7

The encyclopaedic view of meaning

In this chapter we explore the thesis that meaning is encyclopaedic in nature. This thesis, which we introduced in Chapter 5, is one of the central assumptions of cognitive semantics. The thesis has two parts associated with it. The first part holds that semantic structure (the meaning associated with linguistic units like words) provides access to a large inventory of structured knowledge (the conceptual system). According to this view, word meaning cannot be understood independently of the vast repository of **encyclopaedic knowledge** to which it is linked. The second part of the thesis holds that this encyclopaedic knowledge is grounded in human interaction with others (social experience) and the world around us (physical experience). We will look in detail at the two parts of this thesis, and at the end of the chapter we also briefly consider the view that encyclopaedic knowledge, accessed via language, provides **simulations** of perceptual experience. This relates to recent research in cognitive psychology that suggests that knowledge is represented in the mind as **perceptual symbols**.

In order to investigate the nature of encyclopaedic knowledge, we explore two theories of semantics that have given rise to this approach to meaning. These are (1) the theory of **Frame Semantics**, developed in the 1970s and 1980s by Charles Fillmore; and (2) the theory of **domains**, developed by Ronald Langacker (1987). In fact, these two theories were originally developed for different purposes: Fillmore's theory derived from his research on **Case Grammar** in the 1960s, and continued to be developed in association with his (and others') work on **Construction Grammar** (see Part III). Langacker's theory of domains provides part of the semantic basis for his theory of **Cognitive Grammar (**also discussed in Part III). However, despite these different starting points, both theories address related phenomena. For this reason, we suggest that

together they form the basis for a theory of **encyclopaedic semantics.** We will see that Langacker argues that **basic domains**, knowledge structures derived from pre-conceptual sensory-perceptual experience, form the basis of more complex **abstract domains** which correspond to the **semantic frames** proposed by Fillmore. Together, these two types of knowledge structure make up encyclopaedic knowledge. Indeed, this perspective is presupposed by much current work on word meaning and conceptual structure in cognitive semantics.

At this point, it is worth explaining why this chapter focuses on encyclopaedic knowledge, while a later chapter (Chapter 10) focuses on word meaning. After all, when we introduced the idea of encyclopaedic knowledge in Chapter 5, we illustrated it with the proposition that words provide a 'point of access' to this system of knowledge, and indeed we will have quite a bit to say about word meaning in this chapter. However, the focus of this chapter is to explore in detail the **system of conceptual knowledge** that lies behind lexical concepts and their associated linguistic units, while the focus of Chapter 10 is to explore in detail the nature and organisation of those lexical concepts themselves.

7.1 Dictionaries versus encyclopaedias

We begin by considering the traditional view of linguistic meaning, which is often called the **dictionary view**. By explaining how this traditional model works, we will establish a basis for exploring how the encyclopaedic view adopted and developed within cognitive semantics is different. The theoretical distinction between dictionaries and encyclopaedias has traditionally been an issue of central importance for **lexicologists** (linguists who study word meaning) and **lexicographers** (dictionary writers). Since the emergence of the **mentalist** approach to language in the 1960s, it has also been widely assumed that a distinction parallel to the dictionary/encyclopaedia distinction exists at the level of the mental representation of words. This view has been widely adopted, particularly by formal linguists who assume a **componential view** of word meaning (recall our discussion of Universal Grammar and semantic universals in Chapter 3). More recently, however, linguists have begun to argue that the distinction traditionally drawn between 'dictionary knowledge' (word meaning) and 'encyclopaedic knowledge' (non-linguistic or 'world knowledge') is artificial. If this can be established, the alternative view emerges that dictionary knowledge is a subset of more general encyclopaedic knowledge. This is the position adopted by cognitive semanticists.

7.1.1 The dictionary view

The traditional view in semantic theory holds that meaning can be divided into a dictionary component and an encyclopaedic component. According to this

view, it is only the dictionary component that properly constitutes the study of **lexical semantics**: the branch of semantics concerned with the study of word meaning. In contrast, encyclopaedic knowledge is external to linguistic knowledge, falling within the domain of 'world knowledge'. Of course, this view is consistent with the modularity hypothesis adopted within formal linguistics, which asserts that linguistic knowledge (e.g. knowing the meaning of a word like *shoelaces*) is specialised to language, and distinct in nature from other kinds of 'world' or 'non-linguistic' knowledge (like knowing how to tie your shoelaces, or that you can usually buy them in the supermarket). From this perspective, then, dictionary knowledge relates to knowing what words mean, and this knowledge represents a specialised component, the 'mental dictionary' or **lexicon**. While this component is mainly concerned with word meaning, formal theories differ quite considerably on the issue of what other kinds of information might also be represented in the lexicon, such as grammatical information relating to word class and so on. However, a common assumption within formal theories is that the word meanings stored in our minds can be defined, much as they appear in a dictionary.

In the **componential analysis** or **semantic decomposition** approach, which is one version of the dictionary model, word meaning is modelled in terms of semantic features or **primitives**. For instance *bachelor* is represented as [+MALE, + ADULT, −MARRIED], where each of these binary features represents a conceptual primitive that can also contribute to defining other words, such as *man* [+MALE, + ADULT], *girl* [−MALE, −ADULT], *wife* [−MALE, +ADULT, +MARRIED], and so on. Early examples of this approach are presented in Katz and Postal (1964) and Katz (1972). Another more recent variant of this approach is represented in the work of Anna Wierzbicka (1996), who takes the position that words are comprised of universal innate semantic primitives or **primes**, in terms of which other words can be defined. We consider these componential approaches in more detail below.

According to the dictionary view, the core meaning of a word is the information contained in the word's definition (for example that *bachelor* means 'unmarried adult male'), and this is the proper domain of lexical semantics. Encyclopaedic knowledge (for example, stereotypical connotations relating to bachelor pads, sexual conquests and dirty laundry) is considered non-linguistic knowledge. In this way, the dictionary model enables lexical semanticists to restrict their domain of investigation to intrinsic or non-contextual word meaning, while questions concerning how the outside world interacts with linguistic meaning are considered to fall within the domain of **pragmatics**, an area that some linguists consider to be external to the concerns of linguistics proper.

A number of dichotomies follow from the dictionary view of word meaning. Firstly, the core meaning of a word (**sense**), which is contained in the mental

dictionary, stands in sharp contradistinction to what that word refers to in the outside world (**reference**). This distinction is inherited from referential theories of meaning dating back to Plato's (fourth century BC) *Cratylus Dialogue: The Realm of Ideas and Truth*. Referential theories hold that word meaning arises from a direct link between words and the objects in the world that they refer to. As the philosopher Frege (1892 [1975]) argued, however, it is possible for a word to have meaning (sense) without referring to a real object in the world (e.g. *dragon, unicorn*), hence the distinction between sense and reference.

The second dichotomy that arises from the dictionary view of meaning is the distinction between **semantics** and **pragmatics**. As we saw above, the dictionary view assumes a sharp distinction between knowledge of word meaning (semantics), and knowledge about how contextual factors influence linguistic meaning (pragmatics).

Thirdly, the dictionary view treats knowledge of word meaning as distinct from cultural knowledge, social knowledge (our experience of and interaction with others) and physical knowledge (our experience of interaction with the world). As we have seen, a consequence of this view is that semantic knowledge is autonomous from other kinds of knowledge, and is stored in its own mental repository, the **mental lexicon**. Other kinds of knowledge belong outside the language component, represented in terms of **principles of language use** (such as Grice's 1975 Cooperative Principle and its associated maxims, which represent a series of statements summarising the assumptions that speakers and hearers make in order to communicate successfully). This dichotomy between knowledge of language and use of language, where only the former is modelled within the language component, is consistent with the emphasis within formal approaches on the mental representation of linguistic knowledge rather than situated language use. Table 7.1 summarises the dictionary view.

It is worth mentioning here that word meaning is only 'half' of what traditional semantics is about. While lexical semantics is concerned with describing the meanings of individual words as well as the relationships between them: **lexical relations** or **sense relations** such as **synonymy**, **antonymy** and **homonymy** (see Murphy 2003 for an overview), the other 'half' of semantics involves sentence meaning or **compositional semantics**. This relates to the

Table 7.1 The dictionary view of key distinctions in the study and representation of meaning

Dictionary (linguistic) knowledge	Encyclopaedic (non-linguistic) knowledge
Concerns **sense** (what words mean)	Concerns **reference** (what speakers do with words)
Relates to the discipline **semantics**	Relates to the discipline **pragmatics**
Is stored in the **mental lexicon**	Is governed by **principles of language use**

study of the ways in which individual lexical items combine in order to produce sentence meaning. While the two areas are related (words, after all, contribute to the meaning of sentences), the two 'halves' of traditional semantics are often seen as separate subdisciplines, with many linguists specialising in one area or the other. We return to a discussion of the formal approach to sentence meaning in Chapter 13. In cognitive semantics, the distinction between lexical and compositional semantics is not seen as a useful division. There are a number of reasons for this, which we will return to shortly (section 7.1.3).

7.1.2 Problems with the dictionary view

According to the perspective adopted in cognitive semantics, the strict separation of lexical knowledge from 'world' knowledge is problematic in a number of ways. To begin with, the dictionary view assumes that word meanings have a semantic 'core', the 'essential' aspect of a word's meaning. This semantic core is distinguished from other non-essential aspects of the word's meaning, such as the associations that a word brings with it (recall our discussion of *bachelor*). Indeed, this distinction is axiomatic for many semanticists, who distinguish between a word's **denotation** (the set of entities in the world that a word can refer to) and its **connotation** (the associations evoked by the word). For example, the denotation of *bachelor* is the set of all unmarried adult males, while the connotations evoked by *bachelor* relate to cultural stereotypes concerning sexual and domestic habits and so on. Let's consider another example. Most speakers would agree that the words *bucket* and *pail* share the same denotation: the set of all cylindrical vessels with handles that can be used to carry water. These words share the same denotation because they are **synonyms**. Thus either of these lexical items could refer to the entity depicted in Figure 7.1.

However, while *bucket* and *pail* have the same (or at least very similar) denotations, for speakers who have both these words in their dialects they have very different connotations. For these speakers, a pail can be metal or wooden but not plastic, and it is associated with vessels of a certain size (for example, a child's small bucket used for making sandcastles on the beach could not be

Figure 7.1 Bucket or pail?

described as a pail). It follows from this that *pail* also shows a different linguistic distribution from its synonym. For example, it does not participate in the same collocational expressions as *bucket*: we can say *bucket and spade* but not *pail and spade*. Given these observations, cognitive linguists argue that the decision to exclude certain kinds of information from the 'core' meaning or denotation of a word, while including other kinds information, is arbitrary: on what basis is it decided that a particular piece of information is 'core' or 'non-core'?

The second way in which cognitive linguists argue that the dictionary view is problematic relates to background knowledge. The dictionary view assumes that words, although related to other words by lexical relations like synonymy and so on, can nevertheless be defined in a context-independent way. In contrast, a number of scholars, such as Fillmore (1975, 1977, 1982, 1985a and Fillmore and Atkins 1992) and Langacker (1987) have presented persuasive arguments for the view that words in human language are never represented independently of context. Instead, these linguists argue that words are always understood with respect to **frames** or **domains** of experience.

As we will see in detail below, a frame or domain represents a schematisation of experience (a knowledge structure), which is represented at the conceptual level and held in long-term memory, and which relates elements and entities associated with a particular culturally-embedded scene, situation or event from human experience. According to Fillmore and Langacker, words (and grammatical constructions) are relativised to frames and domains so that the 'meaning' associated with a particular word (or grammatical construction) cannot be understood independently of the frame with which it is associated. For example, the word *aorta* relates to a particular lexical concept, but this lexical concept cannot be understood without the frame of the MAMMALIAN CIRCULATORY SYSTEM. We explore these ideas in detail below (section 7.2–7.3).

The third problem that cognitive linguists identify with the dictionary view is the dichotomy between sense and reference. As we have seen, this view restricts linguistic meaning to a word's sense. From the perspective of the usage-based approach adopted in cognitive linguistics (recall Chapter 4), this dichotomy is problematic because a word's sense, what we have called **coded meaning**, is a function of language use or **pragmatic meaning**. In other words, the usage-based view holds that a word only comes to be meaningful as a consequence of use. This view stands in direct opposition to the dictionary view, which holds that a word's meaning or sense is primary and determines how it can be used.

Cognitive semanticists argue that the division of linguistic meaning into semantics (context-independent meaning) and pragmatics (context-dependent meaning) is also problematic. This dichotomy arises for historical as well as theoretical reasons. The discipline of semantics originated with the ancient Greek philosophers and was only recognised as a subdiscipline of linguistics as

recently as the nineteenth century. Until this point linguists had concerned themselves mainly with describing the observable structural properties of language (grammar and phonology). Indeed, as recently as the twentieth century the famous American linguist Leonard Bloomfield (1933: 140) described the study of semantics as 'the weak point in language study'. The 'mentalist' approach to linguistics pioneered by Chomsky gave rise to a new interest in linguistic meaning as part of the competence of the native speaker, but due to the historical development of the discipline within the philosophical tradition, the resulting formal models tended to emphasise only those aspects of meaning that could be 'neatly packaged' and modelled within the truth-conditional paradigm (see Chapter 13), hence the predominance of the dictionary view. Meanwhile, in the 1950s and 1960s, the **natural language philosophers** such as Austin and Grice, who argued that the truth-conditional model was artificially limiting the study of linguistic meaning, began to focus attention on the principles that governed the use of language in interactive contexts. For this reason, pragmatics emerged as a largely independent approach, and has often been seen as peripheral with respect to the concerns of formal linguistics, which relate to modelling knowledge of language rather than use of language, or competence rather than performance. An important exception to this generalisation is the Relevance Theory model, developed by Sperber and Wilson (1995). We will consider this approach in Chapter 13.

As many linguists have argued, imposing a principled distinction between semantics and pragmatics results in a rather artificial boundary between the two types of meaning. After all, context of use is often critical to the meaning associated with words, and some linguistic phenomena cannot be fully explained by either a semantic or a pragmatic account in isolation. For example, Saeed (2003) makes this point in relation to **deictic** expressions: words like *bring* and *take*, and *today* and *tomorrow*. These expressions clearly have 'semantic' content, yet their meaning cannot be fully determined in isolation from context. Levinson (1983: 55) provides a revealing example. Imagine you are on a desert island and you find this message in a bottle washed up on the beach. The message reads *Meet me here a week from now with a stick about this big*. This example illustrates the dependence of deictic expressions on contextual information. Without knowing the person who wrote the message, where the note was written or the time at which it was written, you cannot fully interpret *me*, *here* or *a week from now*. Observe that we also rely upon visual signals to interpret expressions like *this big*, where the speaker would hold his or her hands a certain distance apart to indicate the size of the object being described. Such expressions are not fully meaningful in the absence of this visual information. It is the deictic or context-dependent properties of expressions like these that also explain why it is less than helpful for a shopkeeper to go out for lunch and leave a sign on the door reading *Back in an hour!*

In view of these observations, cognitive semanticists argue that the dichotomy between semantics and pragmatics represents an arbitrary distinction: linguistic knowledge cannot be separated in a principled way from 'world' knowledge, nor can 'semantic' knowledge be separated from 'pragmatic' knowledge. From the cognitive perspective, the kinds of knowledge subsumed under these headings constitute a continuum. The encyclopaedic view adopted within cognitive semantics assumes that there are no principled distinctions of the kind discussed here, but that any apparent distinctions are simply a matter of degree. In other words, while there are conventional meanings associated with words (the **coded meanings** we discussed in Chapter 4), these are abstracted from the range of contexts of use associated with any given lexical item. Furthermore, words are sometimes used in ways that are only partially sanctioned by these coded meanings: language use is often partly innovative, for the reasons laid out in Chapter 4. Moreover, the degree to which any given usage of a coded meaning is innovative varies according to contextual factors.

7.1.3 Word meaning versus sentence meaning

Before elaborating the encyclopaedic view of meaning, we first briefly return to the traditional distinction between word meaning (lexical semantics) and sentence meaning (compositional semantics). As noted above, cognitive semanticists also view this distinction as artificial. There are a number of reasons for this position, which we briefly review here.

Word meaning is protean in nature

The traditional distinction between lexical and compositional semantics is based on the assumption that word meanings combine, together with the grammatical structure of the sentence, to produce sentence meaning. This is known as the **principle of compositionality**. The way the 'division of labour' works in most formal approaches is that lexical semanticists work out how to represent the meanings of words, while compositional semanticists work out the principles governing the combination of words into larger units of meaning and the relationships between words within those larger units.

From the perspective of cognitive semantics, the problem with the compositional view of sentence meaning is that word meanings cannot be precisely defined in the way that is required by this approach. Instead, cognitive semanticists argue that, while words do have relatively well-entrenched meanings stored in long-term memory (the coded meaning), word meaning in language is 'protean' in nature. This means that the meaning associated with a single word is prone to shift depending on the exact context of use. Thus cognitive semanticists argue that the meaning of any given word is constructed 'on line'

in the context in which it is being used. We saw an example illustrating this when we discussed various uses of the word *safe* in Chapter 5. One problem with the compositional view of sentence meaning, then, is that it relies upon the assumption that the context-independent meanings associated with words can be straightforwardly identified.

The conceptual nature of meaning construction

The second problem with dividing semantics into the study of word meaning on the one hand and sentence meaning on the other relates to **meaning construction**, which has traditionally been regarded as the remit of compositional semantics. Meaning construction is the process whereby language encodes or represents complex units of meaning; therefore this area relates to sentence meaning rather than word meaning. The principle of compositionality assumes that words 'carry' meaning in neatly packaged self-contained units, and that meaning construction results from the combination of these smaller units of meaning into larger units of meaning within a given grammatical structure. However, as we have begun to see, cognitive semanticists argue that words are **prompts** for meaning construction rather than 'containers' that carry meaning. Furthermore, according to this view, language actually represents highly underspecified and impoverished prompts relative to the richness of conceptual structure that is encoded in semantic structure: these prompts serve as 'instructions' for conceptual processes that result in meaning construction. In other words, cognitive linguists argue that meaning construction is primarily conceptual rather than linguistic in nature. From this perspective, if meaning construction is conceptual rather than linguistic in nature, and if words themselves do not 'carry' meaning, then the idea that sentence meaning is built straightforwardly out of word meanings is largely vacuous. We will explore these ideas further in Chapters 11 and 12 where we address meaning construction in detail.

Grammatical constructions are independently meaningful

Finally, as we saw in Part I of the book and as will see in detail in Part III, cognitive linguistics adopts the **symbolic thesis** with respect to linguistic structure and organisation. This thesis holds that linguistic units are form-meaning pairings. This idea is not new in linguistics: indeed, it has its roots in the influential work of the Swiss linguist Ferdinand de Saussure (1857–1913) and is widely accepted by linguists of all theoretical persuasions. The innovation in cognitive linguistics is that this idea is extended beyond words to larger constructions including phrases and whole sentences. According to this view, it is not just words that bring meaning to sentences, but the grammatical properties

of the sentence are also meaningful in their own right. In one sense, this does not appear significantly different from the compositional view: all linguists recognise that *George loves Lily* means something different from *Lily loves George*, for example, and this is usually explained in terms of grammatical functions like subject and object which are positionally identified in a language like English. However, the claim made in cognitive linguistics is stronger than the claim that grammatical structure contributes to meaning via the structural identification of grammatical functions like subject and object. The cognitive claim is that grammatical constructions and grammatical functions are themselves inherently meaningful, independently of the content words that fill them. From this perspective, the idea that sentence meaning arises purely from the composition of smaller units of meaning into larger ones is misleading. We look in detail at the idea that grammatical constructions are meaningful in Part III of the book.

7.1.4 The encyclopaedic view

For the reasons outlined in the previous section, cognitive semanticists reject the 'dictionary view' of word meaning in favour of the 'encyclopaedic view'. Before we proceed with our investigation of the encyclopaedic view, it is worth emphasising the point that, while the dictionary view represents a model of the knowledge of linguistic meaning, the encyclopaedic view represents a model of the system of conceptual knowledge that underlies linguistic meaning. It follows that this model takes into account a far broader range of phenomena than purely linguistic phenomena, in keeping with the 'Cognitive Commitment'. This will become evident when we look at Fillmore's theory of frames (section 7.2) and Langacker's theory of domains (section 7.3). There are a number of characteristics associated with this model of the knowledge system, which we outline in this section:

1. There is no principled distinction between semantics and pragmatics.
2. Encyclopaedic knowledge is structured.
3. There is a distinction between encyclopaedic meaning and contextual meaning.
4. Lexical items are points of access to encyclopaedic knowledge.
5. Encyclopaedic knowledge is dynamic.

There is no principled distinction between semantics and pragmatics

Firstly, cognitive semanticists reject the idea that there is a principled distinction between 'core' meaning on the one hand, and pragmatic, social or cultural meaning on the other. This means that, among other things, cognitive

semanticists do not make a sharp distinction between semantic and pragmatic knowledge. Knowledge of what words mean and knowledge about how words are used are both types of 'semantic' knowledge, according to this view. This is why cognitive semanticists study such a broad range of (linguistic and non-linguistic) phenomena in comparison to traditional or formal semanticists, and this also explains why there is no chapter in this book called 'cognitive pragmatics'. This is not to say that the existence of pragmatic knowledge is denied. Instead, cognitive linguists claim that semantic and pragmatic knowledge cannot be clearly distinguished. As with the lexicon-grammar continuum, semantic and pragmatic knowledge can be thought of in terms of a continuum. While there may be qualitative distinctions at the extremes, it is often difficult in practice to draw a sharp distinction.

Cognitive semanticists do not posit an autonomous mental lexicon that contains semantic knowledge separately from other kinds of (linguistic or non-linguistic) knowledge. It follows that there is no distinction between dictionary knowledge and encyclopaedic knowledge: there is only encyclopaedic knowledge, which subsumes what we might think of as dictionary knowledge.

The reason for adopting this position follows, in part, from the usage-based perspective developed in Chapter 4. The usage-based thesis holds, among other things, that context of use guides meaning construction. It follows from this position that word meaning is a consequence of language use, and that pragmatic meaning, rather than coded meaning, is 'real' meaning. Coded meaning, the stored mental representation of a lexical concept, is a **schema**: a skeletal representation of meaning abstracted from recurrent experience of language use. If meaning construction cannot be divorced from language use, then meaning is fundamentally pragmatic in nature because language in use is situated, and thus contextualised, by definition. As we have seen, this view is in direct opposition to the traditional view, which holds that definitional meaning is the proper subject of semantic investigation while pragmatic meaning relies upon non-linguistic knowledge.

Encyclopaedic knowledge is structured

The view that there is only encyclopaedic knowledge does not entail that the knowledge we have connected to any given word is a disorganised chaos. Cognitive semanticists view encyclopaedic knowledge as a structured system of knowledge, organised as a network, and not all aspects of the knowledge that is, in principle, accessible by a single word has equal standing. For example, what we know about the word *banana* includes information concerning its shape, colour, smell, texture and taste; whether we like or hate bananas; perhaps information about how and where bananas are grown and harvested; details relating to funny cartoons involving banana skins; and so on. However, certain

aspects of this knowledge are more **central** than others to the meaning of *banana*.

According to Langacker (1987), centrality relates to how **salient** certain aspects of the encyclopaedic knowledge associated with a word are to the meaning of that word. Langacker divides the types of knowledge that make up the **encyclopaedic network** into four types: (1) **conventional**; (2) **generic**; (3) **intrinsic**; and (4) **characteristic**. While these types of knowledge are in principle distinct, they frequently overlap, as we will show. Moreover, each of these kinds of knowledge can contribute to the relative salience of particular aspects of the meaning of a word.

The conventional knowledge associated with a particular word concerns the extent to which a particular facet of knowledge is shared within a linguistic community. Generic knowledge concerns the degree of generality (as opposed to specificity) associated with a particular word. Intrinsic knowledge is that aspect of a word's meaning that makes no reference to entities external to the referent. Finally, characteristic knowledge concerns aspects of the encyclopaedic information that are characteristic of or unique to the class of entities that the word designates. Each of these kinds of knowledge can be thought of as operating along a continuum: certain aspects of a word's meaning are more or less conventional, or more or less generic, and so on, rather than having a fixed positive or negative value for these properties.

Conventional knowledge

Conventional knowledge is information that is widely known and shared between members of a speech community, and is thus likely to be more central to the mental representation of a particular lexical concept. The idea of conventional knowledge is not new in linguistics. Indeed, the early twentieth-century linguist Ferdinand de Saussure (1916), who we mentioned earlier in relation to the symbolic thesis, also observed that conventionality is an important aspect of word meaning: given the **arbitrary** nature of the sound–meaning pairing (in other words, the fact that there is nothing intrinsically meaningful about individual speech sounds, and therefore nothing predictable about why a certain set of sounds and not others should convey a particular meaning), it is only because members of a speech community 'agree' that a certain word has a particular meaning that we can communicate successfully using language. Of course, in reality this 'agreement' is not a matter of choice but of learning, but it is this 'agreement' that represents conventionality in the linguistic sense.

For instance, conventional knowledge relating to the lexical concept BANANA might include the knowledge that some people in our culture have bananas with their lunch or that a banana can serve as a snack between meals. An example of non-conventional knowledge concerning a banana might be that the one you ate this morning gave you indigestion.

Generic knowledge

Generic knowledge applies to many instances of a particular category and therefore has a good chance of being conventional. Generic knowledge might include our knowledge that yellow bananas taste better than green bananas. This knowledge applies to bananas in general and is therefore generic. Generic knowledge contrasts with specific knowledge, which concerns individual instances of a category. For example, the knowledge that the banana you peeled this morning was unripe is specific knowledge, because it is specific to this particular banana. However, it is possible for large communities to share specific (non-generic) knowledge that has become conventional. For instance, generic knowledge relating to US presidents is that they serve a term of four years before either retiring or seeking re-election. This is generic knowledge, because it applies to US presidents in general. However, a few presidents have served shorter terms. For instance, John F. Kennedy served less than three years in office. This is specific knowledge, because it relates to one president in particular, yet it is widely known and therefore conventional. In the same way that specific knowledge can be conventional, generic knowledge can also be non-conventional, even though these may not be the patterns we expect. For example, while scientists have uncovered the structure of the atom and know that all atoms share a certain structure (generic knowledge), the details of atomic structure are not widely known by the general population.

Intrinsic knowledge

Intrinsic knowledge relates to the internal properties of an entity that are not due to external influence. Shape is a good example of intrinsic knowledge relating to objects. For example, we know that bananas tend to have a characteristic curved shape. Because intrinsic knowledge is likely to be generic, it has a good chance of being conventional. However, not all intrinsic properties (for example, that bananas contain potassium) are readily identifiable and may not therefore be conventional. Intrinsic knowledge contrasts with extrinsic knowledge. Extrinsic knowledge relates to knowledge that is external to the entity: for example, the knowledge that still-life artists often paint bananas in bowls with other pieces of fruit relates to aspects of human culture and artistic convention rather than being intrinsic to bananas.

Characteristic knowledge

This relates to the degree to which knowledge is unique to a particular class of entities. For example, shape and colour may be more or less characteristic of an entity: the colour yellow is more characteristic of bananas than the colour red is characteristic of tomatoes, because fewer types of fruit are yellow than red (at least, in the average British supermarket). The fact that we can eat bananas is not characteristic, because we eat lots of other kinds of fruit.

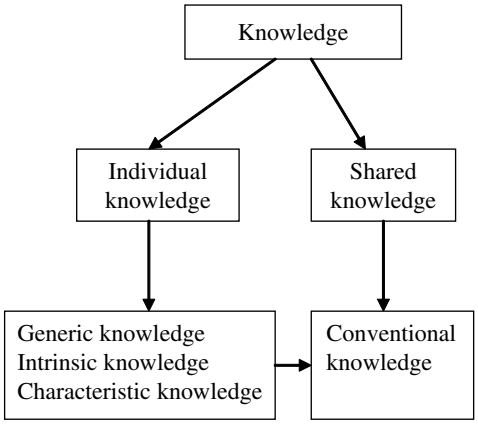


Figure 7.2 Identifying knowledge types which give rise to centrality

The four types of knowledge we have discussed thus far relate to four continua, which are listed below. Knowledge can fall at any point on these continua, so that something can be known by only one person (wholly non-conventional) known by the entire discourse community (wholly conventional) or somewhere in between (for example, known by two people, a few people or many but not all people.

1. Conventional ⟷ Non-conventional
2. Generic ⟷ Specific
3. Intrinsic ⟷ Extrinsic
4. Characteristic ⟷ Non-characteristic

Of course, conventionality versus non-conventionality stands out in this classification of knowledge types because it relates to how widely something is known whereas the other knowledge types relate to the nature of the lexical concepts themselves. Thus it might seem that conventional knowledge is the most 'important' or 'relevant' kind when in fact it is only one 'dimension' of encyclopaedic knowledge. Figure 7.2 represents the interaction between the knowledge types discussed here. As this diagram illustrates, while generic, intrinsic and characteristic knowledge can be conventional (represented by the arrow going from the box containing these types of knowledge to the box containing conventional knowledge) they need not be. Conventional knowledge, on the other hand, is, by definition, knowledge that is shared.

Finally, let's turn to the question of how these distinct knowledge types influence **centrality**. The centrality of a particular aspect of knowledge for a linguistic expression will always be dependent on the precise context in which the expression is embedded and on how well established the knowledge

Table 7.2 Four kinds of knowledge that relate to the centrality of encyclopaedic knowledge of word meaning

Conventional knowledge	Knowledge that is widely known
Generic knowledge	Knowledge that is general rather than specific in nature
Intrinsic knowledge	Knowledge deriving from the form of the entity or relation in question
Characteristic knowledge	Knowledge that is (relatively) unique to the entity or relation in question

element is in memory. Moreover, the closer knowledge is to the left-hand side of the continua we listed above, the more salient that knowledge is and the more central that knowledge is to the meaning of a lexical concept. For example, for Joe Bloggs, the knowledge that bananas have a distinctive curved shape is conventional, generic, intrinsic and characteristic, and is therefore highly salient and therefore central to his knowledge about bananas and to the meaning of the lexical concept BANANA. The knowledge that Joe Bloggs has that he once peeled a banana and found a maggot inside is non-conventional, specific, extrinsic and non-characteristic, and hence is much less salient and less central to his knowledge about bananas. We summarise the four categories of encyclopaedic knowledge in Table 7.2.

There is a distinction between encyclopaedic meaning and contextual meaning

The third issue concerning the encyclopaedic view relates to the distinction between **encyclopaedic meaning** and **contextual meaning** (or situated meaning). Encyclopaedic meaning arises from the interaction of the four kinds of knowledge discussed above. However, encyclopaedic meaning arises in the context of use, so that the 'selection' of encyclopaedic meaning is informed by contextual factors. For example, recall our discussion of *safe* in Chapter 5. We saw that this word can have different meanings depending on the particular context of use: *safe* can mean 'unlikely to cause harm' when used in the context of a child playing with a spade, or *safe* can mean 'unlikely to come to harm' when used in the context of a beach that has been saved from development as a tourist resort. Similarly, the phenomenon of frame-dependent meaning briefly mentioned earlier suggests that the discourse context actually guides the nature of the encyclopaedic information that a lexical item prompts for. For instance, the kind of information evoked by use of the word *foot* will depend upon whether we are talking about rabbits, humans, tables or mountains. This phenomenon of **contextual modulation** (Cruse 1986) arises when a particular aspect of the encyclopaedic knowledge associated with a lexical item is privileged due to the discourse context.

Compared with the dictionary view of meaning, which separates core meaning (semantics) from non-core meaning (pragmatics), the encyclopaedic view makes very different claims. Not only does semantics include encyclopaedic knowledge, but meaning is fundamentally 'guided' by context. Furthermore, the meaning of a word is 'constructed' on line as a result of contextual information. From this perspective, fully-specified pre-assembled word meanings do not exist, but are selected and formed from encyclopaedic knowledge, which is called the **meaning potential** (Allwood 2003) or **purport** (Cruse 2000) of a lexical item. As a result of adopting the usage-based approach, then, cognitive linguists do not uphold a meaningful distinction between semantics and pragmatics, because word meaning is always a function of context (pragmatic meaning).

From this perspective, there are a number of different kinds of **context** that collectively serve to modulate any given instance of a lexical item as it occurs in a particular **usage event**. These types of context include (but are not necessarily limited to): (1) the **encyclopaedic information** accessed (the lexical concept's context within a network of stored knowledge); (2) **sentential context** (the resulting sentence or utterance meaning); (3) **prosodic context** (the intonation pattern that accompanies the utterance, such as rising pitch to indicate a question); (4) **situational context** (the physical location in which the sentence is uttered); and (5) **interpersonal context** (the relationship holding at the time of utterance between the interlocutors). Each of these different kinds of context can contribute to the contextual modulation of a particular lexical item.

Lexical items are points of access to encyclopaedic knowledge

The encyclopaedic model views lexical items as **points of access** to encyclopaedic knowledge. According to this view, words are not containers that present neat pre-packaged bundles of information. Instead, they provide access to a vast network of encyclopaedic knowledge.

Encyclopaedic knowledge is dynamic

Finally, it is important to note that while the central meaning associated with a word is relatively stable, the encyclopaedic knowledge that each word provides access to, its encylopaedic network, is dynamic. Consider the lexical concept CAT. Our knowledge of cats continues to be modified as a result of our ongoing interaction with cats, our acquisition of knowledge regarding cats, and so on. For example, imagine that your cat comes home looking extremely unwell, suffering from muscle spasms and vomits a bright blue substance. After four days in and out of the animal hospital (and an extremely large vet's bill) you

will have acquired the knowledge that metaldehyde (the chemical used in slug pellets) is potentially fatal to cats. This information now forms part of your encyclopaedic knowledge prompted by the word *cat*, alongside the central knowledge that cats are small fluffy four-legged creatures with pointy ears and a tail.

7.2 Frame semantics

Having provided an overview of what an encyclopaedic view of word meaning entails, we now present the theory of Frame Semantics, one theory that has influenced the encyclopaedic model adopted within cognitive semantics. This approach, developed by Charles Fillmore (1975, 1977, 1982, 1985a; Fillmore and Atkins 1992), attempts to uncover the properties of the structured inventory of knowledge associated with words, and to consider what consequences the properties of this knowledge system might have for a model of semantics.

7.2.1 What is a semantic frame?

As we saw in Chapter 5, Fillmore proposes that a **frame** is a schematisation of experience (a knowledge structure), which is represented at the conceptual level and held in long-term memory. The frame relates the elements and entities associated with a particular culturally embedded scene from human experience. According to Fillmore, words and grammatical constructions are relativised to frames, which means that the 'meaning' associated with a particular word (or grammatical construction) cannot be understood independently of the frame with which it is associated. In his 1985a article, Fillmore adopts the terms **figure** and **ground** from Gestalt psychology in order to distinguish between a particular lexical concept (the specific meaning designated by a lexical item) and the background frame against which it is understood. The specific meaning designated by a lexical item is represented by the figure, and is a salient subpart of a larger frame, which represents the ground relative to which the figure is understood. Frames thus represent a complex knowledge structure that allows us to understand, for example, a group of related words and that also plays a role in licensing their grammatical behaviour in sentences.

7.2.2 Frames in cognitive psychology

Before developing Fillmore's theory of semantic frames in more detail, we begin by exploring the development of this idea in cognitive psychology. This will enable us to obtain a richer picture of the kind of conceptual entity that Fillmore assumes as the basis of his theory. In psychology, the basic unit of

knowledge is the **concept**. Theories of **knowledge representation** attempt to model the kinds of concepts that people appear to have access to, including the relationships holding between concepts and the kinds of operations that people use concepts for such as categorisation judgements (explored in more detail in the next chapter) and conceptualisation or meaning construction (explored in Chapters 11 and 12).

A common system for modelling knowledge representation is the **feature list approach**. This entails listing the range of distinct features or attributes associated with a particular concept. From this perspective, we might hypothesise that the concept of CAR, for instance, has a range of features or attributes associated with it that relate to its parts (wheel, tyre, windscreen, bonnet, boot, steering wheel, engine and so on), as well as the fact that cars require petrol or diesel in order to function, are driven by humans who must first obtain a driving licence and so on. However, one of the problems associated with modelling knowledge solely in terms of feature lists is that people's knowledge regarding conceptual entities is relational. For example, we know that cars have engines which provide the mechanism for moving the vehicle. We also know that this motion is effected by the engine causing the axles to turn which then causes the wheels to turn. Moreover, we know that unless a driver is operating the vehicle, which involves turning on the ignition, the engine will not start in the first place. Thus a serious problem with viewing a concept as a straightforward list of features is that there is no obvious way of modelling how the relationships between the components of the list might be represented. The theory of frames represents an attempt to overcome this shortcoming.

Since Bartlett's (1932) theory of **schemata**, there has been a tradition in cognitive psychology of modelling knowledge representation in terms of frames. We will base our discussion of frames on a recent version of this theory proposed by Lawrence Barsalou (1992a, 1992b), who defines frames as complex conceptual structures that are used to 'represent all types of categories, including categories for animates, objects, locations, physical events, mental events and so forth' (Barsalou 1992a: 29). According to this view, frames are the basic mode of knowledge representation. They are continually updated and modified due to ongoing human experience, and are used in reasoning in order to generate new inferences. Below, we describe two basic components of frames: **attribute-value** sets and **structural invariants**. In order to illustrate these notions, we present a vastly simplified frame for CAR. This is illustrated in Figure 7.3.

Attributes and values

We begin by examining the ideas of **attribute** and **value**. Barsalou (1992a: 30) defines an attribute as 'a concept that describes an aspect of at least some

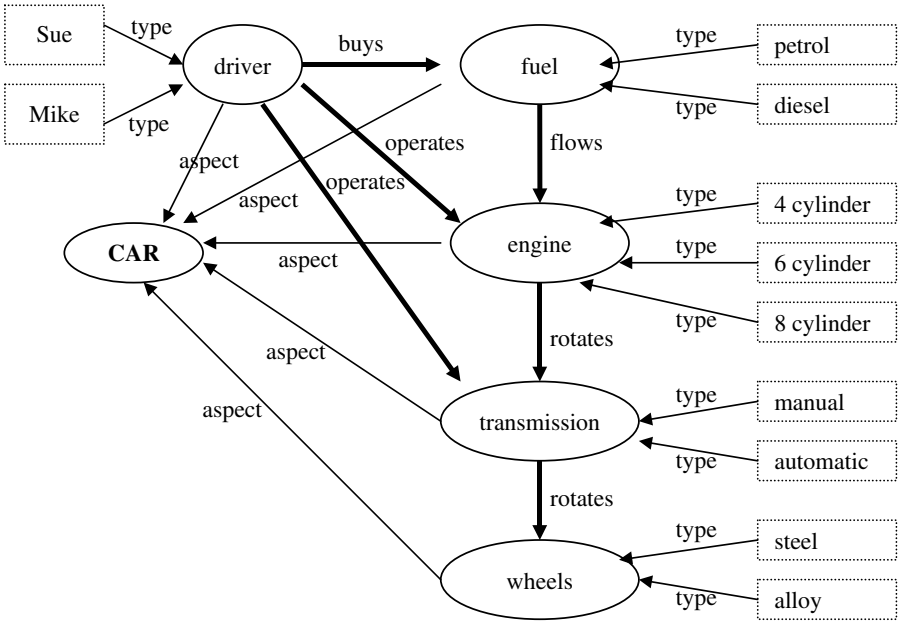


Figure 7.3 A partial frame for CAR (adapted from Barsalou 1992a: 30)

category members'. For instance, ENGINE represents one aspect of the members of the category CAR, as do DRIVER, FUEL, TRANSMISSION and WHEELS. An attribute is therefore a concept that represents one aspect of a larger whole. Attributes are represented in Figure 7.3 as ovals. Values are subordinate concepts which represent subtypes of an attribute. For instance, SUE and MIKE are types of DRIVER; PETROL and DIESEL are types of FUEL; MANUAL and AUTOMATIC are types of TRANSMISSION, and so on. Values are represented as dotted rectangles in Figure 7.3. Crucially, while values are more specific than attributes, a value can also be an attribute because it can also have subtypes. For instance, PETROL is an attribute to the more specific concepts UNLEADED PETROL and LEADED PETROL which are values of PETROL. Attributes and values are therefore superordinate and subordinate concepts within a taxonomy: subordinate concepts, or values, which are more specific inherit properties from the superordinate concepts, or attributes, which are more general.

Structural invariants

As Barsalou observes, 'Attributes in a frame are not independent slots but are often related correlationally and conceptually . . . a frame's core attributes correlate highly, often appearing together across contexts' (Barsalou 1992a: 35). In other words, attributes within a frame are related to one another in consistent

ways across **exemplars**: individual members of a particular category. For example, in most exemplars of the category CAR it is the driver who controls the speed of the ENGINE. This relation holds across most instances of cars, irrespective of the values involved, and is therefore represented in the frame as a **structural invariant**: a more or less invariant relation between attributes DRIVER and ENGINE. In Figure 7.3, structural invariants are indicated by bold arrows.

Simulations

The final issue that remains to be addressed is the dynamic quality associated with frames. Humans have the ability to imagine or **simulate** a conceptual entity, such as an action involving a particular object, based on a particular frame. For example, we can mentally simulate the stages involved in filling a car up with petrol, including mentally rehearsing the actions involved in taking the petrol cap off, removing the petrol nozzle from the pump, placing it in the petrol tank, pressing the lever so that the petrol flows into the tank, and so on. The most recent theories of knowledge representation attempt to account for this ability. This is an issue we will return to later in the chapter, once we have investigated two theories that are specifically concerned with semantic knowledge representation: conceptual structure as it is encoded in language.

7.2.3 The COMMERCIAL EVENT frame

We now return to our discussion of Fillmore's theory of semantic frames. The semantic frame is a knowledge structure required in order to understand a particular word or related set of words. Consider the related group of words *buy, sell, pay, spend, cost, charge, tender, change*, and so on. Fillmore argues that in order to understand these words, we need access to a COMMERCIAL EVENT frame which provides 'the background and motivation for the categories which these words represent' (Fillmore 1982: 116–17). Recall the PURCHASING GOODS frame that we discussed in Chapter 5; this is a subpart of the COMMERCIAL EVENT frame. The COMMERCIAL EVENT frame includes a number of attributes called **participant roles** which must, at the very least, include BUYER, SELLER, GOODS and MONEY. This skeletal frame is represented in Figure 7.4.

According to Fillmore, **valence** is one of the consequences of a frame like this. Valence concerns the ways in which lexical items like verbs can be combined with other words to make grammatical sentences. More precisely, the valence (or **argument structure**) of a verb concerns the number of participants or **arguments** required, as well as the nature of the arguments, that is the **semantic roles** assumed by those participants. For example, *buy* is typically

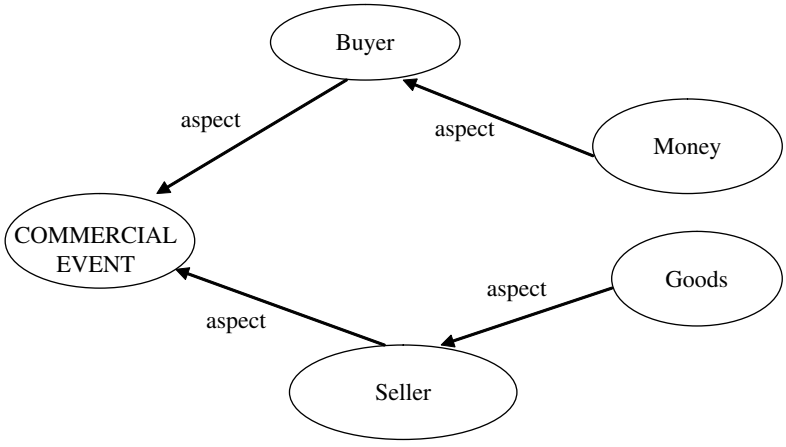


Figure 7.4 Partial COMMERCIAL EVENT frame

'divalent' which means that it requires two participants, the BUYER and the GOODS. *Pay*, on the other hand, is typically 'trivalent', which means that it requires three participants: the BUYER, the SELLER and the GOODS. Observe that valence is not a stable feature of verbs, however. *Pay* could also occur in a sentence with two participants (*I paid five hundred pounds*) or with four participants (*I paid John five pounds for that pile of junk*). While *buy* and *pay* relate to the actions of the BUYER, *buy* relates to the interaction between the BUYER and the GOODS, while *pay* relates to the interaction between the BUYER and the SELLER. This knowledge, which is a consequence of the COMMERCIAL EVENT frame, has consequences for grammatical organisation (recall our discussion of *rob* and *steal* in Chapter 5). Consider the following sentences:

(1) a. John bought the car (from the salesperson).
    b. *John bought the salesperson

(2) a. John paid the salesperson (for the car).
    b. *John paid the car

The sentences in (1) demonstrate that *bought* and *paid* take the same number of arguments. These are realised as subject and object, and optionally as **oblique object**: an object like *from the salesperson* which is introduced by a preposition. The verb *bought* profiles a relation between the participant roles BUYER and GOODS, not a relation between BUYER and SELLER. This explains why the sentence in (1b) is ungrammatical. Of course, if we invoke a SLAVE TRADE frame then (1b) might be acceptable on the interpretation that *the salesperson* represents the GOODS role. Example (2) shows that the verb *pay* relates the BUYER role with the SELLER role rather than the GOODS role. In addition, *pay* can also

prompt for a relation between BUYER and AMOUNT PAID, or between BUYER, SELLER and AMOUNT PAID, as illustrated by examples (3) and (4), respectively.

(3) John paid £2,000 (for the car).

(4) John paid the salesperson £1,000 (for the car).

These examples demonstrate that *pay* relates to that aspect of the COMMERCIAL EVENT frame involving the transfer of money from BUYER to SELLER in order to receive the GOODS. The frame thus provides a structured set of relationships that define how lexical items like *pay* and *buy* are understood and how they can be used. As we have seen, this has consequences for the grammatical behaviour of these lexical items. Indeed, frames of this kind have played a central role in the development of Construction Grammar (e.g. Goldberg 1995), to which we return in Part III.

One way of interpreting the structured set of linguistic relationships licensed by the frame is to analyse the frame as a knowledge representation system that provides a potentially wide range of event sequences. According to this view, the frame provides **event-sequence potential**. Given that verbs such as *buy* and *sell* encode particular kinds of dynamic processes, we can analyse these verbs as designating particular configurations of events. According to this view, the verb selected by the speaker (for example, *buy* vs. *sell* vs. *pay*) designates a particular 'route' through the frame: a way of relating the various participant roles in order to highlight certain aspects of the frame. While some 'routes' include obligatory relationships (invariant structure), others are optional. For instance, *pay* designates a relation between BUYER and the SELLER, which has the potential to make optional reference to GOODS and MONEY. However, not all these participant roles need to be mentioned in any given sentence, and when they are not mentioned, they are 'understood' as part of the background. For example, in the sentence *I paid five pounds*, we understand that this event must also have involved a SELLER and some GOODS, even though these are not explicitly mentioned in the sentence. This knowledge derives from our knowledge of the event frame. Table 7.3 summarises the 'routes' connecting the participants encoded by verbs that are understood with respect to the COMMERCIAL EVENT frame. Brackets indicate that an element is optional and can therefore be omitted (that is, not explicitly mentioned in the sentence). The symbol Ø indicates that an element cannot be included in the sentence, for example **I spent John five hundred pounds for that pile of junk*. 'I-object' indicates that an element is the indirect object: the first element in a double object construction like *I paid John five hundred pounds for that pile of junk*. 'Oblique' indicates that an element is introduced by a preposition, like *for that pile of junk*.

Table 7.3 The valence of the verbs relating to the COMMERCIAL EVENT frame (adapted from Fillmore and Atkins 1992: 79)

	BUYER	SELLER	GOODS	MONEY
buy	subject	(oblique)	object	(oblique)
	e.g. John bought the car (from the salesperson) (for £10,000)			
sell	(oblique)	subject	object	(oblique)
	e.g. Susan sold the car (to John) (for £10,000)			
charge	(I-object)	subject	(oblique)	object
	e.g. Susan charged (John) £10,000 (for the car)			
spend	subject	Ø	(oblique)	object
	e.g. John spent £10,000 (on the car)			
pay	subject	(I-object)	(oblique)	object
	e.g. John paid (Susan) £10,000 (for the car)			
pay	subject	(oblique)	(oblique)	object
	e.g. John paid £10,000 (to Susan) (for the car)			
cost	(I-object)	Ø	subject	object
	e.g. The car cost (John) £10,000			

7.2.4 Speech event frames

While semantic frames like the COMMERCIAL EVENT frame describe a knowledge inventory independent of the speech event, a second kind of frame provides a means of framing the discourse or communication context. This type of frame is called the **speech event frame**. These frames schematise knowledge about types of interactional context which contribute to the interpretation and licensing of particular lexical items and grammatical constructions. For example, we have speech event frames for fairytales, academic lectures, spoken conversations, obituaries, newspaper reports, horoscopes and business letters, among others. In other words, these speech event frames contain schematic knowledge about **styles** or **registers** of language use. It is important to point out that while these frames are described as 'speech event frames', they encompass not only events relating to spoken language, but also events relating to written language. Each of these provides a means of framing a particular type of linguistic interaction, with respect to which choices about language and style (including choices about vocabulary and grammatical constructions) can be made and understood. Indeed, many lexical items explicitly index a specific speech event frame, like the English expression *once upon a time*, which indexes the generic FAIRYTALE frame, bringing with it certain expectations. Speech event frames, then, are organised knowledge structures that are culturally embedded.

7.2.5 Consequences of adopting a frame-based model

In this section, we briefly explore some of the consequences that arise from adopting a frame-based model of encyclopaedic knowledge.

Words and categories are dependent on frames

A theory based on semantic frames asserts that word meanings can only be understood with respect to frames. Fillmore (1982) provides an example of this, which relates to language change. According to semantic frame theory, words disappear from language once the frame with respect to which they are understood is superseded by a different frame. As Fillmore observes, the word *phlogiston* (meaning 'a substance without colour, odour or weight, believed to be given off in burning by all flammable materials') has now disappeared from the English language. This is because the frame against which the corresponding lexical concept was understood, a theory of combustion developed in the late seventeenth century, had, by the end of the eighteenth century, been shown to be empirically inaccurate. As the frame disappeared, so did the word.

Frames provide a particular perspective

The words *coast* and *shore*, while both relating to the strip of land adjacent to the sea, do so with respect to different frames: LAND DWELLING versus SEAFARING. While *coast* describes the land adjacent to the sea from the perspective of a person on land, *shore* describes the same strip of land from the perspective of a person out at sea. It follows that a trip from 'coast to coast' is an overland trip, while a trip from 'shore to shore' entails a journey across the sea or some other body of water. In this way, lexical choice brings with it a particular background frame that provides its own perspective. Fillmore calls this perspective a particular **envisionment of the world.**

Scene-structuring frames

From the frame semantics perspective, both closed-class and open-class units of language are understood with respect to semantic frames. As Fillmore observes, and as we saw in the previous chapter, cognitive semanticists view open-class semantics as 'providing the "content" upon which grammatical structure performs a "configuring" function. Thinking in this way, we can see that any grammatical category or pattern imposes its own "frame" on the material it structures' (Fillmore 1982: 123). For instance, the distinction between active and passive constructions is that they provide access to distinct scene-structuring frames. While the active takes the perspective of the AGENT in

a sentence, the passive takes the perspective of the PATIENT. This is an idea that we will explore further in Part III of the book when we address conventional schematic meanings associated with closed-class constructions of this kind.

Alternate framing of a single situation

The same situation can be viewed, and therefore linguistically encoded, in multiple ways. For example, someone who is not easily parted from his money could be described either as *stingy* or as *thrifty*. Each of these words is understood with respect to a different background frame which provides a distinct set of evaluations. While *stingy* represents a negative assessment against an evaluative frame of GIVING AND SHARING, *thrifty* relates to a frame of HUSBANDRY (management of resources), against which it represents a positive assessment. In this way, lexical choice provides a different way of framing a situation, giving rise to a different construal. In other words, language is rarely 'neutral', but usually represents a particular perspective, even when we are not consciously aware of this as language users.

7.3 The theory of domains

Langacker's theory of domains, like Fillmore's theory of Frame Semantics, is based on the assumption that meaning is encyclopaedic, and that lexical concepts cannot be understood independently of larger knowledge structures. Langacker calls these knowledge structures **domains**. Langacker's theory of domains complements Fillmore's theory of Frame Semantics in a number of ways.

7.3.1 What is a domain?

According to Langacker, 'Domains are necessarily cognitive entities: mental experiences, representational spaces, concepts, or conceptual complexes' (Langacker 1987: 147). In other words, domains are conceptual entities of varying levels of complexity and organisation. The only prerequisite that a knowledge structure has for counting as a domain is that it provides background information against which lexical concepts can be understood and used in language. For instance, expressions like *hot*, *cold* and *lukewarm* designate lexical concepts in the domain of TEMPERATURE: without understanding the temperature system, we would not be able to use these terms. In this respect, the theory of domains is very much like Fillmore's theory of frames.

However, the theory of domains adds to the theory of Frame Semantics in four important respects. Firstly, while Fillmore acknowledges that concepts can be structured in terms of multiple frames (or domains), Langacker argues

that this is actually the typical arrangement. The range of domains that structure a single lexical concept is called the **domain matrix** of that concept. Clausner and Croft illustrate this idea in the following way:

> Our commonsense knowledge about birds for example includes their shape, the fact that they are made of physical material, their activities such as flying and eating, the avian lifecycle from egg to death, etc. These aspects of the concept *bird* are specified in a variety of different domains such as SPACE, PHYSICAL OBJECTS, LIFE, TIME, and so on. (Clausner and Croft 1999: 7)

Secondly, Langacker addresses an additional level of conceptual organisation that, although implicit in Fillmore's work, was not explicitly worked out within the theory of Frame Semantics. This relates to the distinction between **basic domains** and **abstract domains**. This distinction rests upon the notion of **experiential grounding** or **embodiment** which we discussed in Chapter 6. While some basic domains like SPACE and TIME derive directly from the nature of our embodied experience, other domains like MARRIAGE, LOVE or MEDIEVAL MUSICOLOGY are more abstract, in the sense that, although they are ultimately derived from embodied experience, they are more complex in nature. For instance, our knowledge of LOVE may involve knowledge relating to basic domains, such as directly embodied experiences like touch, sexual relations and physical proximity, and may also involve knowledge relating to abstract domains, such as experience of complex social activities like marriage ceremonies, hosting dinner parties and so on. While Fillmore's theory primarily addresses abstract domains, Langacker's theory addresses both basic and abstract domains.

Thirdly, as we will see in the next section, domains are organised in a hierarchical fashion in Langacker's model. This means that a particular lexical concept can simultaneously presuppose a domain lower down the hierarchy and represent a subdomain for a lexical concept further up the hierarchy (see Figure 7.5). For example, while the concept ELBOW is understood with respect to the domain ARM, the concept ARM is understood with respect to the domain BODY. In this way, the relationship between domains reflects meronymic (part–whole) relations.

Finally, Fillmore's emphasis in developing a theory of Frame Semantics is somewhat different from Langacker's emphasis in developing a theory of domains. While Fillmore, particularly in more recent work (e.g. Fillmore and Atkins 1992), views frames as a means of accounting for grammatical behaviour like valence relations (recall examples (1)–(2)), Langacker's theory of domains is more concerned with **conceptual ontology**: the structure and organisation of knowledge, and the way in which concepts are related to and understood in terms of others.

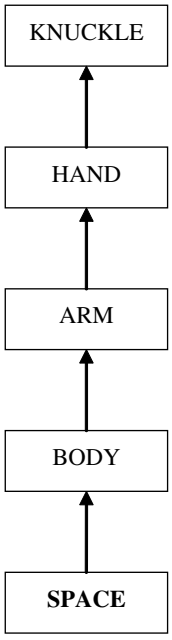


Figure 7.5 Location of the lexical concept KNUCKLE in a hierarchy of domain complexity

7.3.2 Basic, image-schematic and abstract domains

If concepts presuppose the domains against which they are understood, it follows that there is a **hierarchy of complexity** leading ultimately to domains that do not presuppose anything else. In other words, conceptual structure must ultimately be based on knowledge that is not dependent upon other aspects of conceptual organisation, otherwise the system would suffer from the problem of circularity. Domains that are not understood in terms of other domains are the basic domains we introduced above. However, given that cognitive linguists reject the idea that concepts are innately given, since this view runs counter to the cognitive theses of experientialism and emergentism, it is important to establish the origins of these basic domains. Of course, Langacker argues that basic domains derive from pre-conceptual experience, such as sensory-perceptual experience, which forms the basis of more complex knowledge domains.

In order to illustrate the theory of domains and look at how they are related, let's consider a specific example of a hierarchy of complexity. Consider the word *knuckle*. This relates to a lexical concept that is understood with respect to the domain HAND. In turn, the lexical concept HAND is understood with respect to the domain ARM. The lexical concept ARM is understood with respect to the domain BODY, and the lexical concept BODY is understood more

generally in terms of (three-dimensional) SPACE. However, it is difficult to envisage another domain in terms of which we understand SPACE. After all, SPACE is a domain that derives directly from sensory experience of the world, such as visual perception and our experience of motion and touch. Therefore SPACE appears not to be understood in terms of a further conceptual domain but in terms of fundamental pre-conceptual experience. This hierarchy of complexity is illustrated in Figure 7.5. Because SPACE is presupposed by all the concepts above it, it is situated at the lowest point in the hierarchy; because KNUCKLE requires knowledge of a greater number of domains, it is placed at the highest point in this hierarchy.

According to Langacker, then, basic domains derive from directly embodied experiences that are pre-conceptual in nature. This means that such experiences derive either from subjective or 'internal' embodied experiences like emotion, consciousness or awareness of the passage of time, or from sensory-perceptual experiences which relate to information derived from the external world. Subjective experiences and sensory-perceptual experiences are both directly embodied pre-conceptual experiences; once experienced, they are represented as concepts at the conceptual level. Of course, the reader will have noticed that this discussion is reminiscent of the discussion of image schemas that was presented in Chapter 6. Let's consider, then, how image schemas relate to Langacker's theory of domains.

Firstly, we consider in more detail what might count as basic domains and what kinds of subjective and sensory experiences might give rise to these domains. We begin with the sensory experiences that relate to the external world. Vision contributes to at least two basic domains: COLOUR and SPACE. The word 'contribute' is important here, particularly as it relates to the domain of SPACE. After all, people who are blind or partially sighted still develop concepts relating to SPACE. This means that other sensory capacities also contribute to this domain, including touch, and **kinaesthetic perception** (the ability to perceive self-motion). Other basic domains include PITCH (arising from hearing experience) and TEMPERATURE, PRESSURE and PAIN (arising from touch experience). All these domains are directly tied to sensory experience and do not presuppose other conceptual domains.

Experiences that are subjective in nature give rise to a basic domain (or domains) relating to EMOTION and TIME, among others. A (non-exhaustive) inventory of basic domains is shown in Table 7.4.

Based on our discussion so far, we can identify three attributes associated with basic domains. These are summarised in Table 7.5.

Let's now consider how basic domains relate to **image schemas**. As we saw in the previous chapter, image schemas, like basic domains, are conceptual representations that are directly tied to pre-conceptual experience. Moreover, a large number of lexical concepts appear to presuppose image schemas, also a

Table 7.4 Partial inventory of basic domains

Basic domain	Pre-conceptual basis
SPACE	Visual system; motion and position (proprioceptive) sensors in skin, muscles and joints; vestibular system (located in the auditory canal – detects motion and balance)
COLOUR	Visual system
PITCH	Auditory system
TEMPERATURE	Tactile (touch) system
PRESSURE	Pressure sensors in the skin, muscles and joints
PAIN	Detection of tissue damage by nerves under the skin
ODOUR	Olfactory (smell) system
TIME	Temporal awareness
EMOTION	Affective (emotion) system

Table 7.5 Attributes of basic domains

Basic domains:
Provide the least amount of complexity in a complexity hierarchy, where 'complexity' relates to level of detail
Are directly tied to pre-conceptual embodied experience
Provide a 'range of conceptual potential' in terms of which other concepts and domains can be understood.

characteristic of domains. For example, the CONTAINER image schema appears to underlie a number of lexical concepts that we have discussed so far throughout this book. This suggests that the CONTAINER schema might be equivalent to a domain. However, Clausner and Croft (1999) argue that image schemas, while deriving from sensory experience, are not quite the same thing as basic domains. For example, they argue that the CONTAINER image schema is a relatively complex knowledge structure, which is based on the basic domain SPACE and another image schema MATERIAL OBJECT. Therefore the CONTAINER schema does not relate to a level of **least complexity** and, according to this criterion, is not equivalent to a basic domain.

A second distinction between basic domains and image schemas relates to the idea that image schemas are abstracted from recurrent patterns of experience. It follows that image schemas are likely to contribute to the domain matrices of a wide range of concepts (a domain matrix is the network of domains that underlies a concept). In contrast, basic domains need not occur in a wide range of domain matrices. For example, compare the image schema MATERIAL OBJECT with the basic domain TEMPERATURE. Because MATERIAL OBJECT derives from

Table 7.6 Distinctions between basic domains and image schemas

Basic domain	Image schema
Occupies lowest position in the hierarchy of complexity, e.g. SPACE, TIME, TEMPERATURE, PITCH	Need not occupy lowest position in the hierarchy of complexity, e.g. UP–DOWN, FRONT–BACK, CONTAINMENT, PATH
Need not occur in a wide range of domain matrices, e.g. TEMPERATURE, ODOUR	Occurs in the widest range of domain matrices, e.g. SCALE, PROCESS, OBJECT, CONTAINMENT
Derived from subjective experience, e.g. TIME, EMOTION, or sensory-perceptual experience, e.g. SPACE, TEMPERATURE	Derived from sensory-perceptual experience only, e.g. UP–DOWN, FRONT–BACK, CONTAINMENT, SURFACE

experience of material objects, it will contribute to the domain matrix of all material objects: CAR, DESK, TABLE, CHAIR, VASE, TREE, BUILDING and so on. However, TEMPERATURE contributes to the domain matrices of a more restricted set of concepts: THERMOMETER, HOT, COLD and so on. Therefore, basic domains can have a narrower distribution within the conceptual system than image schemas.

A third distinction between basic domains and image schemas concerns the idea that all image schemas are **imagistic** in nature: they derive from sensory experience and therefore have **image content**. However, while some basic domains like SPACE and TEMPERATURE also have image content because they are based on pre-conceptual sensory experience, other basic domains like TIME are ultimately derived from subjective (introspective) experience and are not intrinsically imagistic in nature. This does not mean, however, that basic domains that arise from subjective experience cannot be conceptualised in terms of image content. For example, as we have seen, various emotional STATES can be structured in terms of the CONTAINER schema, as a result of conceptual metaphor. We will explore this idea further in Chapter 9. The distinctions between basic domains and image schemas are summarised in Table 7.6.

In sum, an assumption central to cognitive semantics is that all human thought is ultimately grounded in basic domains and image schemas. However, as Langacker observes, 'for the most part this grounding is indirect, being mediated by chains of intermediate concepts' (Langacker 1987: 149–50). These intermediate concepts, which correspond to the non-bold type domains in Figure 7.5, are abstract domains. As we have seen, an abstract domain is one that presupposes other domains ranked lower on the complexity hierarchy.

7.3.3 Other characteristics of domains

Langacker's proposal that encyclopaedic knowledge consists of an inventory of basic and more abstract domains is only one step in developing a theory of the

architecture of human conceptual organisation. In addition, Langacker sets out a number of characteristics that identify domains.

Dimensionality

The first characteristic is **dimensionality**: some domains are organised relative to one or more dimension. For example, the basic domains TIME, TEMPERATURE and PITCH are organised along a single dimension and are thus one-dimensional: TEMPERATURE is structured in terms of a series of points that are conceptualised as an ordinal sequence. In contrast, SPACE is organised with respect to two or three dimensions (a drawing of a triangle on a page is two-dimensional, while a flesh-and-blood human is three-dimensional), and COLOUR is organised with respect to three dimensions (BRIGHTNESS, HUE and SATURATION). These dimensions of colour relate to distinct neuro-perceptual mechanisms, which allow us to detect differences along these three dimensions, affecting our perception of colour. Abstract domains can also be organised with respect to a particular dimension or set of dimensions. For example, CARDINAL NUMBERS (1, 2, 3, 4 . . .) represent a domain ordered along a single dimension. However, some domains cannot be characterised in terms of dimensionality; it is not clear how we might describe the domain of EMOTION in this way, for example.

Locational versus configurational domains

A further characteristic of domains is that they can be distinguished on the basis of whether they are **configurational** or **locational**. This distinction relates to whether a particular domain is **calibrated** with respect to a given dimension. For example, COLOUR is a locational domain because each point along each of its dimensions (for example, HUE) is calibrated with respect to the point adjacent to it. In other words, each colour sensation occupies a distinct 'point' on the HUE dimension, so that a different point along the dimension represents a different colour experience. This contrasts with the domain of SPACE, which is not calibrated in this way: SPACE is not locational but configurational. For example, regardless of its position with respect to the dimension of SPACE, the shape TRIANGLE remains a triangle rather than, say, a SQUARE.

7.3.4 Profile/base organisation

We noted earlier that lexical concepts (the meanings associated with words) are understood with respect to a domain matrix. In other words, lexical concepts are typically understood with respect to a number of domains, organised in a network. One consequence of this claim is that, as we have already seen, a word

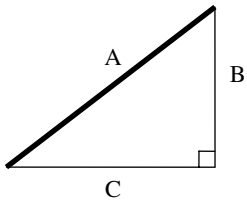


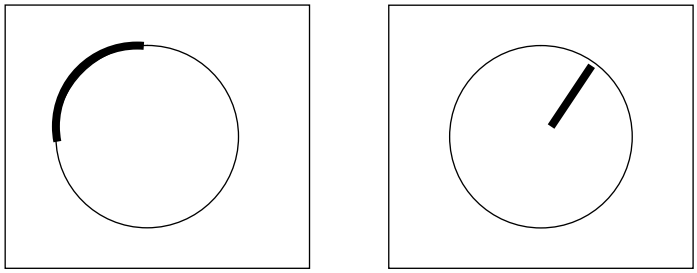
Figure 7.6 Scope for the concept HYPOTENUSE

provides a point of access to the entire knowledge inventory associated with a particular lexical concept. However, if we assume that a domain matrix underlies each lexical concept, then we need to explain why different facets of the encyclopaedic knowledge network are differentially important in the understanding of that concept. For example, consider the word *hypotenuse*. The lexical concept behind this word relates to the longest side of a right-angled triangle, which is illustrated in Figure 7.6. In this diagram, the hypotenuse is the side of the triangle in bold type labelled A.

While *hypotenuse* provides a point of access to a potentially infinite knowledge inventory, relating to RIGHT-ANGLED TRIANGLES, TRIANGLES in general, GEOMETRIC FIGURES, GEOMETRIC CALCULATION, SPACE and so on, only part of this knowledge network is essential for an understanding of the meaning of the lexical concept. Langacker suggests an explanation for this in terms of scope, profile and base. The essential part of the knowledge network is called the **scope** of a lexical concept. The scope of a lexical concept is subdivided into two aspects, both of which are indispensable for understanding what the word means. These are the **profile** and its **base,** which we first introduced in Chapter 5. The profile is the entity or relation designated by the word, and the base is the essential part of the domain matrix necessary for understanding the profile. In the case of our example *hypotenuse*, this word profiles or **designates** the longest side in a right angled-triangle, while the base is the entire triangle, including all three of its sides. Without the base, the profile would be meaningless: there is no hypotenuse without a right-angled triangle. Hence, the word *hypotenuse* designates a particular substructure within a larger conceptual structure. As Langacker explains it, 'The semantic value of an expression resides in neither the base nor the profile alone, but only in their combination' (Langacker 1987: 183).

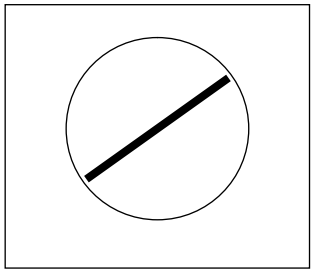
One consequence of the profile/base relation is that the same base can provide different profiles. Consider Figure 7.7, which depicts a CIRCLE. This base can give rise to numerous profiles, including ARC (Figure 7.7(a)), RADIUS (Figure 7.7(b)), DIAMETER (Figure 7.7(c)), CIRCUMFERENCE (Figure 7.7(d)), and so on.

Now let's consider a more complex example. The word *uncle* profiles an entity with a complex domain matrix. This includes at least the following abstract domains: GENEALOGY, PERSON, GENDER, SEXUAL INTERCOURSE, BIRTH, LIFE

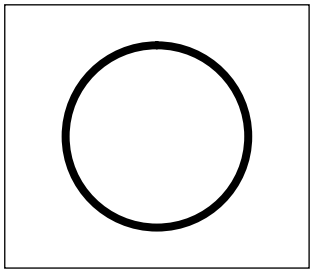


(a) ARC

(b) RADIUS



(c) DIAMETER



(d) CIRCUMFERENCE

Figure 7.7 Different profiles derived from the same base

CYCLE, PARENT/CHILD RELATIONSHIP, SIBLING RELATIONSHIP, EGO. The base for the lexical concept UNCLE is the conceived network of FAMILIAL RELATIONS represented in Figure 7.8. Against this base, *uncle* profiles an entity related to the EGO by virtue of being a MALE SIBLING of EGO's mother or father.

7.3.5 Active zones

As we have seen, the encyclopaedic view of meaning recognises that, in ordinary speech, the meaning associated with a lexical item undergoes 'modulation' as a result of the context in which it is used. This means that typically only part of an entity's profile is relevant or active within a particular utterance. This part of the profile is called the **active zone**. Consider the examples in (5).

(5) a. The footballer headed the ball.
b. The footballer kicked the ball.
c. The footballer frowned at the referee.
d. The footballer waved at the crowd.

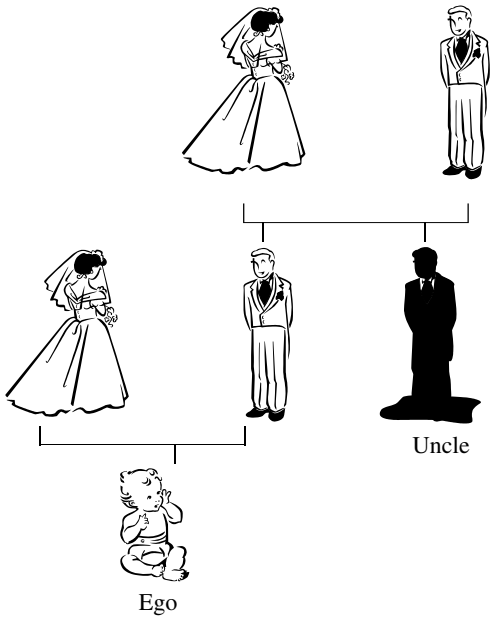


Figure 7.8 Familial network in which UNCLE is profiled

While *the footballer* is profiled in each of these examples, a different active zone is evident in each example. For instance, in (5a) the active zone is the footballer's forehead (Figure 7.9(a)); in (5b) the active zone is the footballer's foot (Figure 7.9(b)); in (5c) the active zone is the footballer's face (Figure 7.9(c)); and in (5d) the active zone is the footballer's hands and arms (figure 7.9(d)).

Let's now illustrate how the phenomenon of active zones is evident in language use. Consider the example in (6).

(6) This red pen isn't red.

The idea of active zones helps to explain why this apparently contradictory sentence can give rise to a non-contradictory interpretation. If we interpret the sentence in (6) to mean that a pen whose ink is red is not coloured red, or indeed that a pen that is coloured red does not contain red ink, then we do so by assigning each instance of *red* a different active zone. One active zone relates to the contents of the pen that result in coloured marks on paper while the other active zone corresponds to the outer body of the pen. This example shows how active zone phenomena are at work in discourse, enabling speakers and hearers to 'search through' the inventory of knowledge associated with each word and to 'select' an interpretation licensed by the context.

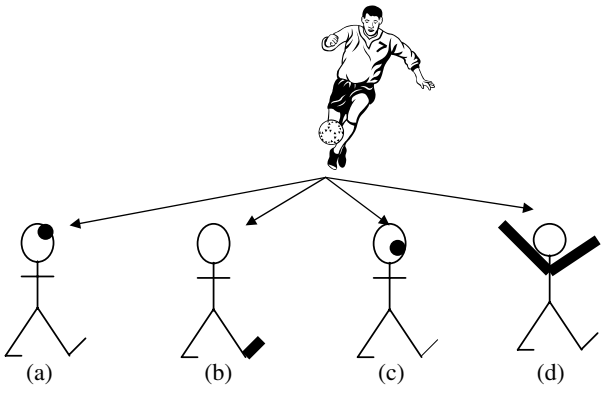


Figure 7.9 Active zones for the sentences in (5)

7.4 The perceptual basis of knowledge representation

In this section, we return to the issue of how cognitive psychologists characterise conceptual structure. In particular, we return to the issue of simulations, which we introduced briefly in section 7.2.2, and attempt to see how these can be incorporated into a theory of frames. Of course, this relates to the more general question we have been pursuing in this chapter: what do the mental representations that underpin language 'look like'? For cognitive linguists, the answer lies in the thesis of embodied cognition which gives concepts a fundamentally perceptual character. As Langacker argues, for instance, concepts are ultimately grounded in terms of basic domains which represent knowledge arising from foundational aspects of experience relating either to sensory experience of the external world or to subjective (or introspective) states. Our objective in this section, then, is to provide a sense of how the models of knowledge representation being developed in cognitive semantics are increasingly consonant with theories being developed in cognitive psychology. In particular, we address some of the more recent ideas that have been proposed by cognitive psychologist Lawrence Barsalou.

In his (1999) paper *Perceptual Symbol Systems*, Barsalou argues that there is a common representational system that underlies both **perception** (our ability to process sensory input from the external world and from internal body states such as consciousness or experience of pain) and **cognition** (our ability to make this experience accessible to the conceptual system by representing it as concepts, together with the information processing that operates over those concepts). One property of cognition that distinguishes it from perception is that cognition operates **off-line**. In other words, cognitive processing employs mental representations (concepts) that are stored in memory, and thereby frees itself from the process of experiencing a particular phenomenon every time

that experience is accessed and manipulated. For instance, when planning a long car journey, we can predict roughly at what points in the journey we will need to stop and refuel. In other words, we can make predictions based on our concept – or frame – for CAR. We can make these predictions on the basis of past experiences, which come to form part of the mental representation associated with our mental knowledge of cars. This means we can make predictions about fuel consumption on a forthcoming journey rather than just getting into the car and waiting to see when the petrol runs out.

According to Barsalou, perceptual symbols (concepts) are neural representations stored in sensory-motor areas of the brain. He describes perceptual symbols as 'records of the neural states that underlie perception. During perception, systems of neurons in sensory-motor regions of the brain capture information about perceived events in the environment and in the body' (Barsalou 1999: 9). For example, consider the concept HAMMER. The perceptual symbol for this concept will consist of information relating to its shape, weight, texture, colour, size and so on, as well as sensory-motor patterns consistent with the experience of using a hammer (derived from our experience of banging a nail into a piece of wood, for example). It follows that perceptual symbols are **multi-modal**, drawing information from different sensory-perceptual and introspective (subjective) input 'streams'.

However, perceptual symbols do not exist independently of one another. Instead, they are integrated into systems called **simulators**. A simulator is a mental representation that integrates and unifies related perceptual symbols (for example, all our experiences with hammers). Two kinds of information are extracted from simulators. The first is a frame, which we discussed earlier in the chapter (section 7.2.2). A frame is **schematic** in nature, abstracting across a range of different perceptual symbols for hammers. Hence, it provides a relatively stable representation (a concept) of HAMMER, drawing together what is uniform about our experience with tools of this kind.

The second kind of information extracted from a simulator is a **simulation**. A simulation is an 'enactment' of a series of perceptual experiences, although in attenuated (weakened) form. For instance, if we say 'imagine you're using a hammer . . .', this utterance allows you to construct a simulation in which you can imagine the hammer, feel a sense of its weight and texture in your hand, and sense how you might swing it to strike another object. Therefore, part of our knowledge of the concept HAMMER includes a schematic frame relating to the kinds of knowledge we associate with hammers, as well as simulations that provide representations of our perceptual experience of hammers. Crucially, both frames and simulations derive from perceptual experience.

Evidence for the view that conceptual structure has a perceptual basis, and for the view that concepts (represented in terms of frames) can give rise to simulations, comes from a range of findings from **neuroscience**, the

interdisciplinary study of brain function. This area of investigation has begun to provide support for the thesis that cognition is grounded in perceptual symbol systems of the kind proposed by Barsalou. For example, it is now clear that damage to parts of the brain responsible for particular kinds of perception also impairs our ability to think and talk about concepts that relate to those areas of perceptual experience. For example, damage to motor and somatosensory (touch) areas affects our ability to think about and identify conceptual categories like tools which relate to motor and somatosensory experience. Similarly, damage to areas of the brain that process visual perception affects our ability to access or manipulate conceptual categories that relate to visual experience. Evidence from experiments based on descriptive tasks also suggests that conceptual representation is perceptual in nature. For example, when a subject sitting in a lab without a perceptual stimulus is asked to describe a car, he or she will typically describe the car from a particular 'perspective': subjects tend not to list attributes in a random order, but to describe the parts of the car that are near each other first. Moreover, when a context is provided, this can influence the simulated perspective: subjects who are told to imagine that they are standing outside the car will describe different attributes of a car, and in a different order, compared with subjects who are told to imagine that they are sitting inside the car. This type of experiment suggests that the CAR frame, together with its associated simulations, is based on sensory-motor experience of cars.

Before concluding, let's briefly compare models that assume a perceptual basis for mental representation with the type of model adopted in formal linguistics. Since the emergence of the Chomskyan mentalist model of language in the mid-twentieth century which firmly focused attention on language as a cognitive phenomenon and the simultaneous rise of cognitive science, theories of mental representation have adopted a **non-perceptual** view. This is sometimes called an **amodal view**, because it views conceptual structure as based not on perceptual (modal) states, but on a distinct kind of representational system. According to Barsalou, cognitive science was influenced in this respect by formalisms that emerged from branches of philosophy and mathematics (such as logic), and from the development of computer languages in computer science and artificial intelligence. Moreover, the prevalence of the modular theory of mind, not only in linguistics but also in cognitive psychology, represented a widespread view of perception and cognition as separable systems, operating according to different principles. This view is inherent in Fodor's theory of mind, for example, which is outlined in his book *The Modularity of Mind* (1983). According to this theory, there are three distinct kinds of mental mechanisms: **transducers** (which receive 'raw' sensory-perceptual input and 'translate' it into a form that can be manipulated by the other cognitive systems), **central systems** (which do the 'general' cognitive work such as

reasoning, inference and memory) and **modules** (specialised and encapsulated systems of knowledge that mediate between the transducers and the central systems).

In non-perceptual systems for mental representation, words assume primary importance as symbols for mental representations. For example, in early approaches to lexical semantics, feature lists employed words to stand for semantic features:

(7) Bachelor

$$\begin{pmatrix} + \text{ MALE} \\ - \text{ MARRIED} \\ + \text{ ADULT} \end{pmatrix}$$

In formal semantics, the language of predicate calculus was adopted, which also based semantic features on words. While semanticists who rely upon componential and formal methods do not assume that words literally make up the content of the mental representations they stand for, they do rely upon items of natural language as a metalanguage for describing natural language, an approach that entails obvious difficulties. For example, if we rely on real words to express concepts, this limits the set of concepts to the set of real words. As we have seen, recent developments in cognitive psychology suggest that conceptual structure actually has a perceptual basis. These ideas, together with the empirical evidence that is beginning to be gathered, is consonant with the claims of cognitive semantics, particularly the thesis of embodied cognition.

7.5 Summary

In this chapter, we have explored one of the central theses of cognitive linguistics: that meaning is **encyclopaedic** in nature. This view relates to the open-class semantic system and holds that word meaning cannot be understood independently of the vast system of encyclopaedic knowledge to which it is linked. In addition, cognitive semanticists argue that semantic knowledge is grounded in human interaction with others (social experience) and with the world around us (physical experience). The thesis of **embodied cognition** central to cognitive linguistics entails that mental representations are perceptual in nature. We briefly considered recent perspectives from cognitive psychology that also suggest that knowledge is represented in the mind as **perceptual symbols**: representations that are fundamentally perceptual in nature. In order to elaborate the notion of **encyclopaedic semantics**, we explored two theories of semantics that have been particularly influential in developing this approach to meaning: (1) the theory of **Frame Semantics**

developed by Charles Fillmore, and (2) the theory of **domains** developed by Ronald Langacker. While these two theories were developed for different purposes, together they provide the basis for a theory of encyclopaedic semantics that is presupposed by much current work on lexical semantics and conceptual structure in cognitive semantics, and in cognitive linguistics more generally.

Further reading

The encyclopaedic view of meaning

- **Haiman (1980).** Haiman (a typologist) considers and rejects arguments for assuming a dictionary view of word meaning. Haiman argues in favour of an encyclopaedic account.
- **Langacker (1987).** The first volume in Langacker's two-volume overview of Cognitive Grammar provides a detailed case for an encyclopaedic approach to linguistic meaning. See Chapter 4 in particular.
- **Tyler and Evans (2003).** Tyler and Evans also make the case for an encyclopaedic account of word meaning, applying this approach to a single and highly complex lexical class: the English prepositions.

Frame semantics

- **Fillmore (1975)**
- **Fillmore (1977)**
- **Fillmore (1982)**
- **Fillmore (1985a)**
- **Fillmore and Atkins (1992)**

Listed above are the key papers that have given rise to the Frame Semantics approach. The paper by Fillmore and Atkins (1992) presents a detailed analysis of the semantic frame for RISK. The words in this set include: *risk, danger, peril, hazard* and neighbouring words such *gamble*, *invest* and *expose*. More recently, Fillmore has been leading the FrameNet project. This project applies the theory of Frame Semantics with a view to developing an electronic frame-based dictionary. For further details and references see the FrameNet website: www.icsi.berkeley.edu/framenet/.

The theory of domains

- **Langacker (1987).** This is the key source for the theory of domains. See Part II of the book in particular.

- **Taylor (2002).** This introduction to Langacker's theory has a number of very good chapters on the theory of domains. See in particular chapters 10, 11, 22 and 23.

Frames and perceptual symbol systems

- **Barsalou (1992a).** This paper provides a comprehensive and yet concise introduction to an influential theory of frames and framing by a leading researcher in this area.
- **Barsalou (1992b).** An excellent and very accessible overview of key ideas in cognitive psychology. Chapter 7 is a particularly good introduction to knowledge representation, concepts and frames.
- **Barsalou (1999).** This paper provides points of entry into the literature on perceptual symbol systems and simulation in mental representation. In particular it develops Barsalou's own theory of the percepetual basis of conceptual structure.
- **Barsalou (2003).** This paper summarises and reviews the empirical evidence that supports the perspective presented in Barsalou's 1999 paper.

Exercises

7.1 Examining the dictionary view

What distinctions are central to the dictionary view of word meaning? Outline the advantages and disadvantages of this account.

7.2 Centrality

In view of the distinction between conventional, generic, intrinsic and characteristic knowledge (section 7.1.4), provide a characterisation for the following lexical items: *apple*, *diamond*, *crocodile*.

7.3 Fillmore's Frame Semantics versus Langacker's theory of domains

What are the key similarities and differences, as you see them, between Fillmore's Frame Semantics and Langacker's theory of domains?

7.4 Frames

Identify the frames associated with the following lexical items:

(a) Saturday
(b) breakfast

(c) widow
(d) celibacy
(e) (to) lend

7.5 Frames and participant roles

Provide a Frame Semantics analysis of the distinction between the verbs (*to*) *borrow* and (*to*) *lend*. You will need to say what participant role(s) each verb is associated with and provide evidence with example sentences.

7.6 Framing and culture

Now consider the lexical item *Prime Minister*. Say what frame this belongs to, giving as much detail as possible in terms of other elements. In what way is this frame culture-dependent?

7.7 Base, domain and domain matrix

What is the distinction between a base, a domain and a domain matrix? Provide examples to illustrate.

7.8 Domains and hierarchies of complexity

Provide hierarchies of complexity for the following lexical items:

(a) toe
(b) spark plug
(c) (a) second [= unit of time]
(d) Prime Minister

Did you have any difficulties establishing a hierarchy of complexity for *Prime Minister*? Comment on why this might be.

7.9 Domain matrix

Provide a domain matrix for *Prime Minister*. Does this shed any light on why you may have had difficulties in exercise 7.8(d)? Now consider the domain matrices for *President* and *Monarch* respectively. What are your assumptions in terms of political systems?

7.10 Profile-base organisation

Give a characterisation of *Prime Minister* in terms of profile-base organisation. How is this distinct from profile-base organisation for *President*?

7.11 Image schemas versus basic domains

Consider the following lexical items. Based on the discussion in this chapter, which aspects of the meaning associated with these lexical items would you model in terms of image schemas and which in terms of (basic) domains? Explain how you reached your conclusions.

(a) cup
(b) container
(c) (to) push