposition of syllables. Examples illustrating the latter process include the secret variety lexeme *ndótúnj* 'dog' deriving from the ordinary term *tùnjndó*, and *yòndáá* 'cat' coming from *ndáyó*. There are also semantic and grammatical differences, including replacement of some items by their opposites, and reordering of words in clauses.

Other examples of secret registers include Pig Latins, sometimes used by school children in Western societies; secret initiands' and ritual varieties of some Australian Aboriginal groups; and secret varieties used by criminals, for example, in West Bengal. A common characteristic of these registers is the replacement of a lexeme by a lexeme opposite or nearly opposite in meaning; this is also quite commonly employed in slangs, as in the above-mentioned use of *wicked* and *sick* for 'good'. Also common is the reversal of the order of syllables.

Respect varieties

Many, perhaps all, languages have means of showing respect, deference, distance and politeness by lexical or grammatical choices. For instance, it is common in the languages of Europe (and elsewhere) for a speaker to address a single hearer with the second person plural pronoun to indicate respect; in French, for instance, the plural *vous* is used in addressing a single person to

show respect, distance or politeness. Japanese and Korean (isolate, Korea) have systems of honorifics, lexical and grammatical choices that mark respect. For instance, in Korean the ordinary word for 'meal' is *pap*; the corresponding honorific is *cinci*. Ordinary verbs in Korean can be made honorific by adding the infix *-si-*, as in *o-si-ta* 'to come', corresponding to ordinary *o-ta* 'to come'.

Traditional Australian Aboriginal societies were egalitarian, and respect was shown to an individual not because of social rank, but rather according to the kin relationship between them. Usually this applied to individuals related as mother-in-law to son-in-law (sometimes brothers-in-law): such in-laws should not engage in familiar or intimate interactions, and should be circumspect in their interactions with one another. In many cases special speech varieties are used among interlocutors so related, sometimes also when speaking about the in-law. These varieties are used as a sign of social distance and respect, and are thus called **respect varieties** (they are also called avoidance styles and mother-in-law languages).

Respect varieties generally have the phonology and grammar of the everyday language – though there can be divergences – and differ mainly in lexicon. Often the vocabulary of the respect variety is quite small, sometimes covering only a limited range of meanings; the lexemes are typically vague in meaning compared with everyday words. For example, Bunuba and Gooniyandi respect varieties have just over a hundred words. Some respect words have a more general sense than their everyday counterparts, so that one avoidance term corresponds to a few different everyday terms. In the Bunuba variety *jayirriminyi* covers the meanings of the ordinary words *thangani* 'mouth, language, speech, story' and *yingi* 'name', while *jalimanggurru* covers three distinct boomerang types, referred to in ordinary speech as *baljarrangi* 'returning boomerang type', *gali* 'returning boomerang type', and *mandi* 'non-returning boomerang type used for hunting'. However, only a fraction of the everyday lexicon has corresponding respect terms: absent are terms for genitals and sexual activity, topics inconsistent with respect and distance!

Generally, an utterance in the respect variety consists of just a single respect lexeme, as illustrated by Gooniyandi example (7-1), which shows the respect verb *malab-* 'make' instead of the ordinary verb *wirrij-* 'dig'.

- (7-1) *malab-mi* *goorrgoo*
 make-he:effected:it hole
 'He dug a hole.'

Some respect varieties apparently have somewhat larger lexicons than the Bunuba and Gooniyandi ones, some fewer. At one extreme is the Dyirbal (Pama-Nyungan) respect variety, which apparently had lexemes covering the entire range of semantic domains, though less precisely than the everyday lexemes. At the other extreme are respect varieties with just a single characteristic lexeme, as in the case of Jaru, where it is *luwarn-*, identical in form with the ordinary verb meaning 'shoot'. This verb replaces every verb of everyday speech, and is completely general in meaning. Respectful utterances are formed in Jaru by replacing the verb by *luwarn-*, as illustrated by (7-2), which may be compared with the near minimal pair in everyday Jaru (7-3).

- (7-2) *maliyi* *ngalu* *luwarnan* *murla-ngka* Jaru respect variety
 mother:in:law they:are be:doing here-at
 'Mother-in-law is sitting here.'

- (7-3) *ngawiyi* *nga* *nyinan* *murla-ngka* Everyday Jaru
 father he:is be:sitting here-at
 'Father is sitting here.'

Respect varieties often show differences in manner of delivery, being spoken more slowly or softly than normal, and without eye-contact. Use of pronouns is often different: the 'you-plural' form is normally used for a singular addressee, the 'they' form in reference to a single avoidance relative. Furthermore, respect speech is typically vaguer than ordinary speech; it is rare for speakers to elaborate on vague avoidance utterances to make the meaning more precise.

7.4 Language use in bilingual communities

A speech community is not always made up of speakers of just a single language. Many speech communities are constituted of individuals who share two or more languages. I use the term **bilingualism** to refer to such situations, allowing that more than two languages may be involved; sometimes the term *multilingualism* is used instead as the cover term. Most Aboriginal language speech communities in Australia were traditionally, and still are, bilingual. Almost everyone in the Gooniyandi speech community traditionally spoke, in addition to Gooniyandi, at least one of the following: Bunuba, Kija (Jarrakan), Nyikina (Nyulnyulan) and Walmajarri; some gifted individuals spoke other languages as well. In more recent times, Kriol (a creole – see §16.4) has been added to the typical inventory. The Danish speech community is also a bilingual one, with English and to a lesser extent German among the languages shared by many Danes.

Speakers in bilingual speech communities must choose between two or more languages on any occasion of speaking. The choice of language is perhaps never entirely random, and like lexical and grammatical choices, usually conveys meaning. We deal first with the most general level of language choice, the level of the speech interaction. Then we look at choices made at the level of utterances, and the ways in which, and reasons why, speakers adopt now one language, now another at different points in the speech interaction. The fundamental idea underlying the discussion is that languages express aspects of speaker's social identity (the 'being' macro-function).

In some cases a speech community uses two distinct forms of one language, one learnt via education, the other acquired as the first language. The variety learnt at school, the 'high' (H) variety, is usually used in more formal contexts such as in church, on the radio, in serious literature and so on. The other variety, the 'low' (L) variety, is associated with less formal contexts, such as family conversations. This is known as **diglossia**. The German-speaking community in Switzerland is diglossic. Standard German is the H variety, learnt at school; Swiss German is the L variety, learnt in the home. Comparable situations in which different languages are involved, as in

the case of Spanish (H) and the Tupian language Guaraní (L) in Paraguay, are also referred to as diglossic.

Language choice

In bilingual communities, speakers tend to speak each language in particular interactive contexts, depending on who they are talking to, the topic of conversation and so on. The clusters of contextual factors that influence the habitual choice of language are called **domains**. Examples of domains are the domestic domain, the educational domain, the administrative domain and so on.

The association between a language and a domain is a tendency not a rule: certain choices of language correlate statistically with certain domains. Bilingual speakers can and often do vary their language within a single discourse, or across discourses of the same type (see next subsection).

It has been proposed that broad patterns of language choice in many African countries correlate with social domains (Myers-Scotton 1993). In urban regions in Kenya many people are trilingual in their own mother tongue, Swahili and English. Mostly they use their mother tongue in the home, and with members of their own ethnic group. At work again, speakers may use their mother tongue with others in their own ethnic group, and otherwise Swahili or English (especially in white-collar occupations). Outside of the workplace, English and Swahili are also used with people from other ethnic groups, with English associated with more formal and public interactions.

Another trilingual speech community is Sauris, a small community in the Carnian Alps in north-eastern Italy. Here a dialect of German is used in the home; Italian (Romance) is the language of education and organized religion; and Friulian (a Rhaetian Romance language) is used by men in the local bars.

Code-switching

Code-switching is the phenomenon, common in bilingual speech communities, in which speakers switch from one language to another within the same conversation. Indeed, code-switching often occurs within the same utterance, as in (7-4) – quite unremarkable in casual conversation – from a bilingual speaker of Malay (Austronesian, Malaysian peninsular and many nearby islands) and English. (Malay words are bolded.)

(7-4) *This morning I hantar my baby tu dekat babysitter tu lah*
 ‘This morning I took my baby to the babysitter.’

In many bilingual situations the languages in a speaker’s repertoire include one or more local or minority languages associated with local ethnic groups, and a majority language that has no local associations, such as a national language or international language like Swahili and English in Kenya. Broadly speaking, choice of the local language underlines solidarity between the conversational partners, while choice of the national language serves a distancing function, emphasizing the social distance.

By making choices among the available languages within a conversation, speakers strategically manipulate solidarity and distance to more effectively serve their goals at that point in

the interaction. Susan Gal (1979) found that bilingual speakers of Hungarian and German in the Austrian village of Oberwart might switch to German in an argument conducted largely in Hungarian to add extra force to a particular point. It is not that German is always chosen to help win an argument; rather, at certain points in an interaction it can be used in a bid to achieve this communicative purpose; at other points it might be used to achieve different ends.

Code-switching is common in Australian Aboriginal communities, though only a few careful investigations have been undertaken. One notable example is Patrick McConvell’s (1985) close study of code-switching in an interactive event in which a small group of men from Daguragu, a small community in the Northern Territory, are butchering a bullock. The men spoke ‘standard’ Gurindji (Pama-Nyungan), as well as a local regional variety such as Wanyjirra (Pama-Nyungan) and Kriol (see p. 408).

Within this interaction the men constantly switch between the local variety, standard Gurindji and Kriol. They do not do this at random, however. McConvell shows that the choice depends to a large extent on which social group(s) the speaker wishes to stress membership of at different points in the interaction. Choice of the local variety Wanyjirra highlights the interlocutors’ membership of a small local group: using this variety a speaker can declare their social proximity to the addressees, that they are co-members of a small speech community. This might pave the way for a request. By contrast, choice of Kriol would serve to downplay the alliances among the interactants, indicating no more than that they are all members of the large Kriol speech community. Choice of Kriol could reinforce denial of a favour, or stress wider community needs over the needs of an individual. The speaker as it were smooths the way for such problematic speech acts as denials by distancing themselves from the addressee.

This is illustrated by (7-5), a short excerpt of three speech turns by two of the butchers. (Here the vertical line | indicates switch of language; capitals indicate Kriol words; bolding indicates words specific to Standard Eastern Gurindji; small capitals mark specifically Wanyjirra forms; and plain italics indicates forms common to Gurindji and Wanyjirra.)

(7-5) G: *MINE* | *PAMPIRLA* | *THERE AGAIN, OLD MAN* | *PAMPIRLA*,
 shoulder shoulder
WAKU NYARRA? | *kankurla-pala-nginyi ngu-yi-n* | *KUMA-WU*
 which way above-across-from will-me-you cut-will
 J: | ***laja*** | *-ma ngartji ma-ni W-rlu*
 shoulder -topic choose get-did W-by
 G: | *NGANINGA* | *-ma*
 my -topic
 G: *MINE* | *THE SHOULDER* | *THERE AGAIN, OLD MAN* | *THE SHOULDER, OR WHAT?* |
 From across the top you have to for me | TO CUT IT’
 J: | **‘the shoulder** | W- picked it out.’
 G: | *MINE* | (it is).’

McConvell comments on the code-switching in this interaction as follows:

G begins in Kriol, but switches to Wanyjirra to emphasise the close local bond between himself and J, in relation to J's giving him the shoulder, and the cutting action which will provide G with the shoulder. J however responds by shifting back to the wider community arena by using SEG [Standard Eastern Gurindji], and emphasising the rights of a non-Wanyjirra community member. G reasserts his claim within the narrower arena by using the W [Wanyjirra] term for 'mine'. (McConvell 1985: 111)

7.5 Language shift and endangerment

Languages do not remain constant for long; indeed they change rapidly. In later chapters we deal with changes that happen over time to the lexicons and grammars of languages. Sociolinguistic patterns are not immune to change either, as societies change and languages are put to new uses. New styles of speech or writing emerge for use in new social interactions and purposes. The wide availability of email, instant messaging, SMS and the World Wide Web has resulted in new patterns of use of many languages (see §13.5).

Nor are things static in the domain of linguistic varieties and their social-identity values. New dialects emerge as populations move into new regions and countries, as happened to English in America, Australia and New Zealand; in some circumstances new languages eventually emerge (see §16.4). Moreover, over time people change their habits of choosing between the languages and varieties at their disposal in the speech community, and thus the social values associated with these varieties change.

When changes in habits of language use become particularly pronounced, and one language or language variety comes to be used in a significantly smaller or wider range of circumstances in a speech community we speak of **language shift**. In extreme cases, what was once the major language of a community – the language used as the primary vehicle of communication and the mother tongue of most community members – may be replaced by another language. When this process affects the entire speech community of a language, we speak of language **endangerment** or **obsolescence**; when it reaches the point where no speakers remain, we refer to language **death**.

Rate of language shift, endangerment and death

The rate of language shift or death varies considerably from case to case. In cases of **gradual shift** the domains in which one language is used contract gradually, and it may take many generations before it is replaced by another language (if it ever is). The replacement of Scots Gaelic or Gàidhlig (Indo-European, Scotland) by English has been ongoing for hundreds of years, and remains incomplete.

At the opposite extreme, a language can completely disappear within a generation or less. Such cases of **sudden death** are rare, and are often associated with the death of all speakers within a short period of time. In 1226 the Xixia or Tangut population of Western China, speakers of a Tibeto-Burman language, were annihilated by the Mongolian emperor Genghis Khan. But perhaps the

clearest example of sudden death is that of Tambora (Papuan), spoken on the Indonesian island of Sumbawa. All speakers of this language were wiped out in a volcanic eruption in 1815, the largest in recorded human history.

Sometimes political circumstances can give rise to sudden death of a language without the death of the entire speech community. Following a massacre of thousands of Indians in El Salvador in 1932, the survivors abandoned their traditional languages so as not to be identified as Indians.

Causes of language shift

Language shift and death can happen for many reasons. Usually it is not possible to isolate a single cause for an instance of language shift; rather, a number of factors typically conspire. The wider social circumstances are also relevant, as none of the factors separately or together guarantees that language shift will occur. Nevertheless, across diverse cases certain factors tend to recur.

Disruption of the speech community – physical or social separation of speakers so that there are fewer opportunities for interaction among them – is a factor in language shift. This can come about in many different ways: decimation of the speech community; enforced resettlement together with others who do not share the language; widespread dispersal of the community for employment and other reasons; influx of significant numbers of immigrants; and separation of children from the adults (e.g. by segregation in dormitories). The Nyulnyul speech community was affected in almost all of these ways during the first 60 or 70 years of contact with Europeans. First, it was significantly reduced in the late 19th and early 20th centuries through killings by unscrupulous Europeans and the diseases they brought with them. With the establishment of the Beagle Bay Mission in Nyulnyul territory in 1890 began influxes of Aborigines from outside, few of who spoke the language. When dormitories were established on the mission in the early 20th century, Nyulnyul children were separated from their parents, who they saw only on weekends; use of Nyulnyul in the dormitories was forbidden. From the first decades of the 20th century, many mission educated Aborigines of Nyulnyul descent were sent to employment outside of the mission.

Economic considerations underlie many of the above considerations. Also relevant are numbers of speakers and their patterns of marriage. The larger the speech community of a language, the better chance it will have of survival, other things being equal. But other things are not always equal, and some languages have survived for a long time without large speech communities, while others appear vulnerable even with many thousands of speakers. If marriages tend to be outside of a smallish community of speakers, fragmentation of the community may well result. This consideration was also relevant in the case of Nyulnyul: in the early decades of the 20th century missionaries strongly encouraged marriage between local Nyulnyul men and women from outside, the majority of who had been forcibly taken to the mission as young children.

Attitudes to the languages can also be decisive. Speakers might shift their speech habits in favour of a language enjoying higher status, especially if it is politically advantageous to do so. Attitudes can be relevant in other ways as well. In some Australian Aboriginal communities the traditional languages have come to be regarded by speakers as too difficult for children, and suitable only for

adults. And in some cases last speakers have withheld their language from younger generations because they fear it will not be adequately valued.

The symbolic value of a language can also have a bearing. In some instances the language of the colonizers is associated with the modern world and desirable commodities, while the traditional language might be associated with old ways of life no longer practised. An association with traditional culture can, on the other hand, sometimes be an advantage, giving the language at least one domain in which its survival is enhanced. The Nyulnyul situation is interesting in this regard: as a result of missionary translations of religious materials, it seems that the association between Nyulnyul and traditional cultural practices was weakened, so that no longer was the language identified with traditional practices. As a result, Nyulnyul was left with no positive symbolic value.

Structural changes accompanying language shift and endangerment

In language endangerment situations, especially when shift is gradual, simplifications of grammar and lexicon often occur. For instance, in the late 20th century the Gurindji of 5–8-year-old children in the Daguragu and Kalkaringi communities in the Northern Territory showed evidence of simplification in various grammatical features, and loss of infrequent words.³ Bound pronouns were lost entirely, and the allomorphy of some case suffixes was reduced, as can be seen from the two case inflections presented in Table 7.3. (For explanation of the term ergative see §14.3.)

Table 7.3 Some allomorphs of two case suffixes in Gurindji (after Dalton et al. 1995)

Cases	Children's Gurindji	Traditional Gurindji
ergative	-ngku after a vowel	-ngku after a vowel in words of 2 syllables -lu after a vowel in words of more than 2 syllables
	-tu after a consonant	-tu after an alveolar consonant -ju after a palatal consonant and others
locative	-ngka after a vowel	-ngka after a vowel in words of 2 syllables -la after a vowel in words of more than 2 syllables
	-ta after a consonant	-ta after an alveolar consonant -ja after a palatal consonant and others

As mentioned in §3.3, Nyulnyul has some 50 bound nouns indicating parts of the body that require a prefix indicating the owner of the part. By the last decades of the 20th century, only one speaker still used this system. The others (most of who did not speak the language fluently) used the third person singular form of the noun as the root form; the system of prefixes had been lost entirely, and possession was indicated by a free possessive pronoun. Thus whereas in traditional Nyulnyul one would say *nga-marl* 'my hand', in modern speech 'my hand' is expressed as *jan nimarl*, literally 'my his:hand'.

Intriguingly, this system of pronoun prefixes to nouns was not entirely absent from late-20th-century Nyulnyul. Some speakers retained it on the one or two exceptional prefixing nouns that do not denote body parts. Thus it was retained in the speech of some on *-mungk* 'belief, knowledge', as in *nyi-mungk* 'your belief/knowledge' and *nga-mungk* 'my belief/knowledge'. One guesses that preservation of the feature for this lexical item may have been supported by the fact that *-mungk* expresses a meaning closer to that of a verb rather than a noun; however, it was not actually reanalysed as a verb, and given verbal inflections.

With decreasing use of a language in specialized social domains and disappearance of social domains such as ritual, registers can be lost, and along with them lexical items peculiar to them. For instance, in the late 20th century speakers of Nyulnyul appear to have known few terms for secret–sacred law and ritual objects. These words almost certainly disappeared with the generation who were adolescents in the 1890s: this was the last generation to undergo initiation, a prerequisite to acquisition of sacred religious knowledge.

Language maintenance and revival

Language endangerment and death have always occurred; however, the rate at which languages are becoming endangered and dying has been steadily accelerating over the past few centuries. Many languages of Africa, Australia and the Americas have become seriously endangered in post-colonial times. In Australia, for example, no more than 20 traditional languages are presently being learnt as a mother tongue of children, or have 1,000 or more speakers. This represents less than a tenth of the number of languages that were spoken by viable populations of speakers on the continent at first colonization in 1788, although many even then perhaps had fewer than 1,000 speakers.

Some linguists have predicted that if present trends continue unabated, as many as 90 per cent of the presently spoken languages will either become extinct, or at least endangered, within the next century. Opinions differ, however, and it is a fact that linguists' prognoses have often been wide of the mark (Vakhtin 2002).

Many speakers of endangered languages and many linguists are concerned about this situation, and efforts have been proposed or adopted to arrest the processes of shift in communities around the globe. These efforts are referred to by a range of terms, including language **maintenance and revival** (other terms are also used; sometimes the terms are used to refer to different things, sometimes as synonyms). For instance, in Australia a number of Aboriginal-controlled language centres have emerged since the mid-1980s, concerned with determining community attitudes to the traditional languages and how best to serve them. Many communities have expressed determination that their traditional languages survive, or that a previously spoken traditional language be reintroduced. Slightly earlier, in New Zealand, 'language nests' or *kohunga reo* were established by the Maori community in an attempt to promote the acquisition of Maori by children. In these language nests older Maori-speaking adults, typically from the generation grandparental to the children, worked as voluntary caretakers speaking Maori to the children. (This strategy has subsequently been tried elsewhere, with mixed degrees of success.)

Unfortunately, it is difficult to determine which strategies are likely to succeed either in general or in particular cases, and few attempts have enjoyed much success. Widely regarded as the most successful is the revival of Hebrew – which had not been used as a medium of everyday communication for over 1,000 years – in the late 19th and early 20th centuries. (See Zuckermann [2006] for a different view.)

Summing up

Any language with a viable **speech community** is heterogeneous, showing varieties and variation in phonetics, phonology, lexicon and/or grammar associated with differences among speakers along social dimensions.

Languages are often divided into different **dialects** and **accents** according to region. They also show **dialectal variation** across regions, which sometimes cuts across dialects. Dialectal variation is represented by **isoglosses** on a map. Other social dimensions that language variation and varieties may be associated with include social class, age, gender, ethnicity and religion. The language variety spoken by a person serves as a badge of group membership. Speakers tend to **accommodate** to the variety of their interlocutor, reinforcing social ties with them.

Languages also vary according to the use speakers put them to, different forms of speech being associated with different functions of language in interaction. This gives us **registers** and **registerial variation**, which include legalese, secret languages, respect varieties and the like. **Styles** are similar to registers, but the term is usually used for varieties differing in terms of formality.

Many speech communities are **bilingual**. In such communities the choice of language can express a speaker's social identity. In many bilingual communities language choice is at least partly motivated by **domain**; but domains do not usually determine the language spoken. In most bilingual communities **code-switching** occurs, often to strategically manipulate solidarity and distance.

Speech communities change over time, sometimes radically: their language repertoire may change with the introduction of a new language, as may the habits of using them. **Language shift** happens when a language comes to be spoken in fewer domains, in a more restricted range of social circumstances. In extreme cases, a language can become **endangered** or **obsolescent**; ultimately we may have language **death** or **extinction**. These processes happen at vastly different rates. Language endangerment is often (though not always) accompanied by changes, usually simplifications, in the grammar and lexicon of the language.

There is currently considerable concern amongst linguists and others, including speakers of endangered languages, about the loss of the world's linguistic diversity; this has led to the development of **language maintenance** efforts in various countries.

Guide to further reading

Two of the best textbooks on sociolinguistics are Mesthrie et al. (2009) and Coulmas (2013a). Also worth reading are Holmes (2013), Coulmas (2001) and Edwards (2013); for a rather different

approach, see Halliday (1978). One type of sociolinguistic investigation we did not mention, the ethnography of communication, is concerned with how language is used in different cultures; Saville-Troike (2002) provides an excellent textbook introduction.

For information on dialects of English in Britain see Hughes et al. (2012), and on dialects and varieties in American English, Wolfram and Schilling-Estes (2006).

On use of corpus studies to identify registers according to statistical patterns in distributions of lexical items see Biber (1995) and Biber et al. (1998). Chapter 5 of Mithun (1999) deals with various speech registers in North American languages (though not under the term register); for fuller treatment, Silver and Miller (1997) is recommended.

There is a large literature on gender differences in language and language use in English and other languages; see Holmes and Meyerhoff (2003) for an excellent collection of articles. Finlayson (1995) discusses 'women's language of respect' in Xhosa (Niger-Congo, South Africa); Bradley (1988) deals with grammatical and lexical differences between men's and women's varieties in Yanyuwa.

Books dealing with social aspects of bilingualism and multilingualism include Myers-Scotton (1993) and Romaine (1995); see also Romaine (2001).

A short overview of language shift and endangerment can be found in Chapter 8 of Mesthrie et al. (2009). For fuller treatments see Grenoble and Whaley (1998) and Tsunoda (2005); Grenoble and Whaley (2006) deals with language maintenance and revitalization. McGregor (2003) provides fuller details on the language situation of Nyulnyul. Abley (2003) presents a non-technical and very readable travelogue of his journeys searching for endangered languages. However, be warned that Abley adopts an extreme Whorfian stance (see §9.1), and shows extreme linguistic naivety.