## Contents

### 1 Introduction
- 1.1 What is 'linguistics'? .................................................. 1
- 1.2 'Language' vs. languages ............................................. 2
- 1.3 Where is 'language'? .................................................... 4
- 1.4 Mental vs. Physical Reality ........................................... 6
- 1.5 Exploring the Mind through the Physical World .................. 10
- 1.6 Some further implications of Figure 1.1 ......................... 12
- 1.7 What is a linguistic system? .......................................... 14
- 1.8 What linguistics is not about ......................................... 16
- 1.9 Exercises ............................................................... 18

### 2 Phonetics
- 2.1 Introduction .......................................................... 21
- 2.2 Speech as a Continuum .............................................. 22
- 2.3 Articulatory Phonetics .............................................. 23
- 2.4 Summary of relevant IPA symbols .................................. 35
- 2.5 Exercises ............................................................... 38

### 3 Phonology
- 3.1 Further Phonetic Details ............................................ 43
- 3.2 The Phoneme .......................................................... 45
- 3.3 Minimal Pairs & Allophones ....................................... 46
- 3.4 More English allophony ............................................. 49
- 3.5 Rule ordering .......................................................... 50
- 3.6 Some Allophony in other languages ............................... 53
- 3.7 Universal Properties and Language-Specific Properties ........ 54
3.8 Summary .................................................. 55
3.9 Solving phonology problems .................................. 55
3.10 Exercises .................................................. 59

4 Morphology ............................................. 63
4.1 Morphemes .................................................. 63
4.2 Morphemes and Allomorphs .................................. 71
4.3 Productivity .................................................. 76
4.4 Hierarchical Structure in Morphology ....................... 77
4.5 The ‘cranberry’ problem .................................... 80
4.6 Summary .................................................. 80
4.7 Exercises .................................................. 82

5 Syntax ..................................................... 87
5.1 Introduction .................................................. 87
5.2 Grammaticality .............................................. 88
5.3 The simple sentence in English ............................. 90
5.4 Categories .................................................. 92
5.5 Constituency and Structure Building ....................... 94
5.6 Syntactic Operations ...................................... 102
5.7 More Head to Head Movement ............................. 106
5.8 Structures and Their Interpretations ....................... 109
5.9 Summary .................................................. 111
5.10 Exercises .................................................. 113

6 Semantics .................................................. 117
6.1 Introduction .................................................. 117
6.2 Lexical Meaning ............................................ 118
6.3 Sentential Meaning ........................................ 121
6.4 Summary .................................................. 127
6.5 Exercises .................................................. 128

7 Sociolinguistics ............................................ 129
7.1 Introduction .................................................. 129
7.2 Traditional Dialectology ................................... 130
7.3 Problems with Traditional Dialectology ................. 133
7.4 The Sociolinguistic Revolution ............................ 135
7.5 Standard and Non-Standard .............................. 138
7.6 Gender and Linguistic Variation .......................... 139
7.7 Summary .................................................. 141
7.8 Exercises .................................................. 143

8 Historical Linguistics ...................................... 145
8.1 Language Change .................................................. 145
8.2 Comparative Reconstruction ..................................... 151
8.3 Relative Chronology and Subgrouping ....................... 164
8.4 Cultural Reconstruction ........................................... 168
8.5 Summary ............................................................. 168
8.6 Exercises ............................................................ 169
Chapter 1

Introduction

Contents

1.1 What is ‘linguistics’? .............................................. 1
1.2 ‘Language’ vs. languages ...................................... 2
1.3 Where is ‘language’? ........................................... 4
1.4 Mental vs. Physical Reality .................................... 6
1.5 Exploring the Mind through the Physical World ........... 10
1.6 Some further implications of Figure 1.1 ...................... 12
1.7 What is a linguistic system? ................................. 14
1.8 What linguistics is not about ................................ 16
1.9 Exercises ......................................................... 18

1.1 What is ‘linguistics’?

Linguistics is the study of one aspect of human knowledge, specifically, knowledge of language. Because linguistic science concerns human knowledge, it falls under the scope of the broader field of Cognitive Science. Other disciplines which fall under Cognitive Science include those that study auditory perception, visual perception and motor co-ordination. As is usual in scientific enterprises, ‘language’ has a very specific sense in linguistics – one which does not match that found in everyday usage. Since we will be using ‘language’ in its technical, linguistic sense, it is important at the outset to be clear about what precisely the term means. In this context – an introduction to a scientific pursuit – this precision has the added benefit of giving you some idea what the subject matter of the discipline is. This chapter is intended to be helpful in this regard.

Physics is the study of the physical universe. Nevertheless, we do not normally see physicists wandering around measuring dogs, beards, or mailboxes – although all these
things are part of the physical universe. Physicists attempt to develop general rules for the structure and processes of the physical universe from which the properties of specific entities – a dog, a beard, or a mailbox – follow. Similarly, the object of study in linguistics is not your language or Fred’s language or any specific instantiation of ‘language’, but rather the general principles which govern all languages. Specific individual languages, like specific entities in the physical universe for a physicist, are intended to follow from this general model of language.

Contrary to widespread everyday usage, then, a linguist is not someone who knows a lot of languages.¹ It is true, however, that a primary source of data for the general theory of the nature of linguistic knowledge must necessarily be actually observed linguistic systems. Therefore, linguists generally know a certain amount about the structures and processes found in a variety of languages; however, the knowledge that linguists have about languages (other than their native language) is what we might call explicit or conscious knowledge. By contrast, the knowledge that a native speaker has is tacit or unconscious knowledge. (If it were not, the job of the linguist would be quite trivial.) The linguist’s explicit knowledge about the structures and processes found in the linguistic systems they study does not give them the ability to speak these languages. If you have ever studied a second language in some relatively formal setting, you know how inadequate conscious knowledge of the grammar of a language is as a basis for speaking. It is only when your knowledge becomes unconscious that you actually feel you can speak a language.

1.2 ‘Language’ vs. languages

One of the most frequent uses of the term ‘language’ in everyday speech is in such collocations as ‘the English language,’ ‘the French language,’ ‘the Swahili language,’ etc. These notions of ‘language,’ which we will call socio-political, turn out to have no clear referent and thus provide no meaningful basis for scientific inquiry.

We will give two examples of the difficulties which confront one attempting to develop a coherent notion of ‘the English language.’ The first is literary (in spite of the fact that written language does not fall under the purview of linguistic science in the view of most linguists). The Modern Library Board recently released a list of the top 100 of “what it considers to be the best novels published in the English language since 1900.” James Joyce’s Finnegans Wake is listed as number 77, meaning, among other things, that this board of specialists believe it is written in ‘the English language’ (and that they liked it). A typical passage from Finnegans Wake is this nice little scene, early in the novel (pp. 15-16):

In the name of Anem this carl on the kopje in pelted thongs a parth a lone

¹Saying ‘John is a great linguist, he knows 10 languages’ sounds to a linguist like saying ‘Mary is a great physicist, she hits home runs all the time.’ (Understanding the physics of velocity and trajectory does not, unfortunately, have any bearing on whether one can hit a baseball accurately and far.)
If a linguist attempted an analysis of our instantiation of knowledge of language, which most people would call 'English,' and had also to account for the above data as 'the English language,' he or she would certainly fail to develop a coherent account of either our knowledge or the knowledge of Joyce (as represented by *Finnegans Wake*).

To take a more mundane example, here is a little story from Yorkshire (taken from Arnold Kellett, *Basic Broad Yorkshire*, Smith Settle, 1992). We have added a translation.

> 'Thoo’s getten poison i’ thi’ sistren, that’s why thoo’s bellywark,’ says t’ docther. ‘Thoo mun a thi teeath oot.’
> ‘What?’ Ah says, ‘All on ’em?’
> ‘Aye,’ he says. ‘Ivvery yan’… So Ah took ’em oot, an laad em on t’ table.
> ‘You’re getting poison in your well, that’s why you have a belly-ache,’ says the doctor. ‘You have to have your teeth extracted.’
> ‘What?’ I say, ‘All of them?’
> ‘Yes,’ he says, ‘every one.’... So I took them out and laid them on the table.

While the attempt to represent this way of speaking using a modified version of the traditional English writing system leaves much unclear (we will see how linguists deal with this problem soon), what is clear is that our language and this one are quite different. Again, any attempt to develop a scientific analysis of our speech which must also deal with this evidence will fail to provide insightful analysis of either linguistic system.\(^2\)

What these examples show is that the notion 'the English Language' does not provide the linguist with a sufficiently coherent body of data to subject to meaningful scientific analysis. To understand the differences between our language and that of Joyce's

\(^2\)By the way, once we recognize that the Yorkshire linguistic system and ours are different in important ways, if we want to keep calling one of them 'English,' it is probably we who are in trouble: Yorkshire is in England, after all...
Chapter 1. Introduction

Finnegans Wake, that of Yorkshire, that of an Alabama farmer, or that of a life-long resident of Melbourne, Australia we cannot lump these quite diverse linguistic systems into one big ‘English language’ bucket. Indeed, it turns out that upon sufficiently close examination, the language which each of us uses is different from the language of virtually everyone else. Even the notion ‘the language which I use’ turns out to be rather under-differentiated, for scientific purposes.

A cautionary note must be added at this point. Linguists continue to use such terms and phrases as ‘English’, ‘in Tzotzil’, and ‘some languages have...’ While this is both misleading and inaccurate, it is convenient, and it is done with the understanding that these entities do not actually exist in the relevant linguistic sense.

1.3 Where is ‘language’?

The foregoing discussion reveals a serious shortcoming in traditional notions of what ‘language’ is. ‘Language’ is generally treated as something ‘out there,’ in the world. The meaning of words is thought to be found by consulting a dictionary, the ‘correct’ rules of grammar by looking in a grammar book. There is some notion that ‘correct English’ exists and that we are all attempting to attain this difficult target, some of us with more success than others.

Linguists, by contrast, recognize the important role that all linguistic systems play in the scientific pursuit of attempting to understand in general what a possible linguistic system is. Through an examination of the diversity of human linguistic systems, linguists have learned that there are no ‘incorrect’ linguistic systems, no ‘primitive’ languages, and, most importantly, that language, in the relevant scientific sense, is not something ‘out there’ but rather something ‘inside’ a human being – a piece of mental machinery. Each individual has a particular knowledge state with respect to language. As a result, there are at least as many ‘languages’ as there are humans.³ A reasonable question at this point might be whether this reduces the possibility of scientific inquiry into knowledge of language to zero. If everyone’s knowledge state were completely different, it would mean that no interesting generalizations about language (and consequently about human knowledge with respect to it) could be made. What linguists have observed, though, is that no matter how superficially different the languages are (in the sounds or words they use, for example), there are striking similarities among them whether those languages are types of Chinese, Telugu, Zulu or Pohnpeian.

Our goal, then, is to characterize what humans actually know with respect to language, not what society/books/educational systems state that they are supposed to know.⁴ An important step in creating a model of human knowledge of language is to develop descriptive grammars. These contrast sharply with the prescriptive grammars that most

³The inclusion of ‘at least’ is meant to account for individuals who are multilingual and/or multidialectal.

⁴We are not making a judgement about the validity of the latter. We are simply saying that what people are supposed to know, for whatever reason, is irrelevant to linguistic inquiry.
people are familiar with from school. An example might make this clearer. If you were
to observe our speech for some period of time, you would find that we say things like the
following:

- I have to teach this morning and so don’t you.
- I didn’t do nothing all day yesterday.
- Since you never come to class, that’s all the higher a grade I can give you.

Instead of (in keeping with ‘grammar’ books):

- I have to teach this morning and so do you.
- I didn’t do anything all day yesterday.
- Since you never come to class, that’s as high a grade as I can give you.

There are several possible theories one could develop as to why we say one set of
sentences, rather than the other. These include (among others):

1. We’re of well below average intelligence.
2. We’re lazy.
3. We’re of well below average intelligence and we’re lazy.
4. We’re undereducated.
5. We’re undereducated and of well below average intelligence.
6. We’re undereducated and we’re lazy.
7. All of the above.
8. We have different linguistic systems than that of the people who wrote the gram-
mar books.

We are not really in a sufficiently impartial position to evaluate our degree of intelligence,
sloth, and education (although we both hold Ph.D.’s), but we think there are pretty com-
pelling reasons to believe that (8) provides the most productive hypothesis. Consider, for
example, the following. In English grammar books, multiple negation (‘I didn’t do noth-
ing all day yesterday.’) is considered non-standard (i.e., ‘incorrect’). By contrast, in many
linguistic systems, including those generally referred to as ‘Slavic,’ multiple negation is
standard. Failure to use both negatives in such sentences would be taken as a clear sign of lack of intelligence, laziness, or lack of education. But how can it be laziness for one of us to use multiple negation and for speaker of a ‘Slavic’-type language to fail to do so? Either one or the other must be the lazier option, and lazy people everywhere should opt for the same form. Instead, what counts as lazy, stupid, or lacking in intelligence is always related to some societal norm, the workings of which are quite independent of any linguistic system.

If our linguistic systems do not reside in or derive from grammar books, where do we have them? How did we get them? What are they? These are basic questions posed by linguistic science. The generally accepted answer to the first of these questions is not surprising: an individual’s linguistic system is located in their mind. It is that component of the cognitive system which enables a person to parse (analyze) incoming speech and to produce linguistic output.\footnote{Note that we say specifically ‘component of the cognitive system’. We will discuss the important distinction between cognitive systems and physical interface systems, such as the visual and auditory systems, shortly.} The property of having human-type linguistic systems appears to be restricted to human-type minds. Although efforts have been made to teach various symbolic manipulation systems to higher apes, the fact remains that if we take any normal human infant and expose them to human speech, they will acquire a human-type linguistic system. This is not true, as far as can be determined, of apes, dogs, rats, mosquitos, or potatoes. It is uniquely true of humans, to our present knowledge, and suggests that the linguistic system is \textit{species-specific}. Crucially, this claim has nothing to do with whether other species have systems they use for intra-species communication – presumably all species have methods of communicating. The claim is limited to the linguistic system that we will be exploring, which appears to be a system found only in humans.

The answer to the question of how we each ended up with the linguistic systems that we have is contained in many ways in the preceding paragraph: when we were infants, people spoke to us and around us. As in humans generally, this led to the development of a linguistic system \textit{in each of our minds/brains} (commonly known as our ‘native languages’). The process of how this happens will be the subject of considerable further discussion.

\section*{1.4 Mental vs. Physical Reality}

The conclusion of the previous discussion – that the linguistic system is a type of knowledge found in every human mind/brain – is one of the primary reasons why Linguistics as a field falls under the larger domain of Cognitive Science. It is probably not immediately clear, however, what Linguistics has in common with visual perception, for example. Since the connections between the two, as well as the general theoretical framework of Cognitive Science, are both very important to understanding the linguistic system, we
1.4. Mental vs. Physical Reality

will take a quick tour into the realm of physical vs. mental reality here. To start, have a look at the illustration provided below.

![Illustration](image)

This will certainly not be the first time you have seen what people generally call an ‘optical illusion.’ These sorts of pictures get passed along from person to person periodically. Most people stare at the picture for a few seconds, say something like ‘Cool! How/Why does it do that?’ and move on to some other item or activity of interest. We’re going to make you think about it for a little bit longer than that, though, because the question ‘How/Why does it do that?’ is actually a fairly important one.

First, let’s see how you would describe what you are seeing. Most people agree that the picture has the following properties:

(a) There are black squares with rather thick greyish lines between them. (The picture is a rectangle, assuming each square is of equal size, with 8 squares along the bottom and 6 along the side.)

(b) At the intersection of the lines, there are white dots

(c) Black/grey dots appear fleetingly on the white dots as you run your eyes over the picture

(d) Black dots never appear on a white dot if you have focussed your eyes specifically on that dot.

We will not go further into (a) and (b) although they have their own interesting features. What strikes people particularly about the picture (and causes them to label it an ‘optical illusion’) are (c) and (d). Often accompanying this picture, by the way, is the text: "Count
the black dots!” This, of course, turns out to be impossible to do. That’s only one of the ‘problems’ you have with this picture, though, as you can see from a more complete list of problems below.

- You see black dots but cannot count them
- You only see black dots when your eyes are scanning the picture
- When scanning the picture, the black dots appear to move from one white dot to another
- The black dots appear only very fleetingly on the white dots and move very fast between them
- You know that this is an inert piece of paper and therefore it does not have any moving parts

The final problem is the most worrisome. But the good news is that it’s not just you having some sort of visual/mental glitch. Everyone who looks at this picture reacts the same way. This makes it a very interesting problem for science. (If it was just you, it would be, frankly, a lot less interesting...) There is a measurable physical object (the picture) to which humans consistently attribute the same ‘impossible’ (unattested) physical properties (i.e., black dots and movement).

Where should we search for an explanation of these strange phenomena? It’s easy to rule out the piece of paper. Both casual and more sophisticated measurements tell us what the actual physical properties of the paper are and that they don’t include moving dots. Indeed, if we want to get scientific about it, we can measure with a specialized piece of equipment the brightness or luminosity of the image at each dot. Such a device will uncover no black dots and no motion at all. We can also rule out the ‘air’ between you and the paper. If it was something in the air, then there is no explanation for why you don’t see moving black dots on this page. Let’s also rule out alien intervention – they’d have to be some pretty tricky aliens to get all of us to think the same thing at exactly the same time, every time. There are, of course, other logical possibilities but they are quite remote and so should not be considered first. Essentially, we are left with you, specifically, your eyes and your mind.

Scientists understand the mechanics of the eye quite well at this point. It is an organ that reacts only to certain types of stimuli (light that falls within a well-defined frequency range, but not x-rays or ultraviolet light, for example). When (processable) stimuli are introduced to it, the eye passes information along to the brain. What the eye cannot do is manipulate the stimuli themselves. But some manipulation is taking place in our picture. The physical properties of the picture are unchanging but something is taking those properties and creating a slightly different picture for us. It is definitely not the eye itself which is responsible for this.
Not surprisingly, we conclude that it is your mind that is causing you to perceive this picture as having moving black dots. Somehow, your mind has taken the information it receives from the eye and constructed its own version of the picture – and that is the picture that you ‘see,’ or, more appropriately, that you ‘perceive.’ Many of the properties of the physical picture are present in this mental picture version but the mind has also obviously added some properties that the original picture does not and cannot have. Rather crucially, the ‘mental picture’ is produced completely consistently within and across humans. Every time you see this particular optical illusion, your mind (and everyone else’s) creates for you the same perception. This, and the countless other examples of its type, suggests that the mind has a system for creating mental perceptions out of the stimuli that the eye provides to it. Exploring and modelling this system is the task of researchers in Cognitive Science who work on vision.\footnote{If this example does not seem sufficiently compelling to persuade you that the mind controls your perception of physical stimuli, compare the fact that the human eye can only process two dimensions with the three-dimensional percept your mind presents to you every time you open your eyes. For a fascinating look into human visual cognition, see Donald D. Hoffman, \textit{Visual Intelligence}, 1998.}

It turns out that audition and language, among other areas, share this dichotomy between the physical representations of stimuli and their mental representations (what we ‘perceive’). Moreover, it seems that, like vision, the mind is strictly systematic about how it constructs mental representations of auditory and linguistic stimuli. These are some of the primary reasons that cause us to unite all of these areas under the domain of Cognitive Science. Beyond this, all of the sub-fields within Cognitive Science are also united by the fundamental assumption that the mind can best be modelled as a computational system. The computational approach to human knowledge has proved fruitful and still provides the general framework within which each of the sub-fields is explored.

Examples parallel to the optical illusion are actually fairly easy to find for language. Some of them are so common, in fact, that we pass right over them without noticing. One very prominent and accessible ‘linguistic illusion’ is that physical entities such as ‘words’ exist. This illusion is especially strong because we happen to have a writing system associated with English and our particular system requires white space between some sets of letters but not between other sets.\footnote{Upon examination, it is clear that there is no way ‘word’ could be defined based on this writing convention either. And, just for information purposes, not all writing systems require white space of this type.} Although we can formally support this claim with acoustic measurements of language, it is also observable in an everyday situation. Consider those occasions when you happen to overhear people speaking a language that you do not speak or understand. It is impossible to determine how many ‘words’ they are saying, all you hear is a stream of unintelligible sounds. If there were actually ‘words’ in their speech, you should be able to count them, at least, even if you don’t know what the words mean. The fact is that there are no physical entities that correspond to ‘words,’ instead, ‘word’ is a mental construct (like moving black dots) that your linguistic system builds for you based upon experience with specific language data. (The term (word) is still difficult to define and may be better replaced by different units, as we will see later.)
Having briefly grounded Linguistics in Cognitive Science, we will now turn to a more detailed discussion of how we can explore the mental system responsible for our knowledge of language and how the physical and mental systems used for language are related to one another.

1.5 Exploring the Mind through the Physical World

Given that what we linguists are interested in is a property of the human mind, we have a problem. The mind itself is not directly observable. Linguists have a variety of tools which make it possible to transcend the difficulties created by this problem (which confronts all scientific inquiry, since frequently the phenomena of interest are not directly observable). The figure below may help clarify the distinction between the mind and the physical world, and illustrate the systems that provide an interface between the two.

![Figure 1.1: The mind vs. the physical world.](image)

In Figure 1.1 (see following page), the **linguistic computational system**, also known as **the grammar** is shown schematically within a double-lined circle. The computational system/grammar has both input and output functions, on the one hand interacting with systems that are auditory and articulatory and on the other with a component that is

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8There are new and exciting techniques for studying electro-chemical activity in the brain, such as PET scans and MRIs, however, we know virtually nothing about the relationship between the cognitive systems posited by scientists for the mind and their physical instantiation in brains. While recent developments may have moved this question from the domain of mystical speculation into that of potential empirical investigation, we need to have well-grounded theories in three domains: (1) the cognitive systems themselves, (2) the physical structures and processes of the brain, and (3) the relationship between (1) and (2). Linguistics is deeply involved in (1). At present (2) is rather poorly understood. (3) remains mysterious.
1.5. Exploring the Mind through the Physical World

responsible for the actual meaning content of the ‘message’ which we have just labelled ‘interpretation.’ The arrows leading into the grammar indicate the processing of input data, the arrows leading away from the grammar indicate the process of generation of spoken output. The dotted box is intended to reveal which aspects of these processes are mental as opposed to physical.

Examining the input path first, we can see that we start with an acoustic signal. If this signal is within earshot of our schematic listener, it will enter his or her ear, be transformed through fairly complex mechanisms into neural impulses, and thus ‘be heard’ in some meaningful sense. Roughly, hearing a sound involves converting a physical set of ‘sound waves’ (variations in air pressure) into a mental representation. If the signal is human speech, this mental representation will be passed on to the grammar for linguistic processing. Assuming the signal is parsable by the grammar, the grammar will generate an ‘interpretation’ for the signal. Naturally, this interpretation is a mental representation, as well.

The line between physical and cognitive processes is found at that point at which the physical effects of receipt of a sound wave by the part of the physiology responsible for auditory processing are converted into a form which the rest of the cognitive system can operate on. The actual sound waves do not ricochet off the inside of the skull — they must be cognitively represented in order to be processed by higher cognitive systems. This is indicated in the figure by the fact that the mind/physical world line cuts through the ‘acoustic processor’ module.

If we now consider the generation of speech in this figure, we see that we start with some kind of semantic representation (an ‘interpretation’) which the speaker wishes to produce as speech. This semantic representation serves as the input to the grammar. The grammar acts as a processor which converts the semantic/input representation into an output representation. Note that the output representation is not part of the grammar — it is the product of the grammar’s internal processing. This output representation is then passed on to the articulatory system of the speaker, which converts it into a set of muscle commands. The result of this processing is a set of articulatory acts performed in response to the muscle commands. These acts will generate speech.

The line between physical and cognitive processes in speech generation is found at that point at which the mental representations generated by the grammar are converted into a set of physical signals sent to the articulatory organs. In Figure 1, this is indicated by the fact that the dotted line which separates the mind from the physical world cuts through the ‘articulatory system’ module.

Having gone through these issues in some detail (though the processes involved are still grossly oversimplified), it should be obvious that the most readily accessible element of this system, to those of us who are not telepathic, is the portion outside of the dotted

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9Natural (human) language may use an acoustic or a visual signal as the medium. The structure of the argument is not affected by the medium. The technical details in the chapter are based on an acoustic signal rather than a visual/signed one, however. The basic principles upon which the linguistic system is built are the same for both acoustic/spoken and signed natural language.
Chapter 1. Introduction

box in the figure above. There are basically three aspects of this material that are more obviously physically grounded: (1) the acoustic signal, (2) the physical structures and processes of the auditory system, and (3) the physical structures and processes of the articulatory system. It is the field of **phonetics** which investigates these matters, providing linguists with tools which allow them to get at the most accessible aspects of the speech system in order to test hypotheses about the underlying cognitive systems which play a key role in this system.

1.6 Some further implications of Figure 1.1

While talking about the line between the primary interest of linguists, the mental system called the grammar/computational system, and the systems which turn the output of the grammar into something we can observe the effects of (the acoustic signal), there are a few important related issues we should deal with.

It is not unusual to hear adult speakers produce strings of speech such as the following (taken from a recorded conversation contained in a Carterette & Jones, *Informal Speech*, University of California Press, 1974):

- aj dəs rili it its də bɪɡəst ðrɪl
- I just really it’s the biggest thrill

This speaker clearly started out saying one sentence, then shifted midstream to another (without finishing the first). She also said the subject of the second sentence (‘it’) twice. The result is that she has said something which is not a sentence at all — it cannot be parsed by a grammar. It is difficult to interpret exactly what was intended (what was she saying about herself with ‘I just really’, for example?). Part of what she said (‘it’s the biggest thrill’) is a perfectly good English sentence, and is the only part of the string of noise she produced that can be coherently interpreted as a sentence. Notice, for example, that although the string starts out as if it is saying something about the speaker (‘I’), you cannot respond to this sentence by saying ‘no, you don’t’ (or ‘no, you aren’t’).

This can be made clearer if we imagine trying to teach someone ‘English.’ One seemingly sensible way to do this would be to give them sentences said by speakers of English. Speakers say things like ‘it it’s the biggest thrill’ every once in a while. But this is not due to the **grammar** which is present in their mind — it is instead an effect of the imperfect physical system through which the grammar is forced to play its output. If we taught our learner to say ‘it it’s the biggest thrill’ (as speakers of English do every once in a while), when the learner’s body suffered the same electro-chemical glitch that caused our speaker

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10This is presented first in the alphabet of the International Phonetic Association, which you will learn about later in the next chapter, then in regular English orthography. After you learn about the IPA, you should take another look at this passage and try to read it out loud.
to say ‘it it’s the biggest thrill,’ our learner would say ‘it it it’s the biggest thrill’ (mi-
stalkenly saying sentence-initial ‘it’ twice). To get our learner to say ‘it it’s the biggest thrill’
with the same frequency as our speaker does, we have to teach them to say ‘it it’s the biggest
thrill.’ If we do that, the learner’s body will produce — through the same processing im-
perfections that our speaker’s body has — ‘it it’s the biggest thrill’ every now and then (not
that that is necessarily a desired outcome ...).

If ‘it it’s the biggest thrill’ is the real output of the grammar, we would expect our speaker
to be able to tell us that. That is, even though speakers occasionally say ‘it it’s the biggest
thrill,’ they actually intend on those occasions to say ‘it it’s the biggest thrill.’ And, indeed,
speakers do readily recognize that they occasionally fail to articulate precisely what they
intended.

We therefore need to carefully distinguish between the competence of the speaker,
responsible for the output of their grammar (a mental representation), and their perfor-
mance on some particular occasion (responsible for the acoustic output of their body).
Bodily lapses of various sorts (lapses of memory, sneezes, etc.) and/or external physical
disturbances (high winds, dogs jumping on your chest, and so forth) modify the acoustic
signal which emerges from the body, but these lapses/disturbances do not reflect parallel
lapses/disturbances in the processes of the grammar. Lewis Carroll was toying with this
distinction when he wrote, in Through the Looking Glass:

‘And you do Addition?’ the White Queen asked. ‘What’s one and one and
one and one and one and one and one and one and one and one?’
‘I don’t know,’ said Alice. ‘I lost count.’
‘She can’t do Addition,’ the Red Queen interrupted.

Of course Alice knows how to add a sequence of ones. But presented in rapid fire suc-
cession, her perceptual performance system prevents her arithmetical system from being
able to access the information necessary to answer the White Queen’s question. The per-
ceptual and articulatory processing systems thus impose limits on access to underlying
competence.

Consequently, although the output of the body provides linguists with much of the
evidence they have for the underlying grammatical system, this evidence must be used
with caution. In particular, it must be augmented by evidence which can be obtained by
checking the judgement of the speaker as to whether or not a given string they produced
involved a performance error. This evidence is known as a ‘grammaticality judgement’ —
it can be used to help determine whether a string accurately reflects the output of
the grammar or not. In general, for your own grammar, you can perform this empirical
research through introspection.
1.7 What is a linguistic system?

This question will be the primary concern of the first two-thirds of this book. A brief overview of the central components of the system is given below.

The linguistic system is stored in the human mind – it is some type of knowledge. As pointed out earlier, each person’s linguistic system is somewhat different from another’s but, at the same time, there are striking similarities in human linguistic systems. In fact, the set of possible human linguistic systems appears to be highly restricted. These restrictions on human linguistic systems can be accounted for if we assume that innate (i.e., genetically given) knowledge restricts the types of linguistic systems humans can create. The genetically-determined portion of the system must necessarily be supplemented by data acquired from the environment. One way to answer the question of what ‘language’ is, in the linguistic sense, is to explore what one must know to know a language.

The traditional subfields of linguistics provide broad insight into this issue. The basic subfields are:

1. Phonetics
2. Phonology
3. Morphology
4. Syntax
5. Semantics

**Phonetics**, as mentioned earlier, studies the physical properties of sounds, their articulation, and their audition. **Phonology** is concerned with the knowledge which underlies the ability to produce and analyze output and input of the grammar from the perspective of structures that will relate to sound. For example, if you were asked to make up a name for a newly created beard-trimming mechanism, you might call it a

- beard-wrangler
- zorp
- flirp

but you would almost certainly not call it a

- dnkli
- ngloopi
1.7. **What is a linguistic system?**

- [lyn] (=the usual pronunciation of French ‘lune’)

Since you easily make such judgements about words you have never encountered before, you appear to have some knowledge of what is a ‘possible word’ in your linguistic system. The first set of examples satisfies some criteria for ‘possible word,’ whereas the latter does not. Note that no one has given you explicit instructions not to name a new product a ‘ngloopi.’

Morphological knowledge is reflected in your ability to analyze words generated by linguistic systems into meaningful parts. For example, you know that ‘cats’ consists of two parts: a part that means ‘cat’ (that’s the ‘cat’ part) and a part that means ‘more than one’ (that’s the ‘-s’). You know that it is not the case that it consists of, e.g., three parts (a part that means ‘domesticated animal,’ a part that means ‘feline’ and a part that means ‘more than one’). The internal structure of words is analyzed by the **morphology** of the linguistic system, which also produces internally-complex words.

Syntactic knowledge is knowledge about the structure of sentences. You know that

- you will not pass this class if you don’t pay attention

is a possible sentence given your linguistic system. On the other hand,

- *not class this pass don’t pay if will attention you you

is not. Your linguistic knowledge, in particular the **syntax** of your linguistic system, which governs the structuring of phrases and sentences, will not produce the asterisked sentence and will not parse it as a ‘sentence,’ therefore it comes across instead as just a list of words.

We would like to remind you here of the distinction that we made between social judgements about language ‘correctness’ and the aims of linguistic science (to explore and characterize knowledge of language). The following sentences are produced by our linguistic systems – they are syntactically well-formed and therefore not given an asterisk.

- I didn’t do nothing all day.
- I have to go to school tomorrow and so don’t you.

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11 Lacking the tools of phonetics at this point, we are just representing this in English orthography here. ‘Orthography,’ in its narrowest sense, means ‘correct writing’ i.e., proper spelling but is sometimes used as a synonym for ‘writing system.’

12 Linguists mark strings of words which do not parse as sentences – so-called ‘ungrammatical’ strings – with an asterisk, as here.
From a linguistic perspective, these sentences are syntactically grammatical, i.e., they have been produced by the grammars of each of us and are judged by each of us to be perfectly fine sentences. The fact that they may not be socially acceptable (as sometimes indicated by prescriptive grammars) is completely irrelevant to our inquiry.\footnote{Although we do still casually speak of ‘English’, the grammars of particular individuals may or may not produce the sentences here. What is grammatical for one person may be ungrammatical for another. The point remains that these judgements have nothing to do with societal/prescriptive norms.}

**Semantics** is the study of meaning. As such, its concerns are much broader than those of linguistics alone. However, some aspects of meaning may be linguistic in nature (the matter is quite difficult). It is certainly the case that the grammar plays a key role in one’s ability to assign meaning to sentences that one hears and to produce sentences that express, at least in some vague way, the meaning one intends in some particular situation.

These ‘modules’ rather traditionally are referred to together as the grammar. Once again, they do not mean the kind of prescriptive grammar found in traditional grammar books, but rather a component of the cognitive system of a human – a mental organ, as it is sometimes called, which has the responsibility for producing and parsing linguistic information. We will study each of these modules of the grammar in turn.

There are three additional topics which we will cover in this book. The first is *Sociolinguistics* which looks at the relationship between social variables like age and gender and linguistic variation. The second is *Historical Linguistics* which concerns itself with the genetic relatedness of languages and language change over time. The third is *Acquisition* which, just as it sounds, is an inquiry into how knowledge of language develops in humans. As we have briefly noted, there is considerable evidence to suggest that that linguistic knowledge has both an innate/genetic component (commonly referred to as *Universal Grammar* or *UG*) and an experience-based component. One of the areas that Acquisition explores is which aspects of knowledge are attributable to which of these components.

### 1.8 What linguistics is not about

Before proceeding, we would like to point out certain topics that we are not going to talk about and why we are not going to talk about them. The first of these is communication. It is true that the human linguistic system is often (but not always) used for communicative purposes – so, for that matter, are Morse Code, semaphores, and picture-drawing, among other things. Note that a particular message can be communicated using a variety of different systems, such as those mentioned above. Given this fact, the message is independent of the system (although it is true that some systems convey certain messages better than others). Linguistic inquiry of the type we have described here is an exploration of the properties of the linguistic system, itself, not the message or messages that are conveyed by it.
1.8. *What linguistics is not about*

The second topic that we will not talk about is writing systems. Human knowledge of language existed long before writing systems developed and continues, for the vast majority of languages, to exist independently of such systems. All humans have a fully-developed linguistic system before they learn a writing system (if, indeed, they ever learn one). Therefore no appeal to a writing system (nor any mention of ‘letter/spelling’) has a place in our inquiries.
1.9 Exercises

Circle the correct answer.

1. A speaker's knowledge of his/her language is:
   (a) explicit knowledge.
   (b) conscious knowledge.
   (c) tacit knowledge.
   (d) all of the above.

2. 'I'm not doing nothing today' is:
   (a) a string of words which is ungrammatical for all humans.
   (b) a string of words which is a grammatical sentence for some humans.
   (c) an illogical statement.
   (d) a fundamental truth.

3. 'Syntax' is the module of the grammar responsible for:
   (a) the structure of sentences.
   (b) the structure of complex words.
   (c) the sounds used in human languages.
   (d) that extra money you have to pay when you buy cigarettes.

4. Linguists examine various linguistic systems and develop
   (a) prescriptive grammars.
   (b) descriptive grammars.
   (c) dictionaries.
   (d) theories about which systems are best.

5. A 'linguist' is someone who:
   (a) can speak more than five languages.
   (b) can speak more than ten languages.
   (c) investigates the nature of human language.
   (d) speaks with proper grammar.
6. Select the words below which belong in this sentence: ‘The English language is _________ linguistic research.’

(a) a critical component of
(b) the major focus of
(c) irrelevant to
(d) one aspect of

7. ‘Phonology’ is:

(a) the study of telephonic communication.
(b) the study of telepathic communication.
(c) the module of the grammar which allows one to produce and parse speech sounds.
(d) You phonio saxo? Nnnn.

8. An individual’s linguistic competence refers to:

(a) how clearly they enunciate.
(b) how many languages they know.
(c) the mental system containing linguistic knowledge.
(d) their ability to speak in public.