Introducing Linguistics

This outstanding series is an indispensable resource for students and teachers – a concise and engaging introduction to the central subjects of contemporary linguistics. Presupposing no prior knowledge on the part of the reader, each volume sets out the fundamental skills and knowledge of the field, and so provides the ideal educational platform for further study in linguistics.

Semantics

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11 Since this relation is clearly similar to the biconditional connective described earlier, we could give a logical definition of synonymy as in: p and q are synonymous when the expression p ≡ q is always true.

12 Of course not all definite nominals are used to refer: so, for example, the definite NP in bold in the following sentence is traditionally described as being predicative and not referential: *Susan is the answer to our prayers.*

13 As we will note later, in chapter 8, Austin (1975) suggested that this condition is a **felicity condition** on the making of statements.

14 See Heim (1983) for a development of this idea of presuppositions as a set of assumptions forming part of the context for a sentence being uttered. A dynamic account of how participants' update the context of assumptions is also given by Discourse Representation Theory (DRT), which we discuss in chapter 10. See Beaver (2002) for a DRT account of presupposition.

chapter 5

Sentence
Semantics 1:
Situations

5.1 Introduction

In chapter 3 we discussed aspects of word meaning. In this chapter we investigate some aspects of meaning that belong to the level of the sentence. One aspect is the marking of time, known as **tense**. How this is marked varies from language to language: it might be marked on a verb in languages like English or by special time words as in Chinese, as shown in 5.1a–c below.[1]

5.1 a. Tā xiànzài yǒu kè
        he now   have classes
        'He now has classes.'

    b. Tā zuótiān yǒu kè
        he yesterday have classes
        'He had classes yesterday.'

    c. Tā míngtiān yǒu kè
        he tomorrow have classes
        'He will have classes tomorrow.'
                (Tiee 1986: 90)

Here the verb *yǒu* 'has/have' does not change form: the time reference is given by the time words, *xiànzài* 'now', *zuótiān* 'yesterday' and *míngtiān*

'tomorrow'. We can compare this with the English translations where the verb *have* changes for tense to give the forms, *have*, *had* and *will have*.

However it is marked, the location in time identified by tense belongs not a single word but to the whole sentence. Take for example the English sentence 5.2 below:

5.2   Hannibal and his armies brought elephants across the Alps.

Though it is the verb *bring* which carries the morphological marker of tense, it seems sensible to say that the whole event described belongs in the past. In this chapter we will look at a number of semantic categories which, like tense, belong at the sentence level and which can be seen as ways that languages allow speakers to construct different views of situations. We begin by looking in section 5.2 at how languages allow speakers to classify situations by using semantic distinctions of **situation type, tense and aspect.** Then in section 5.3 we look at how the system of **mood** allows speakers to adopt differing attitudes towards the factuality of their sentences; and how **evidentiality** systems allow them to identify the source of their belief. Each of these are sentence-level semantic systems which enable speakers to organize descriptions of situations.

5.2   Classifying Situations

5.2.1   Introduction

We can identify three important dimensions to the task of classifying a situation in order to talk about it. These dimensions are **situation type, tense and aspect.** Situation type, as we shall see in section 5.2.2, is a label for the typology of situations encoded in the semantics of a language. For example, languages commonly allow speakers to describe a situation as static or unchanging for its duration. Such **states** are described in the following examples:

5.3   Robert loves pizza.

5.4   Mary knows the way to San Jose.

In describing states the speaker gives no information about the internal structure of the state: it just holds for a certain time, unspecified in the above examples. We can contrast this with viewing a situation as involving change, e.g.

5.5   Robert grew very quickly.

5.6   Mary is driving to San Jose.

These sentences describe dynamic situations. They imply that the action has subparts: Robert passed through several sizes and Mary is driving through various places on the way to San Jose.

This distinction between static and dynamic situations is reflected in the choice of lexical items. In English, for example, adjectives are typically used for states and verbs for dynamic situations. Compare the states in the a examples below with the dynamic situations in the b sentences:

5.7   a. The pears are ripe.
       b. The pears ripened.

5.8   a. The theatre is full.
       b. The theatre filled up.

This is not an exact correlation however: as we saw above there are a number of **stative verbs** like *be, have, remain, know, love* which can be used to describe states, e.g.

5.9   The file is in the computer.

5.10   Ann has red hair.

5.11   You know the answer.

5.12   The amendment remains in force.

5.13   Jenny loves to ski.

We will say that adjectives and stative verbs are inherently static, i.e. that it is part of their lexical semantics to portray a static situation type.

We have already briefly mentioned the dimension of **tense.** As we will describe in section 5.2.4 many languages have grammatical forms, such as verb endings, which allow a speaker to locate a situation in time relative to the 'now' of the act of speaking or writing. **Aspect** is also a grammatical system relating to time, but here the speaker may choose how to describe the internal temporal nature of a situation. If the situation is in the past, for example: does the speaker portray it as a closed completed event, as in 5.14 below, or as an ongoing process, perhaps unfinished, as in 5.15?

5.14   David wrote a crime novel.

5.15   David was writing a crime novel.

This is a difference of aspect, usually marked, as with tense, by grammatical devices. Tense and aspect are discussed in sections 5.2.4–5 and we discuss

the problems of comparing the aspectual systems of different languages in 5.2.6 Finally section 5.2.7 is a brief look at how these dimensions combine to allow speakers to portray different situations.

5.2.2   Verbs and situation types

We saw in the last section that certain lexical categories, in particular verbs, inherently describe different situation types. Some describe states, others are dynamic and describe processes and events. In this section we describe elements of the meaning of verbs which correlate to differences of situation type.

Stative verbs

In the last section we saw examples of inherently stative verbs like *be, have, know* and *love*. These verbs allow the speaker to view a situation as a steady state, with no internal phases or changes. Moreover the speaker does not overtly focus on the beginning or end of the state. Even if the speaker uses a stative in the past, e.g.

5.16   Mary loved to drive sports cars.

no attention is directed to the end of the state. We do not know from 5.16 if or how the state ended: whether Mary's tastes changed, or she herself is no longer around. All we are told is that the relationship described between Mary and sports cars existed for a while. We can contrast this with a sentence like 5.17 below, containing a dynamic verb like *learn*:

5.17   Mary learned to drive sports cars.

Here the speaker is describing a process and focusing on the end point: at the beginning Mary didn't know how to drive sports cars, and at the end she has learnt. The process has a conclusion.

Stative verbs display some grammatical differences from dynamic verbs. For example in English progressive forms can be used of dynamic situations like 5.18a below but not states like 5.18b:

5.18   a. I am learning Swahili.
        b. *I am knowing Swahili.

As noted by Vlach (1981) this is because the progressive aspect, marked by *-ing* above, has connotations of dynamism and change which suit an activity like *learn* but are incompatible with a stative verb like *know*. We discuss the English progressive in sections 5.2.5–6 below.
Similarly it usually sounds odd to use the imperative with statives; we can compare the following:

5.19   a. Learn Swahili!
        b. ?Know Swahili!

Once again, we can speculate that imperatives imply action and dynamism, and are therefore incompatible with stative verbs.
It may be however that the distinction between state and dynamic situations is not always as clear-cut. Some verbs may be more strongly stative than others; *remain* for example, patterns like other stative verbs in not taking the progressive, as in 5.20b below, but it does allow the imperative, as in 5.20c:

5.20   a. The answer remains the same: no!
        b. *The answer is remaining the same: no!
        c. Remain at your posts!

It is important too to remember that verbs may have a range of meanings, some of which may be more stative than others. We can contrast the stative and non-stative uses of *have*, for example, by looking at how they interact with the progressive:[2]

5.21   a. I have a car.
        b. *I am having a car.
        c. I am having second thoughts about this.

5.22   a. She has a sister in New York.
        b. *She is having a sister in New York
        c. She is having a baby.

Dynamic verbs

Dynamic verbs can be classified into a number of types, based on the semantic distinctions **durative/punctual** and **telic/atelic** which we will discuss below. These different verb types correlate to different dynamic situation types. One possible distinction within dynamic situation types, for example, is between **events** and **processes**. In events, the speaker views the situation as a whole, e.g.

5.23   The mine blew up.

while in a process, we view, as it were, the internal structure of a dynamic situation, e.g.

5.24   He walked to the shop.

Processes can be subdivided into several types, for example **inchoatives** and **resultatives**. Inchoatives are processes where our attention is directed to the beginning of a new state, or to a change of state, e.g.

5.25   The ice melted.

5.26   My hair turned grey.

Resultatives are processes which are viewed as having a final point of completion: our attention is directed to this end of the process, e.g.:

5.27   Ardal baked a cake.

5.28   Joan built a yacht.

One difference between these types concerns interruption. If the action of melting is interrupted in 5.25 or my hair stops turning grey in 5.26, the actions of melting and turning grey can still be true descriptions of what went on. However if Ardal in 5.27 and Joan in 5.28 are interrupted halfway, then it is no longer true to describe them as having baked a cake or built a yacht. In some sense, to use resultatives we have to describe a successful conclusion. In this section we look at two important semantic distinctions in verbs which underlie these different dynamic situation types.

The first distinction is between **durative** and **punctual**. Durative is applied to verbs which describe a situation or process which lasts for a period of time, while **punctual** describes an event that seems so instantaneous that it involves virtually no time. A typical comparison would be between the punctual 5.29 and the durative 5.30:

5.29   John coughed.

5.30   John slept.

What matters of course is not how much time an actual cough takes, but that the typical cough is so short that conventionally speakers do not focus on the internal structure of the event.

In Slavic linguistics the equivalent of verbs like *cough* are called semelfactive verbs, after the Latin word *semel*, 'once'. This term is adopted for general use by C. S. Smith (1991), Verkuyl (1993) and other writers. Other semelfactive verbs in English would include *flash, shoot, knock, sneeze* and *blink*. One interesting fact is that in English a clash between a semelfactive verb and a durative adverbial can trigger an **iterative** interpretation, i.e. where the event is assumed to be repeated for the period described, e.g.

5.31   Fred coughed all night.

5.32   The drunk knocked for ten minutes.

5.33   The cursor flashed until the battery ran down.

In each of these examples the action is interpreted as being iterative: 5.31 is not understood to mean that Fred spent all night uttering a single drawn-out cough!

The second distinction is between **telic** and **atelic**. **Telic** refers to those processes which are seen as having a natural completion. Compare for example:

5.34   a.   Harry was building a raft.
        b.   Harry was gazing at the sea.

If we interrupt these processes at any point then we can correctly say:

5.35   Harry gazed at the sea.

but we cannot necessarily say:

5.36   Harry built a raft.

As we saw earlier, telic verbs are also sometimes called **resultatives**. Another way of looking at this distinction is to say that *gaze* being atelic can continue indefinitely, while *build* has an implied boundary when the process will be over. Alternative terms are **bounded** for telic and **unbounded** for atelic.

It is important to recognize that while verbs may be inherently telic or atelic, combining them with other elements in a sentence can result in a different aspect for the whole, as below:

5.37   a.   Fred was running. (atelic)
        b.   Fred was running in the London Marathon. (telic)

5.38   a.   Harry was singing songs. (atelic)
        b.   Harry was singing a song. (telic)

This telic/atelic distinction interacts with aspectual distinctions: for example a combination of either the English perfect or simple past with a telic verb will produce an implication of completion. Thus, as we have seen, both 5.39 and 5.40 entail 5.41:

5.39   Mary painted my portrait.

5.40   Mary has painted my portrait.

5.41   The portrait is finished.

However, the combination of a progressive aspect and a telic verb, as in 5.42 below does not produce this implication: 5.42 does not entail 5.41 above:

5.42 Mary was painting my portrait.

Comrie (1976) gives examples of derivational processes which can create telic verbs from atelic verbs, e.g. the German pairs in 5.43:

5.43 a. *essen* 'eat', *aufessen* 'eat up'
      b. *kämpfen* 'fight', *erkämpfen* 'achieve by fighting'

He contrasts the following sentences:

5.44 a. die Partisanen haben für die Freiheit ihres Landes gekämpft.
      b. die Partisanen haben die Freiheit ihres Landes erkämpft.
          'The partisans have fought for the freedom of their country'
                                          (Comrie 1976: 46-7)

where 5.44b implies that their fight was successful while 5.44a does not.

5.2.3 A system of situation types

Speakers use their knowledge of these semantic distinctions – stative/dynamic, durative/punctual, telic/atelic – to draw distinctions of situation type. We have seen that some verbs, like *paint, draw* and *build*, are inherently telic while others like *talk, sleep* and *walk* are atelic. Similarly some verbs are inherently stative like *know, love* and *resemble*, while others like *learn, die* and *kill* are non-stative. We have also seen from examples like 5.37 and 5.38 above that while these distinctions are principally associated with verbs, combining a verb with other elements in a sentence, like object noun phrases and adverbials, can alter the situation type depicted.

The task for the semanticist is to show how the inherent semantic distinctions carried by verbs, and verb phrases, map into a system of situation types. One influential attempt to do this is Vendler (1967). Below are the four kinds of situations he identified, together with some English verbs and verb phrases exemplifying each type (Vendler 1967: 97-121):

5.45 a. States
          desire, want, love, hate, know, believe
      b. Activities (unbounded processes)
          run, walk, swim, push a cart, drive a car
      c. Accomplishments (bounded processes)
          *run a mile, draw a circle, walk to school, paint a picture, grow up,
          deliver a sermon, recover from illness*
      d. Achievements (point events)
          recognize, find, stop, starts, reach the top, win the race, spot someone

C. S. Smith (1991), building on Vendler's system, adds the situation type **semelfactive**, distinguishing it from achievements as follows:

5.46 *Semelfactives* are instantaneous atelic events, e.g. [knock], [cough]. *Achievements* are instantaneous changes of states, with an outcome of a new state, e.g. [reach the top], [win a race]. (Smith 1991: 28)

She identifies three semantic categories or features: [stative], [telic] and [duration], with roughly the characteristics we have already described, and uses these to classify five situation types, as follows (1991: 30):

Situations	Static	Durative	Telic
States	[+]	[+]	n.a.
Activity	[-]	[+]	[-]
Accomplishment	[-]	[+]	[+]
Semelfactive	[-]	[-]	[-]
Achievement	[-]	[-]	[+]

We can provide examples of each situation type, as follows:

5.48 She hated ice cream.   (State)

5.49 Your cat watched those birds.   (Activity)

5.50 Her boss learned Japanese.   (Accomplishment)

5.51 The gate banged.   (Semelfactive)

5.52 The cease-fire began at noon yesterday.   (Achievement)

It is important to remember that these situation types are interpretations of real situations. Some real situations may be conventionally associated with a situation type; for example it seems unlikely that the event described in 5.53 below would be viewed other than as an accomplishment:

5.53 Sean knitted this sweater.

Other situations are more open, though: 5.54 and 5.55 below might be used of the same real-world situation, but give two different interpretations of it:

5.54 Sean was sleeping.

5.55 Sean was asleep.

5.54 as an activity and 5.55 as a state:

5.2.4 Tense

Tense and aspect systems both allow speakers to relate situations to time, but they offer different slants on time. Tense allows a speaker to locate a

situation relative to some reference point in time, most likely the time of speaking. Sometimes in English this information is given by a temporal adverb; compare the following:

5.56   Yesterday they cut the grass.

5.57   Tomorrow they cut the grass.

Here, because the shape of the verb *cut* does not change, the temporal information is given by the adverbs *yesterday* and *tomorrow*. Usually in English, though, tense is marked on the verb by endings and the use of special auxiliary verbs, as in the forms of *speak* below:

5.58   She spoke to me.

5.59   She will speak to me.

5.60   She is speaking to me.

Tense is said to be a **deictic** system, since the reference point for the system is usually the act of speaking. As we shall see in chapter 7, deictic systems are the ways in which a speaker relates references to space and time to the 'here and now' of the utterance. Most grammatical tense systems allow the speaker to describe situations as prior to, concurrent with or following the act of speaking. So in English we have the three tenses: past, future and present as in 5.58–60 above. These are basic tenses and we could use a diagram like figure 5.1 to represent them, metaphorically representing time as a line moving left to right, and using the clock symbol for the time of the act of speaking.

More complicated time references are possible. For example the speaker can locate an event in the past or future and use that event as the reference point for its own past, present and future. To do this in English complex tenses are used. If a speaker in 1945 said, for example:

5.61   By 1939 my father had seen several arrests.
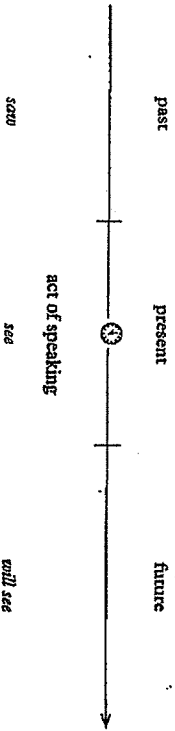
Figure 5.1   Simple tenses

past	present	future
	act of speaking	
saw	see	will see

Figure 5.2   Complex past tense

secondary past	past	present	future
had seen	past event	act of speaking	

the verb *had seen* is one of these complex tenses, called the **past perfect** or **pluperfect**. The year 1939 is in the past of the utterance of course, but the speaker has made it the anchoring point for its own past. The father's acts of seeing are marked as being in this secondary past, as well as in the past relative to the act of speaking. Again we could represent this in a simple diagram as in figure 5.2.

Complex future tenses like *will have seen* allow a similar creation of a past-of-a-future-event, as in an utterance now of 5.62:

5.62   By 2050 we will have experienced at least two major earthquakes.

Here of course the earthquakes are portrayed as in the past relative to 2050, but in the future relative to the act of speaking.

Since tense is a deictic system it may vary from language to language. Some languages, like the Bantu language Chibemba (Sharman 1956, Givón 1972) have more complicated systems of divisions than English:

5.63   Chibemba past tense system (Givón 1972)
a.   Remote past:
      Ba-àlí-bomb-ele 'They worked (before yesterday)'
b.   Removed past:
      Ba-àlí-bomba 'They worked (yesterday)'
c.   Near past:
      Ba-àcí-bomba 'They worked (earlier today)'
d.   Immediate past:
      Ba-á-bomba 'They worked (in the past few hours)'

5.64   Chibemba future tense system
a.   Immediate future:
      Ba-àláá-bomba 'They'll work (in the next few hours)'
b.   Near future:
      Ba-léé-bomba 'They'll work (later today)'
c.   Removed future:
      Ba-ká-bomba 'They'll work (tomorrow)'

d. Remote future:
Ba-ka-bomba 'They'll work (after tomorrow)'

Here we see four degrees of remoteness from the act of speaking (Givón 2001): a few hours from now within todays within the day adjacent to today; and beyond the day adjacent to today. Each of these projects backwards into the past and forwards into the future. Since this system includes not only the act of speaking but an implied measurement of the intervals relative to the act of speaking, it is termed a **metrical tense system** by Chung and Timberlake (1985: 207).

An influential system of representing the deictic nature of tense is Reichenbach's (1947) reference point theory of tense which, as shown in (5.65), identifies three reference points in time:

5.65   Reichenbach's (1947: 290) tense reference points:
    S = the speech point, the time of utterance;
    R = the reference point, the viewpoint or psychological vantage
       point adopted by the speaker;
    E = event point, the described action's location in time.

Tenses are then defined by three ordering relations between these points: at the same time (=); before (x < y); and after (x < y). Crucial to the identification of tense are the relations (1) between reference time and speech time, and (2) between event and reference time. We can show this with the examples in (5.66–8):

5.66   'I saw Helen'
    (R = E < S)

           R, E   S

5.67   'I had seen Helen'
    (E < R < S)

           E   R   S

5.68   'I will see Helen'
    (S < R = E)

           S   R, E

In 5.66 the vantage point and the event are situated before the act of speaking, the speech time, which then corresponds to the simple past tense in the sentence 'I saw Helen'. In 5.67, as in our example 5.61 above, the reference time is in the past of the speech time, setting up a secondary past, corresponding to the past perfect form. In 5.68 the vantage point and event are in the future of the speech time, giving the simple future 'I will see Helen.'

It is difficult to go much further than these brief remarks about tense without discussing aspect. This is because in many languages, including English, aspect and tense interact in subtle ways and are marked on verbs in similar ways, often sharing composite endings. We discuss aspect in the next section.

5.2.5 Aspect

Aspect systems allow speakers to relate situations and time, but instead of fixing situations in time relative to the act of speaking, like tense does, aspect allows speakers to view an event in various ways: as complete or incomplete, as so short as to involve almost no time, as something stretched over a perceptible period, or as something repeated over a period. As Charles Hockett (1958: 237) describes it:

5.69   *Aspects have to do, not with the location of an event in time, but with its temporal distribution or contour.*

We can compare the sentences 5.70 and 5.71 below for example:

5.70   Ralph was building a fire-escape last week.

5.71   Ralph built a fire-escape last week.

Both sentences describe a situation in the past but they differ: 5.71 views the fire-escape as completed, while 5.70 gives no information about whether the fire-escape ever got finished. The difference arises, of course, because the verb forms are each at a different intersection of the tense and aspect systems of English: *was building* is in a **past progressive** tense/aspect form in 5.70 and *built* is in a **simple past** tense/aspect form in 5.71.

We can look at this interdependence between aspect and tense by outlining some of the main forms in English. Our discussion of each will necessarily be brief and readers are referred to Leech (1971), Binnick (1991) and Declerck (2006) for detailed descriptions.

English progressive forms

5.72   Present progressive   *I am listening*
    Past progressive   *I was listening*
    Future progressive   *I will be listening*

The progressives describe action as ongoing and continuing. As mentioned earlier, progressives are used with dynamic situations rather than states and provide a way of describing processes as being extended through time without any implication of completion. In the past and future progressives can be used to provide a background activity against which another event occurs, e.g.

5.73   She was hiding the money when the doorbell rang.

5.74   She'll be washing the car when you arrive.

Aside from this central use there are a number of subsidiary uses of the progressive, e.g. for intentions or plans in the immediate future as in 5.75:

5.75   I'm catching the midnight train tonight.

This use is sometimes called the proximate future. Reference grammars of English like Jespersen (1931), Quirk et al. (1985) and Huddleston and Pullum (2002) provide comprehensive descriptions of these uses.

English perfect forms

5.76   Present perfect   *I have listened*
            Past perfect   *I had listened*
            Future perfect   *I will have listened*

The perfect aspect allows a speaker to emphasize the relevance of events in the past to the 'present'. In the simplest case, the present perfect, this 'present' is the time of speaking, what we could call the unmarked anchoring point. This relevance can be of different types: one is to give a 'just now' sense of the immediate past, compare:

5.77   Don't run. The train has left.

5.78   ?Don't run. The train left.

Another interpretation of a sentence like 5.79:

5.79   The train has left.

is that the speaker is focusing interest on the consequences now of the event described, i.e. that the train is no longer here. This sense of 'relevance to now' is reflected by the fact that the perfect is often used with the adverb *already*, which means of course 'by now, by then', e.g.

5.80   I've already eaten.

5.81   I already ate.

With the past and future perfect the connection, or relevance, relies on a secondary location in time, an anchoring point in the past or future of the time of speaking. See for example the past perfect in 5.82:

5.82   The train had left.

Here the anchoring point is in the past relative to the act of speaking and the verb form links the time prior to the anchoring point with the anchoring

point itself. Though the locations in time are different, the same interpretations are possible as with the present perfect: a sense of immediacy, i.e. a 'just then' sense; or an emphasis on consequences, at that point the train was no longer there:

5.83   He was too late. The train had left.

The future perfect allows the same interpretations with an anchoring point in the future:

5.84   The train will have left.

So the perfect aspect is a relative aspect: it allows a speaker to emphasize the relevance to an anchoring point of an event in its past. This anchoring point can be the time that the speaker is speaking, or a time she chooses in the past or future. The economy allowed by such verbal forms as we find in 5.84 is clear as soon as we try to paraphrase such meanings as 'events in the past of a future time but in the future of now'.

English simple forms

5.85   Simple present   *I listen*
            Simple past   *I listened*
            Simple future   *I will listen*

These forms are simple tense forms which can be seen as basically neutral with respect to aspect: depending on other elements in the sentence, and on context, they are compatible with a number of aspects. Take for example the simple past form in 5.86:

5.86   I watched the six o'clock news.

This is compatible with a couple of interpretations: referring to one occasion in the past or describing a habitual action. As we will see below, when a simple past like 5.86 refers to a single occasion it portrays the action as completed.

The simple present is more restricted than the past. For most verbs, the use of the simple present to describe present events has largely been supplanted by the use of the present progressive: in an exchange like 5.87:

5.87   a.   What are you doing?
            b.   I'm looking for my ticket.

the present progressive is used where many other languages would use a simple present, e.g. French:

5.88
a. Qu'est-ce que tu fais?
b. Je cherche mon billet.

However the English simple present is used as an ordinary present tense with stative verbs, as in 5.89:

5.89
a. He knows the answer.
b. *He is knowing the answer.

With non-stative verbs the simple present has other uses: it is used for habitual action, as in 5.90; for general or universal statements, as in 5.91, and in some instances for the future, as in 5.92:

5.90   She reads *The Independent*.

5.91   Earthworms belong to the phylum Annelida.

5.92   The ship departs tomorrow at dawn.

These then are examples of some basic tense and aspect forms in English. We have concentrated on the intersection of three tenses and three aspects, but we haven't of course exhausted the system: as learners of English know, more complex forms like *they will have been listening* are possible. See Quirk et al. (1985) and Huddleston and Pullum (2002) for a more complete listing of the forms.

The Reichenbach system for tenses that we discussed earlier attempts to reflect the aspectual meanings of verb forms, especially the relevance effects, by linking the reference point, which is the viewpoint or psychological vantage point adopted by the speaker, to the other points. We can expand our earlier examples in 5.66–8 to the fuller selection in 5.93:

5.93   Reichenbach tenses for English:

a.	Simple past	(R = E < S)	'I saw Helen'
b.	Present perfect	(E < S = R)	'I have seen Helen'
c.	Past perfect	(E < R < S)	'I had seen Helen'
d.	Simple present	(S = R = E)	'I see Helen'
e.	Simple future	(S < R = E)	'I will see Helen'
f.	Proximate future	(S = R < E)	'I'm going to see Helen'
g.	Future perfect	(S < E < R)	'I will have seen Helen'

In this system, the present perfect in 5.93b and the proximate future in 5.93f have their meaning of 'relevance to the present' reflected by linking the reference point and the speech point, i.e. S = R.

However, as foreign language learners also know, it is one thing to learn the verbal tense and aspect forms of a language and quite another to learn to use them correctly. One example of difficulty is that there are often

restrictions on sequences of tense and aspect within complex sentences: for example, while a sentence sequences below are possible, the b versions with a complex sentence sound very strange:

5.94
a. Joan walked out. She has left her bag.
b. ?Joan walked out and has left her bag.

5.95
a. You will get your results next Thursday. Come over for a drink.
b. ?When you will get your results next Thursday, come over for a drink.

See Comrie (1985: 102–21) and Binnick (1991: 339ff.) for discussion of sequencing constraints on tense and aspect forms.[3]

Speakers may also employ unusual tenses and aspects in narratives to add freshness to the telling. For example in many languages, including English, speakers and writers may narrate past events in the present tense, sometimes known as the *historical present*, to give immediacy to a description. See for example the following extract from John le Carré's novel *The Night Manager*:

5.96   Jonathan is in the bedroom of the little flat in Luxor, with the moonlight sloping between the half-closed curtains. Sophie is lying on the bed in her white nightgown, eyes closed and face upward. Some of her drollness has returned. She has drunk a little vodka. So has he. The bottle stands between them. (1993: 122)

Within the novel this scene is a flashback, situated in time before the main action of the novel, which itself is often described in the past tense. Since the description is in the present, the whole tense/aspect system is shifted, with the present perfect replacing the expected past perfect in, for example, 'She has drunk a little vodka.' See Schiffrin (1981) for a discussion of such effects.

5.2.6 Comparing aspect across languages

Although aspect is a sentential feature, we expect, especially in Indo-European languages, that it will be marked on verbs. Many languages, most famously Slavic languages, have inflectional affixes that give aspectual information, e.g. Russian:

5.97   On čital pis'mo. (imperfective)
he read.PAST.IMPERF a letter
'He was reading a letter.'

5.98   On pročital pis'mo. (perfective)
he read.PAST.PERF a letter
'He read a letter.'[4]

This perfective/imperfective distinction of aspect is very widespread among the languages of the world: Dahl (1985) and Bybee (1985) identify it as the most commonly found and in many senses the most basic distinction. Some writers view the difference as being one of viewpoint: Comrie (1976) describes perfectivity as viewing a situation externally, from outside, with no reference to its internal temporal structure, while imperfectivity allows the viewing of a situation from within, making explicit reference to the internal temporal structure. C. S. Smith (1991) proposes a similar definition: perfectivity includes the viewing of the beginning and end of a situation, while imperfectivity focuses on the middle phase, leaving especially the end unspecified. She supports this with examples from Russian, where the oddity of 5.100 below comes from taking a situation described in 5.99 in the perfective, and therefore ended, and trying to extend it into the present (1991: 302):

5.99   On napisal   pis'mo.
He wrote.PERF a letter
'He wrote^perf a letter.'

5.100   ?On napisal   pis'mo i   ešče píšet   ego.
he wrote.PERF a letter and still writes.IMPERF it
'He wrote^perf the letter and is still writing^imperf it.'

However, with a situation described in the imperfective, like 5.101 below, the endpoint is unspecified and is thus compatible with an extension into the present as in 5.102 (Smith 1991: 304):

5.101   My pisali   pis'mo.
we wrote.IMPERF a letter
'We were writing^imperf a letter.'

5.102   My pisali   pis'mo i   ešče píšem   ego.
we wrote.IMPERF a letter and still write.IMPERF it
'We were writing^imperf a letter and are still writing^imperf it.'

These definitions allow us to correlate the imperfective/perfective system with the distinction we saw earlier in English between the simple past and the past progressive. Returning to our earlier example:

5.103   John was building a fire-escape.

5.104   John built a fire-escape.

we can identify the simple past verb form built in 5.104 as an English representative of the perfective aspect, with was building in 5.103 representing the imperfective. As we have seen, the perfective focuses on the end points of

a situation while the imperfective does not, producing a distinction between complete and incomplete action. This helps explain why we can interleave another event into the progressive of example 5.103 but not the simple past of 5.104, as 5.105 and 5.106 below show:

5.105   Ralph was building a fire-escape last week, when Rosemary came to stay.

5.106   Ralph built a fire-escape last week, when Rosemary came to stay.

In 5.105 Rosemary interrupts the building process, while in 5.106 Rosemary's arrival can only be placed outside the closed event, i.e. before or after the building of the fire-escape, perhaps most naturally the latter. Though the added clause is the same in both sentences, we understand different sequences of events: indeed the sequence understood in 5.106 can lead to the implication that Rosemary's arrival was the cause of Ralph building the fire-escape.

We can parallel Smith's examples from Russian with similar examples from English 5.107 below is odd because the second clause contradicts the perfective nature of the first clause, while 5.108 is fine:

5.107   ?I baked a cake and I am still baking it.

5.108   I was baking a cake, and I am still baking it.

What this brief comparison of English and Russian disguises is that while we can compare the aspectual systems of different languages, it is very difficult to characterize a typical aspectual system. Firstly, of course, the means of marking aspects differ: Russian, as we saw, uses prefixes on the verb, while English tends to use combinations of verbal endings and auxiliary verbs like be, have, used to, e.g.

5.109   a.   He read The Irish Times.
b.   He has read The Irish Times.
c.   He used to read The Irish Times.
d.   He was reading The Irish Times.

A second and more serious problem in trying to come up with universal aspectual distinctions is that the aspectual systems of different languages tend not to correspond very closely. As we noted, it has been claimed that the aspectual distinction between perfective and imperfective aspects is very widespread: 45 of the 64 languages in Dahl's (1985) world-wide sample possess an aspectual distinction of this type. However, there are numerous differences between uses of these two aspects amongst these languages. For example, the perfective in Arabic is only used with reference to the past, for example:

5.110   Harbat   al-bint   min   al-madrasa.
run away.3f.sg.PERF the-girl from the-school
'The girl ran/has run away from the school.'

In Russian, on the other hand, a perfective can occur with past and non-past tenses: a perfective non-past is understood to refer to the future, for example:

5.111   Ja napišu   pis'mo.
I write.PERF.NON-PAST a letter
'I'll write a letter.'
(Dahl 1985: 80)

The examples we have seen of tense and aspect have been marked grammatically, for example by verbal affixes and auxiliary verbs. As mentioned earlier, a speaker's characterization of a situation derives from combining a choice from the situation types encoded in the verbal semantics with forms from the grammatical systems of tense and aspect. We end our discussion of aspect by looking briefly at the interaction of situation types and aspect in the next section.

5.2.7 Combining situation type and aspect

We saw in section 5.2.2 that situation type and aspect interact: for example, certain verb forms such as progressives are used with some situation types but not with others. In fact the options for describing situations in any language are constrained by natural combinations of situation type, aspect and tense. Inherent features of a verb's meaning fit in with the meaning of certain tense and aspect forms, but not with others. Speakers know the valid combinations and the semanticist's task is to reflect this knowledge. The difficulty is that the combinations are very language specific. For example, in the last section we saw that the English progressive aspect has features of activity, dynamism and volition. C. S. Smith (1991: 224) gives examples of contrast between simple and progressive forms which show this:

5.112   a.   She blinked her eyes.
         b.   She was blinking her eyes.

5.113   a.   The ship moved.
         b.   The ship was moving.

The observation is that the b sentences have a vividness missing from the a sentences. Additionally, 5.112b has connotations of wilful behaviour missing

from 5.112a; and in 5.113b the description of motion is more vivid than in 5.113a because of the progressive's focus on internal successive phases. As we saw earlier, these connotations of dynamism means that the progressive does not combine with stative situation types in English:

5.114   a.   *He was understanding the problem.
         b.   He understood the problem.

5.115   a.   *She was having long legs.
         b.   She had long legs.

However in French the imparfait aspect, which might be seen as a corresponding imperfective,[5] does not have these connotations of dynamism and therefore does occur with statives, as below (Rand 1993: 39):

5.116   L'air   sentait   le   jasmin.
the-air smell.IMP-PAST the jasmin
'The air smelled of jasmin.'

5.117   Je vous entendais   bien.
I you hear.IMP-PAST well
'I heard you well.'

Part of the semantic description of particular languages then is to reflect which aspectual viewpoints are available on a particular situation type. Thus for English we need to recognize that a speaker can choose to view an accomplishment from a perfective viewpoint as in 5.118a below or from an imperfective viewpoint as in 5.118b:

5.118   a.   Rory painted a seascape.
         b.   Rory was painting a seascape.

Thus the interaction between situation type and aspect is a complex area of semantics, but what seems clear is that in describing a speaker's aspectual choices we must distinguish between three dimensions: real situations, the situation types lexically coded in languages, and ways of viewing these situations types in terms of their internal structure (the choice of whether or not to focus on their beginning, middle and end phases). There are some differences in the terminology applied across these three dimensions. Some writers use aspect for both the second and third dimensions: situation type and viewpoint. Others reserve aspect for viewpoint and use terms like modes d'action or Aktionsarten for the situation types, or the real situations, or both. Binnick (1991) picks a very detailed path through the terminology.

5.3 Modality and Evidentiality

5.3.1 Modality

Another important semantic category which operates at the sentence level is **modality**. Modality is a cover term for devices which allow speakers to express varying degrees of commitment to, or belief in, a proposition. Let us take a simple assertion like 5.119:

5.119   Niamh has gone to the airport.

It seems that when being told 5.119, we assume a certain commitment on the behalf of the speaker to its truth. The speaker may be wrong of course, or be lying in order to mislead us. Our conversational practice, however, seems to be built upon an assumption that speakers generally try to tell the truth, as they know it. If we discover that Niamh hasn't gone to the airport then our reactions will be very different depending on whether we think the speaker was simply wrong in her belief, or intentionally misleading us. We discuss this assumption of truthfulness as part of the more general issue of conversational conventions in chapter 7. We might take the opposite of the assertion 5.119 to be the denial 5.120:

5.120   Niamh hasn't gone to the airport.

However, without any further spoken qualification, both 5.119 and its negation 5.120 seem to carry an unspoken guarantee of 'to the best of my knowledge'.

Modal systems allow speakers to modulate this guarantee: to signal stronger and weaker commitment to the factuality of statements. There are a number of possible linguistic strategies: for example the sentence can be embedded under a higher clause with an adjective or adverb of modality, e.g. (where S represents our sentence):

5.121   a.   It is certain that S
         b.   It is probable that S
         c.   It is likely that S
         d.   It is possible that S

Here versions a–d move from strong to weak commitment to S. Another strategy is to put into the higher clause a verb which describes the extent of the speaker's belief – what is often called in the philosophical literature her **propositional attitude**:

5.122   a.   I know that S
         b.   I believe that S

         c.   I think that S
         d.   I don't know that S
         e.   I doubt that S
         f.   I know that not S

In 5.122 we have a gradient from the certainty of the truth of the proposition expressed by S through to the certainty of its falsity.

A third strategy we find in English is to employ auxiliary verbs: in 5.124 below these mark the variations of commitment towards the assertion in 5.123:

5.123   She has left by now.

5.124   a.   She must have left by now.
         b.   She might have left by now.
         c.   She could have left by now.
         d.   She needn't have left by now.
         e.   She couldn't have left by now.

Auxiliary verbs in this role are called **modal verbs**. These modal verbs have another function. The examples so far have been of **epistemic** modality, so called because the speaker is signalling degrees of knowledge. A second use is to signal **deontic** modality, where the verbs mark the speaker's attitude to social factors of obligation, responsibility and permission. Take for example 5.125 below:

5.125   You can drive this car.

A speaker can use this to mean either of the following:

5.126   It is possible for you to drive this car.

5.127   You have my permission to drive this car.

The first is another example of epistemic modality; the second is an example of deontic modality. Deontic modals communicate two types of social information: **obligation** as in 5.128 and **permission** as in 5.129:

5.128   a.   You must take these books back.
         b.   You should take these books back.
         c.   You need to take these books back.
         d.   You ought to take these books back.

5.129   a.   You can leave them there.
         b.   You could leave them there.
         c.   You might leave them there.

Deontic modals, like epistemic modals, signal a speaker's judgments but while with epistemics the judgement is about the way the real world is, with deontics it is about how people should behave in the world. This means that the use of deontics is tied in with all sorts of social knowledge: the speaker's belief systems about morality and legality; and her estimations of power and authority. The sentences in 5.128 and in 5.129 step down in modal strength. Thus 5.128a is a stronger statement of obligation than 5.128d and while 5.129a for example is a bald granting of permission, 5.129c is a weaker and politer version. We can imagine that deciding which of 5.129a-c to use would depend on different judgements by the speaker of her authority over the listener and the degree of formality of their relationship.

Sometimes the relationship between epistemic and deontic modality is more complicated than an ambiguity resolvable in context, like 5.125 earlier. Speakers can use an epistemic modal to imply a deontic interpretation as in 5.130:

5.130   You could have told me you were coming.

Here the possibility of telling is used to imply a missed obligation, turning 5.130 into a reproof.

We have seen that epistemic and deontic modality can be marked by the same means, for example modal verbs, and indeed that some sentences are ambiguous in form between an epistemic and deontic reading. This has led semanticists to ask what they have in common, and to speculate whether one type of modality has developed out of the other. One suggestion is that modality in general allows us to compare the real world with hypothetical versions of it. This approach derives from work on possible world semantics by David Lewis (1973, 1986) and others; some of its grammatical implications are discussed by Chung and Timberlake (1985) and Palmer (1986). In this view, epistemic modals allow us to set up hypothetical situations and express different strengths of prediction of their match with the real world. Thus if a speaker says 5.131:

5.131   It might be raining in Belfast.

she is setting up a hypothetical situation (rain in Belfast) and predicting a reasonable match with reality. If on the other hand she says:

5.132   It must be raining in Belfast.

she is proposing a very strong match between her prediction and reality. This approach views deontic modality in the same way. Here though the speaker is proposing a match between an ideal moral or legal situation and the real world of behaviour. So if a speaker says:

5.133   You should pay for that doughnut.

she is proposing a match between the ideal situation and the real situation; a match more strongly proposed in 5.134:

5.134   You must pay for that doughnut.

This approach would relate modality to conditional sentences like 5.135 and 5.136 below, which also set up hypothetical situations:

5.135   If I were rich, I would be living somewhere hotter.

5.136   You would sleep all day, if we let you.

We can call the *if*-clause in sentences like 5.135-6, the **condition**, and the other clause, the **consequent**. This view of conditionals as part of the modal system neatly explains why we also find modal verbs used in consequent clauses, like *would* in 5.135-6 above, or *should* in the condition clauses below:

5.137   If you should go to Paris, stay near the river.

5.138   Should you meet Christy, there's something I would like you to ask him.

This approach to modality is also supported by the existence of languages which have verb forms which regularly distinguish between events in the real world and events in future or imaginary worlds. This two-term modal distinction is often called a **realis/irrealis** modality (i.e. a reality/unreality distinction): for example, Palmer (1986: 47) describes a distinction between realis and irrealis moods in the Australian language Ngiyambaa:

5.139   a.   yuruŋ-gu ŋidja-ŗa.'
              rain-ERG   rain-PRES.
              'It is raining.' (realis)

         b.   yuruŋ-gu ŋidja-l-aga.
              rain-ERG   rain-CM-IRREALIS
              'It might/will rain.' (irrealis)

In this section we have looked briefly at the semantic system of modality; in the next we look at how modality distinctions are encoded in the grammar, in particular, at mood.

5.3.2   Mood

Thus far we have seen modality distinctions in English being marked by various means including adverbs and modal verbs. When such distinctions

are marked by verb endings which form distinct conjugations, there is a grammatical tradition of calling these **moods**. Thus the distinction in the Ngiyambaa verb in 5.139 would be described as a distinction in the realis mood and an irrealis mood. In the verbal inflection of the Cushitic language Somali we find in addition to the basic indicative mood in 5.140 a conditional mood, as in 5.141, and a potential mood as in 5.142:

5.140
Wuu sameeyey.
he   make.PAST
'He made it.'

5.141
Wuu sameyn   lahaa.
he   make.INFINITIVE have
'He would make it, he would have made it.'

5.142
Show   sameyee,
possibly make.POTENTIAL
'Maybe he'll make it, it's possible he will make it.'

The indicative in 5.140, which is a *realis* form, and the potential in 5.142 are marked by specific verb endings, while the conditional in 5.141 uses an the infinitive with an auxiliary verb 'have', rather like English.[8]

A more familiar example of mood is the **subjunctive** mood found in many European languages. The label subjunctive is applied somewhat differently in different languages, but we can identify two opposite poles of use, with an area of mixing and overlap between them. One pole is the grammatical one of syntactic subordination, i.e. subjunctive verb forms show that a verb is in a subordinate clause. The other pole is semantic, where the subjunctive marks language-specific types of irrealis mood, and is thus used for wishes, beliefs, exhortations, commands etc. At the syntactic pole, we can cite the example of Somali again where subordinated clause verbs are always differentiated from their main clause equivalents by a combination of tone and endings; compare 5.143 and 5.144 below:

5.143
Lacágta way   kéenaysaa,[9]
lacág-ta waa-ay kéenaysaa
money-the CLASS-she bring.PROGRESSIVE
'She is bringing the money.'

5.144
inay lacágta kéenaysó
in-ay lacág-ta kéenaysó
that-she money-the bring.SUBJUNCTIVE
'that she is bringing the money'

In 5.143 the classifier *waa* identifies a main clause, while in 5.144 the complementizer *in* 'that' identifies a subordinate clause. As is clear, the main

clause and subordinate clause forms of the verb *keen* 'bring' have different tonal shapes and a different endings.[10]

If such subordinate verb forms are termed 'subjunctive', then this use of the term does not seem to have anything to do with the semantic system of modality. However in classical Greek and in Latin, the subjunctive describes a verbal form that occurs in both main and subordinate clauses, though with somewhat different applications in each. Palmer (1986: 39–43), citing R. T. Lakoff (1968), gives six meanings of the subjunctive in Latin main clauses: imperative, optative (for wishes), jussive, concessive, potential and deliberative. Each of these can be identified with descriptions of unreal situations, and thus be examples of our semantic pole of unreality. They contrast with the indicative mood used for descriptions of factual, or real, situations.

In-between positions are very common, especially in modern European languages. In many languages, the subjunctive is most commonly found in subordinate clauses, but often with some special meaning: often following verbs of wishing and preference, as in the Spanish example 5.145 below (Butt and Benjamin 1994: 246) and the French 5.146; for the future in Spanish 5.147 (Butt and Benjamin 1994: 241); or indirect speech as in German 5.148 (Hammer 1991: 310):

5.145
Quiero   que   estudies   más.
want.INDIC.PRES.1sg that study.SUBJUN.PRES.2sg more
'I want you to study more.'

5.146
Il vaut   mieux qu'elle   le sache.
it worth better that-she it know.SUBJUN.PRES.3sg
'It's better that she know it.'

5.147
Iremos   allí   cuando haga   buen tiempo
go.INDIC.FUT.1p there when have.SUBJUN.PRES.3sg good weather
'We'll go there when the weather's good.'

5.148
Sie sagte sie   schreibe   den Brief.
she said she write.SUBJUN.IMPERF.3sg the letter
'She said she was writing the letter.'

While there seems to be some shared element of modality in these uses, i.e. of non-factuality,[11] the range of use of subjunctives is usually both complex and language specific. Often the choice between indicative and subjunctive moods allows speakers to make subtle semantic distinctions, as for example between the different degrees of possibility marked by the French indicative and subjunctive in 5.149 and 5.150 below (Judge and Healey 1985: 141):

5.149
Je pense   qu'il   viendra.
I think.INDIC.PRES that-he come.INDIC.FUT
'I think that he'll come.'

5.150   Je doute   qu'il   vienne.
I doubt.INDIC.PRES that-he come.SUBJUN.PRES
'I doubt that he'll come.'

Before we close this section on mood, we should point out that there is another quite distinct use of the term in semantics. This applies to changes in verbal morphology associated with the different social functions or **speech acts** that a speaker may intend. For example a speaker may intend a sentence as a statement, a question, a command or a wish. Depending on the language, these different functions may be marked by different word orders or special intonation tunes. Some languages mark this information by particular verb forms: for example, some languages have special **optative** verb conjugations to express wishes like the English phrases 'may he get well', 'I hope he gets well', 'if only he would get well', etc. See for example the Nahuatl sentence (Bybee 1985: 171):

5.151   mā choca.   'If only he would weep.'

Such special speech act verbal forms are often called moods: the example above would therefore be in the optative mood, and in some languages this would contrast with an imperative mood (for commands), an interrogative mood (for questions) or a declarative mood (for statements). We will discuss this grammaticalization of speech functions in chapter 8 on speech acts. See Foley and Van Valin (1984) for discussion of the relationship between this use of mood and the epistemic and deontic modality we have been concerned with here.

5.3.3   Evidentiality

Under epistemic modality we looked at ways in which a speaker can mark different attitudes towards the factuality of a proposition. There is a further semantic category **evidentiality** which allows a speaker to communicate her attitude to the source of her information. This is possible in English of course by the use of a separate clause or by parenthetic adverbials. Compare the bare assertion in 5.152 with the various evidentially qualified versions in 5.153a–g:

5.152   She was rich.

5.153   a. I saw that she was rich.
         b. I read that she was rich.
         c. She was rich, so they say.
         d. I'm told she was rich.
         e. Apparently she was rich.
         f. She was rich, it seems.
         g. Allegedly, she was rich.

These qualifications allow the speaker to say whether the statement relies on personal first-hand knowledge, or was acquired from another source; and if the latter, perhaps to say something of the source.

Some languages routinely mark such information grammatically, by special particles or specific verb forms, so that in these languages evidentiality is coded in the morphology. A collection of descriptions of such languages is Chafe and Nichols (1986), which contains articles both on the North and South American languages where such systems were first described and also on evidential systems in European and Asian languages. Aikhenvald (2004) provides a comparative overview of such evidential systems. We can take as an example Tariana, an Arawak language spoken in northern Amazonia, whose verbal morphology distinguishes several different sources for information (Aikhenvald 2004: 2–3):

5.154   a. Juse irida   di-manika-**ka**
            José football 2sgnf-play-REC.P.VIS
            'José has played football (we saw it)'

         b. Juse irida   di-manika-**mahka**
            José football 2sgnf-play-REC.P.NONVIS
            'José has played football (we heard it)'

         c. Juse irida   di-manika-**nihka**
            José football 2sgnf-play-REC.P.INFR
            'José has played football (we infer it from visual evidence)'

         d. Juse irida   di-manika-**sika**
            José football 2sgnf-play-REC.P.ASSUM
            'José has played football (we assume this on the basis of what we already know)'

         e. Juse irida   di-manika-**pidaka**
            José football 2sgnf-play-REC.P.REP
            'José has played football (we were told)'

We follow Aikhenvald in marking the evidential morphemes in bold, giving us the five-fold evidential distinction between these reports of a recent past event. In a the speaker has seen the event; in b the speaker heard the noise of the football game; in c the report is an inference from visual evidence; in d the assumption is based on previous knowledge about José's habits; and finally in e, the speaker has learned the information from someone else.

What emerge from these studies of evidential systems are differences among languages in whether the evidential markers are obligatory in ordinary speech or an optional resource for speakers. Hardman, for example, reports that among the Jaqi languages of Peru, Bolivia and Chile the identification of what she calls 'data source' (i.e. the use of evidentials) is a central part of knowing how to communicate (1986: 114):

5.155   Accuracy on the part of the speaker is a crucial element in the public reputation of individuals; misuse of data-source is somehow somewhat less than human, or is insulting to the listener.

Speakers of Jaqi languages, which include Jaqaru, Aymara and Kakwi, have obligatorily to signal whether the source of information for their statements is personal experience, or knowledge gained from other individuals by language, or comes from the remote past where no witnesses are available, i.e. from myths, history and religion. In other languages the use of evidentials is more voluntary, providing a speaker with creative resources to structure a point of view in a discourse, or perhaps to argue more convincingly. See Chafe (1986) for a description of evidentials in English.

5.4 Summary

In this chapter we looked at aspects of sentence meaning which allow the speaker to classify situations. The category of situation type, for example, incorporating semantic distinctions like static/dynamic, durative/punctual and telic/atelic, allows a basic classification of situations into states, activities, accomplishments, etc. The categories of tense and aspect interact with situation type to allow a speaker to relate a situation to time in two ways: to locate it relative to the act of speaking, and to portray its internal temporal shape. We saw something of how these choices are reflected in grammar. We also saw that the distinctions available to speakers may be very subtle and language specific.

We also looked at the semantic categories of modality and evidentiality, which allow the speaker to assume various attitudes towards a proposition. Epistemic modality reflects various judgements of factuality and deontic modality communicates judgements of moral and legal obligation. Both can be seen as implying a comparison between the real world and hypothetical versions of it. Evidentiality is a term for the ways in which a speaker qualifies a statement by referring to the source of the information. We saw that in some languages this information is grammaticalized and therefore obligatory, implying that in these communities, calculation of evidence is assumed of speakers by their hearers. We look at the role of similar hearer assumptions, e.g. that the speaker is estimating and updating her audience's state of knowledge, in chapter 7.

FURTHER READING

Comrie's *Aspect* (1976) and *Tense* (1985) are concise monographs, using examples from a range of languages. C. S. Smith (1991) discusses universals of situation type and aspect and gives brief descriptions of the aspectual systems of English, French, Russian, Mandarin Chinese and Navajo. Palmer (1986) and Bybee and Fleischman (1995) contain discussions of modality systems in various languages. Bybee, Perkins and Pagliuca (1994) contains a large cross-linguistic survey of tense, aspect and modality. The marking of these semantic categories on the English verb can be seen

in Leech (1971) and the comprehensive reference grammar Quirk et al. (1985). Aikhenvald (2004) provides a survey of evidential systems in a wide range of languages.
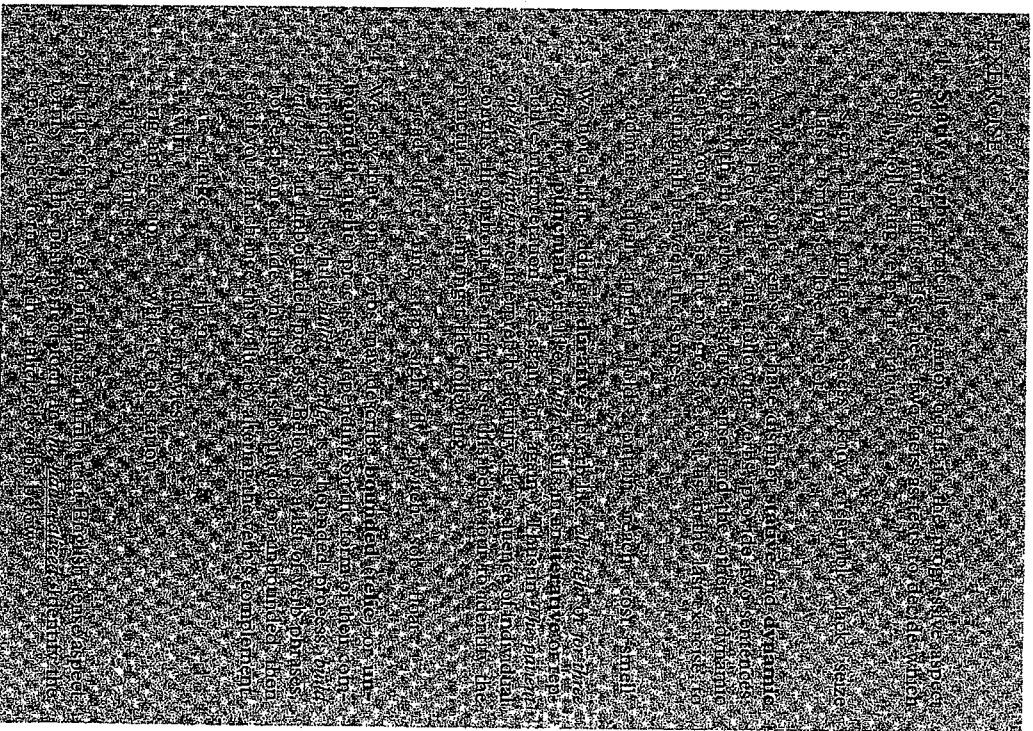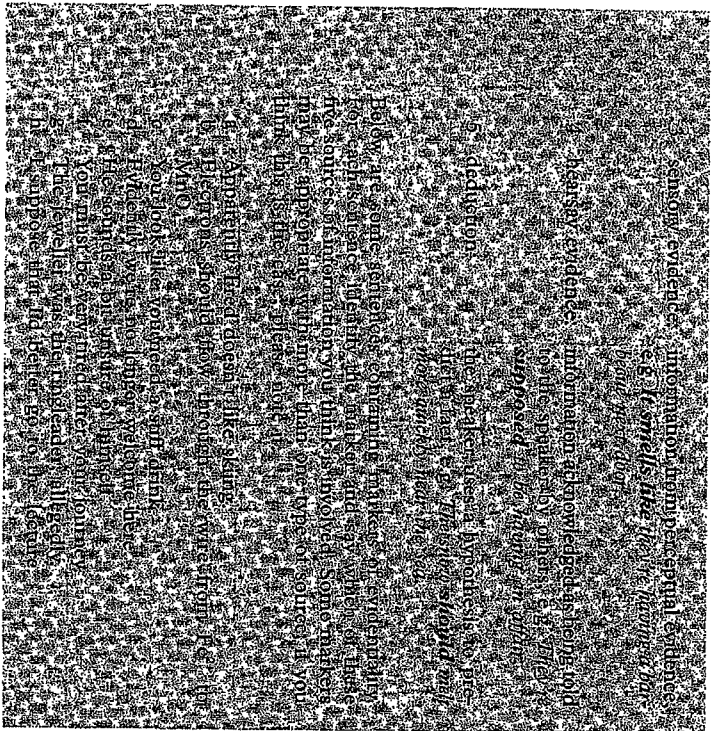
NOTES

1 Transcription as in the original, where tone is marked as follows: ā (macron) = high level tone, ó = rising ô = fall-rise, ò = falling.

2 See Dowty (1979) for a discussion of stativity and English verbs, especially verbs like *sit* and *stand*, which act like statives in many ways but allow progressive forms.

3 See also Ogihara (1989).

4 Note that our translations here are meant to be suggestive: in fact, as my colleague Sarah Smyth has pointed out to me, the contrast between the English past progressive and past simple doesn't exactly capture the Russian distinction between imperfective and perfective. Thus 5.97 can also mean *He read a letter* or *He has read a letter*. The perfective form in 5.98 is more likely to mean *He read a letter (and then threw it away)* for perfective verbs in Russian suggest continuation of narrative.

5 The French *imparfait* does not of course correspond to the Russian imperfective; for example, the French perfective *Tu as vu ce film?* would be translated into Russian as an imperfective *Ty videl eot fil'm?.*

6 We discuss this notion of possible worlds in chapter 10.

7 In this transcription CM = 'conjugation marker', ERG = ergative case.

8 We have glossed *show* in 5.141 as 'possibly' but in fact it is a sentence type indicator, or classifier, which can only be used with verbs in the potential mood. See Saeed (1993) for more details, and chapter 8, section 8.5, where we discuss these classifiers in Somali and their status as sentence type markers.

9 The tone markings used here are á = high tone, and a (i.e. unmarked) = low tone. They are only marked on the first vowel of long vowels, e.g. áa.

10 Note that such subordinate clause verbs are finite, showing inflectional marking of person, tense and aspect.

11 Another way of viewing what these uses of the subjunctive have in common comes from the modality of speech acts, to be discussed in chapter 8. This to recognize a common element of *non-assertion* in these clauses.

12 Aikhenvald gives a possible licensing context as follows: 'If one see that the football is not in its usual place in the house, and José and his football boots are gone, with crowds of people coming back from the football ground, this is enough for us to infer that José is playing football' (2004: 2).

chapter 6

Sentence Semantics 2: Participants

6.1 Introduction: Classifying Participants

In the last chapter we looked at aspects of sentence level semantics: how speakers may choose to characterize situations and express various degrees of commitment to the portrayal. Another set of semantic choices which face a speaker seeking to describe a situation concerns how to portray the roles of any entities involved. Take for example 6.1 below:

6.1   Gina raised the car with a jack.

This sentence identifies three entities, *Gina*, *the car* and *a jack*, related by the action described by the verb *raise*. The sentence portrays these entities in specific roles: Gina is the entity responsible for initiating and carrying out the action, the car is acted upon and has its position changed by the action, and the jack is the means by which Gina is able to cause the action. Such roles have a number of labels in semantics, including participant roles (Allan 1986), deep semantic cases (Fillmore 1968), semantic roles (Givón 1990), thematic relations (Gruber 1976, Jackendoff 1972) and thematic roles (Dowty 1986, 1989, 1991, Jackendoff 1990). Given its wide usage in recent work, we will use the last term here: **thematic roles.**

In this chapter we examine this notion of thematic roles. We begin by sketching the basic picture of these roles that seems to be assumed by much of the syntax and semantics literature. Thus in sections 6.2–6.4 we outline the main contenders for individual types of roles, look at the relationship between thematic roles and grammatical relations, and discuss the idea that verbs must have their thematic role requirements listed in the lexicon. In the second part of the chapter we look more critically at the idea of thematic roles: first in section 6.5 we review criticisms that have been levelled at the notion. Then in 6.6 we review the job these roles do in linguistic descrip- tion. In the third part of the chapter, section 6.7, we investigate **voice** systems and see how they allow speakers some flexibility in the relationship between thematic roles and grammatical structure: we focus on **passive voice** and **middle voice**. In the final part of the chapter we turn our attention to semantic classification systems that are based on the inherent features of nominals rather than their roles within a predication. In section 6.8.1 we discuss **classifiers** and in 6.8.2 **noun classes.**

6.2 Thematic Roles

Each of the writers mentioned above, and others, for example Andrews (1985) and Radford (1988), have proposed lists of thematic roles. From this extensive literature we can extract a list of thematic roles like the following (where the relevant role-bearing nominal is in bold):

AGENT: the initiator of some action, capable of acting with volition, e.g.

6.2   **David** cooked the rashers.

6.3   **The fox** jumped out of the ditch.

PATIENT: the entity undergoing the effect of some action, often undergoing some change in state, e.g.

6.4   Enda cut back **these bushes.**

6.5   The sun melted **the ice.**

THEME: the entity which is moved by an action, or whose location is described, e.g.

6.6   Roberto passed **the ball** wide.

6.7   **The book** is in the library.

EXPERIENCER: the entity which is aware of the action or state described by the predicate but which is not in control of the action or state, e.g.

6.8   **Kevin felt ill.**

6.9   **Mary saw the smoke.**

6.10   **Lorcan heard the door shut.**

BENEFICIARY: the entity for whose benefit the action was performed, e.g.

6.11   **Robert filled in the form for his grandmother.**

6.12   They baked **me** a cake.

INSTRUMENT: the means by which an action is performed or something comes about, e.g.

6.13   She cleaned the wound with **an antiseptic wipe.**

6.14   They signed the treaty with **the same pen.**

LOCATION: the place in which something is situated or takes place, e.g.

6.15   The monster was hiding **under the bed.**

6.16   The band played **in a marquee.**

GOAL: the entity towards which something moves, either literally as in 6.17 or metaphorically as in 6.18:

6.17   Sheila handed her licence **to the policeman.**

6.18   Pat told the joke **to his friends.**

SOURCE: the entity from which something moves, either literally as in 6.19 or metaphorically as in 6.20:

6.19   The plane came back **from Kinshasa.**

6.20   We got the idea **from a French magazine.**

STIMULUS: the entity causing an effect (usually psychological) in the EXPERIENCER, e.g.

6.21   John didn't like **the cool breeze.**

6.22   **The noise** frightened the passengers.

Thus to return to our first example, repeated below:

6.23   Gina raised the car with a jack.

we can describe the thematic roles by calling *Gina* the AGENT of the action, *the car* the THEME, and *the jack* the INSTRUMENT.

There is some variation in the use of these terms: for example Radford (1988) treats PATIENT and THEME as different names for the same role. Here we adopt the distinction that PATIENT is reserved for entities acted upon and changed by the verb's action while THEME describes an entity moved in literal or figurative space by the action of the verb, but constitutionally unchanged. Thus the noun phrase *the rock* would be a PATIENT in 6.24 below but a THEME in 6.25

6.24   Fred shattered the rock.

6.25   Fred threw the rock.

A number of tests for identifying thematic roles have been suggested. Jackendoff (1972) for example provides a test for AGENT: whether the phrases like *deliberately*, *on purpose*, *in order to*, etc. can be added to the sentence. This reflects the fact that an AGENT characteristically displays animacy and volition. The contrast between 6.26 and 6.27 below identifies John as an AGENT in 6.25 but not 6.27.

6.26   John took the book from Bill in order to read it.

6.27   ?John received the book from Bill in order to read it.

Some writers (e.g. Foley and Van Valin 1984, Jackendoff 1990) have suggested that AGENT is a particular type of a more general thematic role ACTOR, where ACTOR 'expresses the participant which performs, effects, instigates, or controls the situation denoted by the predicate' (Foley and Van Valin 1984:29). So every AGENT is an ACTOR, but not the other way round: in 6.28 below *the car* is an ACTOR but not AGENT since it presumably is neither in possession of a wish to kill nor animate:

6.28   **The car ran over the hedgehog.**

Other simple tests suggested by Jackendoff (1990) include predicting that for an ACTOR (X) it will make sense to ask 6.29 below, and for a PATIENT (Y) that it will be able to occur in the frames in 6.30:

6.29   What did X do?

6.30   a.   What happened to Y was . . .
        b.   What X did to Y was . . .

So for example 6.31 below the tests would give 6.32–3, identifying *Robert* as the ACTOR and *the golf club* as PATIENT:

6.31   Robert snapped the golf club in half.

6.32   What Robert did was to snap the golf club in half.

6.33   a.   What happened to the golf club was that Robert snapped it in half.
       b.   What Robert did to the golf club was snap it in half.

Some writers have suggested other thematic roles in addition to those we have discussed. For example a role of FORCE is sometimes used instead of INSTRUMENT for an inanimate entity which causes something, e.g.

6.34   a.   **The wind** flattened the crops.
       b.   The sea wall was weakened by **the waves**.

A role of RECIPIENT is sometimes identified, e.g. by Andrews (1985), as a type of GOAL involved in actions describing changes of possession, e.g.

6.35   a.   He sold **me** this wreck.
       b.   He left his fortune **to the church**.

While these roles, ACTOR, AGENT, PATIENT, EXPERIENCER, THEME, INSTRUMENT etc. may seem intuitively clear, in practice it is sometimes difficult to know which role to assign to a particular noun phrase. For example, in a sentence like 6.36 below *to the lighthouse* is clearly a GOAL, and in 6.37 *him* is a BENEFICIARY, but in 6.38 below is *Margarita* the GOAL/RECIPIENT, or the BENEFICIARY, or both?

6.36   Fergus carried the bag **to the lighthouse**.

6.37   Sylvie bought **him** a sports car.

6.38   **Margarita** received a gift of flowers.

Examples like these raise the difficult question of whether a single entity can fulfil two or more thematic roles at the same time; for example in 6.39 below, are we to say that Mr Wheeler is both AGENT and THEME?

6.39   **Mr Wheeler** jumped off the cliff.

These issues are still under investigation in various theoretical approaches. A central claim of Chomsky's Principles and Parameters theory, for example, is the **Theta-Criterion**, which states that there must be a one-to-one

correspondence between noun phrases and thematic roles (see Chomsky 1988, Haegeman 1994), Jackendoff (1972), on the other hand, suggested that one entity might fulfil more than one role. In Jackendoff (1990) the idea that one nominal might fulfil more than one role is elaborated into a theory of tiers of thematic roles: a **thematic tier**, which describes spatial relations, and an **action tier** which describes ACTOR–PATIENT type relations. His examples include the following (1990: 126–7):

6.40   a.   Sue hit   Fred.
            Theme   Goal   (thematic tier)
            Actor   Patient   (action tier)
       b.   Pete threw   the ball.
            Source   Theme   (thematic tier)
            Actor   Patient   (action tier)
       c.   Bill entered   the room.
            Theme   Goal   (thematic tier)
            Actor   (action tier)
       d.   Bill received   a letter.
            Goal   Theme   (thematic tier)
            Actor   (action tier)

Thus *Fred* in 6.40a is simultaneously the GOAL and the PATIENT of the action. The gaps in a tier reflect instances where the nominal has only one thematic role: thus *the room* in 6.40c has no role in the action tier. Presumably these tiers would divide thematic roles into two types, perhaps as follows:

6.41   a.   Action tier roles: ACTOR, AGENT, EXPERIENCER, PATIENT, BENEFICIARY, INSTRUMENT.
       b.   Thematic tier roles: THEME, GOAL, SOURCE, LOCATION.

To these dimensions of action and space, Jackendoff also proposes a dimension of time, which we will not investigate here. The basic insight is clear: the roles that speakers assign to entities may be more complicated than a single thematic role label. For a detailed discussion of this proposal, see Jackendoff (1990: 125–51).

Having identified these thematic roles, the next question we might ask is: how are such roles identified in the grammar? For our English examples above, the answer is by a combination of syntactic structure and the choice of verb. There are typical matchings between participant roles and grammatical relations. As in our original example 6.22, the direct object to the sentence often corresponds to the AGENT, the direct object to the THEME, while the INSTRUMENT often occurs as a prepositional phrase. Though this is the typical case, it is not necessarily so: for example it is possible to omit the AGENT from the sentence and as a result have the INSTRUMENT occupy subject position, e.g.:

6.42   **The jack raised the car.**

We can see the effect of the choice of verb if we try to describe this same situation without either the AGENT or the INSTRUMENT. We cannot simply allow the THEME to occupy subject position as in 6.43; we have to change the verb as in 6.44:

6.43   *The car raised.

6.44   The car rose.

This is because the verb *raise* requires an ACTOR. The verb *rise* however describes a change of state without any slot for an ACTOR so that while 6.44 above is fine, 6.45 and 6.46 below are not possible:

6.45   *Gina rose the car.

6.46   *The jack rose the car.

What this simple example shows is that a speaker's choice of participant roles has two aspects: the choice of a verb with its particular requirements for thematic roles, and within the limits set by this, the choice of grammatical relations for the roles. We look at these choices in the rest of this chapter, beginning with the relationship between thematic roles and grammatical relations: first we describe how various thematic roles may occupy subject position, then we look briefly at the selection of thematic roles as part of a verb's lexical semantics. Later we discuss the role of *voice* in allowing speakers to alter prototypical matchings between thematic roles and grammatical relations.

6.3   Grammatical Relations and Thematic Roles

We have seen that while in English there is a tendency for subjects to be AGENTS, direct objects to be PATIENTS and THEMES, and INSTRUMENTS to occur as prepositional phrases, this need not always be the case. There are two basic situations where this is not the case: the first is where roles are simply omitted, and the grammatical relations shift to react to this, as we will discuss in this section; and the second is where the speaker chooses to alter the usual matching between roles and grammatical relations, a choice often marked by an accompanying change of verbal *voice*. We deal with voice later on in section 6.7.

We can begin with a simple example of thematic role omission in 6.47–9 below:

6.47   Ursula broke the ice with a pickaxe.

6.48   The pickaxe broke the ice.

6.49   The ice broke.

This is similar to our example 6.23 earlier: in 6.47 Ursula is the AGENT and subject, the ice is PATIENT and direct object, and the pickaxe, the INSTRUMENT, is in a prepositional phrase. In 6.48 the AGENT is omitted and now the INSTRUMENT is subject; and finally in 6.49 with no AGENT or INSTRUMENT expressed, the PATIENT becomes subject. The verb *break*, unlike *raise* earlier, allows all three thematic roles to occupy subject position. Several writers have suggested that this process of different roles occupying the subject position is a hierarchical process, not only in English but across many languages. The observation is that when speakers are constructing a sentence, they tend to place an AGENT into subject position, the next preference being for a RECIPIENT or BENEFACTIVE, then THEME/PATIENT, then other roles. From our English examples, it seems that INSTRUMENT is then preferred to LOCA-TION. This is sometimes described as an *implicational hierarchy*. There are various versions of such a hierarchy proposed in the literature, e.g. in Fillmore (1968) and Givón (1984b), but we can construct a simple example of a universal subject hierarchy like 6.50 below:

6.50   AGENT > RECIPIENT/BENEFACTIVE > THEME/PATIENT > INSTRUMENT
        > LOCATION

This diagram can be read in two equivalent ways: one is that the leftmost elements are the preferred, most basic and expected subjects, while moving rightward along the string gives us less expected subjects. A second way to read this diagram is as a kind of rule of expectation, going from right to left: if a language allows the LOCATION role to be subject, we expect that it will allow all the rest. If, however, it allows those roles to the left, but we don't know if it allows the LOCATION role as subject. The idea is that languages can differ in what roles they allow to occur as subject but they will obey this sequence of preference, without any gaps. So, for example, we should not find a language that allows AGENT and INSTRUMENT to be subject but not THEME/PATIENT.

It is a little difficult to think of English examples with LOCATION as subject, unless we include sentences like 6.51a–b below:

6.51   a.   **This cottage sleeps five adults.**
        b.   **The table seats eight.**[1]

but the other positions on the hierarchy occur regularly, as we can see from the following examples:

6.52   AGENT subjects:
The thief stole the wallet.
Fred jumped out of the plane.

6.53   EXPERIENCER subjects:
I forgot the address.
Your cat is hungry.

6.54   RECIPIENT subjects:
She received a demand for unpaid tax.
The building suffered a direct hit.

6.55   PATIENT subjects:
The bowl cracked.
Una died.

6.56   THEME subjects:
Joan fell off the yacht.
The arrow flew through the air.

6.57   INSTRUMENT subjects:
The key opened the lock.
The scalpel made a very clean cut.

See Comrie (1981) and Croft (1990) for discussion of this and other implicational hierarchies.

6.4   Verbs and Thematic Role Grids

As we saw earlier with the verbs *raise*, *rise* and *drive*, verbs have particular requirements for their thematic roles. Since this is part of a speaker's semantic knowledge about a verb, we might expect it to be part of the lexical information stored for verbs. Thus we need to know not only how many arguments a verb requires (i.e. whether it is intransitive, transitive, etc.) but also what thematic roles its arguments may hold.

In the generative grammar literature, this listing of thematic roles is often called a **thematic role grid**, or **theta-grid** for short.[2] A simple example might be:

6.58   put V: <AGENT, THEME, LOCATION>

This entry tells us that *put* is a three-argument, or ditransitive, verb and spells out the thematic roles the three arguments may carry. Here we show

Williams's (1981) suggestion of underlining the AGENT role to reflect the fact that it is this role that typically occurs as the subject of the verb (or 'external argument' in Williams's terminology). Clearly this is just the start of the job that a grammatical description must do of mapping between thematic roles and grammatical categories and structures. Our thematic grid for *put* in 6.58 predicts that this verb, when saturated with the correct arguments, might form a sentence like 6.59:

6.59   John_AGENT put the book_THEME on the shelf_LOCATION.[3]

Of course, not all nominals in a sentence are arguments of a verb and thus specified in verbal theta-grids in the lexicon. We will make the assumption that one can employ grammatical tests to identify arguments: for example, to distinguish between the role of argument played by the prepositional phrase *in the bathroom* in 6.60 below and its status as a non-argument in 6.61:

6.60   [s Roland [vp put [np the book] [pp in the bathroom]]]

6.61   [s Roland [vp read [np the book]] [pp in the bathroom]]

The square brackets in 6.60–61 reflect the fact that while *in the bathroom* is an argument of the verb *put*, explaining why it cannot be omitted:

6.62   *Roland put the book.

it is not an argument of the verb *read*, for example, which can form a sentence without it:

6.63   Roland read the book.

In grammatical terms, while *in the bathroom* is an argument in 6.60, it is an adjunct in 6.61. As well as not being required by the verb, adjuncts are seen as less structurally attached to the verb, explaining why 6.64 below is a much more unusual word order than 6.65, and usually requires a marked intonation pattern:

6.64   In the bathroom Roland put a book.

6.65   In the bathroom Roland read a book.

See Radford (1988) and Haegeman (1994) for discussion of the grammatical status of arguments and adjuncts. We will assume that all verbs may co-occur with adjuncts (usually adverbials of time, place, manner, etc.) and that requirements need only be listed in the lexicon for arguments.

Another way of making this distinction is to distinguish between **particip-ant roles** and **non-participant roles**. The former correspond to our

arguments: they are needed by the predication, in the sense we have been discussing; the latter are optional adjuncts which give extra information about the context, typically information about the time, location, purpose or result of the event. Of course only participant roles will be relevant to verbal thematic grids, and our discussion in this chapter focuses on these participant roles.

Listing thematic grids soon reveals that verbs form classes which share the same grids. For example English has a class of TRANSFER, or GIVING, verbs which in one subclass includes the verbs *give, lend, supply, pay, donate, contribute*. These verbs encode a view of the transfer from the perspective of the AGENT. They have the thematic grid in 6.66, 6.67 is an example:

6.66 V: <AGENT, THEME, RECIPIENT>

6.67 Barbara$_{AG}$ loaned the money$_{TH}$ to Michael$_{RE}$.[4]

Another subclass of these TRANSFER verbs encodes the transfer from the perspective of the RECIPIENT. These verbs include *receive, accept, borrow, buy, purchase, rent, hire*. Their thematic grid is in 6.68, with an example in 6.69, paralleling 6.67 above:

6.68 V: <RECIPIENT, THEME, SOURCE>

6.69 Michael$_{RE}$ borrowed the money$_{TH}$ from Barbara$_{SO}$.

Thematic grids such as these are put to use in the literature for a variety of descriptive jobs. We can look at some of these in section 6.6, when we ask more generally: what purpose do thematic roles serve in linguistic analysis? First though we discuss some of the problems associated with the simple picture of thematic roles we have outlined so far.

6.5 Problems with Thematic Roles

In our introductory discussion, we mentioned that the lists of roles given in the literature have varied from author to author. Authors disagree about what if any distinctions are to be made between PATIENT and THEME, for example, or between AGENT and related roles like ACTOR, EXPERIENCER, etc.

We can see these debates as reflections of two general problems with thematic roles (usually abbreviated to 'theta-roles', sometimes also called θ-roles). The first problem is really about delimiting particular roles. The extreme case would be to identify individual thematic roles for each verb: thus we would say that a verb like *beat* gives us two theta-roles, a BEATER-role and a BEATEN-role. This would of course reduce the utility of the notion: if we lose the more general role types like AGENT, PATIENT etc., then we

cannot make the general statements about the relations between semantic roles and grammatical relations discussed earlier, nor put theta-roles to any of the uses we describe in the next section.

But if we are to classify individual theta-roles roles like BEATER and BEATEN into theta-role types like AGENT and PATIENT, we will have to find some way of accommodating variation within the role type. Let us take the example of PATIENT in a typical grid:

6.70 V: <AGENT, PATIENT, INSTRUMENT>

A typical example would be 6.71:

6.71 The child$_{AG}$ cracked the mirror$_{PA}$ with his toy$_{IN}$.

Earlier we defined the PATIENT as the entity affected by the action of the verb. However, attempts to examine particular verbs, such as Dixon (1991), reveal that both the type of 'affectedness' and the role of the INSTRUMENT vary between verb types. For example, Dixon (1991: 102–13) identifies eight types of affectedness: a range including the minimal contact of the verb *touch* in 6.72, where possibly no change occurs in the PATIENT, through *rub* in 6.73, where the surface of the PATIENT might be affected, and *squeeze* in 6.74 where a temporary change of shape in the PATIENT occurs, to *smash* in 6.75, where the PATIENT loses its physical integrity:

6.72 John touched the lamp with his toe.

6.73 The captain rubbed the cricket ball with dirt.

6.74 Henry squeezed the rubber duck in his hands.

6.75 Alison smashed the ice cube with her heel.

The questions which face semanticists here are: do the differences between the affectedness of the PATIENT reduce the usefulness of this label, or can the differences be explained in some way?

The second problem is more general: how do we define theta-roles in general? That is, what semantic basis do we have for characterizing roles? Facing both of these problems, Dowty (1991) proposes a solution where theta-roles are not semantic primitives but are defined in terms of entailments of the predicate. In this view a theta-role is a cluster of entailments about an argument position which are shared by some verbs. He gives examples like *x murders y, x nominates y, x interrogates y*, where:

6.76 entailments they all share include that *x* does a volitional act, that *x* moreover intends this to be the kind of act named by the verb, that *x* causes some event to take place involving *y* (*y* dies, *y* acquires

a nomination, *y* answers questions – or at least hears them), and that *x* moves or changes externally (i.e. not just mentally). (1991: 552)

Such a set of shared entailments about *x* will serve to define the nominal which denotes *x* as AGENT. Thus theta-roles are defined in terms of shared verbal entailments about nominal referents.[5] We will see something of how these entailments are used in this approach in the rest of this section.

In this view of theta-roles as clusters of entailments, we can see a solution to the problem of the fuzziness of roles. Dowty proposes that we view the roles not as discrete and bounded categories but instead as prototypes, where there may be different degrees of membership. He suggests that there are two basic prototypes: Proto-Agent and Proto-Patient,[6] each of which would contain characteristic lists of entailments such as those in 6.77 and 6.78 below:

6.77 Properties of the Agent Proto-Role (Dowty 1991: 572):
a. volitional involvement in the event or state
b. sentience (and/or perception)
c. causing an event or change of state in another participant
d. movement (relative to the position of another participant)

6.78 Properties of the Patient Proto-Role (Dowty 1991: 572):
a. undergoes change of state
b. incremental theme[7]
c. causally affected by another participant
d. stationary relative to movement of another participant

The idea is that these clusters of entailments would allow various kinds of shading. For example some arguments might have more of the entailments than others. So, for example, *John* in *John cleaned the house* would include all four of the entailments in 6.77 above: volition, sentience, causation and movement. By contrast *John* as an argument of *drop* in *John fainted and dropped the vase* would involve no volition, and *the storm* in *The storm destroyed the house* would involve neither sentience nor volition. We can see that this approach allows variation amongst AGENTS; some will be more typical and involve a greater number of characteristic entailments; others will be more marginal. Similar variation would hold for PATIENTS.

This approach would also allow other forms of fuzziness: some entailments might be viewed as more important than others; or each entailment itself might be fuzzy-edged. As several commentators have pointed out, speakers sometimes blur the distinction between sentient and non-sentient when they talk about computers, saying things like *The computer thinks these are the same file* or *This program doesn't realize that the memory is full*.

These proposals by Dowty to view thematic roles in terms of prototypical clusters of entailments allow flexibility in defining thematic roles. One result

of his classification is that traditional role types fall out as more-or-less prototypical versions of the two main categories. Thus, as we have seen, a centrally prototypical AGENT like *Maggie* in 6.79a below involves all four entailments in 6.77, while an EXPERIENCER, like *Joan* in 6.79b can be seen as a more marginal AGENT, including sentience but not volition or causation; and an INSTRUMENT like *the scalpel* in 6.79c includes causation and movement but not volition or sentience:

6.79 a. **Maggie** pruned the roses.
b. **Joan** felt the heat as the aircraft door opened.
c. **The scalpel** cut through the muscle.

Similarly a centrally prototypical PATIENT, like *the roses* in 6.79a and repeated in 6.80a below, will involve all four entailments in 6.78 above, but a STIMULUS like *the game* in 6.80b does not undergo a change of state nor is causally affected:

6.80 a. Maggie pruned **the roses**.
b. Roberto watched **the game**.

Having seen something of an attempt to cope with the problem of defining theta-roles on a more systematic basis, in the next section we examine some of the uses of such roles.

6.6 The Motivation for Identifying Thematic Roles

From our discussion so far it is clear that linguists employ thematic roles to describe aspects of the interface between semantics and syntax, in particular to characterize the links between the semantic classification of its participants that is inherent in a verb's meaning and the grammatical relations it supports. Thus, to recap our discussion in its simplest terms, when we use an English verb like *feel* in *Joan felt the heat as soon as the aircraft door was opened*, we identify a relationship between an EXPERIENCER and a PERCEPT. This can be viewed as one of many conventional ways of viewing relations that is coded in the language. Grammatically of course the verb *feel* is transitive, taking a subject and direct object. As we have seen, one fact we have to account for is that there is a conventional linkage between the participant roles and the grammatical relations, such that in this case the EXPERIENCER will be subject and the PERCEPT, direct object.[8]

Predicting such linkages, and more general patterns amongst individual cases, is one of the primary functions of thematic roles. To take one example, in Dowty's prototype and entailments approach described in the last section, this linkage is described as below by an argument selection

principle (1991:576) (together with a couple of ancillary principles and the characteristics in 6.81d):

6.81 a. *Argument Selection Principle:* In predicates with grammatical subject and object, the argument for which the predicate entails the greatest number of Proto-Agent properties will be lexicalized as the subject of the predicate; the argument having the greatest number of Proto-Patient entailments will be lexicalized as the direct object.

b. *Corollary 1:* If two arguments of a relation have (approximately) equal numbers of entailed Proto-Agent and Proto-Patient properties, then either or both may be lexicalized as the subject (and similarly for objects).

c. *Corollary 2:* With a three-place predicate, the non subject argument having the greater number of entailed Proto-Patient properties will be lexicalized as the direct object and the non subject argument having fewer entailed Proto-Patient properties will be lexicalized as an oblique or prepositional object (and if two non-subject arguments have approximately equal numbers of entailed P-Patient properties, either or both may be lexicalized as direct object).

d. *Non-discreteness:* Proto-roles, obviously, do not classify arguments exhaustively (some arguments have neither role) or uniquely (some arguments may share the same role) or discretely (some arguments could qualify partially but equally for both proto-roles).

Though the phrasing of these principles makes it sound as if theta-roles are in competition for grammatical slots in the formation of each sentence, Dowty intends these observations as a set of constraints on verbal linking rules. As the term *lexicalized* in the above suggests, these principles are viewed as constraints on possible verbs.

We can give an idea of how such principles might work by looking again at the type of example we have already discussed: the relations between subject position and theta-roles in the sentences in 6.82 below:

6.82 a. Captain Nemo sank the ship with a torpedo.
　　 b. The torpedo sank the ship.
　　 c. The ship sank.

In 6.82a *Captain Nemo* has the Proto-Agent properties of volition, sentience, causation and movement and is thus linked to subject position, as predicted by the selection principles. In 6.82b *the torpedo* has the Proto-Agent properties of causation and movement, and thus, in the absence of an entity with a stronger cluster of such properties, becomes subject. Finally in 6.82c *the ship* has just the property of movement, but in this sentence that is enough for it to become the subject.

This idea of stronger and weaker candidates for subject, and other grammatical roles, leads naturally to the idea of a hierarchy, as we discussed in section 6.3. Dowty's version of a subject hierarchy is as in 6.83 (1991: 578):[9]

6.83 Agent > $\left\{\begin{array}{c}\text{Instrument} \\ \text{Experiencer}\end{array}\right\}$ > Patient > $\left\{\begin{array}{c}\text{Source} \\ \text{Goal}\end{array}\right\}$

As before, the candidates move from left to right in decreasing strength of linkage to the subject position. In this version, though, the roles themselves are not primitives but convenient labels for clusterings of the Proto-role entailments.

So far we have been talking about theta-roles as explanatory devices in accounting for linkage between semantic and syntactic argument structure. A second justification for using thematic roles is to help characterize semantic verbal classes. For example we can identify in English two classes of psychological verbs both of which take two arguments (i.e. are transitive), one of which is an EXPERIENCER and the other a STIMULUS.[10] The classes differ however in their linking between these roles and subject and object position. The first class has the theta-grid in 6.84a below, and can be exemplified by the verbs in 6.84b, while the second class has the theta-grid in 6.85a and includes verbs like those in 6.85b:

6.84 Psychological verbs type 1
a. V: <EXPERIENCER, STIMULUS>
b. *admire, enjoy, fear, like, love, relish, savour*

6.85 Psychological verbs type 2
a. <STIMULUS, EXPERIENCER>
b. *amuse, entertain, frighten, interest, please, surprise, thrill*[11]

Thus we say *Claude liked the result* but *The result pleased Claude.* Such classifications of verbs can help predict the grammatical processes individual verbs will undergo. Thus, though the motivation for grammatical rules is often multifactorial, theta-role grids have been used to describe argument changing processes like passive, as we shall see shortly, or argument structure alternations like those in 6.86-7 below, where in each case the example sentences are in a, the link between theta-role grids and syntactic arguments is given in b, and some example verbs in c:

6.86 a. He banged the broom-handle on the ceiling.
　　　He banged the ceiling with the broom-handle.
　　　She tapped the can against the window.
　　　She tapped the window with the can.

b. V: <AGENT, INSTRUMENT & THEME,[12] LOCATION>
    NP   NP   NP   PP

c. *bang, bash, beat, hit, knock, pound, rap, tap, whack*[13]

6.87 a. The whole community will benefit from the peace process.
    The peace process will benefit the whole community.

    b. V: <BENEFICIARY, SOURCE>
        NP   PP
        V: <SOURCE, BENEFICIARY>
        NP   NP

    c. *benefit, profit*[14]

These alternations are just two of a large range identified for English in Levin (1993). The conditional factors for such alternations are often a mix of semantic information, such as the verb's meaning and its theta-grid (as shown above), and its syntactic environment.

We can look at one further type of justification for thematic roles which comes from another area of grammar: the morphology of verbal agreement. Mithun (1991: 514) gives examples of the pronominal verbal prefixes in Lakhota (Siouan; USA, Canada). In the transitive verbs in 6.88a below we see a prefix *wa* which marks an AGENT argument and in 6.88b a prefix *ma*, which marks a PATIENT:

6.88 a. awá?u   'I brought it.'
       wakté ke   'I'll kill him.'
    b. amá?u   'He brought me.'
       maktékte   'He'll kill me.'

We can see that these prefixes do not mark subject or object agreement because a subject, for example, can take either prefix depending on whether it is an AGENT (as in 6.89a below) or PATIENT (as in 6.89b) (Mithun 1991: 514):

6.89 a. AGENT subjects
       wapsíca   'I jumped'
       wahí   'I came'
    b. PATIENT subjects
       mak'úze   'I'm sick'
       maxwá   'I'm sleepy'

In other words, what would be a subject pronoun in English corresponds to either an AGENT or PATIENT pronoun affix in Lakhota. Thus Lakhota morphological marking is sensitive to theta-roles rather than grammatical relations. Mithun gives similar examples from Guaraní (Tupí; Paraguay,

Bolivia), and the Pomoan languages of California. The implication for our discussion is clear: if we need theta-roles to explain morphological patterns, this is strong evidence that they are significant semantic categories.

We have seen then in this section a number of different motivations for identifying thematic roles: to explain linking rules in verbal argument structure, to reflect semantic classes of verbs, to predict a verb's participation in argument structure alternations, and finally to describe morphological rules adequately. For many linguists this utility motivates their continuing use, despite the definitional problems discussed in the last section. In the next section we look at the category of **voice**, which, as we shall see, adds new dimensions to the relationship between theta-roles and grammatical relations.

6.7 Voice

6.7.1 Passive voice

The grammatical category of voice affords speakers some flexibility in viewing thematic roles. Many languages allow an opposition between *active voice* and *passive voice*. We can compare for example the English sentences in 6.90 below:

6.90 a. Billy groomed the horses.
    b. The horses were groomed by Billy.

In the active sentence 6.90a *Billy*, the AGENT, is subject and *the horses*, the PATIENT, is object. The passive version 6.90b, however, has the PATIENT as subject and the AGENT occurring in a prepositional phrase, the structure often associated with INSTRUMENT, as we saw in the last section. This is a typical active-passive voice alternation: the passive sentence has a verb in a different form – the past participle with the auxiliary verb *be* – and it allows the speaker a different perspective on the situation described. This passive sentence (6.90b) allows the speaker to describe the situation from the point of view of the PATIENT rather than that of the AGENT. In some cases indeed passive constructions are used to obscure the identity of an AGENT, as in 6.91 below:

6.91 The horses were groomed.

Here the AGENT is so far backgrounded that it becomes merely an implied participant. Many writers describe this foregrounding of the PATIENT and backgrounding of the AGENT in terms of promoting the PATIENT and demoting the AGENT (for example Givón 1990) or as reflecting the speaker's greater empathy with the PATIENT rather than the AGENT (Kuno 1987). There are other lexical and syntactic strategies which alter perspective in this way. For

example in 6.92 below the alternation relies in part on the lexical relation between *in front of* and *behind*; while in 6.93 it is accomplished by the syntactic patterns known as **pseudo-cleft** in a and **cleft** in b:

6.92
  a. The house stood in front of the cliff.
  b. The cliff stood behind the house.

6.93
  a. What Joan bought was a Ferrari.
  b. It was Joan who bought the Ferrari.

In 6.93 above the same situation is described but in a the speaker is interested in Joan's purchase, while in b she is interested in the Ferrari's purchaser. This kind of choice of perspective presumably depends on a speaker's judgements of conversational salience. We can use the terms **figure** and **ground**[15] to describe this kind of linguistic perspective: if we call the situation described a **scene**, then the entity that the speaker chooses to foreground is the **figure**, and the background is the **ground**. So in 6.92a above *the house* is the figure, and *the cliff* the ground, and vice versa in 6.92b.

Passive constructions allow the foregrounding of roles other than PATIENT. In 6.94–6 we see English examples of THEME, PERCEPT, and RECIPIENT roles occurring as the subject of passives:

6.94 **This money** was donated to the school. (THEME)

6.95 **The UFO** was seen by just two people. (PERCEPT)

6.96 **He** was given a camera by his grandmother. (RECIPIENT)

The qualifications for foregrounding in a passive in English are complex: partly grammatical, partly semantic and partly due to the flow of discourse and the speaker's choice of viewpoint. The importance of grammatical information can be shown by observing that each of the roles occurring as passive subjects in 6.94–6 above occur in object position in a corresponding active sentence:

6.97 Someone donated **this money** to the school.

6.98 Just two people saw **the UFO**.

6.99 His grandmother gave **him** a camera.

The typical pattern is that a nominal occupying object position is fronted to subject in passives. When a theta-role normally occurs as a prepositional phrase in an active sentence, this is less likely to be foregrounded in a passive. Neither moving the full prepositional phrase nor extracting just the nominal seems to work, as shown below:

6.100
  a. This house stood **on the corner**. (LOCATION)
  b. *On the corner was stood by this house.
  c. ?The corner was stood on by this house.

6.101
  a. John built a garage **for her**. (BENEFICIARY)
  b. *For her was built a garage by John.
  c. ?She was built a garage by John.

6.102
  a. He opened the door **with this key**. (INSTRUMENT)
  b. *With this key was opened the door by him.
  c. *This key was opened the door with.

Some apparent exceptions to this rule are possible however, e.g.

6.103
  a. Three monarchs lived **in this house**. (LOCATION)
  b. **This house** was lived in by three monarchs.[16]

To further underline this grammatical aspect of passives, i.e. that it is the object position that is relevant to passivization, we can look at a class of English verbs called the *spray/load* verbs. These verbs allow the speaker to select either their THEME role (as in 6.104a and 6.105a) below, or the GOAL (as in 6.104b and 6.105b), to be the verb's direct object and thus be the focus of the effect of the action:

6.104
  a. He sprayed paint on the car.
  b. He sprayed the car with paint.

6.105
  a. He loaded hay on to the tractor.
  b. He loaded the tractor with hay.

We can easily show that whichever argument occupies object position can be passivized while the argument in the prepositional phrase cannot: corresponding to 6.104 above we find the patterns:

6.106
  a. Paint was sprayed on the car.
  b. *The car was sprayed paint on.
  c. The car was sprayed with paint.
  d. *Paint was sprayed the car with.

See Rappaport and Levin (1985, 1988), Jeffries and Willis (1984) and Levin (1993) for further discussion of these *spray/load* verbs.[17]

The discourse factors affecting passives have been described in a number of frameworks: for example, as mentioned above, Kuno (1987: 209–16) employs the notion of speaker empathy. He gives an example of a person relating a story about their friend Mary and her experiences at a party. In relating the narrative the speaker's empathy is with Mary and thus events are viewed

from her perspective. This explains why a passive is fine in 6.107b below but not in 6.108b (treating these as two independent reports of events):

6.107   Mary had quite an experience at the party she went to last night.
   a.   An eight-foot-tall rowdy harassed her.
   b.   She was harassed by an eight-foot-tall rowdy.

6.108   Mary had quite an experience at the party she went to last night.
   a.   She slapped an eight-foot-tall rowdy in the face.
   b.   *An eight-foot-tall rowdy was slapped in the face by her.

The passive construction works in 6.107b because the fronted nominal refers to the entity the speaker empathizes with, but not in 6.108b where the other participant is fronted.

Passive constructions have received a great deal of attention in the linguistics literature. This is not surprising: even from our brief discussion, we can see that while the general effect of passive is to allow a shift in linkage between theta-roles and grammatical relations, the process is subject to a complex of grammatical and discourse factors. It is this interdependence of different levels of analysis that makes passives an interesting arena for theoretical debate.

6.7.2   Comparing passive constructions across languages

While many languages have passive-type constructions, the comparison of passives across languages reveals that there is considerable variation around the pattern of the English passive outlined in the last section, i.e. where the AGENT is demoted from subject position, a non-AGENT role is promoted to subject, and the verb shows a distinct form which agrees with the promoted subject: the total package being what we have called **passive voice.** Often languages have more than one passive construction: in English for example, it is possible to distinguish between *be*-passives and *get*-passives, as in 6.109 (R. Lakoff 1971, Givón and Yang 1994):

6.109   a.   Mary was shot on purpose.
   b.   Mary got shot on purpose.

As noted by Lakoff these sentences differ in the amount of control over the event associated with Mary.[18]

Other languages have a special type of passive, often called the **impersonal passive,** which does not allow the AGENT to be mentioned in the sentence. In Irish, for example, we can distinguish between one type of passive associated with verbal noun constructions as shown in the active/passive pair in 6.110 below, and another, the impersonal passive, with verbs, as is shown in 6.111 (Noonan 1994: 282–6):

6.110   a.   Bhí sí   ag bualadh   Sheáin.
              was she at hit-NOMIN John-GEN
              'She was hitting John.'
   b.   Bhí Seán á   bhualadh   aici.
              was John ro+his hit-NOMIN at-her
              'John was being hit by her.'

This impersonal passive in 6.111 does not straightforwardly correspond to the translation given: i.e. to an English passive where no AGENT is expressed. In 6.111b we can see how both in Irish and in the English translation the passive verb form is differentiated from the active, and how in both the AGENT is often omitted. However the Irish passive in 6.111b differs from its English translation because the THEME, *Siobhán*, remains in its original position as an object while in the English passive *Joan* becomes subject. In other words, the PATIENT is not promoted to subject in the Irish impersonal passive in 6.111b, but the AGENT is omitted. See Noonan (1994) for discussion. This example from Irish is of a transitive impersonal passive. In many languages the term *impersonal passive* is used to describe passives of intransitive verbs: Kirsner (1976: 387) gives the following pair of examples from Dutch:

6.111   a.   Thug   siad Siobhán abhaile inniu.
              brought they Joan   home   today
              'They brought Joan home today.'
   b.   Tugadh   Siobhán abhaile inniu.
              brought-IMPERS Joan   home   today.
              'Joan was brought home today.'

6.112   a.   De jongens fluiten.
              the boys   whistle.
              'The boys whistle/are whistling.'
   b.   Er   wordt   door de jongens gefloten.
              there becomes by the boys   whistling
              'By the boys (there) is whistling.'

In 6.112b the AGENT is backgrounded, but there is no other argument to be foregrounded and subject position is taken by the word *er* 'there', which does not refer directly to any entity and which has no theta-role. It is also possible to delete the AGENT altogether in this passive, giving:

6.113   Er   wordt   gefloten.
              there becomes whistling
              'There is whistling/People whistle/Someone whistles.'

Similar impersonal passives have been reported for other languages, including German, Welsh and Latin; see Perlmutter (1978) and Perlmutter and Postal (1984) for discussion.

These impersonal passives imply that in comparing languages we need to separate out the two functions of the passive: firstly, the demotion of AGENTS, and secondly, the promotion of NON-AGENTS. Thus an English passive like *Spike was arrested by the police* combines both functions: the AGENT argument is demoted to a prepositional phrase, and the PATIENT is promoted to subject. We can see the related sentence *Spike was arrested* as a special case of this, where demotion reaches its extreme in the suppression of the AGENT. In the Dutch impersonal passives in 6.112b on the other hand we see a passive strategy which just embodies the first function: demotion of AGENT, with no concomitant promotion function. Since this example has an intransitive verb, the further step of suppressing the AGENT leaves a sentence with no theta-role bearing nominal as in 6.113.

The third characteristic of English passives described in the last section was a special verb form and associated verbal agreement with the promoted subject. This too is subject to cross-linguistic variation. Passive verbs are often semantically distinguished from their active counterparts, for example by being more stative, though this is not always so, and they may show agreement with the promoted non-AGENT nominal (as in English), or the demoted AGENT, or neither, since agreement inflections may be neutralized: see Givón (1990: 563–644) for discussion of variations along this parameter as well as along the parameters of AGENT demotion and non-AGENT promotion.

One conclusion from comparing passives across languages seems to be that the phenomenon is typically a cluster of functions: in each case following the general pattern of allowing the speaker planning her discourse some variation in the linkage between thematic and grammatical roles, but with considerable variation in the associated semantic and grammatical elements of the cluster.

In most active-passive systems the active form is usually grammatically simpler and we may ask why this should be so. It has been argued that we as humans naturally view situations from the point of view of any human beings involved, and if there are none, of other living creatures. This preference, sometimes called an **animacy hierarchy** (see for example Dixon 1979, Hopper and Thompson 1980), is coded into the lexical semantics of a language so that a verb like *drive*, for example, in 6.114 sets up a thematic role frame which requires an AGENT as the subject:

6.114   Ann drove the truck across the field.

and since agency, as we have seen, requires wilful action, AGENTS are typically people, or higher animals. It is difficult to think of a verb which describes the action in 6.114 from the point of view of the truck. We might say:

6.115   The truck carried Ann across the field.

but this sentence has a different meaning: we have not specified that Ann was driving. So it seems that the meaning of the verb *drive* is set up to

prioritize the role of any human or volitional agent. Passive voice allows the speaker to get around this in-built bias, so that to switch the viewpoint from Ann to the truck, or to the field, she can use passive constructions as in 6.116–17:

6.116   The truck was driven across the field by Ann.

6.117   The field was driven across by a truck (*by Ann).

We can see that in 6.117 there is no longer a slot for the AGENT, Ann. So passive constructions do allow a change of perspective but the conventional bias towards animate subjects means that the active *drive* is grammatically simpler than the passive *was driven*.

6.7.3 Middle voice

While very many languages display this active/passive voice contrast, some languages have a three-way distinction between active, passive and **middle voice**. As we might expect, the use of middle voice varies from language to language but a central feature is that middle forms emphasize that the subject of the verb is affected by the action described by the verb. This **affectedness**, as it is often termed (e.g. Klaiman 1991), can be of several types, and we can select four typical uses as examples: neuters, bodily activity and emotions, reflexives, and autobenefactives. Though we will use examples from several languages, to keep the discussion brief we will concentrate on two unrelated languages, well separated in space and time: classical Greek and the modern Cushitic language Somali.[19] In both these languages middle voice is marked by verbal inflection.

Neuter intransitives

This type of middle is where the subject undergoes a non-volitional process or change of state. The external cause is not represented but can often be shown in a related active form, as shown in 6.118 below, an example from Sanskrit (Klaiman 1991: 93):

6.118   a.   So   namati   daṇḍam.
                    he-NOM bends-3sg ACTIVE stick-ACC
                    'He bends the stick.'
              b.   Namate   daṇḍaḥ.
                    bends-3sg MIDDLE stick-NOM
                    'The stick bends.'

Middle voice verb forms of this neuter type, where the subject undergoes a process over which it has no control, occur in classical Greek, as shown in 6.119 (Bakker 1994: 30) and Somali,[20] as in 6.120:

6.119
phú-e-sthai	'grow'
tréph-e-sthai	'grow up'
sép-e-sthai	'rot'
tếk-e-sthai	'melt'
rhếgnu-sthai	'break'

6.120
kab-o	'recover, set (of a bone)'
qub-o	'fall (of leaves and fruit)'
dhim-o	'die'
haf-o	'drown'
garaad-o	'reach maturity'

Bodily activity and emotion

In some languages the verb occurs in a middle voice when the activity involves the body or emotions of the subject. These would seem to be clear cases of affectedness since the subject is so overtly involved. Examples of such middle voice verbs are in 6.121–2:

6.121 Classical Greek (Bakker 1994)
klín-e-sthai	'lean'
hếd-e-sthai	'rejoice'

6.122 Somali (Saeed 1999)
fadhiis-o	'sit down'
baroor-o	'mourn, wail'

Reflexives

In some languages the middle is used where the subject's action affects the subject himself, or a possession or body part of the subject. To take another example from classical Greek (Barber 1975: 18–19):

6.123 Lou-omai.
wash 1sg MIDDLE
'I wash myself.'

This use means that in many languages verbs of grooming occur in the middle voice, with no need for a reflexive pronoun as object; see 6.124 for some further examples from Somali, and examples from other languages in 6.125 from Kemmer (1994: 195):

6.124
feer-o	'comb one's hair'
maydh-o	'wash oneself, bathe'
labbis-o	'dress up, put on one's best clothes'

6.125
Latin	orno-r	'adorn oneself'
Quechua	arma-ku-y	'bathe'
Turkish	giy-in	'dress'
Hungarian	mosa-kod-	'wash oneself'

Autobenefactives

This type of middle is used to signify that the action of the subject is done for his or her own benefit. Once again this use occurred in classical Greek as in 6.126 (Barber 1975: 18), and is a regular process is Somali, as 6.127 shows (Saeed 1993: 58):

6.126 a. hair-o moiran.
take-1sg-ACTIVE share
'I take a share.'
b. hari-oumai moiran.
take-1sg-MIDDLE share
'I take a share for myself.'

6.127
Active verbs:		Middle verbs:	
wad	'to drive'	wad-o	'to drive for oneself'
beer	'to cultivate'	beer-o	'to cultivate for oneself'
qaad	'to take'	qaad-o	'to take for oneself'
sid	'to carry'	sid-o	'to carry for oneself'

In the examples so far, middle voice has been marked by verbal inflection. In some languages a pronoun marks middle forms, often the same form as a reflexive pronoun, e.g. German *sich*, French *se*, Spanish *se*, or a closely related form, e.g. Russian reflexive *sebja*, middle -*sja*, Dutch reflexive *zichzelf*, middle -*zelf* (Kemmer 1994). In such languages the overlap between middle voice and reflexivity, seen in examples 6.121–7 above, becomes overt. In French and Spanish for example, we might identify our first three types of middle:

6.128 French middle reflexives
a. neuter:	s'écrouler	'collapse'
	s'évanouir	'vanish'
b. bodily activity:	s'asseoir	'sit down'
emotion:	se plaindre	'complain'
c. reflexive:	s'habiller	'dress oneself'
	se peigner	'comb one's hair'

6.129 Spanish middle reflexives
a. neuter:	helarse	'freeze (intr.)'
	recuperarse	'get well'
b. bodily activity:	tirarse	'jump'
emotion:	enamorarse (de)	'fall in love (with)'

c.   reflexive: afeitarse   'shave'
                  quitarse   'take off (clothes)'

However, even in languages where the middle and reflexives are marked by the same pronoun, there are usually clear cases where the meaning distinguishes between true reflexives and the middle, e.g. in German (Kemmer 1994: 188):

6.130   Er sieht sich   'He sees himself'   (Reflexive)
        Er fürchtet sich   'He is afraid'   (Middle – emotion)

In English there is no inflectional or pronominal marker of the middle: the distinction is only shown by alternations between transitive active verbs and intransitive middle verbs, where the agent is omitted, e.g.

6.131   a. They open the gates very smoothly.   (Active)
        b. The gates open very smoothly.   (Middle – neuter)

These intransitive middles in English are often used to describe the success of a NON-AGENT in some activity, e.g.

6.132   a. These clothes wash well.
        b. This model sells very quickly.
        c. These saws don't cut very efficiently.

See Dixon (1991: 322–35) for more examples of this type of construction in English. Because of the similar suppression of the AGENT in this type of middle and in the passive, some writers use the term medio-passive to cover both.

6.8   Classifiers and Noun Classes

So far in this chapter we have been exploring the ways that participants may be assigned semantic roles relative to the action or situation described by the verb. In this section we look at semantic characterizations that are based on inherent properties of the entities referred to by noun phrases. Many languages have overt systems for marking how referents fit into a semantic classification system. We divide our brief discussion of these into first, classifiers, and then, noun classes.

6.8.1   Classifiers

Noun classifiers are morphemes or lexical words that code characteristics of the referent of the noun, allowing the speaker to classify the referent

according to a system of semantic/conceptual categories. They may show up grammatically in different guises. Some, termed noun classifiers, occur with nouns. Dixon (1977) describes the noun classifiers of the Australian language Yidiɲ as a closed set of around 20 members, which he divides into two general types, each containing several subtypes. The first type, inherent nature classifiers, includes as subtypes of classifiers: human; animal; vegetation; natural objects (like the classifier walba 'stone'); and artefacts (like the classifier baji 'canoe'). The second type, functional classifiers, divides entities into: meat food; non-meat food; drinkable things; movable; habitable; and 'purposeful noise'. Dixon (1982) reports that two classifiers can be used with the same nominal as long as they come from the two different general types, for example (where CL = classifier):

6.133   bulumba   walba   malan
        CL:HABITABLE CL:STONE   flat.rock
        'a flat rock for camping'
                                (Dixon 1982: 200)

In many languages classifiers occur in specific grammatical constructions or locations, for example numeral classifiers, which occur when the entity is being counted, and possessive classifiers, which occur in constructions describing possession. Numeral classifiers occur in Japanese as in shown in example 6.134 below:

6.134   Classifiers in a Japanese shopping list (cited in Aikhenvald 2000: 2)

Shopping list	Numeral Classifier	Classifier	Meaning of classifier
nasu (eggplant)	nana (7)	-ko	Cl: SMALL, EQUIDIMENTIONAL
kyuuri (cucumber)	hachi (8)	-hon	Cl: ELONGATED
hamu (ham)	juu (10)	-mai	Cl: SHEETLIKE

As we can see, these classifiers relate to a classification based on shape. Possessive (or genitive) classifiers may characterize the possessed item, as in the Fijian example in 6.135 below; or classify the type of possession relation involved, as in 6.136 from Hawaiian:

6.135   Fijian possessive classifiers (Lichtenberk 1983: 157–8)
        a. na me-qu   yaqona
            ART CL:DRINKABLE-my kava
            'my kava (which I intend to drink)'
        b. na no-qu   yaqona
            ART CL:GENERAL-my   kava
            'my kava (that I grew, or that I will sell)'

6.136 Hawaiian possessive classifiers (Lichtenberk 1983: 163)

a. k-o-'u inoa
ARI-CI-my name
'my name (that represents me)'

b. k-a-'u inoa
ARI-CI-my name
'my name (that I bestow on someone)'

A further type is verbal classifiers, where the classifier occurs as a morpheme attached to the verb and serves to classify (intransitive) subjects or objects; see for example:

6.137 Dogrib (Athapaskan) (cited in Allen 2001: 309)

a. le'e niyeh-tsi
bread I.pick.up-PERF.CL.FLAT.FLEXIBLE.ENTITY
'I pick up a slice of bread'

b. le'e niyeh-ʔa
bread I.pick.up-PERF.CL.ROUND.ENTITY
'I pick up a loaf of bread'

Wherever they are marked grammatically classifiers tend to exploit a fixed set of semantic distinctions. Though there is large variation, it is possible to identify some prototypical distinctions, as Allan (2001) does below:

6.138 Prototypical classifier categories (Allan 2001:307)

a. *Material make-up*: e.g. human (-like), animate, female, tree (-like)
b. *Function*: e.g. piercing, cutting, or writing instruments; for eating, drinking
c. *Shape*: e.g. long (saliently one-dimensional), flat, round
d. *Consistency*: e.g. rigid, flexible, mass
e. *Size*: including diminutives and augmentatives
f. *Location*: inherently locative entities such as towns
g. *Arrangement*: e.g. a row of, a coil of, a heap of
h. *Quanta*: e.g. head of cattle, pack of cigarettes

6.8.2 Noun classes

Noun classes are agreement-based noun systems that seem, at least historically, to be based on semantic classifications somewhat similar to those we have seen for classifiers. One famous example occurs in the Bantu languages of Africa, where nouns belong to a pattern of classes, related variously in the modern languages to an ancestral system that is characterized by

Aikhenvald (2000) as follows, (where class pairs 1/2 etc. are singular and plural):

6.139 Noun classes in Proto-Bantu (Aikhenvald 2000: 282)

Class	Semantics
1/2	Humans, a few other animates
3/4	Plants, plant parts, foods, non-paired body parts, miscellaneous
5/6	Fruits, paired body parts, miscellaneous inanimates
7/8	Miscellaneous inanimates
9/10	Animals
11/10	Long objects, abstract entities
6	Small objects, birds
14	Masses
15	Infinitives

The key feature of noun class systems is that other elements in the sentence agree with the noun in terms of its class. See for example (6.140) below from the modern Bantu language Swahili:

6.140 Swahili class 8 (Allan 2001: 310):

Vi-su vidogo viwili hi-vi amba-vy-o nili-vi-nunua ni
vi-knife vi-small vi-two this-vi which-vi 1.s-vi-buy be
vi-kali sana
vi-sharp very
'These two small knives which I bought are very sharp'

Here the noun class prefix, marked in bold, is copied as an agreement feature by other elements in the noun phrase headed by *visu* 'knife' and in the sentence in which the noun phrase is subject.

In the modern Bantu languages the assignment of nouns to classes is not always as semantically transparent as the classes in 6.139 suggest. Often the classes are much more heterogeneous and membership may be more conventionalized.

Gender systems, familiar from Indo-European languages, in which nouns are assigned to two or three classes – male, female and perhaps neuter – are a type of noun class system. Indeed Corbett (1991) extends the term *gender* to cover all noun class systems. As may be the case with more complex noun class systems, gender in languages like German or Hindi is a grammatical distinction only loosely connected to biological sex. Humans and animals may be typically (though not exclusively) assigned to genders on the basis of biological sex, but other nouns are assigned by a mixture of criteria, some of which have no semantic basis, for example phonological shape.

Noun class systems may be differentiated from classifiers by a number of features, some of which are summarized by Dixon (1986) as follows:

6.141   Differences between noun classes and classifiers (Dixon (1986))

	Noun classes	Classifiers
Size	Small finite set	Large number
Realization	Closed grammatical system	Free forms
Scope	Marking is never entirely within the noun word	Never any reference outside the noun phrase

However the large degree of variation within both types of system means that any simple characterization is only suggestive of typical cases.

6.9 Summary

In this chapter our main focus has been on the ways in which a speaker may portray the roles of participants in a situation. We outlined a classification of such semantic roles, termed **thematic roles** or **theta-roles**, including AGENT, PATIENT, THEME, etc. and described the relationship between these roles and grammatical relations like **subject** and **object**. It has been claimed that as part of its inherent lexical specification a verb requires its arguments to be in specific thematic roles, and that this can be reflected by formulating thematic role **grids**, or **theta-grids**. We discussed the difficulties there are in fixing tight definitions for individual thematic roles, and presented one approach, from Dowty (1991), which seeks to provide a solution in terms of fuzzy categories. This difficulty with precision notwithstanding, it seems that the notion of thematic roles has proved a useful descriptive tool in a number of areas of the semantics–grammar interface.

The grammatical category of **voice** allows speakers different strategies for relating thematic roles and grammatical relations. We concentrated on relations with **subject** position, in particular the way in which **passive voice** allows the foregrounding of non-AGENT roles to subject and the backgrounding of AGENT roles away from subject. We also looked at **middle voice**, which reflects the **affectedness** of the subject in the action of the verb: thus offering a different view of the relationship between subject and verb from the **active voice**.

Finally we looked at **classifiers** and **noun classes**: systems where nouns identifying entities are classified by inherent semantic features, though membership of the relevant classes may only be partially semantically determined.

FURTHER READING

An important study of thematic roles is Dowty's (1991) article. Palmer (1994) is a survey of thematic roles, the different ways they are grammaticalized and the role

of passive and middle voice. Dixon (1991) discusses the ways in which the grammar of English verbs reflects semantic distinctions, and includes sections on thematic roles, and voice. Levin and Rappaport Hovav (2005) provide further discussion of the problems with thematic roles identified in this chapter. Givón (1994) is a collection of studies on argument structure changing processes, including passive. Keenan (1985) reviews passive constructions in a range of languages, while Klaiman (1991) does a similar job for middle voice. Wilkins (1988), Grimshaw (1990) and Williams (1994) shed light on the interaction of thematic roles and grammatical processes. These works are quite technical, however, and require some background in syntactic theory. Aikhenvald (2000) provides a comprehensive cross-linguistic overview of classifier systems; and Corbett (1991) discusses noun class systems.

[illegible degraded text block]

1 a. Fido chased Felix.
  b. Felix was chased by Fido.

... The only sense in which it is reasonable to think of the subject NP of (1a) as the Agent is the sense in which it is shorthand for saying that the object (in the world) referred to by the subject is the Agent in the action described by the sentence. What makes Fido an agent in the event described by (1a) and (1b) is information about Fido and his role in the event, not about the grammatical category or function of anything in the sentence.

NOTES

1 One might also think of examples like: *In the village stands a pump*. But here the subject still seems to be *a pump* rather than *in the village*, as can be shown by the pattern of agreement in: *In the village stand several pumps*. But see Levin and Rappaport Hovav (1995: 261–4) for arguments, couched in the theory of Lexical-Functional Grammar (e.g. Bresnan 1994), that the preverbal PP is, at some level of analysis, a subject.

2 See the introductory discussion of theta-grids in Haegeman (1994: 33–73).

3 Hereafter we will use just the two first letters of a thematic role with this subscript notation, e.g. Joan$_{AG}$ for Joan$_{AGENT}$.

4 In Jackendoff's (1990) two-tier representation described earlier, these 'transfer' verbs would have a more complicated thematic grid: we could, for example, assign both AGENT and SOURCE roles to *Barbara* in 6.67.

5 Note that in this view, theta-roles convey a speaker's classifications of things in the world: in other words, the roles are borne by real-world entities rather than grammatical elements like NPs. See for example the following example and comment from Laduslaw and Dowty (1988: 63):

6 For a related idea, see Foley and van Valin's (1984) theory of macro-roles, where all thematic roles fall into two main categories: actor and undergoer.

7 This term arises from Dowty's (1991) examination of different types of what he calls THEME roles, some of which would be PATIENT roles in our classification. He proposes a class of incremental themes for the THEME/PATIENT roles of achievement and accomplishment verbs, e.g. *mow the lawn, eat an egg, build a house, demolish a building*. The observation is that the action (for example, the mowing action) and the state of the associated THEME/PATIENT (e.g. the lawn) are in a proportional relationship: some mowing cuts some of the grass, more mowing, more of the grass, etc. until completing the action cuts all of the grass. Dowty extends this idea of incremental themes to other types of role, e.g. *swim from England to France*, where the path is incrementally affected, and *memorize a poem*, where there is a similar incremental relationship between the action and a representation of the THEME entity. See Dowty (1991) for further details.

8 In our discussion we focus on languages like English which have the grammatical relations, subject and object. We therefore leave aside the different pattern of mapping between theta-roles and grammatical relations shown by ergative languages. Briefly, in a typical ergative system one grammatical relation, called absolutive, is used for the single argument of an intransitive verb, wherever its theta-role (and in this resembles English subject), but is also used in ditransitive verbs for the PATIENT argument (and here resembles English object). A second grammatical relation, called ergative, is used for the AGENT/EXPERIENCER in ditransitive verbs (as is English subject). There is therefore no correspondence between the absolutive/ergative distinction and the subject/object distinction. They represent two different strategies for mapping between theta-roles and grammatical relations. See the following simple example of an ergative system from Tongan (Austronesian: Tonga), given by Anderson (1976):

a. na'e lea   'a etalavou.
   PAST speak ABS young.man
   'The young man spoke.'

b. na'e ahu 'a Tevita ki Fisi.
   PAST go   ABS David to Fiji
   'David went to Fiji.'

c. na'e tamate'i 'a Kolaiare 'e Tevita.
   past kill   ABS Goliath ERG David
   'David killed Goliath.'

d. na'e ma'u 'e siale   'a e   me'a'ofa.
   past receive ERG Charlie ABS DEF gift
   'Charlie received the gift.'

9 Note that in these Tongan sentences the verb comes first in the sentence, and the case-marking particles (in bold) precede their nominals. Sentences a and b have intransitive verbs and the verb's only argument is in the absolutive case. Sentences c and d have transitive verbs. Here the AGENT in c and the RECIPIENT in d are in the ergative case. The PATIENT in c and the THEME in d are in the absolutive case. The reader may compare this with the mapping for subject-object languages like English. Ergative languages are found all over the world and include Basque in southern Europe, the Australian language Dyirbal, Tongan from the Pacific, and the Inuit languages of Canada, Greenland, etc. See Dixon (1979) for discussion and Croft (1990) and Palmer (1994) for cross-linguistic overviews.

10 Note that Dowty's hierarchy here has INSTRUMENT and PATIENT in reverse order to our earlier hierarchy. We won't try to arbitrate between these claims here: compare the discussion in Dowty (1991) and Croft (1990). These are labels commonly used in the literature for the thematic roles associated with these verbs. We leave aside discussion of how these roles would correlate with the Agent-properties and Patient-properties in a Dowty-style approach.

11 See Grimshaw (1990) and Levin (1993) for discussion of these classes of psychological verbs.

12 Here we follow Jackendoff (1990) in allowing one argument to have two theta-roles, as described earlier.

13 See Dowty (1991: 594–5), Levin (1993: 67–8).

14 See Levin (1993: 83).

15 This is similar to the use of 'figure' and 'ground' in the analysis of motion verbs by Talmy (1975), and others, as discussed in chapter 9. There the *figure* is the entity in motion and the background is called the *ground*.

16 But only under some special conditions, which have been much debated in the literature. Levin and Rappaport Hovav (1995: 143–4), for example, discuss examples of this type like *This platform has been stood on by an ex-president* under the label **prepositional passives**. They provide a restriction on the construction in English that mixes grammatical and semantic factors: that it is only possible with **unergative verbs** which take an animate subject. Unergative is a term introduced by Perlmutter (1978) for intransitive verbs like *sit* and *stand* whose single argument is an AGENT and whose grammatical behaviour contrasts with **unaccusative verbs** which are intransitive verbs like *grow* or *drown* and whose single argument is essentially a PATIENT. Dixon (1991: 298–321) on the other hand proposes syntactic restrictions, which include the absence of a direct object in the active sentence, and a lack of an alternative active construction in which the passivized NP could occur as direct object. For an in-depth study of these prepositional passive constructions see Cooper-Kuhlen (1979).

17 Other English verbs allow alternations into object position, e.g.:

1 a. He wrapped cling-film around the food.
  b. He wrapped the food in cling-film.

2 a. David gave the keys to Helen.
  b. David gave Helen the keys.

3 a. She bought some flowers for her husband.
  b. She bought her husband some flowers.

18 Alternations like 2 and 3 are often called *Dative Shift*. Givón (1984a) describes these, and similar alternations in other languages, as *promotion to object*, a process paralleling passive. By comparison with passive, though, the process is more restricted to particular verbs and is less likely to be marked on the verb by a distinct inflection of voice. Though this is less true of pairs like:

1 Mary was killed.
2 Mary got killed.

19 See Givón and Yang (1994) for a discussion of the English *get*-passive; and Weiner and Labov (1983) for a sociolinguistic approach.

20 For a survey of the meanings of middle voice in Somali, see Saeed (1995). Note that not all neuter middles in Somali have an active form: the verbs *jabo; gubo, hafo* do, but *garaado* does not, and the middle verb *dhimo* 'to die' has as its active equivalent a different lexical verb *dil* 'to kill'. It seems that all languages which have a middle voice have some verbs that are inherently middle and have no morphologically related active forms. See Klaiman (1991) for discussion.