A widely recognized problem with the term 'language' is the great range of its application. This word has prompted innumerable definitions. Some focus on the general concept of 'language', some on the more specific notion of 'a language'. Some draw attention to the formal features of phonology (or graphology), grammar, and semantics (Parts III–VII). Some emphasize the range of functions that language performs (Parts I, II). Some stress the differences between language and other forms of human, animal, or machine communication (see below). Some point to the similarities. At one extreme, there are definitions that are highly technical in character; at the other, there are extremely general statements, reflecting the way in which the notion has been applied figuratively to all forms of human behaviour, such as the 'language' of music, cookery, or the cinema.

Most textbooks in the subject avoid the problem, preferring to characterize the notion of language rather than define it. They recognize that the question of identifying an individual language has no single, simple answer, because formal and social criteria are often in conflict (§47). Similarly, they note the correspondingly complex problems that arise when attempting to construct a definition of language in general that makes a precise and comprehensive statement about formal and functional universal properties. The set of definitions given below exemplifies the way different writers have attempted to tackle the problem, and illustrates some of the difficulties involved. There seems little to be gained by trying to summarize the content of the present volume in a single sentence — unless it is the banal observation that 'language is what this encyclopedia is about!'

A more useful approach to language, and one used by most modern linguists, is to identify the various properties that are thought to be its essential defining characteristics. The aim is to determine what 'counts' as a human language, as opposed to some other system of communication. Two main kinds of enquiry have been used. One focuses upon identifying the universal structural properties of language, and this is discussed in Part III (§§13–15). The other is to contrast language with non-human forms of communication and with other forms of human communication.

**DESIGN FEATURES OF COMMUNICATION**

The most widely acknowledged comparative approach has been that proposed by the American linguist Charles F. Hockett (1916–), who used a zoological mode of enquiry to identify the main points of connection between language and other systems of communication, especially those found in animals. His set of 13 design features of communication using spoken language were as follows:

- **Auditory-vocal channel** Sound is used between mouth and ear, as opposed to a visual, tactile, or other means (pp. 405–7).
- **Broadcast transmission and directional reception** A signal can be heard by any auditory system within earshot, and the source can be located using the ears' direction-finding ability (p. 142).
- **Rapid fading** Auditory signals are transitory, and do not await the hearer's convenience (unlike animal tracks, or writing, §31).

**LANGUAGE DEFINITIONS**

'Language is a purely human and non-instinctive method of communicating ideas, emotions and desires by means of voluntarily produced symbols.' (E. Sapir, 1921.)

'A language is a system of arbitrary vocal symbols by means of which the members of a society interact in terms of their total culture.' (G. Trager, 1949.)

A language is a set (finite or infinite) of sentences, each finite in length and constructed out of a finite set of elements. (A. N. Chomsky, 1957.)

Language is 'the institution whereby humans communicate and interact with each other by means of habitually used oral-auditory arbitrary symbols'. (R. A. Hall, 1964.)

**A dictionary definition**

1. the words, their pronunciation, and the methods of combining them used and understood by a considerable community and established by long usage.
2a. audible, articulate, meaningful sound as produced by the action of the vocal organs.
2b. a systematic means of communicating ideas or feelings by the use of conventionalized signs, sounds, gestures, or marks having understood meanings.
2c. an artificially constructed primarily formal system of signs and symbols (as symbolic logic) including rules for the formation of admissible expressions and for their transformation.
2d. the means by which animals communicate or are thought to communicate with each other.
3. the faculty of verbal expression and the use of words in human intercourse ... significant communication.
4. a special manner or use of expression.

(Webster's Third New International Dictionary, 1961.)

**And a comment**

'The question "What is language?" is comparable with -- and, some would say, hardly less profound than -- "What is life?", the presuppositions of which circumscribe and unify the biological sciences ... it is not so much the question itself as the particular interpretation that the biologist puts upon it and the unravelling of its more detailed implications within some currently accepted theoretical framework that nourish the biologist's day-to-day speculations and research. So it is for the linguist in relation to the question "What is language?"' (J. Lyons, 1961, p. 1.)
Interchangeability: Speakers of a language can reproduce any linguistic message they can understand (unlike the differing courtship behaviour of males and females in several species).

Total feedback: Speakers hear and can reflect upon everything that they say (unlike the visual displays often used in animal courtship, which are not visible to the displayer).

Specialization: The sound waves of speech have no function other than to signal meaning (unlike the audible panting of dogs, which has a biological purpose).

Semantics: The elements of the signal convey meaning through their stable association with real-world situations (unlike dog panting, which does not 'mean' a dog is hot; it is 'part of' being hot).

Arbitrariness: There is no dependence of the element of the signal on the nature of the reality to which it refers (unlike the speed of bee 'dancing', which directly reflects the distance of the nectar from the hive).

Discreteness: Speech uses a small set of sound elements that clearly contrast with each other (unlike growling, and other emotional noises, where there are continuous scales of variation in strength).

Displacement: It is possible to talk about events remote in space or time from the situation of the speaker (unlike most animal cries, which reflect immediate environmental stimuli).

Productivity: There is an infinite capacity to express and understand meaning, by using old sentence elements to produce new sentences (unlike the limited, fixed set of calls used by animals).

Traditional transmission: Language is transmitted from one generation to the next primarily by a process of teaching and learning (unlike the bee's ability to communicate the source of nectar, which is passed on genetically).

Duality of patterning: The sounds of language have no intrinsic meaning, but combine in different ways to form elements (such as words) that do convey meaning (unlike animal calls, which cannot be analysed into two such levels of structure).

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The 'language' of bees

One of the most closely investigated forms of animal communication is the 'dance' performed by a honey bee when it returns to the hive, which conveys precise information about the source and amount of food it has discovered. Several kinds of movement pattern have been observed. In the 'round dance' (above, left) used when the food source is close to the hive, the bee moves in circles alternately to left and right. In the 'tail-wagging dance' (above, right), used when the source is further away, the bee moves in a straight line while wagging her abdomen from side to side, then returns to her starting point. The straight line points in the direction of the food; the liveliness of the dance indicates how rich a source it is, and the tempo of the dance provides information about its distance. For example, in one study, an experimental feeding dish 330 metres from the hive was indicated by 15 complete runs through the pattern in 30 seconds, whereas when the dish was moved to 700 metres distance, only 11 runs were carried out in that time. No other animal communication system seems able to provide such a quantity of precise information - except human language. (After K. von Frisch, 1962.)

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<table>
<thead>
<tr>
<th>The vocal-auditory channel</th>
<th>Bee dancing</th>
<th>Suckleback courtship</th>
<th>Western meadowlark song</th>
<th>Gibbon calls</th>
<th>Language</th>
<th>Instrumental music</th>
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<tbody>
<tr>
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<td>yes</td>
<td>yes</td>
<td>yes</td>
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<td>?</td>
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<td>yes, repeated</td>
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<td>in part</td>
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<td>?</td>
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<td>?</td>
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