chapter 7

Context and Inference

7.1 Introduction

In this chapter we examine how speakers and hearers rely on context in constructing and interpreting the meaning of utterances. We have already seen instances of this: in chapter 2 we mentioned the role of assumed knowledge in the use of proper names and definite noun phrases. The use of the names in bold in 7.1–2 below is only licensed by an assumption that the hearer can identify the individuals:

7.1 It'll take more than a pair of Levis to make you into **James Dean**.

7.2 Her mistake was to hire an **Elvis** impersonator.

We discuss this kind of assumed or background knowledge in section 7.6. Sometimes this kind of knowledge is called **non-linguistic knowledge** because it is argued that knowing who James Dean or Elvis is does not form part of one's knowledge of English, in the same way as knowing the meaning of *pair* or *talk*. For of course, knowledge about film stars or music personalities is not restricted to speakers of any single language in the way that knowledge of a particular noun or verb's meaning is.

Semantics, Fourth Edition. John I. Saeed.

We will see though that this non-linguistic knowledge about the world does perform an important role in understanding utterances.

Of course to understand these sentences the hearer also has to be able to identify the *you* of 7.1 and the *her* of 7.2. This information is normally instantly understood from the context, but if we provide an odd enough situation, for example finding these sentences written on pieces of paper, we can clearly see the essential role of knowing contextual information like who wrote the sentence, to whom it is addressed, and so on. The reason of course is that, as we have seen in earlier chapters, pronouns like *I*, *you*, *her*, and so on are shorthand devices which need various forms of contextual support. Elements of language that are so contextually bound are called **deictic**, from the noun **deixis** (from classical Greek *deiknymi* "to show, point out"). In chapter 5 we called tense a deictic category because, for example, past tense and future tense identify time phases relative to the "now" of utterances. We noted how commonly references to time are oriented toward the time of speaking, as in 7.3 below:

7.3 We'll put the letters in the post later.

In this sentence both the future tense of the verb and the temporal adverb *later* set up a division of time which is "in the future of now," where "now" is whenever the sentence is uttered.

In chapter 1 we discussed the relationship between semantics and pragmatics. One proposal we reviewed suggested that while both areas of study are concerned with meaning, semantics is the study of conventional, linguistic meaning and pragmatics is the study of how we use this linguistic knowledge in context. In this view, pragmatics is the study of how hearers, for example, have to combine semantic knowledge with other types of knowledge and make inferences in order to interpret a speaker's meaning. In this chapter we focus on areas of meaning where there is very clear evidence of this combination of different types of knowledge. By doing this we move our attention to the study of language use and to what are therefore, for many linguists, pragmatic aspects of meaning. We begin with deixis.

7.2 Deixis

7.2.1 Spatial deixis

The deictic devices in a language commit a speaker to set up a frame of reference around herself. As we will see, every language carries an implicit division of the space around the current speaker, a division of time relative to the act of speaking, and, via pronouns, a shorthand naming system for the participants involved in the talk. To take a simple example, adverbs of location can be used deictically as in 7.4:

7.4 It's too hot **here** in the sun, let's take our drinks into the shade over **there**.

The adverbs *here* and *there* pick out places according to their proximity to the location of the speaker. We can see this because, of course, if the speaker moves, the interpretation of the adverbs will change. When the speaker and her addressee in

7.4 have moved, they can call the shade *here* and their original place in the sun *there*, as in 7.5:

7.5 I'm glad we moved **here**, I was melting **over there**.

Demonstratives work in a similar way: English has a two-term opposition between *this*/*these* and *that*/*those*. Once again the current speaker occupies the reference point: items closer to her will be described as *this*/*these*, items further away as *that*/*those*. While languages contain such deictic divisions of space, their use has to be calculated by the participants in actual contexts. For example, how big an area is meant by *here* depends on context: a speaker might use *here* to refer to a country, a city, a room, a part of a room, and so on. This plasticity is inherent: the use of *here* does not even always have to include the location of the speaker. We can use *here* pointing to locations on a map, but there will be an actual or implicit contrast with *there*, a place further away from the speaker.

Other languages vary in the number of deictic divisions of space available to the speaker. We can compare English's two-term adverbial distinction between *here* and *there* with Spanish's three-term *aquí* "here," *ahí* "(just) there," and *allí*, "(over) there." Spanish parallels this with a three-term demonstrative system: *este* "this," *ese* "that (just there)," and *aquel* "that (over there)."[1] These demonstratives can be used to give three zones of proximity to the speaker as shown in 7.6. They can also be used to relate to the position of an addressee as in 7.7:

7.6

	near speaker	further away	furthest from speaker
* speaker	⟶	⟶	⟶
	este	*ese*	*aquel*

7.7 *este* "close to speaker"
ese "close to addressee"
aquel "distant from both"

Languages differ in both how many divisions of space are coded in their demonstratives and what other information is obligatorily included. We can look at some examples. In the West African language Hausa (Afroasiatic; Nigeria, Niger), as 7.8 below shows, the demonstrative and adverbial systems include terms which obligatorily make reference to the location of the addressee (Jaggar 2001: 323–30, 645–47):

7.8 (SP = speaker; ADR = addressee, â = falling tone; a = high tone)
nân "here" (near the SP)
nan "there" (near the ADR)
cân "there" (away from both)
can "there" (further away from both)

The English translation "there" for *nan* in 7.8 is of course inaccurate: as Jaggar and Buba (1994) observe, *nan* has to relate to the vicinity of the addressee and thus a sentence like 7.9 below is impossible:[2]

7.9 ʔjèe-ka nan!
"OFF you go there!"

Similar reference to the addressee is reported for Japanese demonstratives and adverbs by Kuno (1973).

Other languages incorporate more complex divisions of space in their demonstratives, for example Malagasy (Austronesian; Madagascar), as shown in 7.10 (Anderson and Keenan 1985: 294):

7.10 Near SP Increasingly far from SP

ity *io* *itsy* *iny* *iroa* *iry*

More unusual is the addition of a vertical dimension as is described by Anderson and Keenan (1985: 291) for Daga (Trans-New Guinea; Papua New Guinea), shown in 7.11:

7.11

oea	"overhead"	*ea*	"underneath"	*ata*	"same level"
ao	"up, high"	*ae*	"down, low"	*ase*	"same level, far"
uta	"higher (near)"	*ita*	"lower (near)"	*ma*	"near SP, this"
utu	"higher (far)"	*isi*	"lower (far)"	*ame*	"near ADR, that"
use	"higher (remote)"	*ise*	"lower (remote)"		

As 7.11 shows, these Daga demonstratives distinguish locations in space above, below, and on the same level as the speaker's position.

The examples so far have been of deictic elements relating to location and proximity relative to the speaker. Deictic elements may also include information about motion toward and away from the speaker. We can see this in English: the comparison between *come* and *go* in 7.12 and 7.13 below tells us something about the location of the speaker:

7.12 Don't come into my bedroom.

7.13 Don't go into my bedroom.

This explains why the sentences in 7.14 and 7.15 below sound odd at first:

7.14 ?Fred went to me.

7.15 ?Fred came from me.

We have to interpret the situations described in a rather complicated way to accept these sentences. Some languages have specific deictic motion morphemes: Somali for example has two: *soo* "toward the speaker" and *sii* "away from the speaker," which combine freely with verbs, as in 7.16:

7.16 a. Soo soco!
DEIC walk
"Come this way!, Approach!"

b. Sii soco!
DEIC walk
"Go on over there!, Go away!"

Finally we can end this look at spatial deixis with an example of a very complex system, and one which includes information other than distance and position: Yup'ik (Eskimo-Aleut; Alaska) in 7.17 (Anderson and Keenan 1985: 295):

7.17	**Extended**	**Restricted**	**Obscured**	
	man'a	*una*		"this (near SP)"
	tamana	*tauna*		"that (near ADR)"
			imna	"the aforementioned one"
	ukna			"the one approaching the speaker"
	a͡ugna	*ingna*	*amna*	"the one going away from the speaker"
	agna	*ikna*	*akemna*	"the one across there"
	qa͡ugna	*ki͡ugna*	*qamna*	"the one inland, inside, upriver"
	qagna	*keggna*	*qakemna*	"the one outside"
	un'a	*kan'a*	*camna*	"the one below, toward river"
	unegna	*ugna*	*cakemna*	"the one downriver, by the exit"
	pa͡ugna	*pingna*	*pamna*	"the one up there, away from river"
	pagna	*pikna*	*pakemna*	"the one up above"

The headings in 7.17 describe a semantic classification of the objects to which the demonstratives refer: "extended" forms are for either large expanses of land or water, or objects that are lengthy or moving; "restricted" applies to objects that are stationary, or moving within a confined area, and fairly small in extent, relatively near, and visible; and "obscured" describes objects that are farther away and not clearly in sight. See Anderson and Keenan (1985) for details.

7.2.2 Grammaticalization of context

We can see from the Yup'ik example above that languages vary in the type of semantic information that is obligatorily included in deictic terms. When semantic distinctions are obligatory in this way we will say that they are **grammaticalized**. We can make an informal distinction between, on the one hand, the obligatory "wired-in" ways a language divides up space and time in its function words (like demonstratives and pronouns) or its morphology, and, on the other hand, the ability which seems to exist in all languages to talk about any division of space and time by paraphrase. Thus we can use the latter ability to provide English translations for the Yup'ik demonstratives above. To use a different example: a language like Arabic obligatorily includes information about the gender of the addressee. If, for example, one wants to refer to a single addressee, the choice is as in 7.18 below:

7.18	*'anta*	"you (masculine, singular)"
	'anti	"you (feminine, singular)"

These pronouns have corresponding verbal forms. There is no "you (singular)" pronoun which does not include a gender specification. English on the other hand does

not distinguish the gender of the addressee in its pronouns and verbal morphology. To come back to our distinction, this does not mean, of course, that English speakers cannot make reference to the gender of an addressee, merely that this information is not obligatory, that is grammaticalized. In our discussion of deixis we are concerned with cases where contextual features are grammaticalized in language.

7.2.3 Extensions of spatial deixis

Systems of spatial deixis are also used in other domains. For example they are often used as a form of orientation within a discourse, in what we could therefore call **discourse** or **textual deixis**,[3] as when we say ***Here*** *our argument runs into some difficulties* or ***At this point*** *we have to look back to our initial premises*. In many languages too, spatial deixis terms, such as demonstratives, are extended to refer to time.[4] An example of this use of the demonstratives is below:

7.19 **That** year was much hotter than **this** one is.

This transference is often described as a metaphorical shift from the more concrete domain of physical space to the more abstract domain of time. The belief that there is a general human tendency to extend spatial terms in this way to a range of other linguistic domains is sometimes called **localism** (as in for example Lyons 1977). A commonly used example is languages where semantic notions like possession and states are expressed spatially, as in the Irish examples below:

7.20 Tá Porsche agam.
is Porsche at.me
"I have a Porsche."

7.21 Tá slaghdán orm.
is cold on.me
"I have a cold."

7.22 Tá gliondar orm.
is delight on.me
"I am delighted."

In 7.20 possession is expressed spatially, while in 7.21 and 7.22 physical and emotional states are so expressed.[5] A more complicated example which is sometimes quoted is the use of the verb *go* in English and other languages for immediate future tenses as in the future tense reading of *He is going to leave the country*, where the idea of spatial movement away from the speaker is mapped into time as a future event. See Fleischman (1982, 1989) for discussion of these ideas.

7.2.4 Person deixis

Thus far we have concentrated on deictic divisions of space. A further deictic system grammaticalizes the roles of participants: the current speaker, addressee(s), and others. This information is grammaticalized by pronouns: typically a first

person singular pronoun is used for the speaker, second person pronouns for addressee(s), and minimally, a third person category for a category "neither-speaker-nor-addressee(s)." This basic three-way system is the basis of most pronoun systems but once again languages differ in the amount of other contextual information that is included in pronouns. We can show this by continuing our comparison of Arabic and English, using just subject pronouns for brevity:

7.23

Singular	**Plural**	**Singular or Plural**
I	we	you
he	they	
she		
it		

7.24

Singular	**Dual**	**Plural**
'*anaa* "I"		*naḥnu* "we"
'*anta* "thou (m)"	'*antumaa* "you (two)"	'*antum* "you (m)"
'*anti* "thou (f)"		'*antunna* "you (f)"
huwa "he, it"	*humaa* "they (two)"	*hum* "they (m)"
hiya "she, it"		*hunna* "they (f)"

We can see that the Arabic pronouns in 7.24 encode more information about number than the English pronouns in 7.23: there is an extra category *dual*, which is used for "exactly two." The coding of gender is also different: English has a neuter pronoun "it" which does not occur in Arabic, where all third persons have to have either masculine or feminine gender. On the other hand Arabic pronouns encode gender more widely: English only distinguishes between *he* and *she*. So both languages have an economic and "portable" reference system for participants that can be used in any context, but we can see that the packaging of information about participants differs.

One point worth mentioning here is that for obvious reasons there is a difference between the notion of plurality applied to the role of speaker and to non-speaker roles. Since (in normal situations) the speaker is singular, what are called first person plural pronouns actually encode information about some form of identification between the speaker and others. In English it is as simple as that; other languages are more specific. The Ethiopian Omotic language Zayse, for example, has two distinct first person plural pronouns, as shown below (again in subject forms) (Hayward 1990):

7.25

núy	"we" (including the addressee(s))
níi	"we" (not including the addressee(s))

Thus in Zayse, saying the equivalent of "We're going to the party" overtly communicates whether the addressee is included, whereas English speakers have to rely on the context.

7.2.5 Social deixis

The pronoun systems of some languages also grammaticalize information about the social identities or relationships of the participants in the conversation. Some writers, for example Levinson (1983), call this phenomenon **social deixis**. The most

obvious example is the distinction in many European languages between "familiar" and "polite" pronouns, for example *tu*/*vous* in French, *tú*/*usted* in Spanish, *du*/*Sie* in German. Speakers of these languages are committed to revealing their calculations of relative intimacy and formality to their addressees. If we identify this category of social deixis, then Asian languages like Japanese, Korean, and Balinese have much richer systems for grammaticalizing social relations. In Japanese, for example, distinctions are marked by the speaker not only in relation to an addressee but also to third persons referred to, as in 7.26 and 7.27 below (Kuno 1973):

7.26 a. *Tanaka-san ga kudasaimashita.*
"Mr Tanaka gave it to me."
[where hearer is on a somewhat formal basis with speaker]
b. *Tanaka-san ga kudasatta.*
"Mr Tanaka gave it to me."
[where hearer is a friend of speaker]

According to Kuno (1973), in both the sentences above Mr Tanaka is in a higher social position than the speaker; we can see the effect of changing the relationship between the speaker and the third person in 7.27 below:

7.27 a. *Jiroo-kun ga kuremashita.*
"Jiro gave it to me."
[where hearer is in a semi-formal relationship with speaker]
b. *Jiroo-kun ga kureta.*
"Jiro gave it to me."
[where hearer is a friend of speaker]

In these sentences Jiro is in a lower social position than the speaker. Comparing 7.26 and 7.27 we can see that distinctions of social relationship have a marked effect on the form of sentences: the speaker's judgments of these are encoded by the choice of verb "to give" and by the verbal endings.

7.3 Reference and Context

Deictic expressions have been extensively studied, but it would be wrong to see their context-dependence as exceptional, as a special part of language. Much of reference involves reliance on context, together with some calculation on the part of the speaker and hearers. A clear example of this is what Clark (1978) calls **shorthands**. Turning on the radio once, I heard this sentence:

7.28 It's a struggle keeping the barnacles from off the crops.

After a while it became clear that *barnacles* was a shorthand for *barnacle geese*. The reference would have been clear, of course, if I had listened from the beginning of the program. This simple example is characteristic of normal language use: speakers calculate how much information their hearers need to make successful

references, and where they can, they economize. To give another personal example, I once overheard 7.29 below in a bookshop:

7.29 I'm looking for the new wolf (i.e. Wolfe).

where the speaker obviously felt that *the new Wolfe* was sufficient for the bookseller to identify *the new book by Tom Wolfe*. Another example might be 7.30 below, said during a snooker game:

7.30 He's got two reds left.

Shorthands are sometimes grouped with the notion of **metonymy**, which we briefly discussed in chapter 3, and **synecdoche**. The former is where we identify the referent by something associated with it, as in 7.31 below:

7.31 a. The cover-up extends to **the Oval Office**.
b. Who were all **those suits** drinking in the pub last night?
c. Have you cleared this deal with **the top floor**?

Synecdoche is a form of reference where the part stands for the whole, as in 7.32:

7.32 a. All of his cattle are affected; he'll lose more than fifty **head**.
b. It's good to see some new **faces** in here.

The use of technical terms like shorthands, metonymy, and synecdoche has the disadvantage that it suggests that these are rhetorical devices, special uses of language, whereas they are just specific examples of the routine calculation involved in making reference. We can see this use of context and calculation if we parallel examples from Clark (1978) with a hypothetical situation where someone wants to buy two bottles of Heineken lager. In a pub, they might say *Two bottles of Heineken, please!* In a theatre bar, where only bottled beer is available, their order might be: *Two Heinekens, please!* At a sponsor's stall at an open-air concert, which only serves Heineken beer, in bottle and on draft, they could say: *Two bottles, please!* If the stall only sold bottles, they might say just *Two please!* The point here is that the ordinary use of referring expressions involves calculations of retrievability, which take account of contextual information.

7.4 Knowledge as Context

These calculations of retrievability are really guesses about knowledge: a speaker choosing how to make reference to an entity must make estimations of what her hearers know. So if someone were to rush up to you and shout:

7.33 The baby's swallowed the canary!

their choice of words reveals that they think you can identify both the baby and the canary involved. To discuss the role of knowledge it is useful to divide it into

different types. This is not a scientific classification but just a way of organizing our discussion. We might, for example, distinguish between three different sources for the knowledge a speaker has to estimate:

1. that computable from the physical context;
2. that available from what has already been said;
3. that available from background or common knowledge.

Under the first heading we can put the knowledge gained from filling in the deictic expressions, as described in 7.2, that is who is speaking to whom, the time and location of the conversation. Let us examine what might come under the second and third headings.

7.4.1 Discourse as context

Under the second heading, we might view the talk itself, often called the **discourse**, as a kind of context. One clear example of this is the interpretation of sentence fragments. In isolation, fragments like *Ronan did* or *Me too* cannot be interpreted, but in the right conversational context they are meaningful:

7.34 a. Who moved these chairs?
b. Ronan did.

7.35 a. I'm starving.
b. Me too.

Participants would have no difficulty interpreting *Ronan did* as *Ronan moved these chairs*; or *Me too* as *I'm starving too*. Clearly the preceding discourse licenses these interpretations.

We can see another example of the role of the discourse itself as context when we look at the notion of **discourse topic**. It seems clear that in conversing, participants construct a notion of what the discourse is about – a kind of current topic. This topic is a form of knowledge which then influences the way they interpret the meaning of what they subsequently hear. There have been a number of experiments which support this picture. One simple one is described by Brown and Yule (1983: 139–40), from a study by Anderson et al. (1977). Subjects were asked to read the story in 7.36 below, with the "Prisoner" title, then asked questions about it.

7.36 **A Prisoner Plans His Escape**
Rocky slowly got up from the mat, planning his escape. He hesitated a moment and thought. Things were not going well. What bothered him was being held, especially since the charge against him had been weak. He considered his present situation. The lock that held him was strong, but he thought he could break it.

It was generally agreed "that Rocky was alone, that he had been arrested by the police, and that he disliked being in prison" (p. 139). When the same text was presented under another title, the "Wrestler" title in 7.37 below, other subjects agreed

that "Rocky was a wrestler who was being held in some kind of wrestling hold and was planning to get out of this hold." (p. 140). In this interpretation there is no prison-cell and no police.

7.37 **A Wrestler in a Tight Corner**
Rocky slowly got up from the mat, planning his escape. He hesitated a moment and thought. Things were not going well. What bothered him was being held, especially since the charge against him had been weak. He considered his present situation. The lock that held him was strong, but he thought he could break it.

The main point here is that listeners add their own inferences when they interpret utterances, fleshing out the material in ways that depend on knowledge provided by the discourse topic. We look at these inferences in more detail a little later in sections 7.6 and 7.7.

7.4.2 Background knowledge as context

Our third type of knowledge has been called many things, including background, common sense, encylopedic, sociocultural, and real-world knowledge. What is usually meant is the knowledge a speaker might calculate others would have before, or independently of, a particular conversation, by virtue of membership in a community. We are all of course members of many overlapping communities: speakers of our native language, citizens of the same state, city or neighborhood, members of the same sports teams, churches, or political groups, fellow university students, co-workers, and so on. Each community implies certain types of knowledge which might be shared with other members and which conversationalists must seek to calculate as they interact. We can use an example that is so obvious that we may not notice its reliance on cultural knowledge:

7.38 A: I'm hungry.
B: I'll lend you some money.

This exchange gains coherence from the knowledge that money can be exchanged for food, which is cultural knowledge not present in any reasonable dictionary entry for the words *food* or *money*. Much of the fleshing out of an utterance via inference that we mentioned above relies on this kind of background knowledge. To take another invented exchange, in 7.39:

7.39 A: Shall we go and get some ice cream?
B: I'm on a diet.

Here speaker A might reasonably infer that B's reply is a refusal; that B's reply implies "No." We will look at the use of such implications in section 7.7, but what's important here is that the implication and inference both rely on cultural knowledge about diets and ice cream. The fact that it is cultural knowledge which is providing the

basis for the inference can be shown by using an example that is less familiar to English speakers, like the exchange in 7.40 below:

7.40 A: Come over next week for lunch.
B: It's Ramadan.

If A knows that B is a Muslim then A will probably infer that B's reply means "No."[6]

In chapter 4 we discussed Stalnaker's (1974) use of the term **common ground** for the presuppositions in a discourse. Clark (1994) adopts this term and distinguishes between **communal** common ground for the knowledge shared by co-members of communities and **personal** common ground for the knowledge two people share from their past experience of each other.

Some slightly different evidence for the importance of background knowledge comes from a study by Kess and Hoppe (1985) on how listeners detect and resolve ambiguity. It is a well-known fact about English sentence structure that adding a prepositional phrase to a verb phrase can cause ambiguity, as in 7.41 below:

7.41 a. John chased the dog.
b. John chased the dog with a stick.

The ambiguity in 7.41b is in whether John or the dog has the stick. Kess and Hoppe provide a list of similar sentences, as in 7.42:

7.42 John chased the dog with the stick.
John chased the dog with the bone.
John chased the dog with the broom.
John chased the dog with the trombone.
John chased the dog with the white tail.
John chased the dog with the pointed ears.
John chased the dog with the black spot.
John chased the dog with the wound.

They suggest that while, structurally, ambiguity should be present in all of these sentences, in fact background knowledge about dogs and people will mean that for most people there is no ambiguity in any but the first sentence in the list. Of course these sentences are given without a context: since "background knowledge" here is a prediction of how typically dogs and people behave, based on experience, the "normal" interpretation can be overruled in a particular context.

7.4.3 Mutual knowledge

One important point about this background knowledge is that while the speaker makes guesses about the knowledge her listeners have, there is no certainty. It is probably a mistake to identify this background knowledge with **mutual knowledge**.[7] This is a topic that has been heavily debated in the philosophical and semantic literature; see for example the collection of papers in N. V. Smith (1982). As linguists have pointed out (e.g. Gibbs 1987), the problem is that if we take from

philosophers a tight definition like 7.43 below, the notion is too strong (Gibbs 1987: 565):

7.43 (where S = speaker, A = addressee)
S and A mutually know a proposition P, if and only if:
S knows that P
A knows that P
S knows that A knows that P
A knows that S knows that A knows that P,
… and so on, *ad infinitum*.

For an example of a proposition that might be mutual knowledge in this sense, we can go back to our example 7.39, and extend it slightly below:

7.44 A: Shall we go and get some ice cream?
B: I'm on a diet.
A: Oh, okay.

We could take the mutually known proposition P to be something like "Diets usually prohibit ice cream (because it's too fattening)." So B knows this, and relies for her implication on A knowing it. Since A seems to understand the refusal correctly, then A did know P, and also knows that for B to imply it, A must have known it, and so on.

While there doesn't seem to be a principled way of stopping this chain of reciprocal knowledge as in 7.43, this is obviously not a promising definition for linguists, leading as it does to at least the two following problems:

7.45 a. How can speakers and hearers compute an infinite series of propositions in a finite (actually very small) piece of time?
b. How do S and A ever coordinate what they mutually believe if there's always one more belief statement to be established?

It seems that a plausible pragmatic theory of how participants use background knowledge will have to employ a weaker form of knowledge than this philosophical notion of mutual knowledge. We will not pursue this issue any further here, but see Wilson and Sperber (2012) and Blakemore (1992) for discussions of solutions to this problem. What seems intuitively clear is that the participants' access to background knowledge must be based on guesswork rather than certain knowledge and must involve relatively quick and economic calculations.

7.4.4 Giving background knowledge to computers

The importance of background knowledge to language understanding was quickly recognized in the field of Artificial Intelligence (AI). One typical application is the design of computer programs to process and store information from texts, for example newspaper articles, so that users can later interrogate the databases. These

programs quickly revealed the extent to which human readers make inferences to gain an understanding of a text; inferences that are often based on background knowledge. Various forms of knowledge representation have been proposed to model this background information. Roger Schank and his colleagues (Schank and Abelson 1977, Cullingford 1978) devised **scripts** to do this. Scripts are descriptions of what typically goes on in various social settings. One well-known example is a restaurant script of which 7.46 below is a simplified version (written in English rather than a computer language) (Schank and Kass 1988: 190):

7.46
1 Actor goes to a restaurant.
2 Actor is seated.
3 Actor orders a meal from waiter.
4 Waiter brings meal to the actor.
5 Actor eats the meal.
6 Actor gives money to the restaurant.
7 Actor leaves the restaurant.

In this very basic script the underlined elements are variables that have to be filled in from any specific restaurant text the script is applied to. A fuller script than 7.46, with more details of what goes on in a typical restaurant, allowed the computer program Script Applier Mechanism (SAM) to interpret a text about a restaurant visit by using inferences to fill in the gaps in the text. Such a text is in 7.47 below with an interpretation 7.48 (both based on Schank and Abelson 1977), which includes inferences based on the script in 7.46:

7.47 John went to a restaurant. The waiter gave John a menu. The waiter came to the table. John ordered a lobster. John was served quickly. John left a large tip.

7.48 John went to a restaurant. John looked for a table. John went to the table. John sat down in the chair. John got the menu from the waiter. John read the menu. The waiter went to the table. John ordered lobster. The cook prepared the lobster. The waiter got the lobster from the cook. The waiter served John the lobster. John ate the lobster. John indicated to the waiter he would like to get the bill from him. John got the bill from the waiter. John left the waiter a large tip. John paid the bill. John left the restaurant.

As can be seen, inferences based on a script allow a much fuller version of what went on in the visit than is explicit in the text, and SAM is then able to respond to questions about the visit, as shown in an example interrogation 7.49 (based on Schank and Abelson 1977):

7.49
Q: What did John eat?
A: LOBSTER.
Q: Who gave John the menu?
A: THE WAITER.
Q: Who gave John the lobster?
A: PROBABLY THE WAITER.

Q: Who paid the Bill?
A: PROBABLY JOHN.
Q: What happened when John went to the table?
A: JOHN SAT DOWN AND THE WAITER GAVE HIM A MENU.
Q: Why did John get a menu?
A: SO HE COULD ORDER.
Q: Why did John give the waiter a large tip?
A: BECAUSE HE WAS SERVED QUICKLY.

In subsequent work Schank and his colleagues developed this approach further, replacing scripts with knowledge representations which are more flexible and which share components more easily; see Schank and Kass (1988) for a brief overview. This research was influential in the development of case-based reasoning (Kolodner 1992) and knowledge representation in the field of Artificial Intelligence (AI).

7.5 Information Structure

We have been looking at how different types of knowledge provide a contextual background for understanding utterances, and at how speakers routinely make guesses about the knowledge accessible to their listeners. In this section we briefly examine how linguistic structure reflects these guesses, or to put it another way: how these estimates of knowledge are grammaticalized. We will see that speakers "package" their utterances to take account of these estimates of knowledge. This packaging is often called **information structure** or, alternatively, **thematic structure**.

Perhaps the most universally grammaticalized distinction is the basic one between the information which the speaker assumes her hearers already know and the information that the speaker is presenting as additional or new. This distinction is so ubiquitous and grammaticalized in so many different ways that there are a number of different terminologies describing it, as we shall see in the following sections. As a starting point it is simplest to call the already present knowledge **given**, and the additional information **new**.[8] In the next sections we look at some linguistic markers of this distinction.

7.5.1 The information status of nominals

One basic way for a speaker to convey her assumption that something is given is to use a definite nominal. One way to do this in English is to use the definite article *the*; compare for example:

7.50 a. I'm going to the party.
b. I'm going to a party.

The definite article in 7.50a signals that the speaker assumes the hearer can identify the referent, the party. The normal conversation pattern is for items to be introduced by an indefinite nominal, remain conversationally salient for a time, then fade from salience, perhaps later to be reintroduced. This is a very complicated and

little-understood process but a simple sketch might go as follows: a nominal will be introduced with a marker that it is new, perhaps an indefinite noun phrase, as in 7.51 below:

7.51 I'm going to **a party** tonight.

Thereafter a definite article can be used to show that it is now given:

7.52 **The party** begins at eleven.

If the party is not mentioned again, it fades from salience and will need to be referred to by various support structures: *that party*, *that party you mentioned*, and so on. While an entity is accessible, it can be referred to by pronouns, for example

7.53 The party begins at eleven and **it**'ll go on for hours.

The sensitivity of nominal types to information structure has been described in various approaches. Gundel et al. (1993), for example, identify a Givenness Hierarchy for English nominals as below:

7.54 Givenness hierarchy (Gundel et al. 1993)[9]

in focus > activated > familiar > uniquely identifiable > referential > type identifiable

{*it*}	{ *that* / *this* / *this* N }	{*that* N}	{*the* N}	{ indefinite / *this* N }	{*a* N}

This hierarchy identifies different information states of a referent, moving left to right from most given to most new. Beneath each states are examples of English nominals typically used for it. These writers use examples like 7.55–6 below (from Gundel et al. 2000), where 7.55 is the sentence that provides the context and 7.56 provides different continuations appropriate in different information states, with the relevant nominal in bold:

7.55 I couldn't sleep last night.

7.56
a. **A dog next door** kept me awake.
b. **This dog next door** kept me awake.
c. **The dog next door** kept me awake.
d. **That dog next door** kept me awake.
e. **This dog**/**that**/**this** kept me awake.
f. **It** kept me awake.

In this approach the indefinite article *a* used with the nominal in 7.56a signals the rightmost end of the Givenness Hierarchy: its use just assumes that the hearer can identify the type of thing referred to. The referentially indefinite use of *this* in the b version signals an extra message: that the speaker intends to refer to a particular dog subsequently. The definite article *the* in c signals the assumption that the hearer can identify the referent. The demonstrative *that* in d assumes previous familiarity with the referent from the hearer's part. The demonstrative article *this* and the pronominal versions *this* and *that* in e signal that the referent has been mentioned, or "activated"

in the discourse.[10] Finally the pronoun *it* in f shows that the referent is both activated and currently under discussion. Other hierarchies of informational status have been discussed by Ariel (1988) and Prince (1981, 1992).

In a sentence like 7.53 above, *The party begins at eleven and **it**'ll go on for hours*, the reference of *it* is supported by the preceding nominal *the party*. This relationship of indirect reference is called **anaphora**. The nominal *the party* is termed the antecedent and the pronoun *it* is termed an **anaphoric pronoun**. Of course there are constraints on how far apart the antecedent and the anaphoric pronouns may be;[11] moreover, if they are in the same sentence, there are complicated structural conditions on their co-occurrence: see Chomsky (1988) for proposals for describing the latter within generative grammar. We will not pursue these issues here, simply recognizing that the use of anaphoric pronouns is part of this process of grammaticalizing the information status of nominals. As seen in the hierarchy in 7.54 above, for hearers to be able to make reference on the basis of such abbreviatory forms as pronouns, they have to be maximally accessible. We can see the parallel between the anaphoric use of pronouns, where the referents have been introduced into the discourse, and the **deictic** use of pronouns, where the referents are also maximally accessible because they are physically present in the context of the utterance, for example if I point to someone and say:

7.57 That's **him**.

Another way of viewing this process of using indefinite nominals, definite nominals and pronouns to refer to entities is to see it as a kind of filing system, a way of tracking entities through the discourse. We might think of it as a spoken version of the colored lines some novelists are said to use for keeping track of characters and plotlines in their stories. See Givón (1983), Tomlin (1987), and Lambrecht (1994) for studies of the grammaticalization of referential accessibility and the knowledge base of discourse participants.

7.5.2 Focus and topic

Another marker of information structure in English is intonation, where the assignment of primary stress can be used to bring parts of the sentence into prominence. One of the main functions of this prominence is to mark new information. In the following examples, capitals show this primary stress, and we divide the given and new elements of the sentence:

7.58 a. HENRY cleaned the kitchen.
b. Given: Someone cleaned the kitchen.
c. New: It was Henry.

7.59 a. Henry cleaned THE KITCHEN.
b. Given: Henry cleaned something.
c. New: It was the kitchen.

7.60 a. Henry CLEANED the kitchen.
b. Henry did something to the kitchen.
c. He cleaned it.

For a detailed discussion of this use of intonation see Allan (1986, II: 59–163). What the English intonation system is doing here is to allow the speaker to partition the sentence into two elements: a prominent part and the rest.[12] This prominent part is usually called the **focus**. As we see here, one function of focus is to mark new information. Another function allows the speaker to pick out one of a number of alternatives, as in:

7.61 a. Did HARRY take the car?
b. No, GEORGE did.

Here both nominals may be activated in the conversation and the focus now has a **contrastive** function.

In other languages this function of intonation is taken over by specific, otherwise meaningless, words which mark elements of the sentence as in focus or not. Somali, for example, has focus words which include the nominal focus particle *baa*, as shown in 7.62a and b:

7.62 a. *Amina baa wargeyskii keentay.*
Amina FOCUS newspaper brought
"AMINA brought the newspaper, It was AMINA who brought the newspaper."
b. *Amina wargeyskii bay keentay.*
baa + ay
Amina newspaper FOCUS + she brought
"Amina brought THE NEWSPAPER, It was THE NEWSPAPER Amina brought."

This word *baa* follows a nominal and places it in focus. Once again one of the primary uses of this focus system is to mark new information: sentence 7.62a fits a conversational context where it was known that someone brought the newspaper and the sentence asserts it was Amina, while in 7.62b it was known that Amina brought something, and the sentence asserts that it was the newspaper she brought.

These Somali focus words also have the contrastive function described above, as we can see from the proverb below:

7.63 *Libàax yeedháy iyo libàax aammusáy, libàax aammusáy bàa xún.*
lion roared and lion kept:silent lion roared FOCUS bad
"(Of) a roaring lion and a silent lion, A SILENT LION is worse."[13]

As indicated by the English glosses to the examples 7.62a and b above, another way of marking information structure in English is by syntactic constructions. Certain constructions serve to place parts of the sentence in focus, for example the constructions known as **clefts** in 7.64, and the **pseudo-cleft** in 7.65, where the focus elements are underlined:

7.64 a. It was <u>yesterday</u> that Bob came.
b. It was <u>Bob</u> who came yesterday.

7.65 What we want is <u>a living wage</u>.

Once again we can see that focus is part of information structure: in 7.64a and b the basic situation described is the same: *Bob came yesterday*, but the information is packaged differently to fit different states of participants' knowledge at the specific point in the conversation.

There is another important information structure role that is marked in languages, that of **topic**. We discussed in section 7.4.1 the notion of discourse topic; that is, a general idea among participants of what the current topic of discussion is. As Halliday and Hasan (1976) pointed out, such discourse topics are maintained by a battery of conversational devices, including anaphora, using related lexemes, repetition of lexemes, all of which create a cohesion to discourses that make them more than a collection of unrelated sentences. In addition some languages have **sentence topics**: see for example the Japanese sentences below, from Kuno (1973: 44):

7.66 *Kuzira wa honyuu-doobutu desu*
whale TOPIC mammal is
"Speaking of whales, they are mammals, A whale is a mammal."

7.67 *John wa watakusi no tomodati desu*
John TOPIC I 's friend is
"Speaking of John, he is my friend."

In these examples the topic occurs at the beginning of the sentence and identified by a following particle *wa*. In the following Mandarin Chinese example from Li and Thompson (1976: 468) the topic is again initial but there is no special morpheme:

7.68 *Nèike shù yèzi dà*
that tree leaves big
"That tree (topic), the leaves are big."

The major characteristic of topics is that they must be "entered into the registry of the present discourse" as Kuno (1973: 45) put it. The function of this kind of topic is characterized by Chafe (1976: 50) as limiting the applicability of the rest of the sentence:

7.69 Typically, it would seem, the topic sets a spatial, temporal, or individual framework within which the main predication holds.

As the translations in 7.66–7 show, there is no exact correspondence in English to these sentence topics. Many of the features of topics are typical of subjects in English, for example: that they are typically given information, often activated elements; that they tend to occur at the beginning of sentences; and that they are in some sense what the sentence is "about." There are also, especially in spoken English, sentences like those below:

7.70 As for the referendum, it's a foregone conclusion.

7.71 Me, I've been a Liverpool fan all my life.

In such sentences the first part, before the comma, seems rather like a topic. These though are rather marginal constructions in the language and speakers tend to avoid using them in writing. Li and Thompson (1976) argue that languages differ systematically in their use of sentence topics and subjects. They identify four types: subject prominent languages (like English); topic-prominent languages (like Chinese); languages where both topics and subjects are important (like Japanese); and finally, languages where neither is important. For this last type they suggest as an example Tagalog (Austronesian; Philippines). Traditionally observers speak of the first type having a subject-predicate structure to their sentences, while the second type have a topic-comment structure. In each case the claim is that the basic organization of the sentence is related to the speaker's decisions about its information structure.

7.5.3 Information structure and comprehension

Brown and Yule (1983: 128) cite an example from a talk by M. A. K. Halliday which demonstrates the importance of information structure to comprehension. Halliday, who has written detailed studies of discourse structure, (e.g. Halliday and Hasan 1976), quoted a US radio report describing an official welcome for astronauts, as in 7.72 below:

7.72 The sun's shining, it's a perfect day. Here come the astronauts. They're just passing the Great Hall; perhaps the President will come out to greet them. No, it's the admiral who's taking the ceremony …

Halliday then altered the markers of information structure to produce the text in 7.73:

7.73 It's the sun that's shining, the day that's perfect. The astronauts come here. The Great Hall they're just passing; he'll come out to greet them the President. No, it's the ceremony that the admiral's taking …

As can be seen, the use of inappropriate markers of information structure, in effect disregarding the reader's evolving state of knowledge, makes the text incoherent and difficult to read. The point is of course that in reality speakers continually assess their audience's knowledge, and package their utterances accordingly.

7.6 Inference

Throughout our discussion of the role of context, we have seen examples of the way that listeners actively participate in the construction of meaning, in particular by using inferences to fill out the text toward an interpretation of speaker meaning. We now turn to look at examples of conversational inference, first with a general discussion in this section, then with a look at one important approach to inference, conversation implicature, in section 7.7.

We can begin our examples of inference with anaphora. As described above, this is a special subtype of **coreference**, a referential relation between expressions where they both refer to the same entity. There are many types of coreference: a nominal may be repeated as in 7.74; there may be an independent nominal, used as an epithet as in 7.75, or very commonly, an anaphoric pronoun may be used as in 7.76. As mentioned earlier, anaphoric pronouns differ from full nominals in that they have no independent reference and must rely on an antecedent.

7.74 I fell down a hole yesterday. **The hole** was very deep.

7.75 I saw your brother this morning. **The old fool** still doesn't recognize me.

7.76 I trod on a slug this morning. **It** died.

Very commonly interpreting anaphora across sentences involves inference. Take for example the interpretation of the pronoun **it** (shown in bold) in 7.77 below:

7.77 The plane was late, the hotel wasn't fully built, there were crowds everywhere she went. I think **it** really disappointed her.

If we are to look for a nominal antecedent for the pronoun *it* in 7.77, possible candidates are *the plane*, *the hotel*, *crowds*. It seems more likely though that it is the whole situation that *it* refers back to: a kind of composite antecedent we could call something like *the holiday*. This cumulative antecedent has to be constructed by the listener. This kind of "sloppy" use of pronouns is very common, but seems to cause listeners no difficulty.[14]

There are other inferential links routinely made between sentences. Some were called **bridging inferences** by Clark (1977). Below are a few of his examples:

7.78 a. I looked into the room. **The ceiling** was very high.
b. I walked into the room. **The windows** looked out to the bay.
c. I walked into the room. **The chandeliers** sparkled brightly.
d. John went walking out at noon. **The park** was beautiful.

In each of these examples, the nominal in bold occurs with a definite article, showing that the speaker assumes that referent is accessible to the listener, that is, it is given. In each case the question is: how, if it has not been mentioned earlier, nor is physically present at the utterance, did this nominal become part of given information? The answer seems to be that the listener makes a bridging inference which links the nominal to the preceding sentence and creates coherence. In these examples the basis for the inferences seems to be background knowledge. People know that rooms usually have ceilings, commonly have windows, may have chandeliers, and that one of the conventional places to go for a walk is in a park. With this knowledge, the listener can infer, for example, that the park referred to in 7.78d is the one that John went walking in.

What the listeners seem to be doing here is making inferences to preserve a notion of coherence in what they are told. Speakers seem confident that their listeners will

do this and they take advantage of it to speak less explicitly than they might. The following are examples of where the speaker seems to rely on listener inferences:

7.79 I left early. I had a train to catch.
INFERENCE: Speaker left **because** of having to catch the train.

7.80 A: Did you give Mary the money?
B: I'm waiting for her now.
INFERENCE: B did not give Mary the money.

Knowing that their listeners will flesh out their utterances with inferences gives speakers the freedom to imply something rather than state it. In the next section we look at one particular type of implication identified in the pragmatics literature, **conversational implicature**.

7.7 Conversational Implicature

The term conversational implicature was introduced by the philosopher H. Paul Grice. In lectures and a couple of very influential articles (Grice 1975, 1978, 1989), he proposed an approach to the speaker's and hearer's cooperative use of inference. As we suggested above, there seems to be enough regularity in the inference-forming behavior of listeners for speakers to exploit this by implying something, rather than stating it. Grice, investigating the gap between what a speaker explicitly says and what her intended meaning is understood to be, suggested that the success of this type of communication could be explained by postulating a **cooperative principle**, as below:

7.81 Grice's Co-operative Principle (Grice 1989: 26)
Make your contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged.

This principle is a kind of tacit agreement by speakers and listeners to recognize and participate in events of interactive communication. The principle allows participants to make assumptions about each other's goals and conversational strategies. In this view it supports the use of inferences for communication, such as the inference communicated in 7.80 above, which would be termed a conversational implicature.[15]

It would be a mistake to interpret this too widely: we may assume that Grice is not identifying in human interaction a utopian ideal of rational and egalitarian cooperation. As sociolinguists have shown us, people use language as an integral part of their social behavior, whether competing, supporting, expressing solidarity, dominating, or exploiting. Grice's observations are focused at a different, more micro-level: if I am in conflict with you, I still may want to communicate my intentions to you, and assume you will work out the implications of my utterances. The proposal is that shared assumptions license the exploitation of inference as part of linguistic communication.

7.7.1 Grice's maxims of conversational cooperation

The assumptions that hearers make about a speaker's conduct seemed to Grice to be of several different types, giving rise to different types of inference, or, from the speaker's point of view, implicatures. In identifying these, Grice called them **maxims**, and phrased them as if they were injunctions: Do *thus*! This can be misleading: it is important to realize that the conversational principles that Grice proposed are not rules, like phonological or morphological rules, which people have to follow to speak a language; nor are they moral principles. Perhaps the best way to interpret a maxim *Do X!* is to translate it into a descriptive statement: the hearer seems to assume that the speaker is doing *X* in communicating. We can see this by looking at the maxims and some examples.

Grice's four main maxims are as follows (Grice 1975, 1978):

7.82 *The Maxim of Quality*
Try to make your contribution one that is true, i.e.
1. Do not say what you believe is false
2. Do not say that for which you lack adequate evidence.

The Maxim of Quantity
1. Make your contribution as informative as is required (for the current purposes of the exchange)
2. Do not make your contribution more informative than is required.

The Maxim of Relevance (Relation)
Make your contributions relevant.

The Maxim of Manner
Be perspicuous, and specifically:
1. Avoid ambiguity
2. Avoid obscurity
3. Be brief
4. Be orderly.

As suggested above, these maxims can be viewed as follows: the listener will assume, unless there is evidence to the contrary, that a speaker will have calculated her utterance along a number of parameters: she will tell the truth, try to estimate what her audience knows and package her material accordingly, have some idea of the current topic, and give some thought to her audience being able to understand her. To repeat: these are assumptions the listener starts out with; any or all may be wrong, and he may realize this or not, but this is a kind of baseline for talking.

We can look at a couple of examples of how these maxims help the hearer arrive at implicatures; we focus on the maxims of relevance and quantity:

7.83 Relevance
A: Can I borrow ten euros?
B: My purse is in the hall.
(Implicature: Yes.)

Here it is A's assumption that B's reply is intended to be relevant that allows the inference: yes. The implicature in 7.83 has three characteristics: firstly, that it is implied rather than said; secondly, that its existence is a result of the context, the

specific interaction – there is, of course, no guarantee that in other contexts *My purse is in the hall* will mean "yes"; the third characteristic is that such implicatures are cancellable, or **defeasible** in the terminology we used in chapter 4, without causing a contradiction. Thus the implicature "yes" in 7.83 can be cancelled in 7.84 below by the addition of extra clauses:

7.84 Defeasibility of implicature
A: Can I borrow ten euros?
B: My purse is in the hall. But don't you dare touch it. I'm not lending you any more money.

This behavior contrasts with the semantic relation of entailment discussed earlier in chapter 4, as shown in 7.85 below. The sentence 7.85a has the entailment in 7.85b, assuming constancy of reference; and 7.85c shows that canceling it produces anomaly:

7.85 a. The president was assassinated yesterday.
b. The president is dead.
c. ?The president was assassinated yesterday but he's not dead.

Our next example involves the maxim of quantity:

7.86 Quantity
A: Did you do the reading for this week's seminar?
B: I intended to.
(Implicature: No.)

Here B's answer would of course be true if B intended to do the reading and then did, but then the answer would violate the maxim of quantity. A, assuming the maxim to be observed, is likely to infer the answer no. Once again the implicature is implied, contextual, and cancelable. Another typical example is 7.87 below:

7.87 Quantity
A: Did you drink all the bottles of beer in the fridge?
B: I drank some.
(Implicature: B didn't drink them all.)

Once again, logically if B drank all of the beer, then B drank some of the beer. So B's reply would be true in this case. However, the maximum of quantity would lead A to the implicature above, assuming that B would otherwise make the more informative reply.

A further property of Gricean conversational implicatures is that they are reinforceable without causing redundancy, so the sentence 7.88a below may communicate the implicature in 7.85b and explicitly stating this does not cause redundancy in 7.88c.

7.88 a. Some of her friends are musicians.
b. Not all of her friends are musicians.
c. Some of her friends are musicians but not all of them.

Once again this contrasts with entailment where the sentence *The president was assassinated yesterday and he is dead* seems to involve redundancy.

Grice made a distinction between **particularized conversational implicatures** (PCIs) and **generalized conversational implicatures** (GCIs). The former are instances, like 7.83 above, where the implicature is entirely context dependent. The latter are instances like 7.85 above where the implicature is more predictable and less context dependent. The word *some* may imply *not all* across a range of contexts. However, it is still cancelable, as in 7.88. A GCI can be seen as a form of default that can be overridden in context. See Levinson (2000) for an extended discussion of this phenomenon.

As mentioned above, these maxims are basic assumptions, not rules, and they can be broken. Grice distinguished between the speaker secretly breaking them, for example by lying, which he termed **violating** the maxims; and overtly breaking them for some linguistic effect, which he called **flouting**. We take an example of the creative flouting of the maxim of manner from Flann O'Brien's novel *At-Swim-Two-Birds* (1967: 38):

7.89 The three of us were occupied in putting glasses of stout into the interior of our bodies and expressing by fine disputation the resulting sense of physical and mental well-being.

From a linguist's point of view cases of flouting are more interesting than violations of maxims. Irony, for example, can be seen as a flouting of the maxim of quality, as for example, if you say to a friend who has done something terrible to you: *You're a fine friend*. Indeed the cooperative principle often forms an important part of the **literal language theory** described in chapter 1. In this theory the principle is often viewed as the engine which drives the interpretation of non-literal utterances. The explanation goes like this: if a listener interprets an utterance as literally untrue or nonsensical, the principle may lead him to search for a further level of meaning, **figurative** language, which preserves the maxim of quality. Thus the listener will be led to interpret rather than reject as impossible the **metaphors** in 7.90 below, or the **hyberbole** in 7.91:

7.90 a. He lit the stage with his talent.
b. She just lapped up all the compliments.

7.91 a. I've read this millions of times.
b. You're the only woman in my life.

One possible criticism of these maxims, for example the maxim of manner, is that they contain a built-in assumption of one type of language use: one that is clear and informative. By contrast, most cultures have types of language use where obscurity and ambiguity are expected and valued: perhaps poetry and riddles, or, more mundanely, advertising. One solution might be to relativize the maxims to some classification of talk interaction, such as is discussed in studies in the ethnography of communication; see, for example, Gumperz and Hymes (1972).

A number of writers have proposed cooperative principles like the ones we have been discussing. Brown and Levinson (1978), for example, have identified a politeness principle, as discussed in Leech (1983) and Allan (1986), which we will return

to in the next chapter. Meanwhile, Grice's cooperative principle and maxims have been much developed in subsequent work; we discuss two strands of this work in the next two sections.

7.7.2 Generalizing the Gricean maxims

Subsequent writers have attempted to reduce Grice's original four maxims (and eight sub-maxims). In one tradition the Quality maxim is elevated to a higher level than the others and seen as a prerequisite for all others. Thereafter Horn (1984, 1989, 1996), for example, collapses several maxims into two general principles: a Q-principle and an R-principle, which are held to be in tension with each other. The Q-principle draws together Grice's first Quantity maxim and the first two sub-maxims of Manner. It is a kind of guarantee of informational adequacy to the hearer. It is may be informally characterized as:

7.92 Q-Principle: Say as much as you can, balancing against the R-principle.

The R-principle is a principle of speaker economy; it subsumes the Relevance maxim and the last two maxims of Manner, and can be represented as:

7.93 R-principle: Say no more than you must, balancing against the Q-principle.

One area where the Q-principle is held to operate is in scalar implicatures (Gazdar 1979, Horn 1989). This is the claim that certain linguistic expressions form a scale of strength, <*x*, *y*>, where *x* is stronger than *y*, for example:

7.94 Q-principle scales
- a. <all, some>
- b. <be certain that, think that>
- c. <succeed in, try to>

Strength here is a notion of informational content and also involves an asymmetrical relation of entailment, the semantic relation discussed in chapter 4. The stronger expression *x* entails *y* but *y* does not entail *x*. Thus *all* entails *some* but *some* does not entail *all*. The idea is that when a speaker utters a weaker expression from a scale, the Q-principle ensures that the hearer infers that the speaker believes the stronger expression does not hold. This explains the following implicatures:

7.95
- a. Jane ate some of the biscuits IMPLICATES Jane didn't eat all of them.
- b. I think she's at home IMPLICATES I'm not certain she's home.
- c. I tried to buy you some flowers IMPLICATES I didn't buy you some flowers.

In simple terms, though if Jane in 7.95a did eat all the biscuits she surely ate some of them, to use *some* when *all* would apply is held to be a violation of the Q-principle and therefore uncooperative, in Gricean terms.

The R-principle is used to explain why longer forms have different interpretation than shorter ones, when they seem to be paraphrases of each other. See for example the pairs:

7.96 a. Leonora caused her husband to die.
b. Leonora killed her husband.

7.97 a. I don't not like you.
b. I like you.

In 7.96a the periphrastic use of two clauses weakens the chain of cause and effect relative to 7.96b. It would be odd to use 7.96a if for example Leonora stabbed her husband to death in a violent rage. The sentences in 7.97 show that a double negative often has a different interpretation than a corresponding positive: in ordinary use 7.97a doesn't quite mean the same as 7.97b. In both these examples the shorter form is assumed to be the expected form because of the R-principle; the longer forms, as violations, will therefore carry extra levels of meaning.[16]

7.7.3 Relevance Theory

A more radical development of Grice's maxims is Relevance Theory (Sperber and Wilson 1995, Wilson and Sperber 2012). This approach seeks to unify the Gricean cooperative principle and conversational maxims into a single principle of relevance that will motivate a hearer's inferential strategy:

7.98 Principle of relevance
Every act of ostensive communication communicates the presumption of its own optimal relevance. (Sperber and Wilson 1995: 158)

For these writers the term **ostensive communication** describes a situation where there is interaction: the communicator wants to signal something and create a mutual environment of communication and this intention is recognized by her hearers. This is the situation of ordinary conversation.

This principle follows Grice in recognizing that hearers can assume a speaker has a communicative intent. In this theory it is this intent that leads her to calculate the relevance of her utterance with the hearer's role in mind. In Relevance Theory this is often described as a speaker calculating a balance between communicative profit and loss from the hearer's point of view. The profit is the extent to which the communication produces cognitive effects (e.g. changing existing knowledge); the loss is the processing cost where the closer the new information is to already existing knowledge, the less "expensive" it is to assimilate it. The hearer takes this speaker calculation for granted when making his inferences.

One characteristic of Relevance Theory is the argument that the inferential processes that we identify as leading from the basic meaning of an utterance to its conversational implicatures are also involved in getting to the "basic" meaning in the

first place. Blakemore (1992: 58) discusses a traditional example of implicature in 7.99 below, where B's answer produces the implicature shown.

7.99 A: Did you enjoy your holiday?
B: The beaches were crowded and the hotel was full of bugs.
(B's implicature: No, I didn't enjoy my holiday)

Blakemore argues that pragmatic processes of another more basic sort are involved in the interpretation of B's utterance. The hearer A has a number of problems to solve because of the sketchiness of the linguistic input. For example, what were the beaches crowded with? Which hotel is referred to? Which meaning of the word bug is involved, for example electronic listening device, or insect? She argues that we get the answers to these by pragmatic processes, and that these processes necessarily produce an intervening phase which underlies the production of implicatures. This two-phase interpretation gives us 7.100a and b from B's reply in 7.99:

7.100 a. The beaches at the holiday resort that the speaker went to were crowded with people and the hotel he stayed at was full of insects.
b. The speaker did not enjoy his holiday.

To get to 7.100a the hearer must perform certain tasks, including for example determining which hotel is referred to. In this theory the correct target for reference will be the one that makes the resulting proposition maximally relevant to the accessible context. Clearly the most relevant hotel to B's holiday story is the one he stayed in. This information being accessible in the context relies on the real-world knowledge that beach holidays often involve staying in hotels. Other tasks involve expanding elliptical expressions: that the beaches were crowded with people; and resolving lexical ambiguity: that the bugs are insects. Clearly in a context where A and B are spies, the most accessible interpretation might have bugs as listening devices. These interpretations, which are expansions of the original underspecified linguistic input, are called **explicatures** in this theory. They too are licensed by the principle of relevance and they form the basis for further inferential steps to arrive at the conversational implicature in 7.100b.

In their account of implicature, writers in this theory make a distinction between **implicated premises** and **implicated conclusions**. We can illustrate these terms by modifying an example from Sperber and Wilson (1995: 194):

7.101 a. Peter: Would you drive a Saab?
b. Mary: I wouldn't drive ANY Swedish car.
(Mary's implicature: I would not drive a Saab.)

Mary's implicature is called an implicated conclusion and fits what is traditionally called a conversational implicature. However, for it to be derived, Mary has introduced into the context the linking assumption:

7.102 A Saab is a Swedish car.

In this theory 7.102 is called an implicated premise. It is not directly stated and therefore is implicated but it is provided as an inferential support for the final implicature, or implicated conclusion. Note that the implicated premise 7.102 need not be known by the hearer; in 7.101 if Peter doesn't know a Saab is Swedish he will infer it in order to preserve the relevance of Mary's reply in 7.101b.

In summary, in this theory one overarching principle of relevance is used to describe a whole range of inferential behavior. The theory stresses the underdetermination of meaning and its reliance on context and inference. Through the notion of explicatures these writers take the process of inference in understanding deep into traditional areas of semantics and reduce the importance of literal or context-free meaning.

7.8 Lexical Pragmatics

In the last section we saw the view that linguistic form underdetermines meaning and that contextual processes are required to derive explicit content. One application of this idea at word level is **lexical pragmatics** (Blutner 1998, 2004, Wilson and Carston 2006, 2007), which seeks to investigate how the meanings of words reflect or are adjusted to specific contexts. Though the currency of the term is relatively new the issues addressed have long been a concern of semantics. We saw in chapter 3 how the notion of polysemy is invoked to account for distinct but related senses of the same semantic word or lexeme. We saw too that a major problem in identifying polysemy is judging the extent to which meaning differences in uses of a word are fixed or derived in context. The verb *open* for example seems to describe different actions depending on what is being opened:

7.103 Verb *open*
- a. Joan opened the door.
- b. Joan opened the wine.
- c. Joan opened the curtains
- d. Joan opened the box.
- e. Joan opened her eyes.
- f. Joan opened the book.

Rather than assuming that there are many distinct senses of *open* we could instead assume that there is a basic semantic specification that is modulated in context to access the intended specific meaning. In Relevance Theory (Wilson and Carston 2006, 2007), for example, this contextual modulation is seen as an inferential process governed by the principle of relevance.

Several such inferential processes have been identified in the literature, including **broadening** (Wilson and Carston 2006, Vega-Moreno 2007), which is a process where the concept expressed by use of a lexical item is more general than that usually assumed to be linguistically encoded.[17] Examples include words for shapes as in (7.104), where the sense of the words *rectangular* and *square* are extended:

7.104
- a. Bornholm Island is rectangular.
- b. His father has a square face too.

In these examples it is unlikely that the speaker intends the strictly geometric sense of the word.

Other uses identified as broadening are **hyperbole** and **category extension**. Examples (7.105a–b) below for example might exemplify hyperbole in certain contexts: if (7.105a) is uttered in a restaurant it is likely that the speaker means "not cooked enough for me to enjoy," while (7.105b) uttered in an everyday context might broaden *freezing* to *very cold*:

7.105 a. This steak is raw.
b. Your hands are freezing.

One type of category extension is exemplified in (7.106) below, where brand names are used to denote a broader category of items or activities:

7.106 a. She can just google the restaurant.
b. It's not a serious cut: a band aid will do.

A further process of lexical adjustment is **narrowing**, as in Wilson and Carston's (2006: 409) example:

7.107 All politicians drink.

Here the meaning of drink has been narrowed from the meaning "drinks liquid" to mean "drinks alcohol" and possibly further, to "drinks alcohol in sufficient quantities to be worth commenting on." In Relevance Theory terms, drinking liquid is clearly necessary for staying alive and in most contexts the fact that a person drinks liquid has no obvious relevance. Thus in many contexts the expected interpretation of 7.108 below:

7.108 Brian doesn't drink.

is that Brian doesn't drink alcohol.

Within Relevance Theory the derivation of contextual lexical meaning from minimal lexical forms is explained by work from psychology on the process of **ad hoc concept** construction (Barsalou 1983, 1987, 1993, Rubio Fernandez 2008), where individuals form novel categories relevant to their current interest, such as *tourist activities to perform in Dublin*. Wilson and Carston (2007) quote Murphy's (1997) experimental work on evidence for distinct word senses by respondents' supplied antonyms. For the English word *fresh* when used with different nouns these include those in 7.109:

7.109 Antonyms of fresh (Murphy 1997: 237–39)

fresh	ANTONYMS
shirt	dirty
vegetables	rotten
fish	frozen
sheets	recently slept-in

water	dirty/salt
bread	stale
air	polluted
outlook	tired
assistant	experienced
idea	old

They argue that the variation in meaning, reflected in the different antonyms, is typical of the process by which a general lexical concept, here FRESH, gets "tailored" to individual contexts. In this approach the localized concept is conventionally shown starred, that is FRESH* for this example. One important aspect of this approach is the claim that lexical pragmatic processes like broadening and narrowing can be used to explain metaphorical extension in examples like (7.110), an idea discussed in a different framework by Glucksberg and Keysar (1990):

7.110 His boss is a shark.

Here the ad hoc concept SHARK* would be seen as a contextually adjusted version of the encyclopedic lexical entry SHARK. In this Relevance Theory approach the word *boiling* in example 7.111 below could be intended and interpreted as literal, approximation, hyperbole, or metaphor, depending on the contextual features and inferential process involved (Wilson and Carston 2007: 248–49):

7.111 The water is boiling.

7.9 Summary

One basic conclusion from this chapter is that to understand an utterance hearers have to access and use contextual information of different types. We have seen, for example, that a hearer has to be able to perform the interpretative tasks in 7.112:

7.112
a. Fill in deictic expressions.
b. Fix the reference of nominals.
c. Access background knowledge.
d. Make inferences.

Each of these tasks involves calculation. Hearers have to create meaning by combining linguistic and contextual information; in doing so, they make inferences as a matter of course. We have seen several examples of this, including shorthand expressions and conversational implicature. These tasks draw upon different types of knowledge, which we can classify as in 7.113:

7.113
a. the language used (e.g. English, French, Arabic),
b. the local contextual information (e.g. when and where uttered, and by whom),
c. background knowledge (e.g. cultural practices).

In this chapter we have concentrated on fleshing out the second and third types of knowledge. For the first of course the hearer needs to know linguistic facts, for example that the activity of writing is described by the verb *kataba* in Arabic and *escribir* in Spanish, or that the current speaker calls herself *je* in French or *ég* in Icelandic.

This distinction between types of knowledge brings us back to the issue of the division between semantics and pragmatics, discussed in chapter 1. Is only the use of the first type of knowledge in 7.113 above properly part of semantics, leaving the use of the second and third types to pragmatics? If so, and many linguists would accept this, many of the processes of interpreting meaning that we have discussed in this chapter, for example interpreting deictic expressions and forming conversational implicatures, are part of pragmatics. One related problem is what to call this first type of knowledge: if we call it "meaning," then what do we call the result of combining it with contextual information to get the final message?

One response is to distinguish between three types of meaning: the conventional meaning of words and sentences in the language, the speaker's intended meaning, and the hearer's constructed meaning. Another possibility is to call the linguistically encoded sentence meaning, simply **meaning**; the speaker meaning, **content**; and the hearer meaning, **interpretation**.[18] If we use these latter terms, then our basic observation in this chapter has been that meaning underrepresents content and that the hearer must enrich meaning to get an interpretation. The extent to which this interpretation corresponds to content will determine the success of the communication. As pointed out by the American linguist W. D. Whitney over a hundred years ago, communication is a process of interpretation (1867: 14–15):

7.114 Sentences are not images of thoughts, reflected in a faultless mirror; or even photographs, needing only to have the color added: they are but imperfect and fragmentary sketches, giving just outlines enough to enable the sense before which they are set up to seize the view intended, and to fill it out to a complete picture; while yet, as regards the completeness of the filling out, the details of the work, and the finer shades of coloring, no two minds will produce pictures perfectly accordant with one another, nor will any precisely reproduce the original.

The balance in spoken communication between learned, conventional meaning, and contextual inference is at issue in current semantic and pragmatic theories.

EXERCISES

7.1 Give two examples of each of the following:

a. shorthand expressions
b. metonymy
c. synecdoche

For the shorthands you should give the contextual information that would allow their use.

7.2 Underline the deictic expressions in the following sentences and describe which type of deixis (**person**, **time**, **space**) is involved.

a. She is sitting over there.
b. This is the biggest room in the house.
c. Bring him in whenever you're ready.
d. I'll see you tomorrow.
e. They were here, looking at this painting.

7.3 We discussed how the use of **a definite nominal** reflects a speaker's confidence that the referent is **accessible** to her audience. We saw that this confidence can derive from several sources, including the referent being unique in the wider discourse (e.g. *the sun*, *the Pope*, *the President*); being physically present in the context (i.e. via **deixis**); being already talked about (e.g. **anaphora**); being available from lexical relations like **meronymy** (e.g. *the kitchen* when talking about a house), or being **inferable**.

In the following pairs of sentences, the definite nominal (marked in bold) in the second sentence is accessible because of the first sentence. We could say that its definiteness is **licensed** by the first sentence. Decide whether this licensing relationship is due to:

1 **anaphora**
2 **hyponymy**
3 **meronymy**
4 none of these and the link must be based on an **inference** by the listener.

a. I chose a dog for her. **The animal** turned out to be vicious.
b. He made a sandwich for me. **It** was delicious.
c. I went sailing last week and I hated it. **The motion** made me really sick.
d. She walked into the cinema. **The seats** had all been removed.
e. Don't buy this car. **The engine** is useless.
f. He drove the car very erratically. I kept **the vehicle** in sight.
g. They drove me to the airport. I couldn't believe **the traffic jams**.

7.4 We saw that the **information structure** of a sentence reflects its context in the conversation. The examples below consist of a sentence followed by several candidates for a continuing sentence. In each case the candidates describe the same basic situation but have the information packaged differently in their information structure. Choose the continuation sentences (there may be more than one) which best fit the previous sentence. Discuss how differences in earlier sentences, not given below, might influence your choice.

1 Was it Henry who brought in the groceries?
   a. No, Fred brought the groceries in.
   b. No, it was the groceries that Fred brought in.
   c. No, what Fred brought in was the groceries.
   d. No, it was Fred who brought the groceries in.
2 Watching the house, Maguire saw a car arrive.
   a. The car turned into the driveway.
   b. It was the driveway the car turned into.
   c. What turned into the driveway was the car.
   d. It was the car that turned into the driveway.
3 I just want to know who made this coffee.
   a. I made the coffee.
   b. The coffee was made by me.
   c. What was made by me was the coffee.
   d. What I made was the coffee.
4 Kelly picked up her jacket and walked out of the kitchen.
   a. The hall was dark.
   b. What was dark was the hall.
   c. It was the hall that was dark.
   d. It was dark, the hall.

7.5 Below are a series of invented exchanges. Using Grice's notion of conversational implicature, give for each a likely implicature of B's reply. Discuss, firstly, the contextual information you have to supply in order to support your proposal, and secondly, the reasons B might have for using an implicature rather than a simple statement.

a. A: Are you coming out for a pint tonight?
   B: My in-laws are coming over for dinner.
b. A: How did United play this afternoon?
   B: Well, eleven guys wearing United shirts ran out onto the pitch.
c. A: I'm going to tell those young thugs to stop smoking in this compartment.
   B: Do you have life insurance?
d. A: Are you going to wear those trousers?
   B: They're brand new. I just bought them.
e. A: A lot of people's livelihoods depend on your performance today.
   B: Thanks, that really takes the pressure off.
f. A: Does my smoking bother you?
   B: I can't say that it doesn't.
g. A: Where are you going?
   B: Out.
h. A: Would you like a beer?
   B: Is the Pope a Catholic?

7.6 Speakers, aware that they are going to violate a Gricean maxim, often use **hedges** to introduce their utterance; thereby signaling their awareness of the coming violation. For the following hedges, say what Gricean maxim you think is about to be violated:

a. I may have got it all wrong but I thought…
b. I don't quite know how to say this, but…
c. This is what the papers are saying; I haven't heard it myself…
d. I can't say too much about this, it's still *sub judice*…
e. This may sound like a stupid question, but…

7.7 In discussing Horn's notion of Q-principle scales in section 7.7.2 we noted that in a scale <*x*, *y*>, where *x* is a stronger term, uttering *y* implicates "not *x*." Thus *some* implicates *not all*. Use this behavior to discuss whether the following are valid scales in this sense:

a. <always, sometimes>
b. <certainly, possibly>
c. <hot, warm>
d. <more than, as many as>
e. <five, four>
f. <none, not all>

7.8 In section 7.8 we discussed the process of **broadening** where the concept expressed by use of a lexical item is more general than that we might assume to be the dictionary definition. Find or invent your own examples of lexical broadening using the words and phrases below:

a. starving
b. a thousand
c. painless
d. genius
e. flat

7.9 In section 7.8 we also discussed lexical **narrowing**, where the intended meaning is narrower than the conventional meaning of a word. Find or invent your own examples of lexical narrowing using the words below:

a. bird
b. color
c. money
d. body
e. reputation

FURTHER READING

Levinson (2004) provides an overview of deixis, while Fillmore (1997) is a lively discussion of topics in deixis. Brown and Yule (1983) include discussions of information structure, discourse topic, and coherence. Culicover and McNally (1998) have a number of papers on the influence of information structure on grammar. Levinson (2000) presents a development of Grice's approach to conversational implicature similar to that described in 7.7.2. Clark (2013) is an accessible introduction to Relevance Theory, while an authoritative account is in Wilson and Sperber (2012). Finally, Birner (2012) is a general introduction to pragmatics.

NOTES

1 These are the masculine singular forms of the demonstratives.
2 In this transcription, ` = low tone, e.g. *è*.
3 Lyons (1977, 2: 668ff) distinguishes between **textual deixis**, where reference is made to the surface form of words and sentences and **impure textual deixis**, where reference is made to some underlying unit of discourse like a point made, or an argument. He gives an example of the former involving an anaphoric use of **it**:

> A: That's a rhinoceros.
> B: A what? Spell **it** for me.

where B is using **it** to refer not to a real rhinoceros but to the word *rhinoceros* just used by A. In this distinction, our examples here are of the impure variety.
4 In chapter 5 we saw that **tense** is a deictic system too: dividing zones of time around the current act of speaking, i.e. the speaker's position in time.
5 Other examples of such spatial metaphors include the one below which is the normal Irish equivalent to English *I enjoyed it*:

Bhain	mé	taitneamh	as.
took	I	enjoyment	out of.it

"I enjoyed it."

6 The study of the role of cultural or common-sense knowledge is an important focus of investigation in the field of study known as the **ethnography of communication**. See Schiffrin (1994: 137–89) for an introductory survey.
7 The term **mutual knowledge** is often used as a more inclusive term than our use of background knowledge, i.e. to cover knowledge gained from all the sources mentioned above, including deixis, the discourse, and background knowledge. However, the problems discussed below apply to any application of the term.
8 Other labels for given information have included **old information**, the **theme**, or the **presupposition**; and new information has been called the **rheme**, or **focus** (in a sense related to but distinct from how we shall use the term in 7.5.2 below).
9 Note the use of the term **focus** here is consistent with the psychology and psycholinguistics literature, where it signifies a notion of current topic and therefore given information. This is diametrically opposed to the use in general linguistics, as discussed in 7.5.2 below, where focus is used for elements given prominence in some way because they represent new information or for contrast. We follow the general linguistic use in this chapter. The hierarchy in 7.53 is treated as a kind of scale: a nominal may be used for the status conventionally associated with it, or for any status to the left, i.e. higher

in familiarity. The explanation for why there is a tendency to use an expression for its minimal status and not for higher points on the scale is usually given in terms of Gricean scalar implicatures, discussed in 7.7 below.

10 See Chafe (1976) and Dryer (1996) for discussion of activation in discourse.

11 See Givón (1983) for quantitative studies of the distances between coreferential elements in discourse.

12 As is well known, English intonation does not always uniquely identify the focused constituent. When the sentential nuclear stress falls on the final constituent, e.g. the scope of the focus (marked [$_{\text{FOC}}$] below), is ambiguous:

1a What is he drinking?
b He's drinking [$_{\text{FOC}}$ BEER].
2a What's he doing?
b He's [$_{\text{FOC}}$ drinking BEER].

See Vallduví and Engdahl (1996) for discussion.

13 Saeed (1984) and (2000) are studies of these markers of informational structure in Somali.

14 See Kuno (1987) and Levinson (1991) for discussions of anaphora in discourse.

15 Grice proposed another kind of inference that he called **conventional implicature**. This inference aims, for example, to explain the interpretations of contrast and surprise associated with English *but* in a and b below:

a. He is Brazilian but he hates soccer.
b. But you don't drink alcohol!

Grice's motivation for treating this as inference comes from his adherence to truth conditions to define meaning. The difference between *and* and *but*, for example, never makes a difference to the truth conditions of sentences and from this perspective, it follows, cannot be semantic. However, it is regular and conventional; hence the term. The question this raises is whether an inference can be part of the linguistic meaning of a word: see Blakemore (1989) and Bach (1999) for different answers to this. We leave aside discussion of this kind of implicature.

16 This discussion is based on Horn's development of Gricean implicature. A related approach is outlined by Levinson (2000), which presents a slightly different systematization of the maxims.

17 Broadening is termed *loosening*, *approximation*, or *generalization* by various writers.

18 See Barwise (1988) for a discussion of the role of context in meaning which includes proposals for terms similar to these.

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