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Language, speech and writing

What I am concerned with in this chapter is not language in the most general sense of the term 'language' but with what can be described more fully as natural human language.[1] Arguably, this fuller description is redundant in respect of either or both of the two adjectives, 'natural' and 'human'. Indeed, this is the view that most linguists and many philosophers of language would take. But it is worth making the point explicit and concentrating for a moment upon the implications of both of the qualifying adjectives, without prejudice to the question of whether there is any language, properly so called, that is non-natural or non-human.

Without dwelling upon the details let us say that a natural language is one that has not been specially constructed, whether for general or specific purposes, and is acquired by its users without special instruction as a normal part of the process of maturation and socialization. In terms of this rough-and-ready operational definition, there are some thousands of distinct natural human languages used in the world today, including English, Quechua, Dyirbal, Yoruba and Malayalam – to list just a few, each of which is representative, in various ways, of hundreds or thousands of others. But Esperanto, on the one hand, and first-order predicate calculus or computer languages such as ALGOL, FORTRAN and BASIC, on the other, are non-natural. Many non-natural languages are parasitic, to a greater or less extent, upon pre-existing natural languages. This being so, though non-natural, they are not necessarily unnatural; they may be comparable, structurally and perhaps also functionally, with the natural languages from which they derive and upon which, arguably, they are parasitic. I say 'arguably', not only because the point, as I have put it, is debatable, but also because by putting it in this way I am hinting at a deeper and theoretically more interesting sense of 'natural', and of its contrary 'unnatural', than my operational definition of 'natural language' requires.

It has been argued, notably by Chomsky, that languages that meet my

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operational, and intuitively applicable, definition of 'natural' do so, not simply as a matter of historical contingency, but by virtue of biological necessity: that natural human languages are structurally adapted to the psychological nature of man; and that if they were not so adapted, they could not be acquired, as I have said they are, without special instruction as an integral and normal part of the process of maturation and socialization. The question of whether natural human languages as we know them are also natural in this deeper sense (which I distinguish from other senses of 'natural' in Chapter 4 below) is of course philosophically controversial. I am not concerned with this question as such. It suffices for my present purpose that Chomsky and others inspired by his work, philosophers and psychologists, have provided a serious defence of innatism (or nativism).[2]

Granted that it is appropriate to use the term 'language' to refer to a wide range of communicative and symbolic systems employed by animals and machines, we can proceed to distinguish human from non-human languages. And this distinction can be drawn in various ways: we can define human languages as languages that are actually used by human beings; as languages that could be used by human beings (with what is meant by *could* spelt out); as languages that are normally or naturally (in one or other sense of 'naturally') used by human beings and so on. For present purposes, the following operational definition will suffice: a human language is one that is attested as being used (or as having been used in the past) by human beings; and a non-human language is one that is (or has been) used by any non-human being (either an animal or a machine). This definition leaves open the possibility that the intersection of the two sub-classes of languages thus distinguished is non-empty; i.e., that there are languages which are both human and non-human. It also presupposes, of course, that we have some way of identifying human beings that does not make the possession of language criterial in their identification. It would not do for us to adopt Schleicher's (1863) attitude: "If a pig were to say to me 'I am a pig', it would *ipso facto* cease to be a pig."[3]

As with the distinction between natural and non-natural languages, so too with the distinction between human and non-human languages, as I have just drawn it; it can be argued that human languages share a number of structural properties, or design characteristics, that set them off as a class from the languages of other species, so that it is legitimate to talk not only of human languages, but also of human language in the singular. It is by coupling the two predicates 'natural' and 'human' and giving to each its deeper sense that we arrive of course at the characteristically Chomskyan thesis of innatism. As Chomsky put it in his *Reflections on Language*: "A

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human language is a system of remarkable complexity. To come to know a human language would be an extraordinary intellectual achievement for a creature not specifically designed to accomplish this task. A normal child acquires this knowledge on relatively slight exposure and without specific training" (1976: 4).

It is an obvious, but none the less important, fact that one cannot possess or use language (henceforth I shall restrict the term 'language' to natural human language) without possessing or using some particular language – English, Quechua, Dyirbal, Yoruba, Malayalam, or whatever. Each of these differs systematically from the others, so that, due allowance being made for the well-known problems of drawing a sharp distinction between languages and dialects, styles or registers, we can usually determine that someone is using one language rather than another on particular occasions.[4] We do this, whether as investigating linguists or as participating interlocutors, by observing and analysing, not the language-behaviour itself, but the products of that behaviour – strings of words and phrases inscribed (in a technical sense of 'inscribe') in some appropriate physical medium. But the language, for the linguist at least, is neither the behaviour nor the products of that behaviour, both of which are subsumed under the ambiguous English word 'utterance'.[5] What the linguist is interested in is the language-system: the underlying, abstract, system of entities and rules by virtue of which particular language-inscriptions can be identified as tokens of the same type or distinguished as tokens of different types;[6] can be parsed (to use the traditional term) or (in Chomskyan terminology) assigned an appropriate structural description; and can be interpreted in terms of the meaning of the constituent expressions, of the grammatical structure of the sentences that have been uttered, and of the relevant contextual factors.

We may distinguish the language-system, then, on the one hand from language-behaviour of a particular kind and on the other from language-inscriptions. The latter, together with native speakers' intuitions of grammaticality and acceptability, of sameness and difference of meaning, and so on, constitute the linguist's data; but they are not the object of linguistic theory or linguistic description. The linguist, I repeat, is interested in language-systems; and this is true not only in microlinguistics but also in the several branches of macrolinguistics (see Chapter 2).

And when linguists come to describe language-systems, whether they subscribe to the aims of generative grammar or not, they do so by drawing a distinction between phonology and syntax and by making reference, in the description of both, as also in the account that they give of the meaning of sentences, to the information that is stored in the lexicon, or dictionary. The

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term 'grammar' is commonly used nowadays to cover the rules of phonology, syntax and semantics, but not the lexicon. Taking 'grammar' in this sense, we can say that a language-system comprises both a grammar and a lexicon, and that each presupposes the other. The lexicon is a list of expressions, every one of which has one or more forms, belongs to a particular syntactic (or morphosyntactic) category, and has one or more meanings;[7] the rules of the grammar cannot operate otherwise than upon the expressions supplied by the lexicon and the phonological, syntactic and semantic information associated with them in individual lexical entries. (Under a rather broader interpretation of 'grammar', the term may be held to cover not only the phonological, syntactic and semantic rules of a language-system, but also the lexicon. Nothing of consequence hangs upon this particular point of terminology, unless the difference of usage is deliberately associated with a difference of view on the boundary between grammar and lexicon.)

We can now move on to consider Chomsky's distinction between competence and performance in relation to the other terminological and conceptual distinctions that have been drawn so far. Performance can be identified, without difficulty, with what I have called language-behaviour. It can thus be distinguished, in the same way, both from the products of that behaviour, language-inscriptions, and from the underlying language-system. But what is linguistic competence? At one level this question, too, can be answered without difficulty. One's linguistic competence is one's knowledge of a particular language-system: that is to say, one's knowledge of an interdependent grammar and vocabulary.

When it comes to developing this notion of linguistic competence in greater detail and giving it empirical content, the question gets more complicated and correspondingly more interesting. Here I will simply make the point that, although Chomsky recognizes the logical validity of the distinction between a language-system and someone's knowledge of the system (whether that someone is an actual or an ideal user of the system), he maintains that the distinction can, for theoretical purposes, be ignored. He has therefore tended to use the term 'grammar' with what he calls systematic ambiguity: to refer indifferently to both the rules of the language and the ideal user's knowledge of the rules. For Chomsky, it would appear, the only kind of reality that can be ascribed to grammars and to natural human languages is psychological reality. It is for this reason that he takes the view that linguistics is a branch of cognitive psychology. But Chomsky differs from many others who are working towards psychologically real grammars in that he pays relatively little attention to what is otherwise

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known or hypothesized of psychological processes. He does not believe that performance shapes competence, and his notion of psychological reality is considerably more abstract than that of most psychologists.

I now wish to make explicit the distinction, which has been implicit in everything that I have said so far, between a language and the medium in which that language is manifest. It is in terms of this distinction that I propose to discuss the relation between language and speech. 'Medium' in this sense is connected, on the one hand, with the information-theorist's notion of the channel of communication and, on the other, with the psychologist's notion of input and output modalities (in a sense of 'modality' which has nothing to do with its more usual specialized sense in linguistics and philosophy[8]).

Spoken language is manifest, normally, in what I shall refer to as the phonic medium: that is, the products of speech are signals, actual or potential, inscribed in the physical medium of sound. More precisely, they are inscribed (in this technical sense of 'inscribe') in the range of sound produced by the human voice – hence the term 'phonic'. Written language, on the other hand, is normally inscribed in what may be referred to as a graphic medium: anything that will sustain the requisite distinctions of shape. It is possible for spoken language to be written, and conversely for written language to be spoken. In the present context, we can safely neglect these additional complexities. It is worth noting, however, that by virtue of this possibility the term 'spoken language' is used in various senses, and at times perhaps is used equivocally, in linguistics (see Addendum below).

The main reason why we have to draw the distinction between language and medium is that human languages, as we know them in modern literate societies, are very largely independent of the medium in which they are manifest. As far as their syntactic and lexical structure are concerned, they are, in principle, completely independent: any spoken language-inscription can be converted – transcribed – into a corresponding written language-inscription in the same language, and vice versa. To the extent that written and spoken language-inscriptions are interconvertible in this way, we can say that they have the property of medium-transferability. In practice, medium-transferability is reduced in all the major languages of the world (though less in English than in many others) by virtue of the conservatism of scribal traditions, the greater standardization of the written language and its association with more formal or more official situations, and other such historically and culturally identifiable factors.[9] Although the consequential lack of isomorphism at the syntactic and lexical levels may have important implications for the design of certain psycholinguistic experiments, I will

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not dwell upon this aspect of medium-transferability. There are other points to which I want to give a more particular emphasis.

The first is that the medium-transferability of language is far from complete, even in principle, in respect of what is handled for spoken language by phonology. Some writing systems, of course, are based on the ideographic or logographic principle, so that for them the question of isomorphism does not even arise at this level.[10] The very existence of such written languages, of which Chinese is the most notable example, demonstrates that language-systems can be isomorphic in syntax and semantics, and yet be quite different as far as their segmental phonological structure is concerned. It demonstrates, therefore, that segmental phonology and syntax are independent of one another, in a way that syntax and semantics are not.[11] Of greater importance for the moment, however, is the fact that there is more to the phonological structure of spoken language-inscriptions than the strings of consonants and vowels of which their constituent word-forms are constructed. My earlier characterization of utterance-inscriptions as strings of forms inscribed in some physical medium was incomplete for spoken language. Superimposed upon the string of word-forms there will be an intonation pattern, which will usually be integrated with the syntactic structure of the language-inscription and will also be relevant to its semantic interpretation. None of the world's writing systems preserves the suprasegmental intonation-contour, in the transcription of speech from the phonic to the graphic medium.[12]

Also, there is more to speech than is covered by segmental or non-segmental phonology; and therefore, according to standard assumptions, by the grammar of the language that one is speaking. In addition to the suprasegmental intonation-contour of any spoken utterance-inscription, there will be a variety of other suprasegmental features commonly described as paralinguistic – such features as significant variations of loudness, rhythm and tempo. The speaker therefore has to superimpose upon the verbal component of his utterance-inscription two analytically distinguishable non-segmental components, one of which, by common consent, is linguistic and the other of which is not.[13]

Where has all this been taking us? My main purpose, in this chapter, is simply to introduce a number of conceptual distinctions that are relevant to issues that arise in current discussions of the psychological mechanisms of language. I shall now apply the distinction between language and medium very briefly to three such issues.

The first has to do with the putative naturalness of the association between language and speech. Now, there is a clear sense in which

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language is indeed naturally associated with speech. Spoken languages satisfy the operational definition of naturalness that I gave earlier: they are acquired without special instruction as a normal part of the process of maturation and socialization. This is not true of written languages. But is speech natural to man in the deeper sense that we also identified earlier? There is evidence to suggest that children are biologically equipped not merely to vocalize, in the sense in which this term is customarily employed, but to produce and recognize particular classes of speech-sounds (cf. Mehler, 1981; C. J. Darwin, 1987). If we also grant, for the sake of the argument, that the syntactic and semantic structure of human languages is narrowly constrained by a species-specific, innate, language-faculty, as Chomsky has argued, we might seem to be justified in concluding that it is spoken language as such, if not the whole of speech, that is innately determined by the principles of universal grammar.

On present evidence, this would be a hasty conclusion to draw. In my view, it is quite possible that the language-faculty and the predisposition to vocalize are biologically independent and only contingently associated in speech. The graphic medium, though non-natural, is clearly not unnatural with respect to the medium-transferable verbal component. Having learned to read and write, we do so without difficulty and, apparently, without needing to transcribe to or from the phonic medium at the time of reading or writing. Furthermore, there are various reasons for saying that the medium-transferable part of language-inscriptions is more characteristically linguistic than the non-verbal, suprasegmental, part (cf. Lyons, 1977a: 70–94). It is in any case quite clear that the process of speaking, in so far as it involves the integration of the verbal and the non-verbal components of language-utterances, makes use of rather different psychological mechanisms. It has also been suggested that the control of what I have called the more linguistic, medium-transferable, part of speech and of the less linguistic part, which is not so readily transcribed from one medium to another, is localized in different parts of the brain.

I have just drawn attention to the possible biological independence of language and speech; and I have implied that this is not only a logical, but also an empirical, possibility. I should perhaps add that many would say that recent research on the origins of language, on the one hand, and of sign languages of the deaf, on the other, convert what I have here cautiously described as a possibility into a probability (cf. Hewes, 1973; Siple, 1978; Klima & Bellugi, 1979; Marshall, 1980; Deuchar, 1984). Sign languages, such as ASL (American Sign Language) and BSL (British Sign Language), are certainly natural in the sense of the "rough-and-ready operational

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definition'' of 'natural' that I gave earlier (if not in all senses of the term); they are not only not isomorphic with known spoken languages (despite what has frequently been said about them in the past), but they are not parasitic upon, and cannot always be traced back historically to, particular spoken languages; and yet they are comparable, both structurally and functionally, with such languages (cf. Deuchar, 1984: 18–25). But whether they are natural or not in all relevant senses of the term, it would be absurd to deny them the status of languages by metatheoretical fiat, simply because they do not fall into the category of what linguists think of as prototypical, or ordinary, languages. I will return to this question in later chapters of this book. In the present context, I would merely emphasize that, even if our main concern, as theoreticians, is with psycholinguistics (and for me 'psycholinguistics' covers the investigation of both competence and performance in the Chomskyan sense: see Chapter 3), it is important not to assume that the association between language and speech is essential, rather than contingent.

The second issue is that of linearization (cf. Levelt, 1981). The structure of spoken utterance-inscriptions is partly linear and partly non-linear. It is non-linear, as we have just seen, with regard to their non-verbal component. It is linear, however, as far as their verbal component is concerned: the words must be in one sequential order rather than another.[14] Is this linearity a property of language or of speech? Here I would simply point out that languages vary considerably in the grammatical and stylistic use that they make of word-order. This cannot but be of relevance to the construction of models for on-line speech-processing. And it is arguable that the factors that determine the linearization of spoken language-utterances have operated, historically, to fix the word-order of sentences in some, but not all, languages. If this is so, it would be another way in which performance shapes competence (cf. J. D. Fodor, 1981).[15]

Granted that sentences, as distinct from utterance-inscriptions, may have a non-linear structure, at what point in the production of speech are they linearized? Indeed, is it psychologically plausible to suppose that there is some stage in speech-production at which medium-independent sentences are constructed, before their linearization for utterance and the superimposition upon them of an appropriate intonation pattern?[16] These are questions which I raise without even attempting an answer and which, not being a psychologist, I could not begin to answer. I raise them in the present context because I have the impression that scholars from other disciplines frequently take over from linguistics notions such as 'word', 'sentence', etc., and certain assumptions about them, without realizing how unclear these

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notions sometimes are. It is incumbent upon linguists taking part in interdisciplinary discussion to bring to the attention of their collaborators from other disciplines the fact that many of the technical and semi-technical terms and concepts of linguistics are far from being as well defined as they are commonly thought to be. For what it is worth, my own feeling is that sentences (in the sense of system-sentences: cf. Lyons, 1977a: 29; 1981b; 196) play no role at all in the on-line, real-time production or reception of speech, but are artefacts of the linguists' idealization of their data (see Chapter 3 below).

Finally, at the risk of rushing in where angels fear to tread, let me say something about language and speech in relation to the organization of the mental lexicon. As we have seen, the language-system comprises a grammar and a lexicon. To say that someone knows a language is to say that he or she has internalized both its grammar and its lexicon: that they are stored in long-term memory, so that they can be accessed during the production and reception of language-utterances. Linguists usually take the view that phonology is an integral part of the language-system and that the phonological representation of a lexical item is essential to it in a way that its orthographic representation is not. It follows from this assumption that words and phrases should be more directly accessible in spoken form than they are in written form, during normal language-processing and also in psycholinguistic experiments. At the very least, we should be suspicious of this interpretation of the principle of the priority of spoken language. If the argument that I am developing here is accepted, we should be prepared to consider the possibility that words and phrases are stored in the mental lexicon in a medium-independent form, so that they can be accessed equally well in either their phonological or their orthographic representation. It is, of course, an empirical question – to be resolved not by linguistics but by psychology and neurophysiology – whether this possibility is actualized in any or all of us.[17]

Addendum

In the original version of the paper reprinted (with certain changes of wording) above I noted that "the term 'spoken language' is used in various senses, and at times perhaps is used equivocally, in linguistics". There are, in fact, at least three senses, which must be kept apart, if we are to avoid confusion in theorizing about language. Two of them can be readily distinguished by drawing upon the related, but theoretically distinct, notions of channel and medium. A spoken language, in the first sense, can

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be defined as a particular language-system which, as far as what is sometimes called its cenematic structure is concerned, results from the imposition of a particular form or structure, upon the phonic (rather than, for example, the graphic) medium: i.e., it is phonologically (rather than, for example, orthographically) structured.[18] A spoken language, thus defined, can of course be transmitted in either speech or writing: i.e., it can be transmitted phonically or graphically (or, indeed, in indefinitely many ways, but we do not need to go into this question in detail in order to establish the main point that is being made here). A spoken language, in the second sense of 'spoken', is the product of speech: i.e., of the transmission of language-signals along the vocal–auditory channel. It follows from what has just been said that Spoken English in the first sense is what Saussure would have called a 'langue' (and in this sense the qualifying adjective 'spoken' merits an initial capital-letter), whereas spoken English in the second sense is what Saussure called 'parole'.

The first two senses of the term 'spoken' are, in principle, easy enough to distinguish, and they are more or less well recognized as distinct.[19] There is, however, yet a third sense of the term 'spoken language' which has recently been introduced into the literature and which threatens to confuse yet further an already confused discussion of the nature of language. This third sense can be glossed, roughly, as "language which is normally/naturally/primarily manifest as speech". Spoken languages, in this third sense, are contrasted not with, for example, written languages, but rather with gestural sign-languages, such as ASL or BSL (cf. Deuchar, 1987b). It requires but little reflection to see that the term 'spoken' is wholly inappropriate in this usage, since languages of the class to which it applies, as I have insisted above, have (to a considerable degree and as far as their plerematic structure is concerned) a high degree of isomorphism. When we contrast 'Spoken English', in this third sense, with, let us say, ASL, we are operating at a higher level of abstraction than when we are opposing Spoken English (in the first sense of 'spoken') to, for example, Written English.

The point that has just been made is but one of many that could and should be made in a fuller discussion of the distinction between language and speech, on the one hand, and between written and spoken languages, on the other. I have said nothing at all, for example, about the historical impact of the invention of writing: of its role in the development of particular concepts of literacy and literal meaning; of its effect upon linguistic theory; and so on.[20] My main purpose has been to emphasize the importance for linguistic theory of drawing a distinction between languages

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