Prelude

1

How to Be the Centre of the Universe

Language makes us human.

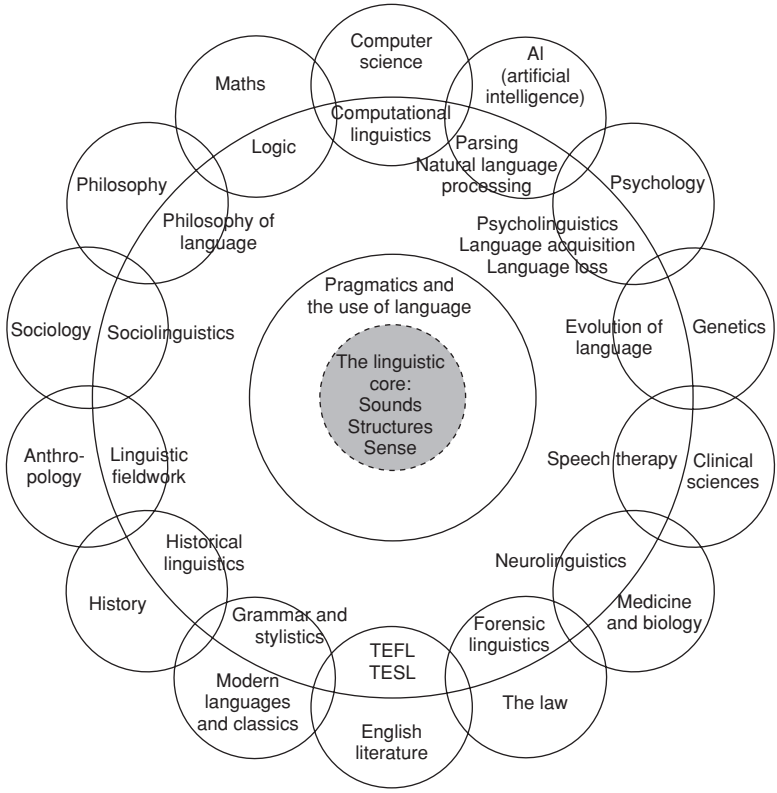
Whatever we do, language is central to our lives, and the use of language underpins the study of every other discipline. Understanding language gives us insight into ourselves and a tool for the investigation of the rest of the universe. Proposing marriage, opposing globalization, composing a speech, all require the use of language; to buy a meal or sell a car involves communication, which is made possible by language; to be without language – as an infant, a foreigner or a stroke victim – is to be at a devastating disadvantage. Martians and dolphins, bonobos and bees, may be just as intelligent, cute, adept at social organization and morally worthwhile, but they don't share our language, they don't speak 'human'.

So what do you know, when you know a language, even though you may not have realized that you knew it? You know that *fish* is a word of English, and that *shif* and *shfi* are not. You also know that while *shif* might be a word of English, *shfi* couldn't be. How do you know that? You've probably never seen this sentence that you're reading before now, but you realize immediately that there is wrong something with it. How is that possible? You know that the sentence *my son has grown another foot* has all sorts of different meanings: he may be twelve inches taller, he may now have three legs, he may have succeeded in cultivating groups of toes in plantpots, and on. You also know that some of these interpretations are rather unlikely to correspond to situations in the world

we live in, but you none the less know that the sentence could be used appropriately to describe such situations if they ever did arise, or to relate a fairy story, or to describe a nightmare or a bad trip. How can you know such things about sounds, structures and senses with such certainty, even though they are not the sort of thing you're usually taught in school?

Linguistics, the scientific study of (human) language, provides answers to such questions and to innumerable others like them, giving us in the process both insight into one aspect of the human mind – the capacity for language – and a potential tool for helping those with a language problem. The capacity for language is universal: infants across the species have the same basic ability to acquire any language with which they are confronted, and to do so in the space of a few short years. Moreover, they do it in the same way, going through the same stages whether the language being learned is English or Welsh, Amharic or Zulu; whether it is spoken by hundreds of millions (like Chinese and English) or by a few dozen people in an African village. And all these languages appear to be equally effective in allowing their speakers to use them to think and communicate. There are no 'primitive' languages with only a few hundred words.

This universality has wider implications. Let's look at the diagram and begin to consider some of the interconnections between language and everything else. The claim may be contentious and the debate often obscure and ill-tempered, but universality is often cited as evidence that the ability for language is genetically determined: it is innate. Notions of innateness have been central to philosophical debate for centuries, and the most persuasive evidence, however you interpret it, comes from knowledge of language. If something is 'innate', it must be the property of a person, rather than of society as a whole, and in at least one framework (the Chomskyan one) the domain of linguistics is taken to be about the knowledge possessed by individuals, not (in the first instance) about the culture possessed by communities. On this interpretation, linguistics is a part of psychology – the



study of all forms of human behaviour; and psychology in turn is ultimately part of biology. This relationship of linguistics to the so-called life sciences has long been uncontroversial, but recent advances in neurology and imaging mean that at last we are able to provide evidence from studies of the brain for facts of language. On the basis of quite simple observations, it has been known for centuries that language is predominantly located in the left hemisphere. Physical functions on one side of the body are largely controlled by the opposite side of the brain: the left hemisphere is responsible for your right hand and foot, and the right hemisphere for your left hand and foot. So if you have a stroke in the left hemisphere, your right side is likely to be paralysed, while

damage to the right hemisphere results in paralysis on the left. But damage to the left hemisphere typically has a further, even more devastating effect: you lose your language, suggesting that that is where language lives.

To date, the balance of explanation between the brain sciences and language – neurolinguistics, as it's called – leans more to linguistics than neurology, because linguists have theories of the structure of language which can sometimes be correlated with activity in a particular part of the brain, whereas neurologists don't (yet) have theories which will make detailed predictions for the linguists to test. Knowing that different kinds of electrical activity correlate with syntactic as opposed to semantic complexity, and that that activity takes place in the temporal lobe, doesn't tell us anything *linguistic* we didn't know before – that it's essential to distinguish syntax and semantics. Gradually, though, imaging studies are promising to answer substantive questions posed by linguists: for instance, are the two languages of bilinguals stored separately or together? The answer so far is not entirely clear (see Kim et al. 1997) but we can give a guarded 'yes'. The neurological connection is most clearly in evidence in the clinical sciences, where speech and language therapists can bring hope and improvement to the lives of those stricken by brain damage. The centrality of language to our lives is most obvious when we lose it, and only those who have direct experience of such loss appreciate the complexity and difficulty of the speech therapist's task.

This link to the clinical does not exhaust the domain of the speech sciences. Language and linguistics are central to such things as the automation of question-answering databases, to automatic (machine) translation, and to the whole domain of artificial intelligence: the attempt to model human mental functions with computers. AI has made huge progress in the last half-century, so that computers can now beat the world champion at chess, but getting a machine to simulate human *linguistic* abilities has proved the most intractable problem of all. The human mind is awesomely complex, and this is

nowhere more apparent than in its capabilities in language. Progress in all these areas has relied heavily on increases in the power of computers, and, as one might expect, there is a flourishing enterprise in computational linguistics as well. This computational base has in turn been underpinned by the advances in mathematics which have taken place over the last fifty to sixty years and, with the cross-fertilization characteristic of developing academic fields, there has grown up a branch of mathematics devoted to the mathematical properties of different kinds of language (both artificial and natural).

Linguistics is not merely cognitive and computational; it also has a social, cultural and literary dimension. Most people first come to linguistics via the English language and its literature, and then discover in return that linguistics can answer question about these domains too: from the statistical properties of a Shakespearean (as opposed to a Baconian) text to the metrical properties of the iambic pentameter, and to notions of style and genre more generally. What is true of English is true of other languages, be these the dead classical languages of antiquity or the modern languages, Eastern and Western, which form the basis of many university courses. The teaching and learning of all these languages can benefit from the analytic insights of the linguist, whether the task is for a Japanese learner to master the use of the English definite article or the English learner to get to grips with the nuances of the Japanese honorific scale.

On the social side, linguistics has intimate connections with anthropology (indeed, it is sometimes described – for example, in the *Encyclopaedia Britannica* – as one constituent component of anthropology) and, of course with sociology. The tie here is with sociolinguistics, which can demonstrate correlations between particular features, like the pronunciation of 'r', or the use of constructions like '*John is stronger than what I am*', and particular geographical, generational or sociological variables. Like anthropologists and sociologists, linguists indulge in 'fieldwork', which can be in an English urban environment, as well as in the mountains of New Guinea. As a

graduate student I spent a happy year living among the Nupe in a Nigerian village, assimilating their language and writing a grammar of it for my PhD thesis.

There are even connections with the law. Linguists are more and more frequently called upon to give expert evidence in court: to compare the acoustic properties of a suspect's speech with those of a tape recording, or to judge whether particular syntactic constructions are characteristic of one ethnic group rather than another. It is common in this area to hear claims made which are more ambitious than they are scientifically substantiated; and it falls to the forensic linguist to pour cold water on them. And the laws of libel and slander are almost unthinkable without having recourse to language.

We have almost come full circle, but there remains the historical dimension. This could be viewed as cross-cutting almost all the others, but there are two areas where it is especially prominent. The first of these is historical linguistics, pursued either for its own sake as giving an insight into how and why languages can change, or as a tool for the investigation of historical documents, from the decipherment of ancient scripts like Linear B or Mayan hieroglyphics, to the analysis of Doomsday Book or Magna Carta. The second is as a handmaid of archaeology, where linguistics can provide evidence about population movements and ethnic relationships. A sad offshoot of the historical side is the study of language death: languages die (or get killed), and with the increasing encroachment of English, Chinese and Spanish as world languages, more and more languages are dying, with serious implications for the human condition. And, finally, there is the evolutionary angle: the emergence in prehistoric times of language in humans. This is currently a growth industry, raising innumerable questions about our relatedness to other species, as well as whether this emergence accords with Darwinian theory or raises problems of a new kind.

All the foregoing seem to bear out the claim that language is central to everything we do, not just in the obvious sense

that we couldn't do our physics or chemistry without using language, but in the more interesting sense that language has close intellectual bonds with almost every discipline one can think of. It is important in all this, however, to remember that we need to distinguish knowledge of language (the initial domain of linguistic inquiry) from the use of that knowledge in particular areas. Most of the following essays concentrate on our core knowledge, but almost all of them branch out into one or another of the areas mentioned here. In doing so they regularly appeal to another discipline that I've kept under cover until now: pragmatics – the study of language use – which forms a bridge between our core knowledge and our deployment of it elsewhere.

Pragmatics has its own theories and principles, as can be seen from the consideration of one or two typical examples. Given an exchange between host and guest like '*Would you like some coffee?*' – '*Coffee would keep me awake*', we all know what the second sentence *means*, but we also know what it *suggests*: that the guest is declining the offer of coffee. Similarly, if I (truthfully) tell you that '*My first wife gave me this watch*' there is a strong implication that I have been married more than once. But of course the only wife I have ever had is also my first wife, misleading though this characterization may be. These implicit suggestions have the interesting property that they can be cancelled in the right context: you know I want to stay awake, so I'll accept the coffee; we have all been comparing gifts from our spouses and I am known to be the only one to have had but one, so I'm taken to be joking about 'my first wife'. Crucially, however, these interpretations depend on our strictly linguistic knowledge, with the implications going beyond that knowledge, and presupposing more general principles of rationality and cooperation. Here the central notion is 'relevance', by reference to which we arrive at the meaning intended as well as the purely linguistic meaning. But we can arrive at it only because we have knowledge of language.

So if you want to be the centre of the universe, become a linguist. The worst that can happen to you is that people will ask how many languages you speak.

Note

An early version of this essay and the accompanying diagram appeared (anonymously) in an undated edition of *UCL Arts* around 1990.

For more information on each of the domains which intersect with language the best source of first resort is Crystal (1997). Many of the issues raised here are discussed in Smith (1999) and several of the essays which follow. More specific references include: philosophy of language: Guttenplan (1994); Lamarque (1997). Mathematical linguistics: Partee et al. (1993). Computational linguistics: Cole et al. (1995). Natural language processing: Crocker et al. (2000); Fodor and Ferreira (1998); Cole et al. (1997); Brown and Hagoort (1999). Psycholinguistics: Aitchison (1998); Harley (1996); Napoli and Kegl (1991). Clinical linguistics: Crystal (1981); Grunwell (1987); Blanken et al. (1993). Speech and language therapy: Crystal (1982). Neurolinguistics: Gazzaniga (2000); Brown and Hagoort (1999); Chomsky (1999b); for an extreme view on the irrelevance of localization, see Fodor (1999). The law and forensic linguistics: Baldwin and French (1990); Pullum (1985). Applied linguistics (especially TEFL and TESL): Johnson and Johnson (1998). Literature, metrics and stylistics: Fabb (1997); Fowler (1996). Historical linguistics: McMahon (1994); Hock (1991); (on language death: Crystal 2000; Smith 2001). Anthropological linguistics and fieldwork: Duranti (1997); Payne (1997); Smith (1964). Sociolinguistics: Coulmas (1997); Hudson (1996). Pragmatics: Kasher (1998); Sperber and Wilson (1995).