Meaning construction and mental spaces

This chapter explores the view of **meaning construction** developed in cognitive semantics. In the previous chapter, we were concerned with the meaning of words. In this chapter, we consider how larger units of language like sentences and texts (units of discourse larger than the sentence) are meaningful. It is to this level of linguistic organisation that the term 'meaning construction' applies. Recall from Chapter 7 that cognitive semanticists see linguistic expressions as 'points of access' to the vast repository of encyclopaedic knowledge that we have at our disposal. According to this view, language underdetermines the content of the conceptual system. **Meaning construction** is the process whereby language 'prompts for' novel cognitive representations of varying degrees of complexity. These representations relate to conceived scenes and aspects of scenes, such as states of affairs in the world, emotion and affect, subjective experiences, and so on.

Cognitive semanticists treat meaning construction as a process that is fundamentally conceptual in nature. From this perspective, sentences work as 'partial instructions' for the construction of complex but temporary conceptual domains, assembled as a result of ongoing discourse. These domains, which are called **mental spaces**, are linked to one another in various ways, allowing speakers to 'link back' to mental spaces constructed earlier in the ongoing linguistic exchange. From this perspective, meaning is not a property of individual sentences, nor simply a matter of their interpretation relative to the external world. Instead, meaning arises from a dynamic process of meaning construction, which we call **conceptualisation**.

This chapter is primarily concerned with presenting Mental Spaces Theory, developed by Gilles Fauconnier ([1985] 1994, 1997). This approach holds that language guides meaning construction directly in context. According to this view, sentences cannot be analysed in isolation from ongoing discourse. In other words, **semantics** (traditionally, the context-independent meaning of a sentence) cannot be meaningfully separated from **pragmatics** (traditionally, the context-dependent meaning of sentences). This is because meaning construction is guided by context and is therefore subject to situation-specific information. Moreover, because meaning construction is viewed as a fundamentally conceptual process, this approach also takes account of general cognitive processes and principles that contribute to meaning construction. In particular, meaning construction relies on some of the mechanisms of **conceptual projection** that we have already explored, such as metaphor and metonymy.

II.I Sentence meaning in formal semantics

Because Fauconnier's Mental Spaces Theory represents a reaction to the truthconditional model of sentence meaning adopted in formal semantics, we begin with a very brief overview of this approach. The truth-conditional model works by establishing 'truth conditions' of a sentence: the state of affairs that would have to exist in the world, real or hypothetical, for a given sentence to be true. For example, relative to a situation or 'state of affairs' in which the cat stole my breakfast, the sentence *The cat stole my breakfast* is true, while the sentence The cat did not steal my breakfast is false. The truth-conditional approach is not concerned with empirical truth but rather with establishing a model of meaning based on 'what the world would have to be like' for a given sentence to be true. In other words, it is not important to find out whether the cat stole my breakfast or not, nor indeed whether I even have a cat. What is important is the fact that speakers know 'what the world would have to be like' for such a sentence to be true. Establishing the truth conditions of a sentence then enables sentences to be compared, and the comparison of their truth conditions gives rise to a model of (some aspect of) their meaning. For example, if the sentence The cat stole my breakfast is true of a given situation, the sentence My breakfast mas stolen by the cat is also true of that situation. These sentences stand in a relation of paraphrase. According to the truth-conditional model, they 'mean the same thing' (at least in semantic or context-independent terms) because they share the same truth conditions: they can both be true of the same state of affairs. Compare the two sentences we saw earlier: The cat stole my breakfast and The cat did not steal my breakfast. These two sentences stand in a relation of contradiction: they cannot both be true of the same state of affairs. If one is true, the other must be false, and vice versa. These examples illustrate how truth conditions can be used to model meaning relationships between sentences, like paraphrase (if A is true B is true, and vice versa) and contradiction (if A is true B is false, and vice versa). This very brief description of the truth-conditional model

will be elaborated in Chapter 13. For the time being, we observe that although this model does not rely on empirical truth – you don't have to witness your cat stealing your breakfast before you can understand that the sentences discussed above stand in the kinds of meaning relationships described – the model never-theless relies on the **objectivist thesis**.

The objectivist thesis holds that the 'job' of language is to represent an objectively defined external world. In modern truth-conditional approaches, this objective external reality may be mediated by mental representation (external reality as it is construed by the human mind), but in order for a formal truth-conditional model to work, it requires certain objectively defined primitives and values. Furthermore, as we saw in Chapter 7, this kind of approach to linguistic meaning assumes the principle of compositionality: the meaning of a sentence is built up from the meaning of the words in the sentence together with the way in which the words are arranged by the grammar. According to this view, then, the semantic meaning of a sentence is the output of this compositional process and is limited to what can be predicted from the context-independent meanings of individual words and from the properties of the grammar. Any additional meaning, such as the inferences a hearer can draw from the utterance of a particular sentence within a particular context, falls outside the immediate concerns of semantic theory into the domain of pragmatics. From this perspective, semantics is concerned with what words and sentences mean, while pragmatics is concerned with what speakers mean when they use words and sentences in situated language use, and how hearers retrieve this intended meaning. From the formal perspective, these two areas of investigation can be meaningfully separated.

11.2 Meaning construction in cognitive semantics

In contrast to formal semantics which relies on the objectivist thesis, cognitive semantics adopts an **experientialist perspective**. According to this view, external reality exists, but the way in which we mentally represent the world is a function of embodied experience (recall the discussion of embodied cognition in Chapter 2). Thus meaning construction proceeds not by 'matching up' sentences with objectively defined 'states of affairs', but on the basis of linguistic expressions 'prompting' for highly complex conceptual processes which construct meaning based on sophisticated encyclopaedic knowledge.

In one important respect then, the view of 'meaning' developed in earlier chapters oversimplifies the picture. Throughout the book, we have used terms like 'encode' and 'externalise' in order to describe the function of language in relation to concepts. According to this view, semantic structure is the conventional form that conceptual structure takes when encoded in language, and represents a body of stored knowledge that language simply reflects. However, the expression 'encode' oversimplifies the relationship between language and cognition and requires some qualification.

Firstly, the meanings 'encoded' in language (the semantic representations associated with linguistic units) are partial and incomplete representations of conceptual structure. For example, we saw in Chapter 7 that conceptual structure is underpinned by information derived from perceptual processes, including sensory and introspective (or subjective) experience. While the representations of this experience that make up our conceptual system (including frames, domains, ICMs, conceptual metaphors and so on) are less rich in detail than perceptual experience itself, the representations encoded by semantic structure are still further reduced in detail. Moreover, conceptual representation is thought to be ultimately perceptual in nature, a view that is suggested by the perceptual simulations that conceptual structure can provide. For example, one can mentally simulate (that is, mentally rehearse or imagine) the stages involved in taking a penalty kick in a football match. In contrast, semantic representation is specialised for expression via a symbolic system. This means that the linguistic system, which consists of spoken, written or signed symbols, 'loses' much of the richness associated with the multimodal character of conceptual representation. By way of analogy, if we were to take the six-stream digital sound reproduction available in modern cinema multiplexes and compress this through a single speaker, not only would some of the sounds be lost (for example, the bass track, background sounds and the experience of 'moving' sounds), but the nature and detail of the remaining sounds would also be significantly impoverished: the mono sound becomes a very partial and incomplete clue to what the original sounds might have been like.

In a similar way, although semantic structure 'encodes' conceptual structure, the format of semantic structure ensures that language can only ever provide minimal clues to the precise mental representation intended by the speaker. In other words, language does encode 'meaning', but this meaning is impoverished and functions as **prompts** for the construction of richer patterns of conceptualisation by the hearer. The cognitive semanticist Mark Turner has expressed this idea in the following way:

> Expressions do not mean; they are prompts for us to construct meanings by working with processes we already know. In no sense is the meaning of [an]. . .utterance 'right there in the words.' When we understand an utterance, we in no sense are understanding 'just what the words say'; the words themselves say nothing independent of the richly detailed knowledge and powerful cognitive processes we bring to bear. (Turner 1991: 206)

Secondly, the cognitive view holds that conceptualisation emerges from language use in context. It follows that there is no principled distinction between semantics and pragmatics. Formal approaches often assume that assigning meaning to an utterance is a two-stage process. In the first stage, contextindependent word meanings are decoded by the hearer and composed into the context-independent semantic representation of a sentence. In the second stage, the utterance undergoes pragmatic processing which brings to bear information relating to context, background knowledge and inferences made by the hearer regarding speaker intentions. In contrast, Mental Spaces Theory assumes that conceptualisation is guided by discourse context, which forms an integral part of the meaning construction process. According to this view, meaning construction is localised and situated, which entails that pragmatic (context-dependent) information and knowledge inform and guide the meaning construction process. Thus, while pragmatic knowledge may be qualitatively distinct from semantic knowledge (the impoverished information encoded by linguistic prompts), semantic knowledge is only meaningful in context. As we saw in Chapter 7, cognitive semanticists therefore reject the assumption that there are distinct 'semantic' and 'pragmatic' stages in meaning construction, together with the assumption that there exists some meaningful boundary between these two kinds of knowledge: both are aspects of encyclopaedic knowledge.

Finally, conceptualisation is held to rely upon complex conceptual processing, which involves conceptual projections of the kind that have been discussed so far in this book. These include conceptual metaphors, conceptual metonymies and the process of **schema induction** that was first introduced in Chapter 5. This is the process whereby our conceptualisations are elaborated and enriched by the application of large-scale and pre-assembled knowledge structures which serve a contextualising function. Schema induction is of central importance for meaning construction, as we will see in this chapter. Conceptual projection mechanisms like metaphor, metonymy and schema induction establish **mappings**. As we have already established (Chapter 9), a mapping connects entities in one conceptual region with another. These mappings can be highly conventionalised, as in the case of primary conceptual metaphors, or they can be constructed 'on-line' for purposes of local understanding. Gilles Fauconnier summarises this position as follows:

> Language, as we use it, is but the tip of the iceberg of cognitive construction. As discourse unfolds, much is going on behind the scenes: New domains appear, links are forged, abstract meanings operate, internal structure emerges and spreads, viewpoint and focus keep shifting. Everyday talk and commonsense reasoning are supported by

invisible, highly abstract, mental creations, which [language]... helps to guide, but does not by itself define. (Fauconnier 1994: xxii–xxiii)

In sum, meaning is not simply pre-existing stored knowledge encoded by language. Cognitive semanticists argue that the naive view, which views words as 'containers' for meaning and language as a conduit for the transfer or externalisation of pre-existing meaning, is erroneous (see Reddy [1979] 1993). Instead, meaning construction is seen as a complex process that takes place at the conceptual level. Words and grammatical constructions are merely partial and impoverished prompts upon which highly complex cognitive processes work giving rise to rich and detailed conceptualisation.

In his pioneering work on meaning construction, Fauconnier demonstrates that much of what goes on in the construction of meaning occurs 'behind the scenes'. He argues that language does not encode thought in its complex entirety, but encodes rather rudimentary instructions for the creation of rich and elaborate ideas. It is because the principles and strategies that guide this conceptualisation process are largely unseen that the rather simplistic view has arisen that meaning construction is achieved by simply 'decoding' the meaning inherent 'in' language. Fauconnier calls the unseen conceptualisation processes that are involved in meaning construction backstage cognition.

11.3 Towards a cognitive theory of meaning construction

Gilles Fauconnier is the leading proponent of Mental Spaces Theory, a highly influential cognitive theory of meaning construction. Fauconnier develops this approach in his two landmark books *Mental Spaces* ([1985] 1994) and *Mappings in Thought and Language* (1997). More recently, Fauconnier and Turner have extended this theory, which has given rise to a new framework called **Conceptual Blending Theory**. We outline Mental Spaces Theory in the present chapter and explore its more recent development into Conceptual Blending Theory.

According to Fauconnier, meaning construction involves two processes: (1) the building of mental spaces; and (2) the establishment of mappings between those mental spaces. Moreover, the mapping relations are guided by the local discourse context, which means that meaning construction is always situated or context-bound. Fauconnier defines mental spaces as 'partial structures that proliferate when we think and talk, allowing a fine-grained partitioning of our discourse and knowledge structures' (Fauconnier 1997: 11). As we will see, the fundamental insight that this theory provides is that mental spaces partition meaning into distinct conceptual regions or 'packets'.

We begin here by providing a general overview of Mental Spaces Theory before exploring its architecture in more detail.

Mental spaces are regions of conceptual space that contain specific kinds of information. They are constructed on the basis of generalised linguistic, pragmatic and cultural strategies for recruiting information. However, because mental spaces are constructed 'on-line', they result in unique and temporary 'packets' of conceptual structure, constructed for purposes specific to the ongoing discourse. The principles of mental space formation and the relations or mappings established between mental spaces have the potential to yield unlimited meanings. For example, consider the following utterance similar to one discussed by Fauconnier (1997):

(1) If I were your father I would smack you.

This utterance gives rise to a **counterfactual** conceptualisation. That is, it sets up a scenario that runs counter to a presupposed reality. This scenario represents a mental space. Intuitively, you can think of a mental space as a 'thought bubble', rather like the strategy cartoonists use to reveal the inner thoughts of their characters. Crucially, Mental Spaces Theory holds that you can have many 'thought bubbles' working simultaneously.

Depending on the context, the utterance in (1) can give rise to different counterfactual scenarios. This is because the context guides mapping operations between the state of affairs that holds in reality and the states of affairs that are set up in different versions of the counterfactual scenario. Imagine that a childminder, Mary, utters the sentence in (1) after the child in her care, James, is particularly unruly. We consider here three distinct possible interpretations of (1) and see how Mental Spaces Theory accounts for them.

The lenient father interpretation ('your father should be stricter')

In this interpretation, the childminder Mary thinks that the unruly child's father should demonstrate more authority and punish the child by smacking him. In terms of mapping operations between reality and the counterfactual scenario, this interpretation is derived by Mary with her stricter disposition 'replacing' the father with his more lenient disposition. This mapping is partial in the sense that the child's father remains the same in all other respects: he has a beard, rides a bike, gets home at the same time in the evening and so on. What changes in this counterfactual scenario is that the father is now less tolerant of the child's unruly behaviour and smacks the child. A consequence of this interpretation is that in the reality scenario, which is presupposed by the counterfactual scenario, the father is being critically compared to the speaker Mary. Because the childminder would smack the child, by implication the failure of

the father to smack the child is interpreted as a fault on his part. In this way, the counterfactual scenario entails consequences for how we view the father and his approach to parenting in reality.

The stern father interpretation ('you're lucky I'm not as strict as your father')

In this interpretation, it is the father, who has a stricter disposition, who is replacing the childminder Mary. In other words, Mary is advising the child that he is lucky that she is looking after him rather than his father, because otherwise the child would have been smacked. In this interpretation, it is the father who is strict and Mary who is lenient in reality, and it is the father who assumes Mary's place in the counterfactual scenario. The implication of this counterfactual scenario for reality might be that where the father would smack the child, Mary exhibits greater restraint. This interpretation might therefore imply a positive assessment of Mary in her role as childminder.

The role interpretation ('the only reason I'm not smacking you is because I'm not allowed to')

In this interpretation, Mary is saying that if she could assume the role of the child's father then she would smack the child. This interpretation assumes nothing about the child's father who may (or may not) smack the child in reality. Instead, this counterfactual scenario replaces the father role with Mary. In this counterfactual scenario, Mary-as-father would smack the child. The implication of this interpretation for reality is that it comments on Mary's role and the limitations that it entails: in her role as childminder, she is legally prohibited from smacking the child.

Several important points emerge from the discussion of example (1). Firstly, the same utterance can prompt for a number of different interpretations, each of which arises from different mappings between reality and the counterfactual scenario that is constructed. Secondly, each of these mappings brings with it different implications for how we view the participants in reality (for example, criticism versus a positive assessment and so on). Finally, this example illustrates that meaning is not 'there in the words' but relies on the conceptual processes that make connections between real and hypothetical situations. These processes result in representations that are consistent with, but only partially specified by, the prompts in the linguistic utterance. Of course, the precise interpretation constructed will depend upon the precise details of the context in which it is uttered, upon the speaker's intentions and upon how these intentions are interpreted by the hearer. For example, if James has a father who is far stricter than his childminder in reality, he might be most likely to construct the second of these possible interpretations.

11.4 The architecture of mental space construction

As we saw above, linguistic expressions are seen as underdetermined prompts for processes of rich meaning construction: linguistic expressions have **meaning potential**. Rather than 'encoding' meaning, linguistic expressions represent partial **building instructions**, according to which mental spaces are constructed. Of course, the actual meaning prompted for by a given sentence will always be a function of the discourse context in which it occurs, which entails that the meaning potential of any given sentence will always be exploited in different ways dependent upon the discourse context. In this section, we consider in detail the cognitive architecture that underlies this process of meaning construction.

11.4.1 Space builders

According to this theory, when we think and speak we set up mental spaces. Mental spaces are set up by **space builders**, which are linguistic units that either prompt for the construction of a new mental space or shift attention back and forth between previously constructed mental spaces. Space builders can be expressions like prepositional phrases (*in 1966, at the shop, in Fred's mind's eye, from their point of view*), adverbs (*really, probably, possibly, theoretically*), connectives (*if* . . . then . . .; either . . . or . . .), and subject-verb combinations that are followed by an embedded sentence (*Fred believes* [*Mary likes bananas*], *Mary hopes* . . ., *Susan states* . . .), to name but a few. What is 'special' about space builders is that they require the hearer to 'set up' a scenario beyond the 'here and now', whether this scenario reflects past or future reality, reality in some other location, hypothetical situations, situations that reflect ideas and beliefs, and so on.

II.4.2 Elements

Mental spaces are temporary conceptual domains constructed during ongoing discourse. These spaces contain elements, which are either entities constructed on-line or pre-existing entities in the conceptual system. The linguistic expressions that represent elements are noun phrases (NPs). These include linguistic expressions like names (*Fred, Elvis, Madonna, Elizabeth Windsor, Tony Blair, James Bond*), descriptions (*the Queen, the Prime Minister, a green emerald, a Whitehouse intern, an African elephant*), and pronouns (*she, he, they, it*).

NPs can have a **definite interpretation** or an **indefinite interpretation**. Briefly, NPs that have a definite interpretation include those that occur with the definite article *the*, (*the sleepy koala*) and names (*Margaret Thatcher*, *James Bond*). NPs that have indefinite interpretation include those occurring with the indefinite article a (a sleepy koala) and 'bare plurals' (koalas). NPs with indefinite interpretation typically introduce new elements into the discourse: elements that are unfamiliar or have not already been mentioned in the conversation (I've bought a new sofa!). NPs with definite interpretation are said to function in the **presuppositional mode**, because they presuppose existing knowledge. This means that they refer to elements that are already accessible: elements familiar to speaker and hearer, or already part of the conversation (The new sofa clashes with the curtains). In Mental Spaces Theory, elements introduced in the presuppositional mode are said to be propagated, which means that they spread to neighbouring spaces. This process of propagation is governed by the Optimisation Principle. This principle allows elements, together with their properties and relations, to spread through the network or lattice of mental spaces, unless the information being propagated is explicitly contradicted by some new information that emerges as the discourse proceeds. This principle enables mental space configurations to build complex structures with a minimum of explicit instructions.

11.4.3 Properties and relations

In addition to constructing mental spaces and setting up new or existing elements within those spaces, meaning construction also processes information about how the elements contained within mental spaces are related. Space builders specify the **properties** assigned to elements and the **relations** that hold between elements within a single space. Consider example (2).

(2) In that play, Othello is jealous.

The space builder in example (2) is the phrase *in that play*, which sets up a mental space. In Figure 11.1 we diagram the mental space using a circle and label this mental space PLAY to show that the mental space represents the 'world' inside the play. The name *Othello* introduces an element into the mental space, which we



Figure 11.1 In that play, Othello is jealous

label a, and the expression *jealous* assigns a property to the element (JEALOUS). This information is captured in the 'dialogue box' next to the mental space.

Now consider example (3).

(3) In the picture, a witch is riding a unicorn.

Again, the prepositional phrase (PP) *in the picture* is a space builder that sets up a mental space which we label PICTURE in Figure 11.2. This shows that the mental space relates to the 'world' inside the picture. Two new elements are introduced: a witch and a unicorn. These are introduced as 'new' in the discourse because they have indefinite interpretation. In Figure 11.2, a represents the element prompted for by the expression *witch*, and b the element prompted for by the expression *unicorn*.

So far, the mental space in Figure 11.2 is only a partial representation of the sentence, because while it tells us that the picture contains a witch and a unicorn, it does not tell us whether a relation holds between them nor does it describe the nature of that relation. Mental spaces are internally structured by existing knowledge structures: frames and idealised cognitive models. The space builders, the elements introduced into a mental space and the properties and relations prompted for recruit this pre-existing knowledge structure, a process that we identified above as schema induction. For example, the space builder in sentence (3) prompts for the recruitment of a frame for PICTURES. The elements introduced prompt for the recruitment of frames relating to WITCHES AND WITCHCRAFT and MYTHICAL CREATURES such as UNICORNS. Finally, the expression is riding expresses a relation between the two elements and prompts for the RIDE frame. The RIDE frame brings with it two participant roles, one for a RIDER and one for the ENTITY RIDDEN. The RIDER role is mapped onto element a, introduced by the expression *witch*, and the ENTITY RIDDEN role is mapped onto element b, introduced by the expression unicorn. This establishes a relation between the two elements in the mental space. The completed



Figure 11.2 In the picture, a witch is riding a unicorn

mental space for example (3) with the additional structure resulting from schema induction is illustrated in Figure 11.3.

11.4.4 Mental space lattices

Once a mental space has been constructed, it is linked to the other mental spaces established during discourse. At any given point in the discourse, one of the spaces is the **base**: the space that remains accessible for the construction of a new mental space, a point that we elaborate below. As discourse proceeds, mental spaces proliferate within a network or lattice as more schemas are induced and links between the resulting spaces are created. This is illustrated in Figure 11.4. The circles represent the mental space and the dotted lines indicate links between spaces. The base is the space at the top of the lattice.



Figure 11.3 Schema induction



Figure 11.4 A lattice of mental spaces

11.4.5 Counterparts and connectors

In order to explain how different mental spaces are linked to one another, we begin by exploring the idea that elements within different mental spaces can be linked. Elements in different spaces are linked by **connectors** which set up mappings between **counterpart** elements. Counterparts are established on the basis of **pragmatic function**: when two (or more) elements in different mental spaces have a related pragmatic function, they are counterparts. One salient type of pragmatic function is **identity**. For instance, in Ian Fleming's novels, *James Bond* is the name of the fictional British spy character and 007 is the code name used by the British Secret Service (MI6) to identify this spy. The pragmatic function relating the entities referred to as *James Bond* and 007 is co-reference or identity. In other words, both expressions refer to the same individual and together form a **chain of reference**. Elements in different mental spaces that are co-referential (counterparts related by identity) are linked by an **identity connector**. To illustrate the linking of counterparts in two separate mental spaces by an identity connector, consider example (4).

(4) James Bond is a top British spy. In the war, he was an officer in the Royal Navy.

Each sentence in (4) sets up its own mental space, although it is not always the case that every sentence gives rise to its own mental space. We only need to set up a new mental space if the utterance contains a new space builder. As this example illustrates, not every mental space is introduced by an explicit space builder. For example, the base space introduced by the first sentence in (4) is established by our background knowledge that James Bond is a fictional character in the book or movie being described. The expression *James Bond* induces the schema that is associated with this knowledge. This shows that background knowledge can function as an implicit space builder. If this space builder were made explicit, the sentence might begin *In the book*. . . . When a mental space lacks an explicit space builder, it does not receive a label like PLAY or BOOK because this information is implicit.

In the first sentence in (4), the first mental space is set up by the introduction of the element corresponding to the name *James Bond*. This entity is assigned the property introduced by the indefinite NP *a top British spy*, which describes James Bond rather than introducing a separate entity because the two expressions are connected by *is*. This mental space is the base space. In the second sentence, the PP *in the war* is a space builder which constructs a new WAR space. This mental space also features an element, introduced by *he*, which also has a property assigned to it, *an officer in the Royal Navy*. Notice that *he* refers to the same person as *James Bond*. In linguistics, the process whereby one expression relies on another for full interpretation is called **anaphora**. The dependent expression (he) is called an **anaphor** and the expression it relies upon for its meaning (*James Bond*) is called the **antecedent**. The establishment of a link between an anaphor and an antecedent is a type of **inference**, an interpretation we 'work out' on the basis of establishing coreference between the two expressions. Anaphora relies on inference because an expression like he, unlike the name *James Bond*, lacks the semantic properties to uniquely define its referent: it could in principle refer to any male entity. This means that the hearer has to 'work out' which entity it refers to by searching the context for a likely candidate.

11.4.6 The Access Principle

In an example like (4) an identity connector is set up between the anaphor *he* and the antecedent *James Bond*. The elements a_1 and a_2 in Figure 11.5 are counterparts and are linked by an identity connector. This connector provides **access** to a counterpart in a different mental space. It is important to point out that the identity connector (which is represented as a line linking a_1 and a_2 in Figure 11.5) is not overtly introduced into the representation by any linguistic expression. Instead, the identity connector represents a **mapping**, a conceptual 'linking' operation established by the inference.

Fauconnier formalises this structuring property of mental space configurations in terms of the Access Principle, which states that 'an expression that



Figure 11.5 Linking counterparts

names or describes an element in one mental space can be used to access a counterpart of that element in another mental space' (Fauconnier 1997: 41). This means that connectors are a type of conceptual projection: like the conceptual metaphors and conceptual metonymies described in the previous chapter, connectors establish relationships or mappings across regions of conceptual structure.

One consequence of the Access Principle is that expressions referring to a particular counterpart can typically provide access to entities in mental spaces in either direction. In other words, connectors can 'link upwards' or 'link downwards' between spaces. When this occurs, the connector is said to be **open**. For example, the element corresponding to the anaphor *he* in example (4) serves as the **trigger** to access the element corresponding to the element a (*James Bond*), the **target**, in the base. In this example, the connector 'links upwards' to a previously established space. Access can also 'link downwards' from one mental space to a subsequently established space. Suppose we add example (5) to the text in (4):

(5) James Bond served on HMS Espionage.

This sentence adds structure to the WAR space by prompting for a new frame to be added containing information regarding WARSHIPS and the relationship between naval officers and the ships they serve on. Because the expression *James Bond* is used, which corresponds to element a in the base space, the counterpart of element a (labelled a_1) in the WAR space is accessed. New information can then be added with respect to element a_1 . In this example, element a in the base space, which is identified by *James Bond*, is the trigger for element a_1 , the target, which is in the WAR space. In this way, a_1 in the WAR space is accessed via the base space. Another way of thinking about this is to say that the space that is in 'focus', the WAR space, which is the space where structure is being added, is accessed from the perspective of the base space. This additional structure and the direction of the connector is represented in Figure 11.6.

Another consequence of the Access Principle is that multiple counterparts can be accessed. This is illustrated in the next example, discussed by Fauconnier (1994), which relates to a fictitious movie about the life of the famous film director Alfred Hitchcock. In his movies, Hitchcock invariably made a cameo appearance as a minor character. In the fictitious movie, Hitchcock is played by Orson Welles:

(6) In the movie Orson Welles played Hitchcock, who played a man at the bus stop.

This sentence contains the space builder *in the movie*. This sets up a MOVIE space containing the characters *Hitchcock* and *the man at the bus stop*. As we have



Figure 11.6 Directionality of connectors

seen, a mental space either represents the base space or is constructed relative to a base space; the base space contains **default information** currently available to the discourse context, including contextually relevant background frames. The base space for example (6) relates to the film set, which includes the director, the actors and so on. This information is not provided by specific linguistic expressions in example (6), but is supplied by schema induction arising from our knowledge of the MOVIE frame which also sets up connectors between actors and the characters they play.

In the base, which represents the reality space, both the element introduced by *Orson Welles* and the element introduced by *Hitchcock* are present. This is default information: both individuals exist as actors in the reality space. In the MOVIE space, based on our knowledge of the MOVIE frame, the information provided by *played* instructs us to link Orson Welles the actor (in the base) with Hitchcock the character (in the MOVIE space) as counterparts, linked by an **actor-character connector**. This is represented by connector 1 in Figure 11.7. In addition, while Hitchcock is identified as a character in the MOVIE space (by virtue of the actor-character connector), he is also identified as an actor by the subsequent part of the sentence: *who played a man at the bus stop*. This relation between Hitchcock-as-character (established in the MOVIE



Figure 11.7 Hitchcock and the movie

space) and Hitchcock-as-actor (established in the base space) is set up by the expression *who*, which is an instruction to set up a connector between these two counterparts. This is represented by connector 2 in Figure 11.7.

Now suppose we add example (7) to the information established in (6).

(7) Hitchcock liked himself in that movie.

This sentence is ambiguous. It could mean either that (the real) Hitchcock liked the character played by Orson Welles (Hitchcock-as-actor), or that he liked the man at the bus stop (Hitchcock-as-character). That is, from the perspective of the base, b_1 (the real) *Hitchcock* can be linked either to counterpart b_2 in the MOVIE space (Hitchcock-as actor, introduced by *who*) or to counterpart b_3 in the MOVIE space (*a man at the bus stop*). This is illustrated in Figure 11.8, which shows that the ambiguity in the sentence arises from the fact that b_1 (the real) *Hitchcock* has two potential connectors which link it to two counterparts in the MOVIE space. In other words, b_1 (*Hitchcock*) is a trigger with two targets established by pragmatic function: (1) the connector linking b_1 with b_2 (Hitchcockas-actor, introduced by *who*), which is established by virtue of an identity connector; and (2) the connector linking b_1 (*Hitchcock*) with b_3 (*the man at the bus stop*), which is established by an actor-character connector. Crucially, the ambiguity is a function of the mapping possibilities across mental spaces.



Figure 11.8 Two connectors to one element

As this discussion reveals, one appeal of Mental Spaces Theory is that it offers a plausible account of how language prompts for different referential possibilities. It is precisely because we partition discourse into distinct mental spaces, with mappings holding between elements in different mental spaces, that we are able to construct the complex patterns of reference illustrated here.

One of the challenges for truth-conditional theories of sentence meaning is that referential ambiguities cannot be straightforwardly accounted for. This is because truth-conditional models rely upon the idea that each sentence has a truth value that can be assessed relative to a stable and objectively defined 'state of affairs', as we discussed earlier. A truth-conditional approach would be forced to claim that each interpretation arising from example (7) has a different set of truth conditions, which is inconsistent with the view that the meaning of a sentence can be modelled in terms of its truth or falsity relative to a given state of affairs. In other words, given a state of affairs in which Hitchcock liked the character Hitchcock-as-actor in the movie, the sentence in (7) would be simultaneously true (on the corresponding interpretation) and false (on the interpretation that Hitchcock liked the man at the bus stop). This gives rise to a logical inconsistency, because this model holds that a sentence cannot simultaneously be true and false in relation to the same state of affairs. In contrast to this view, because Mental Spaces theory holds that elements are set up in mental spaces rather than in some objectively defined 'state of affairs', no inconsistency arises in a single element having two distinct counterparts: it is

possible, and even likely, that two or more distinct interpretations of a single sentence may coexist simultaneously.

11.4.7 Roles and values

An important aspect of Mental Spaces Theory is its treatment of NPs with definite interpretation, an issue that also relates to potential ambiguity. As we have seen, NPs of this kind include common nouns co-occurring with the definite article (*the President*) or proper nouns (*James Bond*). Mental Spaces Theory claims that NPs with definite interpretation do not have **rigid reference**, which means that they may or may not refer to a unique referent. This is illustrated by the following examples from Fauconnier (1994: 39):

- (8) a. The president changes every seven years.
 - b. Your car is always different.

The sentences in (8) are ambiguous. Example (8a) could mean that every seven years the person who is president changes in some way, for instance goes bald, becomes insane, grows a moustache and so on. Alternatively, (8a) could mean that every seven years the person who serves as president changes. Similarly, (8b) could mean that every time we see your car, some aspect of the car has changed; it might have had a respray, acquired some new hubcaps and so on. Alternatively, this sentence could mean that you have a new car every time we see you.

Ambiguities like these illustrate that NPs with definite interpretation can either have what Fauconnier calls a **role** reading or a **value** reading. For example, the role reading of *the President* relates to the position of president, regardless of who fills it (our second interpretation of (8a)). The value reading relates to the individual who fills the role (our first interpretation of (8a)). Roles and values both introduce elements into mental spaces, but each gives rise to different mapping possibilities. This is illustrated by example (9):

(9) Tony Blair is the Prime Minister. Margaret Thatcher thinks she is still the Prime Minister and Tony Blair is the Leader of the Opposition.

In the base, the elements *Tony Blair, Prime Minister* and *Margaret Thatcher* are all present. These are default elements established by the discourse or by encyclopaedic knowledge. This is indicated by the fact that they have definite reference, which shows that they are not set up as new elements but are preexisting. In this base, *Tony Blair* is a value element linked to the role element *Prime Minister*. In other words, there is a role-value relationship holding between the two elements, which are co-referential. This relationship could be established on the basis of background knowledge, but in (9) it is explicitly



Figure 11.9 Roles and values

signalled by the first sentence. This relationship is captured in Figure 11.9 by the dotted arrows between the value element *Tony Blair* and the role element *the Prime Minister*. The second sentence sets up a new space, because it contains the space builder *Margaret Thatcher thinks*. . . . In Margaret Thatcher's BELIEF space, *she* (which is linked to *Margaret Thatcher* by an identity connector) corresponds to the value element linked to the role element *the Prime Minister*, while *Tony Blair* corresponds to the value element linked to the role element *the Leader of the Opposition*. Figure 11.9 illustrates the interpretation of roles and values in example (9).

11.5 An illustration of mental space construction

In this section, we analyse a short text so that we can apply some of the aspects of mental space construction that have been introduced so far. Although this text is very simple, it nevertheless involves meaning construction processes of considerable complexity.

(10) Fido sees a tortoise. He chases it. He thinks that the tortoise is slow. But it is fast. Maybe the tortoise is really a cat.

As we have seen, mental space construction always proceeds by the establishment of a base that represents the starting point for any particular stage in the discourse. We can think of 'stages' in discourse as topics of conversation. Elements are introduced into the base by indefinite descriptions or are identified as pre-exisiting by definite descriptions or by non-linguistic factors such as contextual salience. Salience can arise in a number of ways, for example if the speaker is referring to something that is visible or familiar to both speaker and hearer (Pass me the scissors) or something they have been discussing previously (I found the book). The first sentence in (10) provides a definite description, Fido. This is in presuppositional mode, which signals that the element Fido is present in the discourse context. Observe that we can make this assumption regardless of whether we have access to the previous discourse context. If (10) is part of a spoken story, for example, we probably already know who or what Fido is. But if (10) begins a written story, we 'construct' this background context. This element is therefore set up in the base space as part of the background. Moreover, Fido is a name, and background knowledge tells us that it is a name typically associated with a male dog. We can therefore deduce that the expression refers to a dog. There is also an indefinite description in this sentence: a tortoise. The indefinite description introduces a new element to the discourse, and this is set up in the base space. The verb see introduces a relation between the two elements based on a SEE frame which involves at least two participant roles: SEER and SEEN. This frame is projected to the base space by means of schema induction, and the SEER role is mapped onto *Fido* (element a₁) while the SEEN role is mapped onto *a tortoise* (element b₁). This is illustrated in Figure 11.10.

The second sentence employs the anaphors *he* and *it*. Because we already know from background knowledge that the name *Fido* refers to a male animal, *he* identifies a_1 in the base space and *it* refers to the animal whose sex has not been identified: element b_1 . The verb *chase* prompts for further structure to be added to the base space: the projection of the CHASE frame via schema induction. Like the SEE frame, CHASE also has two participant roles: CHASER and



Figure 11.10 Fido sees a tortoise



Figure 11.11 He chases it

CHASED. These are mapped onto a_1 and b_1 , respectively. This is illustrated by Figure 11.11.

The third sentence contains the space builder, *he thinks that*. This sets up a new BELIEF space which is established relative to the base. *He* prompts for a_2 , a counterpart of a_1 (*Fido*), while *the tortoise* introduces an element in the presuppositional mode because this element has already been introduced into the discurse by the indefinite expression *a tortoise*. This prompts for a counterpart in the base: *the tortoise* introduces element b_2 , counterpart of b_1 (*a tortoise*). In both cases, the pragmatic function that links the counterparts is the identity relation. The Access Principle entails that connectors are established between the counterparts and the Optimisation Principle ensures that information in the base space is automatically transferred to the new belief space. This means that the properties and relations holding for the counterparts of a_1 and b_1 – namely a_2 and b_2 – are set up in the belief space. This includes the participant roles that follow from the SEE and CHASE frames. In addition, the property SLOW is associated with b_2 (*the tortoise*) in Fido's BELIEF space. This is represented by Figure 11.12.

In the fourth sentence, new information is added which states that the tortoise is fast. Because this information relates to reality, it is added to the base space rather than to Fido's BELIEF space. The use of *but*, which introduces a **counter-expectational** interpretation, overtly signals that the Optimisation Principle does not apply to this information, which means that the information that the tortoise is fast is limited to the base space. This is because information in the BELIEF space, namely that the tortoise is slow, contradicts information in the base. In this way, the Optimisation Principle prevents contradictory information (that the tortoise is fast) from spreading to the BELIEF space: Fido cannot simultaneously think that the tortoise is slow and that the tortoise is fast. This is illustrated in Figure 11.13.

The final sentence includes the space builder *maybe*. This sets up a POS-SIBILITY space. In this space, the counterpart of the tortoise (b_1) is a cat (b_3) .



Figure 11.12 He thinks that the tortoise is slow



Figure 11.13 But it is fast

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Figure 11.14 Maybe the tortoise is really a cat

The expression *really* signals that this POSSIBILITY space is set up from the perspective of the base space rather than from the perspective of Fido's BELIEF space, because the base space is the reality space (see Figure 11.14).

As this relatively simple example demonstrates, even a short piece of discourse involves active participation on the part of the hearer/reader in terms of the construction of a number of different mental spaces in which linked but potentially contradictory information can be held. This model goes some way towards explaining the complex cognitive operations that go on 'in the background' during meaning construction, and shows how language prompts for knowledge within the conceptual system. In the next section, we look at how Mental Spaces Theory can account for two other aspects of linguistic meaning: counterfactual $if \ldots then \ldots$ constructions and the tense-aspect-modality (TAM) system.

11.6 The dynamic nature of meaning construction

In this section we focus on the dynamic aspect of meaning construction. This relates to the way in which **interlocutors** (discourse participants) keep track of the spaces that have been set up during ongoing discourse, including the

content of the various spaces, the links between them and their sequence. Language assists in this process in two main ways: (1) the grammatical tenseaspect system signals **time reference** (the location in time of one space relative to another); and (2) the grammatical system of **epistemic modality** signals **epistemic distance**. Epistemic modality is a type of grammatical marking that reflects the speaker's knowledge or opinion concerning the likelihood, possibility or certainty of the proposition expressed by a sentence. Epistemic modality therefore concerns the reality status of one space with respect to another. Because tense, aspect and modality are often closely interwoven within the grammatical systems of languages, this area is often abbreviated to the 'TAM' system. We explore the Mental Spaces Theory approach to these two aspects of the TAM system in the following sections.

11.6.1 Tense and aspect in English

We begin by looking at how the English tense-aspect system prompts for information relating to the timing of events. To begin with the fundamentals, tense is a feature of the closed-class system, usually marked morphologically on verbs or independent inflection words. Tense marks a sentence with information concerning the time of the event described relative to the moment of speaking. Present tense signals that the time referred to and the time of speaking are equivalent. Past tense signals that the time referred to precedes the time of speaking. Future tense signals that the time referred to follows the time of speaking. Linguists often use a relatively simple representational system to capture the relationship between event time and time of speaking called the **SER (Speech-Event-Reference) system** (Reichenbach 1947). In this system, S stands for 'moment of speaking' and R stands for 'reference time' (the time referred to in the utterance).

In English, present and past tense are marked on the verb with suffixes, but in the present tense this suffix is only marked on the third person singular *he/she/it* form in the case of most verbs (for example, *I/you/we/they sing* vs. *she sing-s*). However, the 'irregular' verb *be* shows a wider range of present tense forms (*I am, you/we/they are, he/she/it is*). Past tense is marked on many verbs by the suffix *-ed* (for example, *I played*). Strictly speaking, English lacks a future tense, because there is no bound morpheme indicating future time that forms part of the same grammatical system as present and past tense. However, English has a number of ways of referring to future time, including the use of the modal verb *will*, for example *I will sing*, which we can loosely refer to as future tense.

Tense interacts with grammatical aspect (see Chapter 18 for the distinction between grammatical and lexical aspect). Unlike tense, aspect does not refer to the time of the event described relative to the moment of speaking, but instead describes whether the event is viewed as 'completed' or 'ongoing'. The traditional term for a 'completed' event is perfect aspect and traditional terms for an 'ongoing' event include the terms imperfect or progressive aspect. In English, perfect aspect is introduced by the auxiliary verb have (for example, I have finished) and progressive aspect is introduced by the auxiliary verb be (for example, *I am singing*). For novice linguists, this is a difficult system to get to grips with, not least because the verbs have and be do not always function as auxiliary verbs. They can also function as lexical verbs. The easiest way to tell the difference between auxiliary and lexical verbs is that the former are followed by another verb form called a participle (I am singing; You have finished), while the latter are not (I am hungry; You have green eyes). In the SER system, aspect is represented as the interaction between R (reference time) and E (event). In the case of perfect aspect, the whole completed event is located prior to the reference time, indicating that, relative to the time referred to in the utterance, the event is viewed as 'completed':

(12) Perfect aspect: E < R

Progressive aspect is represented in the SER system as $B \dots F$ (which stand for 'beginning' and 'finish', respectively). These 'surround' the reference time, indicating that the event is viewed by the speaker as 'ongoing' relative to the time referred to in the utterance:

(13) Progressive aspect: B < R < F

Tense and aspect can 'cut across' one another within the tense-aspect system. In other words, they can be combined to produce a large number of different permutations. Some of these are shown in example (14), together with the relevant SER 'timeline' diagrams:

(14) a.	James Bond has outwitted the villain (now)				
	$\longleftarrow E \longrightarrow R = S \longrightarrow$	[present perfect]			
b.	James Bond had outwitted the villain				
	$\longleftarrow E \longrightarrow R \longrightarrow S \longrightarrow$	[past perfect]			
c. James Bond will have outwitted the villain (by teatir					
	$\longleftarrow S \longrightarrow E \longrightarrow R \longrightarrow$	[future perfect]			

d.	James Bond is outwitting the villain \leftarrow B—R = S—F— \rightarrow	[present progressive]
e.	James Bond was outwitting the villain $\leftarrow B = R = F = S = \rightarrow$	[past progressive]
f.	James Bond will be outwitting the villain $\leftarrow S - B - R - F$	[future progressive]

The aspect of each example can be identified according to whether the 'verb string' contains *have* (perfect) or *be* (progressive). Observe that these auxiliaries also require the verb that follows them to assume a particular form. The perfect auxiliary *have* requires the next verb to be in its **past participle** form. This term from traditional grammar is rather misleading since it implies that the past participle is restricted to past tense contexts. As examples (14a) and (14c) illustrate, this is not the case. It can also be difficult to identify the past participle because it often looks just like the past tense form (for example, *outwitted*), but certain verbs have distinct past tense/past participle forms (for example, *I <u>mrote</u>* [past tense] vs. *I have <u>mritten</u>* [past participle]). The progressive auxiliary *be* requires the verb that follows it to occur in the **progressive participle** form, which ends in *-ing*. These verb forms are called participles because they form a subpart of a tense-aspect configuration, and crucially they cannot 'stand alone' without an auxiliary verb (for example, **I written*; **I singing*).

The tense of each example can be identified by the form of the auxiliary verb. If this verb is present, past or future (marked by *will*), the whole clause has that tense property. For example, (14a) is in the present tense because the auxiliary *have* is in the (third person singular) present tense form *has*. Although the event is viewed as completed, it is viewed from the perspective of the moment of speaking; this is why present perfect configurations can be modified by the temporal expression *now*. Example (14b) is in the past tense because the auxiliary *have* is in its past tense form: *had*.

11.6.2 The tense-aspect system in Mental Spaces Theory

According to Mental Spaces Theory, the tense-aspect system participates in **discourse management**. Before we can look in detail at the Mental Spaces Theory analysis of tense-aspect systems, we need to establish some additional new terms: **viewpoint**, **focus** and **event**. These terms relate to the status of mental spaces in discourse. While the base represents the starting point for a particular stage in the discourse to which the discourse can return, the viewpoint is the space from which the discourse is currently being viewed and from which other spaces are currently being built. The focus is the space where new content is being added, and the event represents the time associated with the event being B, V, F, E

Figure 11.15 Jane is twenty

described. While the focus and event spaces often coincide, as we will see, they can sometimes diverge. As discourse progresses, the status of mental spaces as base, viewpoint, focus or event can shift and overlap. In order to illustrate these ideas, consider the following text, in which the verb strings are underlined:

(15) Jane is twenty. She <u>has lived</u> in France. In 2000 she <u>lived</u> in Paris. She currently <u>lives</u> in Marseilles. Next year she <u>will move</u> to Lyons. The following year she <u>will move</u> to Italy. By this time, she <u>will have lived</u> in France for five years.

We will construct a Mental Spaces Theory representation of this text beginning with the base (B). The base space is also the initial viewpoint (V) and the focus (F), as we add new information to the base, namely that Jane is twenty. Time reference is now (E), as signalled by the present tense 'is'. This is illustrated in Figure 11.15, which represents the first space constructed by this text (space 1). In this section, we simplify the mental spaces diagrams by missing out the dialogue boxes, since our objective here is not to illustrate the establishment of elements, links, properties or relations, but to work out how the sentences in the discourse set up mental spaces that shift the status of previously constructed spaces with respect to base, viewpoint, focus and event.

The second sentence, *She has lived in France*, keeps the base in focus, as it adds new information of current relevance. This is signalled by the use of the present perfect *has lived*. The present tense auxiliary form *has* signals that we are building structure in space 1 which thus remains the focus space. However, the structure being built relates to an event that is complete (or past) relative to space 1, signalled by the past participle *lived*. This is set up as space 2. In this way, perfect aspect signals that focus and event diverge. Put another way, the present perfect *has lived* signals that knowledge of a completed event has current relevance. Because the focus space, 'now' (space 1), is also the perspective from which we are viewing the completed event, the focus space (space 1) is also the viewpoint. This is illustrated by Figure 11.16.

The third sentence, *In 2000 she lived in Paris*, contains the space builder *in 2000*. This sets up a new space, which is set in the past with respect to the viewpoint space which remains in the base (space 1). This new space (space 3) is therefore the event space. Because we have past tense marking, the focus shifts to the new space. This is illustrated in Figure 11.17.



Figure 11.16 She has lived in France



Figure 11.17 In 2000 she lived in Paris



Figure 11.18 She currently lives in Marseilles

The fourth sentence, *She currently lives in Marseilles*, is marked for present tense. This returns the focus to the base space (space 1). The base also remains the viewpoint, because this is now the perspective from which the lattice is being viewed. Because the time reference relates to this space, this is also the event space. This is illustrated in Figure 11.18.

The fifth sentence, *Next year she will move to Lyons*, is marked for future tense. Together with the future tense, the space builder *next year* sets up a new space which is the current focus space (space 4). The event described in this space is future relative to the viewpoint, which remains in the base (space 1). This is illustrated in Figure 11.19.

In the penultimate sentence, *The following year she will move to Italy*, the space builder *the following year* sets up a new space which is the current focus space



Figure 11.19 Next year she will move to Lyons

Figure 11.20 The following year she will move to Italy

containing the information that Jane will move to Italy (space 5). The future tense signals that the event is future relative to the base (space 1). However, the space builder *the following year* also shows that the new event space (space 5) is also future relative to space 4, from which the current space under construction is viewed. Hence, the viewpoint shifts from the base to space 4. This is illustrated in Figure 11.20.

In the final sentence, *By this time, she will have lived in France for five years*, the use of the future perfect auxiliary *will have* signals that the space in focus is the future space, space 5. However, the structure being built relates to a completed event, signalled by the past participle form *lived*. The future perfect *will have lived* therefore establishes an event space (space 6) that relates to a completed event: an event that is past with respect to the focus space. Thus the time of the event space diverges from the time of the focus space with respect to which it is relevant. This means that the focus remains in space 5 where structure is being added. The viewpoint remains in space 4 because it is from the perspective of her time in France that this sentence is viewed. At this point in the discourse, as Figure 11.21 illustrates, the base, viewpoint, focus and event all relate to distinct spaces.

Figure 11.21 By this time, she will have lived in France for five years

The use of the future tense in this final sentence shows that the current space is still connected to the base space to which the discourse could return. For instance, if the discourse continued with the sentence *But at present Jane is happy in Marseilles*, this would return viewpoint, focus and event to the base.

As this discussion reveals, the tense-aspect system 'manages' the perspective from which an utterance is made. In particular, we have seen that while temporal adverbials like *in 2000* set up new spaces, it is the tense-aspect system that signals the perspective from which a particular space is viewed. Before completing this discussion of the tense-aspect system, we briefly mention progressive aspect. As noted earlier, this is signalled in English by the progressive auxiliary *be* and the progressive participle, ending in *-ing* (e.g. *Lily is writing a letter*, which illustrates the present progressive). As with perfect aspect, progressive aspect signals that event and focus spaces diverge. While the perfect signals that a completed event has current relevance in the focus space, progressive aspect signals that the focus space occurs during the event space. In other words, the focus space for the sentence *Lily is writing a letter* contains a schematic event that receives its complete temporal profile only in the event space. (For full details, see Cutrer (1994), a doctoral thesis that develops the Mental Spaces Theory account of the tenseaspect system.)

Table 11.1 summarises the functions of tense and aspect in terms of discourse management. In this table, X refers to a given mental space and the term 'simple' means that the relevant sentence that builds the space is not marked for aspect.

	Present (simple)	Past (simple)	Future (simple)	Perfect	Progressive
Focus	X	X	X	Not X	Not X
Viewpoint	X	X's parent	X's parent	X's parent or grandparent	X's parent or grandparent
Event	X equivalent to V	X before V	X after V	X is completed with respect to F	X contains F

Table 11.1 The role of tense and aspect in discourse management

11.6.3 Epistemic distance

In addition to its time reference function, tense can also signal epistemic distance. In other words, polysemy is not restricted to the open-class elements: tense, as part of the closed-class semantic system also exhibits polysemy. This means that the tense system has a range of distinct schematic meanings associated with it (Tyler and Evans 2001a). One illustration of this point relates to the use of tense in hypothetical constructions such as 'if A then B', which we briefly discuss in this section. Consider example (16).

(16) If the President agrees with the senator's funding request, then the senator has nothing to worry about

A and B refer to the two propositions that make up this complex sentence. In example (16), A stands for the antecedent: *the President agrees with the senator's funding request* and B stands for the consequent: *the senator has nothing to worry about*. According to Mental Spaces Theory, 'if A then B' constructions set up two successive spaces in addition to the base which is the reality space. The two successive spaces are the **foundation** space and the **expansion** space. The foundation space is set up by the space builder *then*. While the foundation space is 'fact' relative to the foundation space, in the sense that it is entailed by the information in the foundation space (see Figure 11.22). In other words, if A (the foundation) holds, then B (the expansion) follows.

In order to uncover the role of 'if A then B' constructions in epistemic distance, consider the sentences in example (17).

- (17) a. If I win the lottery, I will buy a Rolls-Royce.
 - b. If I won the lottery I would buy a Rolls-Royce.

Figure 11.22 Foundation and expansion spaces

The first sentence expresses a neutral epistemic stance while the second expresses epistemic distance. Epistemic stance relates to the speaker's assessment of how likely a particular foundation-expansion sequence is relative to a particular reality base space. As we have seen, the term 'epistemic' relates to the speaker's knowledge or opinion concerning likelihood, possibility, certainty or doubt, and the terms 'epistemic stance' and 'epistemic distance' both rely on the speaker's metaphorical 'distance' from a particular state of affairs: the speaker's 'position' or judgement regarding the likelihood of a particular situation coming about. Notice that in sentence (17a), the *if* clause is in the present tense, although it refers to (hypothetical) future time. This example illustrates that the English present tense is not restricted to referring to present time. In (17a), the speaker is making no assessment in relation to epistemic distance; this sentence is purely hypothetical. In other words, the speaker takes a neutral or 'open' position with respect to the likelihood of winning the lottery. Observe that this sentence would be appropriate in a context in which the speaker regularly plays the lottery and therefore has a chance of winning.

The sentence in (17b) is also a hypothetical, but here the speaker is indicating epistemic distance by the use of the past tense in the *if* clause. This sentence might be uttered in a scenario in which the speaker doesn't actually play the lottery, or judges his or her chances of success as minimal or non-existent. This type of *if*...*then*... sentence, which refers to a non-existent situation, is called a **counterfactual**. Finally, compare the form of the modal verbs in the *then* clauses in these two examples. The form *will* in (17a) is traditionally described as the present tense form, while the form *would* in (17b) is described as the past tense form. As the examples in (17) illustrate, the tense system can be used for more than signalling reference time. It can also be used to signal epistemic stance. The examples considered so far have not been marked for grammatical aspect: (17a) is in the 'simple present' and (17b) is in the 'simple past'. However, if we introduce perfect aspect into the *if* clause, the result is striking. Consider the following example:

(18) If I had won the lottery, I would have bought a Rolls-Royce.

This counterfactual example is in the past perfect form and is therefore marked for both past tense and perfect aspect. The result is increased epistemic distance. This example might be appropriate in a context where the speaker did in fact play the lottery but lost.

11.7 Summary

This chapter introduced Mental Spaces Theory, the cognitive semantics approach to meaning construction. This theory is associated most prominently with the influential work of Gilles Fauconnier. According to this view, meaning construction is a process that is fundamentally conceptual in nature. Sentences constitute partial instructions for the construction of highly complex and intricate conceptual lattices which are temporary, can be more or less detailed and are assembled as a result of ongoing discourse. These temporary domains, called mental spaces, are linked in various ways and contain elements that are also connected, allowing speakers to keep track of chains of reference. From this perspective, meaning is not a property of individual sentences nor of their interpretation relative to some objectively defined 'state of affairs' as in formal semantics. Instead, meaning arises from a dynamic process of meaning construction which we call conceptualisation. While our conceptualisations may or may not be about the 'real world', we keep track during ongoing discourse of elements, properties and relations in the complex mental space configurations assembled as we think and speak. From this perspective, sentences cannot be analysed in isolation from ongoing discourse, and semantic meaning, while qualitatively distinct, cannot be meaningfully separated from pragmatic meaning. From this perspective, meaning construction is a dynamic process, and is inseparable from context. Finally, because meaning construction is fundamentally conceptual in nature, we must also take account of the general cognitive processes and principles that contribute to this process. In particular, meaning construction relies on mechanisms of conceptual projection such as metaphors and metonymies and connectors. In this chapter, we saw how Mental Spaces Theory accounts for a diverse range of linguistic phenomena relating to meaning at the level of sentence and text, including referential ambiguities and the role of tense and aspect in discourse management and in epistemic distance.

Further reading

Foundational texts

- Fauconnier (1994). First published in English in 1985 based on a previously published French text, this is the foundational text that introduces the main tenets of Mental Spaces Theory. The 1994 edition provides a preface that traces some of the original motivations for the developments of the theory and provides an accessible introduction to some of the key ideas.
- Fauconnier (1997). This book is perhaps more accessible than *Mental Spaces*. Not only does it revise and extend the basic architecture, it also provides an overview of some of the key insights of the earlier work, and shows how the Mental Spaces framework has been extended giving rise to Blending Theory (discussed in the next chapter).

Applications of Mental Spaces Theory

- Cutrer (1994). In her doctoral thesis, Cutrer investigated how tense and aspect give rise to dynamic aspects of mental space construction.
- Fauconnier and Sweetser (eds) (1996). This volume contains a collection of articles by prominent cognitive semanticists who apply Mental Spaces Theory to a range of linguistic phenomena including grammar, metaphor, lexical polysemy, deixis and discourse.

Exercises

11.1 Assumptions of Mental Spaces Theory

What are the main assumptions of Mental Spaces Theory?

II.2 Space building

Provide an answer to each of the following questions, and illustrate with examples of your own:

- (i) How are mental spaces set up?
- (ii) How are they internally structured?
- (iii) How are they related to each other?

11.3 Diagramming a mental space lattice

Provide a mental space configuration for the following text:

The witch is riding a unicorn. She thinks she's riding a horse and the horse has a blue mane.

11.4 Referential ambiguity

Provide a mental spaces lattice for the following sentence. Based on the various connectors prompted for, explain how the referential ambiguity is accounted for.

I dreamed that I was Naomi Campbell and that I kissed me.

11.5 Viewpoint, focus and event

Provide definitions of the terms viewpoint, focus and event, and illustrate with examples of your own.

11.6 Shift in viewpoint (advanced)

In view of your answers to exercise 11.5, provide a mental space configuration for the following text. In particular, provide an account of how tense signals a shift in the viewpoint, focus or event. (*Note:* In this example, *would* signals future perspective in the past.)

In 1995 John was living in London for the first time. In 1997 he would move to France. By this time he would have lived in London for two years.

11.7 Foundation and expansion spaces

How are the following kinds of mental spaces different? Provide examples of your own to illustrate your answer.

- (a) Base
- (b) Foundation
- (c) Expansion

11.8 Practice with foundation, expansion and possibility spaces

Once you have completed exercises 11.3 and 11.7, add to the mental space configuration you developed in exercise 11.3 the structure prompted for by the sentence below. But she's flying through the air. If she were riding a horse, then she would not be flying through the air.

11.9 Hypotheticals versus counterfactuals

Does the mental space configuration constructed for exercise 11.7 involve a hypothetical or a counterfactual? What is the difference? How is this difference prompted for by language?

11.10 Foundation spaces again

Diagram a mental spaces lattice for the text given below. Explain how each sentence prompts for the addition of structure to the mental space lattice. Relative to which space is the foundation built? Explain your reasoning.

John has a pet cat. It's called Fred. Next year John will buy a dog. Maybe the cat will like the dog. If the cat doesn't like the dog, then John will have to keep them in separate parts of the house.