

1 Introduction: what is language? What is linguistics?

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KEY TERMS

- arbitrary/arbitrariness
- descriptive
- design features for language, diachronic
- discreteness
- displacement
- duality
- paradigmatic
- prescriptive
- productivity
- semanticity
- signified
- signifier
- synchronic
- syntagmatic
- Universal Grammar

PREVIEW

Linguistics is the study of the structure, functions and acquisition of human language. This introductory chapter will introduce you to the enormous complexity of language and to the fact that our understanding of grammar depends on our world knowledge and on the context. This is followed by a discussion of the characteristics of human language and some ways of defining it. In comparing attempts to teach an ape human language with the language acquisition of small children, we ask whether human language has evolved from some shared, pre-existing communication system, or whether it is unlike anything that already exists in the animal world. The chapter discusses the views of Noam Chomsky on this question; we introduce evidence of native-speaker intuitions and children's errors in language acquisition which might support his argument that language is innate to humans. We then go on to discuss the approach and concerns of linguistics: that it is descriptive, and that it can be studied in its social context. The chapter ends by considering the rigorous and evidence-based methods, as well as the analytical tools, which linguists use to investigate language. Lastly, the chapter will introduce you to some of the uses and applications of linguistics. As you go through this chapter, and through the book, you will find exercises that allow you to practise these techniques of analysis.

1.1 INTRODUCTION

Any introductory textbook in linguistics will reveal to students that **language** is much more complex than speakers think it is, as they unself-consciously use it in their daily communication. As you work through this book, you will become aware that the different *levels of language* (discussed in Section 1.9 below) interact. You will learn that human

language shows marked differences from animal communication systems. As speakers of English, or whatever our first language is, we all use it with a huge degree of proficiency. Some of us are able to use language in several different *modes*: speech, writing, email, or sign. Despite that, few of us could define what human language is. At the outset, it is important to make one clear distinction between the universal human faculty of language, which we all have, and the fact that different languages exist, and are used by different ethnic or national groups. Many readers will use more than one language on a regular basis, but even those readers who know only English will possess the same faculty of human language. We discuss this at length in Section 1.3. Definitions of that faculty of language are never really satisfactory. Instead the aim of this chapter is to raise some ideas that might not have occurred to you, which illustrate how complex human language is, and how it interacts with other forms of knowledge we have.

I wonder if that last sentence of the preceding paragraph exhausted you, or was difficult to understand? I hope that it was relatively straightforward, but if you have understood it, you will have been processing some very sophisticated syntax. For instance, that sentence contained a complex verb phrase, three relative clauses and a co-ordinated clause (these terms will all be explained in Chapter 5). But it probably did not seem out of the ordinary to you at all. Language users apparently do not expend much effort on language processing, despite dealing with an incredible volume of it all day long. As well as the ability to understand the grammar of utterances, we all carry around a huge mental lexicon of about 65,000 words (Amano and Kondo 1998). We retrieve words very fast when we plan our own utterances – up to five per second – and we make very few mistakes. We also recognize words very, very fast. In processing language, we store, retrieve, recognize and even create words all the time. And all users of language are brilliant at it. There are no linguistic dunces.

The sentence below illustrates one facet of the complexity of language:

- (1) Can Spurs beat Manchester United without Wayne Rooney?

When I heard this utterance on a BBC Radio sports report, I was confused by the ambiguity of it. Perhaps as you re-read it, you are wondering how it could possibly be misunderstood, so let me try and explain the source of my confusion with some simple bracketing of the elements of the sentence. Example (2) demonstrates one of the ways I processed the sentence:

- (2) Can Spurs beat (Manchester United) (without Wayne Rooney)?

In this *parsing* (meaning an analysis of the structure of the sentence), Wayne Rooney is assumed to play for Spurs. This, of course, reveals my ignorance about football, although I can be relied upon to identify Wayne Rooney in a line-up. Anyone who pays even casual attention to the UK national game will have understood the sentence without any attendant ambiguity, thus:

- (3) Can Spurs beat (Manchester United without Wayne Rooney)?

In this parsing, the hearer understands that Wayne Rooney plays for Manchester United. As I write in 2014, this fact is part of most people's general knowledge, and so renders the

meaning of the sentence clear and unambiguous. However, students who use this textbook ten years from now might find it difficult to understand if Mr Rooney is no longer a high-profile figure in football.

What the linguist understands from examples like this is that the hearer's grammatical analysis of a sentence takes place in conjunction with their knowledge about people, places, objects and events in the world. Language appears a very complex system when we take into account the numerous levels of language which interact when sentence processing takes place: phonology (sound patterns of the language), **lexis** (words in the language), syntax (grammatical relations between sentence elements), semantics and pragmatics (two types of meaning) and the individual's knowledge of the world. In other words, the complexity of linguistic knowledge involves a system characterized by the interaction of words + grammar + world knowledge

These interacting levels of language can explain our understanding of humour, particularly those jokes which exploit ambiguity predicated on world knowledge – what we know as 'double entendre'. The following example may require readers born later than 1990 to inform themselves of some of the relevant context. We suggest you do a Google search for 'Monica Lewinsky and President Clinton' before you proceed to the next example.

Example (4) was a joke circulating in 1998, at the height of the scandal involving former US President Bill Clinton and the 22-year-old White House intern Monica Lewinsky.

- (4) What does President Clinton think about Monica Lewinsky? Answer – he thinks she sucks.

This joke works because adult native speakers of English will recognize that the answer displays ambiguity. The ambiguity lies in the grammatical possibilities of the verb *sucks*. There are two possible constructions – the first one we call *transitive*, meaning the verb requires a grammatical object to come after it, with the implication 'She sucks something.'

The second possibility for the verb is that no grammatical object follows it: 'She sucks', and this is a more colloquial usage taken to mean that the person so defined is not well thought of by the speaker. Notice that the meanings we are intended to access are only available to us if we have a rather detailed knowledge of the historical context, and this is the reason why younger readers are advised to inform themselves of the backstory first. The context is critical for supplying the elided object in the first construction! In other words, world knowledge and context will often work in conjunction with the grammar of an utterance to resolve ambiguity.

In a similar way, the current Minister for the Environment in the UK was heard on the radio saying, 'It is important to consider weather events connected to climate change', or did he in fact say this, 'It is important to consider whether events connected to climate change'? This sentence, or part of a sentence, could be analysed as *weather* behaving as a noun, or *whether* behaving as a subordinating conjunction, leaving us waiting for the next clause. In this case, our world knowledge was no help in enabling disambiguation – either analysis could have been equally likely in this instance.

Another example also takes the form of a joke. This joke was once rated the world's funniest, but again, its comprehension requires some complex linguistic processing and contextual knowledge:

- (5) A couple of New Jersey hunters are out in the woods when one of them falls to the ground. He doesn't seem to be breathing, his eyes are rolled back in his head. The other guy whips out his cell phone and calls the emergency services. He gasps to the operator: 'My friend is dead! What can I do?' The operator, in a calm soothing voice says: 'Just take it easy. I can help. First, let's make sure he's dead.' There is a silence, then a shot is heard. The guy's voice comes back on the line. He says: 'OK, now what?' (Wikipedia)

The joke relies on listeners knowing that New Yorkers (more numerous and culturally powerful) consider their neighbours in the US state of New Jersey to be less intelligent than themselves. However, also at work is language understanding, and failure to interpret meaning in context. There are two meanings to the phrasal verb *make sure*: to *ensure that* X is dead, or, to *check if* X is dead. The joke rests on our (and the emergency operator's) assumption that the obvious interpretation is the latter, but the idiotic hunter acts on the former meaning.

As we see from the examples above, we cannot always rely on the same world knowledge, and the same perspective, being shared by all speakers, and so a speaker's intended meaning may not always be understood. This is a philosophical question discussed by, among others, Jacques Derrida.

EXERCISE 1.1

- (a) In the next conversation you have with a friend, note down two utterances which require contextual information or world knowledge in order to be understood. You will probably only have to think of what has been said in the past five minutes of conversation to find examples of something which might puzzle an overhearer.
 (NB Linguists generally talk about utterances, unless they are referring to grammatically well-formed sentences of a language. Speakers, unless in a formal situation, do not usually speak in full sentences.)
- (b) How many meanings can you identify for the following sentence?
 Time flies like an arrow.
 Can you explain why the meanings are different? Hint – some words can play more than one role in a sentence, e.g. they can be a verb or a noun. This sentence can be parsed in several ways, and because of this, is known as a **garden path sentence** (see Chapter 5 for further explanation).



WEBSITE: Group exercise

Visit the website and, in a small group discuss together and try and explain how grammar and world knowledge interact to lead us to the 'correct' interpretation of a joke.

KEY POINTS: Complexity of language

- Language is analysed on different levels of sound, words, grammar and meaning.
- These levels of language interact with each other, and also with context and an individual's knowledge of the world.
- These interactions allow language users to understand the utterances they hear.

1.2 Saussure and some important concepts in linguistics

Modern linguistics is thought to have begun with an extraordinary set of lectures from Ferdinand de Saussure, a Swiss **semiologist**, whose grateful students published the lectures after his death. He was the first to point out a seemingly obvious fact that a linguistic sign (for our purposes here, think 'word') is a combination of a **signifier** (a spoken or written form) and a **signified** (a thing or referent), but it is a crucial division which underpins the other insights developed in Saussure's famous lectures. For example, there is no inevitable or 'motivated' relationship between the signifier and the signified. This means that the relationship is an arbitrary, conventional one, for example, in English we have a word *book*, but in French it is *livre*, in German *Buch* and in Chinese *shū*. A motivated relationship between signifier and signified would mean that there is some necessary connection between the referent and the sound or symbol used to signify it. Examples would be onomatopoeic words like *choo choo* or *ding dong* – which, if the theory holds, we would expect to find are words which sound very similar across languages.

EXERCISE 1.2

Find onomatopoeic words in another language known to you. Do they sound similar to ones in English?

Another insight of Saussure's was that the value (meaning) of a sign is determined by the relationships it has with all the other signs in the system. As will be explained in Chapter 7 on semantics, words in a language fall into patterns of sense relations. Antonymy, or oppositeness, is one of these relations. The meaning of a word is not just determined by its referent, it is also determined by what it is not. So, a child learning the meaning of *hot* will learn to recognize all the items in their environment which attract this designation, but they will also learn that *hot* contrasts with *cold*, and that *clean* contrasts with *dirty*. There was a BBC television series in the 1970s called *Are You Being Served?* It was set in a department store, and featured the elderly store owner who only appeared to say to staff, 'You've all done very well!' He was so fragile he needed the support of his chauffeur to stand as he waved his cane. This, we learned, was 'young Mr Grace'. It was a brilliant visual gag, but the humour derived, not from the meaning that in absolute terms he was not young, but from the linguistic implication that there must be a contrasting 'old Mr Grace!'

Words, then, derive their meanings from the relationships they form with other words in a language. As words drop out of usage, others may need to widen their meanings to accommodate the lexical gap. We may need new coinages as language shifts to reflect changes in society, so, for example, since we now have ‘gay marriage’, we will need to specify a contrasting ‘heterosexual marriage’. All of this means that the linguist can only make statements about the relations between words in a language at any one historical moment. Usually, in modern linguistics, we are concerned with the contemporary state of the language, and Saussure termed this a **synchronic** approach. As we will see in Chapter 10, language can also be studied historically, and Saussure called this a **diachronic** approach.

As well as relations of opposition, words enter into systems which Saussure termed **syntagmatic** and **paradigmatic**. The word ‘syntagmatic’ is related to *syntax*, which is covered in Chapter 6, and refers to the sequential relationships that words may have with each other. Here is an example from a notice outside a restaurant: ‘shoes must be worn’. Anyone who knows English could expand this sentence based on their knowledge of words which can follow each other in combination, so we could expand to ‘shirt and shoes must be worn’; ‘a white shirt and black shoes must be worn’; ‘a white shirt and black shoes must be worn by men at graduation’.

If syntagmatic relations are about the possibilities of combination of words, paradigmatic relations are about the choices we make when we choose a word to fit into a particular position in a sentence. So in the example above, it might read as follows if it was directed at women: ‘a black dress and black shoes must be worn by women at graduation’. Meaning accrues to words according to their possibilities of combination with others, or their possibilities of substitution. We note the gendered messages encoded in the two examples above. We also note that a word substituted in this position, ‘a ____ dress/shirt’ would be an adjective – a word which qualifies or describes the following object. A number of different adjectives could fit into this slot, e.g. *black, white, grey, purple, smart, button-up*. These choices are said to contrast paradigmatically, in that they cannot be chained together, but they can contrast in the same grammatical slot. If items can fulfil this test of substitution, then we have diagnosed an adjective. Similarly, using a syntagmatic test, of what an adjective can combine with in the sentence, we find that *dress* or *shirt* can follow the adjective, and are nouns – usually names for persons, places or things. Linguists prefer this structural method of recognizing grammatical structures, and you will encounter this throughout the book.

EXERCISE 1.3 PARADIGMATIC SUBSTITUTION

(a) When speakers of English construct *complex noun phrases* (see Chapter 5), they have intuitions (see Section 1.6) about the order in which the words must occur.

A	long	sleek	red	convertible	sports	car
.....						
.....						
.....						

Using the following words, construct noun phrases similar to the one above by placing the words in the appropriate slot in the grid above (paradigmatic substitution):

Some, many, the, tiny, heavy, table, wine, cloth, white, water, bed, firm, sensuous, large, swaying, overhanging, suspicious, bicycle, bald, ignorant, thief, convicted, menacing, physics, fragrant, teacher, deep, tall, handsome, cold, warm, green, grey

- (b) Can you make any generalizations about the order of occurrence of different types of premodifiers, e.g. do adjectives of shape come before adjectives of colour?
- (c) The British comedian Barry Cryer told a story about a listener who tuned in to the radio and heard *'tits like coconuts'*, and was immediately so offended she switched off. If she had listened further, she would have heard the full utterance, *'tits like coconuts and sparrows like nuts'* on a gardening programme. Explain, using the concepts of syntagmatic and paradigmatic relations, why the sentence fragment she heard caused her to opt for the wrong parsing of the sentence.

KEY POINTS: Saussure's concepts in linguistics

- There is an arbitrary relationship between a sign and its referent.
- The meaning of words in a language depends on the relationships between them.
- Words enter into systems of combination (syntagmatic relations) or choice (paradigmatic relations).

1.3 What are the characteristics of human language and animal communication?

The previous sections have laid out some of the complexities of human language, and some ways in which it can be studied. One way of illuminating the nature of human language, and its relationship to the human mind, is to compare it to naturally occurring animal communication systems. If we intend to make useful comparisons between human and animal communication systems, it is necessary to be very clear about criteria for differentiating the two.

Assuming that we all have experience of communication with a pet dog or cat, we know that this is limited in a way that communication with even a 3-year-old child is not. Our pet may be able to signal to us when it needs to eat, exercise, relieve itself, fight an aggressor or appeal to a potential mate. It will do this by means of bodily signals (tail wagging, standing on hind legs, arching its back), or by vocal signals (barking, mewing). Our toddler, while not yet able to offer an opinion on whether quantitative easing will have a corrective impact on the economic downturn, can argue, lie, joke, invent new words, tell imaginary stories, as well as being able to communicate all the needs that the

dog can. Clearly, there are at least some qualitative differences between animal and human communication systems.

We dignify the human communication system with the term 'language', which we have used up to this point without explanation or justification. In order to make a comparison, and determine who or what possesses language, we must be able to define it by strict criteria. The most well-known attempt to do this was by anthropological linguist Charles Hockett (1960). Hockett was working at a time when others in the fields of linguistics and anthropology were interested in classifying and analysing natural phenomena by characteristics – an approach called 'taxonomics'. The thirteen (or fifteen, depending on who is writing) **design features** for human language that Hockett suggested, do not all have equal acceptance among linguists, but an agreed subset provides a way of differentiating human language from animal communication systems. Linguists continue to feel that human language is unique in displaying all of the following design features: **arbitrariness**, displacement, productivity, semanticity, discreteness and duality of patterning.

These features require further explanation and exemplification. Arbitrariness has already been discussed in Section 1.2 above. **Displacement** is the ability that humans have to refer to events, people, objects and places which are not currently present. These referents may be located elsewhere geographically – displacement in space – or they may be events which have taken place in the past, or may take place in the future – this is displacement in time. So, as I write this chapter in Nottingham, UK, in 2013, I can still discuss the ongoing conflict in Afghanistan (displacement in space) or the likely ways in which King Richard III met his end (displacement in time). Unlike other animals, human beings are not obliged to live within the confines of the here and now, although this may be an attribute of the language used by very small children.

Productivity is the ability to create novel utterances which may never have been spoken before. This feature relies on the fact that meaning in human language depends on structure, as we have also seen in the discussion of syntagmatic relations in Section 1.2 above. For example in an English sentence like *Shakespeare wrote ten tragedies*, we understand that Shakespeare is the agent – the person who did the writing. Similarly, we understand that *ten tragedies* is the outcome of the process of writing. In other words, we access the meaning because we understand the grammatical (syntagmatic) relations between the elements of the sentence. We also understand that this patterning is regular and rule based, and so we are able to make new and meaningful combinations of the elements of the language.

Semanticity is the capacity for the signs in the language system to mean something, in that they have reference to objects, concepts, places and people. Human languages have words and phrases which are linked in the minds of speakers to specific meanings. The feature of productivity also means that we can create new words whenever the need arises to name a new concept, e.g. *website*, *emoticon*.

Discreteness means that we recognize that the signs of the language are made up of discrete elements – ones which we recognize as different. For example, because /p/ and /b/ are different sounds in English (Chapter 3 will identify these as phonemes of English), we are able to recognize that *pat* and *bat* are different words. This allows us to recognize another feature of human language – **duality of patterning**. The smallest elements of

a language – phonemes – combine to make morphemes (see Chapter 4). Morphemes combine to make words, and in turn, words combine to make sentences.

The next obvious question to ask is whether any other species has anything like language? This has been a question which has fascinated linguists, zoologists, cognitive and comparative psychologists, and much research has been done since the 1940s, largely in the USA. Zoologists have investigated the nature of animal communication systems and characterized the features of the various systems in much the same way as Hockett did with human language. Another approach, favoured by psychologists, is to try to replicate the process of child language acquisition with an animal, so that investigators might attempt to communicate with an animal using human language. Both these approaches are discussed below. As we will see, some animal systems display one or two of these features, but only all of the features in the subset can be identified in human language.

Human language is flexible and productive enough to communicate about any area of human experience. By contrast, animals can largely only send signals about food, predators and mating.

Various media or signalling channels are used by animals, e.g. sound (acoustic), smell (olfaction), electrical impulses (electroreception), movement (kinesics). Some animal communication systems which have attracted the interest of scientists are honey bees, vervet monkeys and whales and dolphins.

Honeybees were studied by Karl Von Frisch (1953), who found evidence of both arbitrariness and a degree of productivity. Bees are able to communicate about a source of nectar using an elaborate waggle dance. The intensity of the dance indicates to the members of the hive how sumptuous the nectar is, and the orientation of the body tells the other bees which direction to fly to find it. This might appear to be a case of signal arbitrariness, however, the intensity of the dance is analogically related to the richness of the nectar, which is not a strategy seen with any regularity in human language. We may occasionally say for effect, *it's a loooooong way away*, but this is exceptional. Another limitation of the bees' dance was that it seemed only to refer to the most recent source of nectar. Imagine how restricting it would be if you could only refer to your last beer, or party or game of football!

Semanticity has been claimed for the alarm calls of vervet monkeys in studies by Seyfarth et al. (1980). The researchers noticed that the monkeys responded in particular ways to different alarm calls emitted by the troop. For example, if a leopard was sighted, the other vervets would run up into the trees for safety. If a snake was seen on the ground, this would cause the monkeys to stand up and scrutinize the ground around them. Finally, if an eagle was circling overhead, the vervets would avoid trees, and instead conceal themselves on the ground in bushes. Seyfarth began to view these calls as being almost like individual words, and he decided to test these responses by playing recordings of the calls, in the absence of actual predators. Amazingly, the monkeys responded to the recordings in the same ways as they did to real calls. We may be able to regard this as semanticity, but it must be a very limited instance of it. We might predict that if another predator were to colonize the territory of vervets, they might fail to add another distinctive alarm call. This, of course, is very unlike the creativity which human beings exhibit in their use of language.

Animal communication is a broad topic which has been extensively studied, but it is beyond the scope of this chapter to pursue it in more detail. Interested readers may wish to read more widely on the nature of other animal communication systems (McGregor 2005), but we will now turn to the issue of whether an animal, in this case, an ape, can learn human language.

It is, perhaps, an enduring fantasy to have conversations with our nearest relatives, the great apes. Since the 1940s, comparative psychologists and primatologists have engineered experiments which aim to provide answers. Vicki, a chimp tutored by Keith and Catherine Hayes in the 1940s, was taught to try to vocalize a few words: *Mama*, *Papa*, *cup*. Vicki's difficulties with this soon became apparent; she was only able to produce the /k/ for *cup* by placing her hand over her nose. Research done by Philip Lieberman (2006) demonstrated that the problem lay with the chimpanzee vocal tract, which was not configured to facilitate the production of speech sounds.

However, the psychologists continued to probe the linguistic capabilities of the chimpanzee, and Alan and Beatrice Gardner procured a female baby chimp, named Washoe, with whom they used American Sign Language (ASL) to communicate, in order to bypass any vocal difficulties. A summary of their published work during the 1960s and 1970s details the training regimen that Washoe was exposed to (Gardner et al. 1989). A number of graduate student trainers were recruited to work with Washoe, and the rule was that they must only use ASL with her. Her hands were shaped into the correct signs, and her vocabulary grew rapidly over the course of the experiment. Interestingly, Washoe appeared to learn by observation, not just training, and also astonished her caregivers by appearing to invent new signs spontaneously. One such instance occurred when Washoe was walking by a river and saw a swan, whereupon she signed 'water bird'. In order to satisfy themselves that Washoe was able to use signs in a truly human way, the research team set up a double-blind test. This used an experimental rig involving mirrors so that Washoe could make an ASL sign when shown a picture, and a Deaf recipient was asked to interpret her response, but they were not able to see the stimulus picture. The results were put forward as convincing evidence that chimpanzees had propositional language, and certainly could exhibit semanticity. Washoe was seen to make signs in the absence of their first referents, so was able to generalize in a way similar to human children. She also signed 'dog' in the absence of a dog, and so displacement was added to the checklist of linguistic behaviours she demonstrated.

Project Washoe, however, left the scientific community unconvinced about one central question: could an ape demonstrate grammatical ability and create a sentence? Scepticism had increased with the publication of a set of results by Herbert Terrace (1987) who raised a chimpanzee called Nim Chimpsky (you will understand the punning intent when you read the next section of this chapter). Superficially, Nim seemed to have replicated the results of project Washoe, but on close analysis, Terrace viewed his signing behaviour as mere copying of his human trainers. Nim's signing showed very little structure and was characterized by frequent repetition of sequences, e.g. 'me banana you banana, me give me banana'. Terrace compared this signing to the dressage training undergone by show horses, and to a kind of operant conditioning which trained the chimp to respond to rewards and