

chapter 11

Cognitive Semantics

11.1 Introduction

In this chapter we look at semantics within the approach known as *cognitive semantics*. As is often the case with labels for theories,¹ this might be objected to as being rather uninformative: in this instance because, as we have seen, in many semantic approaches it is assumed that language is a mental faculty and that linguistic abilities are supported by special forms of knowledge. Hence for many linguists semantics is necessarily a part of the inquiry into cognition. However, as we shall see, writers in the general approach called *cognitive linguistics*, and other scholars who are broadly in sympathy with them, share a particular view of linguistic knowledge. This view is that there is no separation of linguistic knowledge from general thinking or cognition. Contrary to the influential views of the philosopher Jerry Fodor or of Noam Chomsky,² these scholars see linguistic behavior as another part of the general cognitive abilities which allow learning, reasoning, and so on. So perhaps we can take the label *cognitive linguistics* as representing the slogan “linguistic knowledge is part of general cognition.” As we shall see, this slogan does fit work in semantics in this approach.

We can begin by outlining some of the main principles behind this general approach. Cognitive linguists often point to a division between **formal** and **functional** approaches to language. Formal approaches, such as **generative grammar** (Chomsky 1988), are often associated with a certain view of language and cognition: that knowledge of linguistic structures and rules forms an autonomous module (or faculty), independent of other mental processes of attention, memory, and reasoning. This external view of an independent linguistic module is often combined with a view of internal modularity: that different levels of linguistic analysis, such as phonology, syntax and semantics, form independent modules. In this view, the difference between modules is one of kind: thus externally, it is good practice to investigate linguistic principles without reference to other mental faculties; and internally, to investigate, say, syntactic principles without reference to semantic content. This characterization of formal approaches concentrates on epistemological implications. Formalism also implies the desirability and possibility of stating the autonomous principles in ways that are formally elegant, conceptually simple, and mathematically well-formed.³

Functionalism, with which cognitive linguists identify themselves, implies a quite different view of language: that externally, principles of language use embody more general cognitive principles; and that internally, explanation must cross boundaries between levels of analysis. In this view the difference between language and other mental processes is possibly one of degree but is not one of kind. Thus it makes sense to look for principles shared across a range of cognitive domains. Similarly, it is argued that no adequate account of grammatical rules is possible without taking the meaning of elements into account.

This general difference of approach underlies specific positions taken by cognitive linguists on a number of issues: in each case their approach seeks to break down the abstractions and specializations characteristic of formalism, many of which we have met in earlier chapters. Thus studies in cognitive semantics have tended to blur, if not ignore, the commonly made distinctions between linguistic knowledge and encyclopedic, real-world knowledge – a topic we touched on earlier and return to in the next section; and between literal and figurative language, as we shall see. Similarly, cognitive linguists share the functionalist view that distinguishing linguistic levels of analysis, while a useful ploy for practical description, is potentially harmful to our conceptions of language, since syntax, for example, can never be autonomous from semantics. Ultimately, this view goes, the explanation of grammatical patterns cannot be given in terms of abstract syntactic principles but only in terms of the speaker's intended meaning in particular contexts of language use.

A further distinction that is reassessed in this framework is the traditional structuralist division between, to use Ferdinand de Saussure's (1974) terms, **diachronic** (or historical) linguistics and **synchronic** linguistics. In his foundational lectures, Saussure, attempting to free linguistics from etymological explanation, proposed his famous abstraction: a synchronic linguistics, where considerations of historical change might be ignored, as if in describing a language we could factor out or "freeze" time.⁴ Such an idealization has been accepted in many linguistic theories, but is currently questioned in functional approaches. Linguistic structures, in a functionalist perspective, have evolved through long periods of use and the processes of change are evident in and relevant to an understanding of the current use of the language. Thus processes of **grammaticalization**, for example, where lexical categories may over time develop into functional categories and independent

words become inflections, can provide evidence of general linguistic and cognitive principles, as discussed by Heine and Kuteva (2002).⁵

If we turn to meaning, a defining characteristic of cognitive semantics is the rejection of what is termed **objectivist semantics**. George Lakoff (1988: 123–24), for example, assigns to objectivism the basic metaphysical belief that categories exist in objective reality, together with their properties and relations, independently of consciousness. Associated with this is the view that the symbols of language are meaningful because they are associated with these objective categories. This gives rise to a particular approach to semantics which Lakoff characterizes under three “doctrines”:

- 11.1 Objectivist semantics (adapted from Lakoff 1988: 125–26)
 - a. The doctrine of truth-conditional meaning: Meaning is based on reference and truth.
 - b. The “correspondence theory” of truth: Truth consists in the correspondence between symbols and states of affairs in the world.
 - c. The doctrine of objective reference: There is an “objectively correct” way to associate symbols with things in the world.

In rejecting these views, cognitive semanticists place themselves in opposition to the formal semantics approach described in chapter 10. Cognitive semanticists take the view that we have no access to a reality independent of human categorization and that therefore the structure of reality as reflected in language is a product of the human mind. Consequently they reject the **correspondence theory of truth**, discussed in chapters 4 and 10. For these writers, linguistic truth and falsity must be relative to the way an observer construes a situation, based on his or her conceptual framework.⁶ The real focus of investigation should, in this view, be these conceptual frameworks and how language use reflects them. In the rest of this chapter we examine this line of inquiry; we might begin here by asking of this approach our deceptively simple question: what is meaning? One answer in the cognitive semantics literature is that meaning is based on conventionalized conceptual structures. We begin to explore what this means in the next section where we discuss the cognitive semantics approach to conceptual categories, and in particular how this influences the approach to lexical meaning. In subsequent sections we see how this account deals with the phenomenon of **polysemy**, which we have touched on in earlier chapters. We then move on to **metaphor**, which has received special attention in this framework because it brings together many fundamental issues. Cognitive linguists agree with the proposal by Lakoff and Johnson (1980), Lakoff (1987, 1993), and Johnson (1987) that metaphor is an essential element in our categorization of the world and our thinking processes. Examples from this literature, such as the LIFE AS A JOURNEY metaphor where birth is arrival, death is departure, and life’s problems are seen as obstacles, have been extremely influential. We review this work on metaphor in section 11.4.

A consequence of this cognitively based view of language is that the study of semantics, and linguistics, must be an interdisciplinary activity. One result is that scholars working within this and related frameworks tend to stray across intra- and inter-disciplinary boundaries more easily than most. Cognitive semanticists have, for example, examined not only the relationship of grammar and semantics, but also historical linguistics (Sweetser 1990, Geeraerts 1997, Blank and Koch 1999,

Winters et al. 2010), categories of thought (Lakoff 1987), literary language (Turner 2006), philosophy (Lakoff and Johnson 1999, Johnson 2008), mathematics (Lakoff and Núñez 2000), music (Gärdenfors 1988), rhetoric (Turner 1987), and ethics (Johnson 1993), among other areas.

11.2 Categorization

A central view in cognitive semantics is that semantic structure, along with other cognitive domains, reflects the mental categories which people have formed from their experience of growing up and acting in the world. This view has several consequences: the first is a rejection of classical theories of categories, the second is the acceptance of embodiment theories, and the third is to dissolve the distinction between linguistic and encyclopedic knowledge in the use of lexical categories. We look at each of these in turn.

11.2.1 The rejection of classical categories

In chapter 2 we discussed problems with the attempt to define categories by sets of necessary and sufficient condition, an approach we described as **the definitional theory**. Cognitive linguists trace this approach back to Aristotle's attempts, in for example the *Metaphysics* (Charles 2002), to distinguish between the essence of a thing and its *accidents*, which are possible but not defining features. So in this distinction it is essential for a bachelor to be unmarried but his hair color is accidental. The essential features define the category. The key implications of this theory, from a cognitive linguistics perspective, are as below:

11.2 Implications of classical theory (Taylor 2003, 2008)

- a. Word meanings can be defined in terms of sets of features
- b. The features are individually necessary and jointly sufficient
- c. Categories have clear boundaries
- d. All members of a category have equal status
- e. The features are binary

In the cognitive semantics literature such an approach is identified with formal approaches to language, as outlined in the last section. The classical theory is rejected for a number of reasons, with two in particular being important. Firstly, as we discussed in chapter 2, it proves impossible to establish the set of defining features that is shared by all members of a lexical category. Secondly, and vitally for a cognitive approach, the theory is psychologically implausible given the evidence of prototypicality effects, where for example, speakers' behavior seems to show that they view some members of a category as better examples than others. This rejection is prefigured by philosophical attacks on classical categories such as Wittgenstein's (1953) demonstration that various members of the category *game* (represented by the word *Spiel* in German) do not share a set of common properties which allow games to be clearly distinguished from non-games. Features like *played for enjoyment* or *competition between players* are not shared by all games. The boundaries are

fuzzy and Wittgenstein used the analogy of family resemblance to characterize the overlapping sets of features that link the category. However, the most powerful influence has been from the work by Eleanor Rosch and her co-workers (Rosch 1973, 1975, Rosch and Mervis 1975, Rosch et al. 1976, Mervis and Rosch 1981) on prototypes, as discussed briefly in chapter 2. The claims of this theory can be summarized as below:

- 11.3 Prototype model of categories
- a. Categories have fuzzy boundaries
 - b. There are central and peripheral members of a category
 - c. Categories have marginal examples whose membership is doubtful
 - d. Category members do not all share the same discrete features
 - e. Attributes are not all binary features but may be from a range of mental representations including images, schemas, exemplars, etc.

Other work in psychology (e.g. Murphy and Medin 1985) suggests that categories are not objectively present in the environment but evolve from experience, belief systems and their utility in forming explanatory inferences.

These ideas have been incorporated into cognitive semantics in various ways. Lakoff (1987) suggested that lexical items form a type of complex category called **radial categories**. Radial categories have a prototypical sense and the structure of the category is represented by links to other related senses. The links are conventionalized and therefore learned rather than inferred in context. In this view lexemes are stored as complex categories that show typicality effects. We shall see some examples in section 11.3.1 when we discuss the application of this idea to prepositional polysemy. Lakoff makes the point that such categories are culturally specified, discussing for example categories corresponding to English *mother*:

- 11.4 There is no general rule for generating kinds of mothers. They are culturally defined and have to be learned. They are by no means the same in all cultures. In the Trobriands, a woman who gives birth often gives the child to an old woman to raise. In traditional Japanese society, it was common for a woman to give her child to her sister to raise. Both of these are cases of kinds of mothers that we don't have an exact equivalent of. (Lakoff 1987: 84)

Lakoff is here arguing that categories are related to bodies of real-world knowledge, which themselves are conceptual structures. These he characterized as **idealized cognitive models (ICMs)**, which represent belief systems and theories about the world that underpin linguistic communication.⁷ Lakoff (1987: 74–76) describes the category *mother* as being interpreted against a number of culturally based linked domains of knowledge, or ICMs, about birth, marriage, genetics, nurture, genealogy, and so on with the prototypical sense showing the following links:

- 11.5
- | | |
|-------------|--|
| BIRTH: | the person giving birth is the mother |
| GENETIC: | the female who contributed the genetic material is the mother |
| NURTURANCE: | the female adult who nurtures and raises the child is the mother of that child |

MARITAL:	the wife of the father is the mother
GENEALOGICAL:	the closest female ancestor is the mother

Clearly the noun *mother* may be applied in senses that deviate from the prototype's position relative to the ICMs, as can be reinforced by the use of complex expressions such as *adoptive mother*, *stepmother*, *foster mother*, *birth mother*, *surrogate mother*, and so on.

These two notions, ICMs and radial categories, are important elements in the cognitive semantic account of categorization and central to their approach to metaphor and metonymy, as we shall see later in this chapter.

11.2.2 Embodiment and image schemas

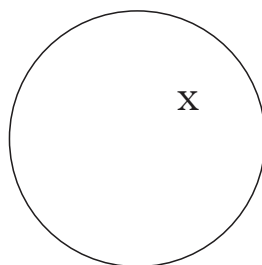
An important assumption of cognitive semantics is that conception is embodied (Anderson 2003). The basic idea is that because of our physical experience of being and acting in the world – of perceiving the environment, moving our bodies, exerting and experiencing force, and so on – we form basic conceptual structures which we then use to organize thought across a range of more abstract domains.⁸ An important proposal for embodied conceptual structure is the **image schema**. In Johnson (1987), whose proposals we will examine in this section, these image schemas are proposed as a primitive level of conceptual category underlying metaphor and which provide a link between bodily experience and higher cognitive domains such as language. We can look at some examples of image schemas, beginning with the **Containment schema**.

Containment schema

Johnson (1987: 21ff) gives the example of the schema of Containment, which derives from our experience of the human body itself as a container; from experience of being physically located ourselves within bounded locations like rooms, beds, and so on; and also of putting objects into containers. The result is an abstract schema, of physical containment, which can be represented by a very simple image like figure 11.1, representing an entity within a bounded location.

Such a schema has certain experientially based characteristics: it has a kind of natural logic, including for example the “rules” in 11.6:

Figure 11.1 Containment



Source: Johnson (1987: 23)

- 11.6 a. Containers are a kind of disjunction: elements are either inside or outside the container.
- b. Containment is typically transitive: if the container is placed in another container the entity is within both, as Johnson says: “If I am *in* bed, and my bed is *in* my room, then I am *in* my room.”

The schema is also associated with a group of implications, which can be seen as natural inferences about containment. Johnson calls these “entailments” and gives examples like the following (adapted from Johnson 1987: 22):

- 11.7 a. Experience of containment typically involves protection from outside forces.
- b. Containment limits forces, such as movement, within the container.
- c. The contained entity experiences relative fixity of location.
- d. The containment affects an observer’s view of the contained entity, either improving such a view or blocking it (containers may hide or display).

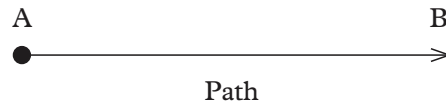
The fact that a schema has parts which “hang together” in a way that is motivated by experience leads Johnson to call them **gestalt structures** (1987: 44):

- 11.8 I am using the term “gestalt structure” to mean an organized, unified whole within our experience and understanding that manifests a repeatable pattern or structure. Some people use the term “gestalt” to mean a mere form or shape with no internal structure. In contrast to such a view, my entire project rests on showing that experiential gestalts have internal structure that connects up aspects of our experience and leads to inferences in our conceptual structure.

Though we have represented this schema in a static image like figure 11.1, it is important to remember that these schemas are in essence neither static nor restricted to images. The schema may be dynamic, as we shall see shortly with path and force schemas, which involve movement and change.

This schema of containment can be extended by a process of metaphorical extension into abstract domains. Lakoff and Johnson (1980) identify CONTAINER as one of a group of **ontological** metaphors, where our experience of non-physical phenomena is described in terms of simple physical objects like substances and containers. For example the visual field is often conceived as a container, as in examples like: *The ship is coming into view; He’s out of sight now; There’s nothing in sight* (p. 30). Similarly, activities can be viewed as containers: *I put a lot of energy into washing the windows; He’s out of the race* (p. 31), *She’s deep in thought*. States can be viewed in the same way: *He’s in love; He’s coming out of the coma now* (p. 32), *She got into a rage, We stood in silence*. For Lakoff and Johnson these examples are typical and reveal the important role of metaphor in allowing us to conceptualize experience.

Some other schemas identified by Johnson (1987) include *Path, Links, Forces, Balance, Up–Down, Front–Back, Part–Whole, and Center–Periphery*. We might briefly look at the **Path** schema, and some of his examples of **Force** schemas, since these have been used in a number of linguistic studies.

Figure 11.2 Path schema

Source: Johnson (1987: 114)

Path schema

The Path schema can be shown as in figure 11.2. Johnson claims that this schema reflects our everyday experience of moving around the world and experiencing the movements of other entities. Our journeys typically have a beginning and an end, a sequence of places on the way and direction. Other movements may include projected paths, like the flight of a stone thrown through the air. Based on such experiences the path schema contains a starting point (marked A in figure 11.2), an end point (marked B), and a sequence of contiguous locations connecting them (marked by the arrow). This schema has a number of associated implications, as listed in 11.9:

- 11.9
- a. Since A and B are connected by a series of contiguous locations, getting from A to B implies passing through the intermediate points.
 - b. Paths tend to be associated with directional movement along them, say from A to B.
 - c. There is an association with time. Since a person traversing a path takes time to do so, points on the path are readily associated with temporal sequence. Thus an implication is that the further along the path an entity is, the more time has elapsed.

These implications are evidenced in the metaphorical extension of this schema into abstract domains: we talk, for example, of achieving purposes as paths, as in 11.10 below:

- 11.10
- a. He's writing a PhD thesis and he's nearly there.
 - b. I meant to finish painting it yesterday, but I got sidetracked.

We shall see in section 11.4 examples of more elaborate metaphors that derive from this schema, such as LIFE IS A JOURNEY.

Force schemas

The Force schemas include the basic force schema of **Compulsion**, which can be shown as in figure 11.3, where a force vector **F** acts on an entity **u**. In this diagram the essential element is movement along a trajectory: the dashed line represents the fact that the force may be blocked or may continue.

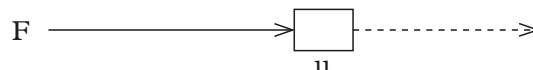
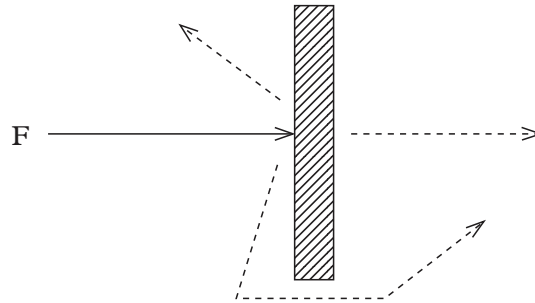
Figure 11.3 Compulsion

Figure 11.4 Blockage

In figure 11.4 we see represented the more specific schema of **Blockage**, where a force meets an obstruction and acts in various ways: being diverted, or continuing on by moving the obstacle or passing through it.

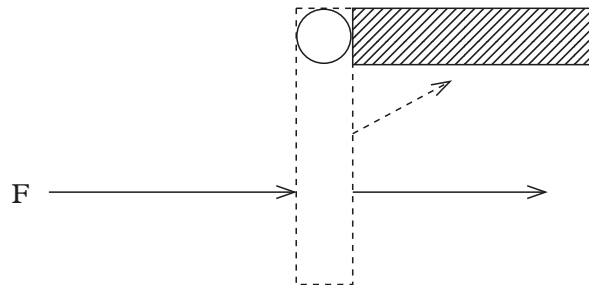
Figure 11.5 represents the related schemas of **Removal of Restraint**, where the removal (by another cause) of a blockage allows an exertion of force to continue along a trajectory.

These force schemas, like other image schemas, are held to arise from our everyday experiences as we grew as children, of moving around our environment and interacting with animate and inanimate entities. This schema also extended by a process of metaphorical extension into more abstract domains. Emotions are commonly conceptualized in terms of forces, as in the examples in 11.11 below:

- 11.11
- a. She was moved by the recital.
 - b. He kept his anger in check.
 - c. Anxiety pushed him deeper into depression.
 - d. So many men are emotionally blocked.

As with other image schemas force schemas they are held to be pre-linguistic and to shape the form of our linguistic categories. These schemas also underlie metaphors, for example Compulsion in 11.12a below and Blockage in b:

- 11.12
- a. She pushed me into getting a new job.
 - b. He has been trying to convince her but he can't get through to her.

Figure 11.5 Removal of restraint

Source: Adapted from Johnson (1987: 47)

In the section 11.3 we discuss an important application of these schemas: to describe polysemy.

11.2.3 Linguistic and encyclopedic knowledge

As mentioned in the last section, cognitive linguists have sought to dismantle the rigid barrier between linguistic and real-world, or encyclopedic, knowledge that they see as a central principle of formal approaches to language. This has been an important area of enquiry in cognitive lexical semantics. An assumption that follows from the theory's basic principles is that words are labels for conceptual categories. Cognitivists reject the traditional idea of a **mental lexicon** which is an independent level of information about the meanings of words that is stored separately from the speaker's knowledge about the world. However, this view raises questions about the relations between these labeled concepts, which we can term **lexical concepts**, and other conceptual representations. One approach (Langacker 1987: 161–67) is to identify lexical concepts as points of access to other non-linguistic conceptual domains. This suggests that meaning is constructed in context by the process of accessing and integrating knowledge. A similar idea is Allwood's (1999) **meaning potential** of a lexical concept, which only becomes determinate in context. The meaning potential combines all kinds of knowledge, including memory of previous uses.

The idealized cognitive models described above are an example of the interaction between lexical concepts and other knowledge. A commonly used example is the English word *bachelor* (Fillmore 1982; Lakoff 1987; Taylor 2003), which as we saw in the discussion of Katz's semantic theory in chapter 9 might traditionally be defined as an adult human male who has never been married. However, Lakoff, echoing Fillmore, points out that the term is not applied to various individuals who fit this definition, most notably the Pope. As we discussed in chapter 2, Lakoff's point is that in use the word is interpreted against the ICM of marriage in our culture. The Pope is not usually referred to as a bachelor because the ICM excludes Catholic priests.

Evans (2009) suggests an account of how lexical concepts and encyclopedic knowledge interact in his theory of lexical concepts and cognitive models (LCCM theory). In this approach meaning is a property of individual uses of words in context rather than of the lexical concepts themselves. The latter drive processes, akin to Langacker's activation, which integrate lexical and general knowledge into a once-off situated meaning. Evans (2009: 253–70) uses the example of the name *France*, which will potentially license activation of a number of cognitive models associated with it, including the political entity and the geographical area. These contain conceptual structures related to government, political system, and so on on the one hand and physical terrain, travel, and so on on the other. The use of the word in context may activate and be integrated with certain parts of these structures, so that a sentence like 11.13 below might when uttered be interpreted by integrating knowledge about the state, the political system, and the electorate:

11.13 France votes no.

On the other hand sentence 11.14 below might exploit encyclopedic knowledge about the physical landmass:

11.14 France is beautiful.

The same approach is applied to common nouns like *book*, where cognitive models include information about books as physical entities, abstract entities, acts of reading and writing and so on. The integration of this encyclopedic knowledge with the lexical concept allows the specific interpretations below:

- 11.15
- a. The book wouldn't fit on the shelf. (physical object)
 - b. The book was made into a movie. (content)
 - c. A book is handy on a long flight. (activity of reading)

In this theory lexical concepts are conceptual structures designed for communication, that is, to interact with other forms of knowledge to create meaning in individual speech events. As such they have specific qualities, including being language specific, associated with certain linguistic forms, showing collocation effects, combining with other lexical concepts, and so on. See Evans (2009) for discussion.

The investigation of how the selective activation of conceptual information is organized is an important topic in psychology and neuroscience; see Yee et al. (2013) and Mahon and Caramazza (2013) for overviews. We will look at further proposals for conceptual structures in the rest of this chapter, including Fauconnier's (1994) notion of **mental spaces**, which are mental structures that speakers set up to manipulate reference to entities. Such mental spaces underlie the process of **conceptual blending** (Fauconnier and Turner 2002), where speakers develop extended analogies which selectively combine existing domains of knowledge to create new scenarios. Cognitive linguists also investigate the conceptual processes which reveal the importance of the speaker's construal of a scene: processes such as **viewpoint shifting**, **figure-ground shifting**, and **profiling**. We look at these structures and processes in successive sections later.

11.3 Polysemy

In this section we look at how two of the conceptual structures we have seen so far, image schemas and radial categories, have together with the notion of metaphorical extension been used to characterize **polysemy**: the phenomenon discussed in chapter 3 where we find a group of related but distinct meanings attached to a word. We can look at two examples of this phenomenon from English: prepositions and modal verbs.

11.3.1 Prepositions

The schema of Containment has been used to investigate the semantics of spatial prepositions in a number of languages including the Cora language of Mexico (Langacker and Cassad 1985), English (Herkovits 1986), French (Vandeloise 1991) and Korean (Choi 2006). These studies use schemas to explore the typical polysemy of prepositions: the fact that we can for example use the English preposition *in* in a

number of related but distinct ways, as in the examples below given by Herkovits (1986):

- 11.16
- a. the water in the vase
 - b. the crack in the vase
 - c. the crack in the surface
 - d. the bird in the tree
 - e. the chair in the corner
 - f. the nail in the box
 - g. the muscles in his leg
 - h. the pear in the bowl
 - i. the block in the box
 - j. the block in the rectangular area
 - k. the gap in the border
 - l. the bird in the field

It is easy to see the different relationships between the entity and the container in these examples. The water is likely to be entirely contained in the vase in 11.16a but the pear in 11.16h could easily be sitting on top of a pile of fruit and thus protrude beyond the top edge of the bowl. Similarly the bird in 11.16d might be inside a hole in the tree-trunk but equally, might be sitting on a branch which if “inside” anything is inside our projection of the tree’s shape. Meanwhile in 11.16l the bird might be flying or hovering several feet above the field. Herkovits’s point is that such extended uses are typical and regular, that is, not idiomatic. This seems to be supported by the fact that the studies of other languages mentioned above come up with similar examples. Herkovits (1986: 48) claims that these uses are most satisfactorily described by viewing them as extensions from a central, ideal containment schema which she describes in words as “the inclusion of a geometric construct in a one-, two-, or three-dimensional geometric construct.”

There are two important points to make about this polysemy from a cognitive semantics perspective: the first is that the various and varying real-world situations are described in language in a way that is essentially metaphorical in nature, relating them all to an underlying schema of containment. The second is that the relationship between the various senses is not arbitrary but systematic and natural. We can see the latter point if we look briefly at Brugman and Lakoff’s (1988) description of the preposition *over*. They argue that the polysemous nature of this and other prepositions cannot be accurately described using semantic features or definitions but instead requires an essentially topographical approach, that is a description employing spatial models. They claim (1988: 479):

- 11.17 Topological concepts are needed in order to account for how prepositions can be used to characterize an infinity of visual scenes.

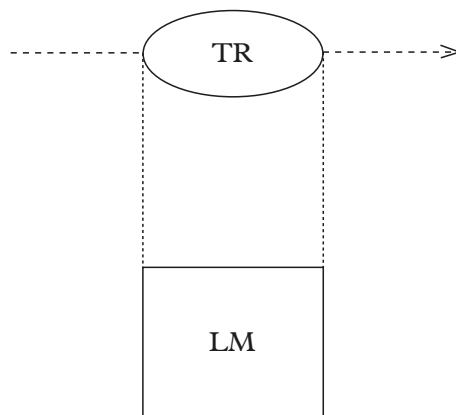
The polysemous nature of *over* can be shown, as we did for *in* earlier, by a set of examples (Brugman and Lakoff 1988):

- 11.18
- a. The plane is flying over the hill.
 - b. Sam walked over the hill.
 - c. The bird flew over the yard

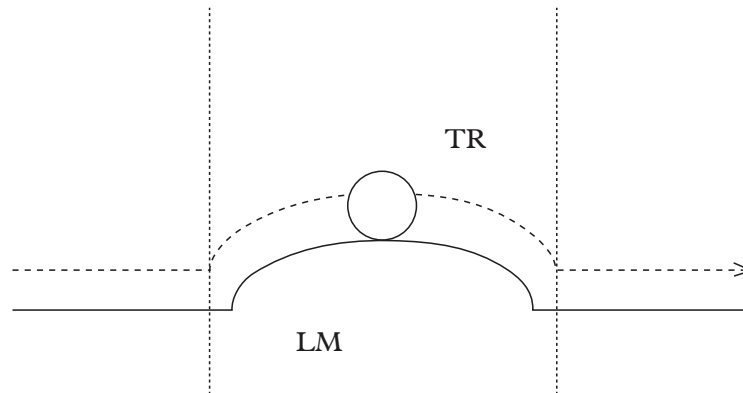
- d. The bird flew over the wall.
- e. Sam lives over the hill.
- f. The painting is over the mantel.
- g. The board is over the hole.
- h. She spread the tablecloth over the table.
- i. The city clouded over.
- j. The guards were posted all over the hill.
- k. Harry still hasn't gotten over his divorce.

Brugman and Lakoff propose a complex structure for the meanings of *over*: the preposition has a number of related senses, of which we can identify four, termed the **above-across** sense, the **above** sense, the **covering** sense, and the **reflexive** sense. Each of these senses is then structured as a radial category with extensions from a central prototype. Let us take the **above-across** sense first. This sense of *over* is described in terms of a **Path** image schema: using the terms **trajector** (TR) for a moving entity and **landmark** (LM) for the background against which movement occurs.⁹ Following Brugman and Lakoff's work, diagrams are commonly used to represent these schemas and the above-across sense would be as in figure 11.6, which would fit for example 11.18a, *The plane is flying over the hill*. In this approach several other senses of *over* can be systematically related to this central schema by a number of basic processes, for example by adding information to the schema or by metaphorical extension. In the first type of process the central schema may alter along a number of parameters: for example there may be contact between the trajector and the landmark as in 11.18b *Sam walked over the hill*, shown schematically in figure 11.7. Other information may be added about the landmark, which may be viewed as different geometric shapes: as an extended area as in 11.18c, or as a vertical form as in 11.18d. Alternatively the focus may be on the end point of the path as in 11.18e. In the second type of process the preposition can be used metaphorically, where it interacts with the metaphorical structures available to the language users. Thus in 11.18k we see a version of the LIFE AS A JOURNEY metaphor mentioned earlier, where problems are seen as obstacles.

Figure 11.6 Prototypical **above-across** sense of *over*



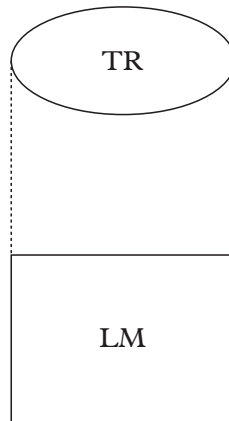
Source: Brugman and Lakoff (1988: 482)

Figure 11.7 Sam walked over the hill

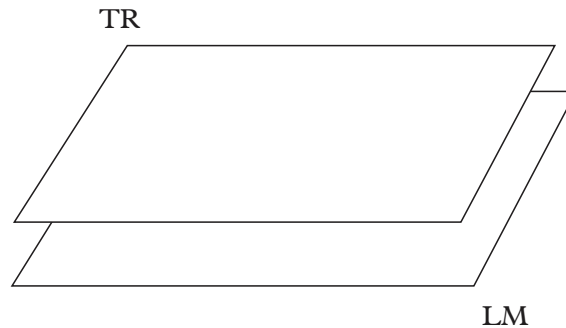
Source: Brugman and Lakoff (1988: 483)

A second major sense of *over* is the **above** sense, as in 11.18f above: *The painting is over the mantel*. This sense is stative and has no path element. It can be represented by the schema in figure 11.8. Since this schema does not include a path element it has no meaning of **across**. It also differs from the first sense in that there are no restrictions on the shape of the landmark, nor can there be contact between trajector and landmark. If there is contact we are more likely to use another preposition, such as *on* as in *The painting is on the mantel*.

Our third sense, or group of senses, of *over* is the **covering** sense, which can be represented in figure 11.9. The schema in this figure corresponds to sentence 11.17g above: *The board is over the hole*. This schema may have a path element depicting the motion of the trajector into its position over the landmark as in 11.18h *She spread the tablecloth over the table* or 11.18i *The city clouded over*. In this schema the use of a quantifier like *all* changes the nature of the trajector, as for example in sentence 11.17j: *The guards were posted all over the hill*. Here the trajector is what Brugman and Lakoff call a **multiplex** trajector, made up of many individual elements. A further variant has a multiplex path as in *I walked all over the hill*.

Figure 11.8 The **above** sense of *over*

Source: Brugman and Lakoff (1988: 487)

Figure 11.9 The **covering** sense of *over*

Source: Brugman and Lakoff (1988: 489)

The fourth sense of *over* is the **reflexive** sense as in *The fence fell over*, which can be represented as in figure 11.10. The repetitive sense of *over* as in *They watch the same film over and over again* can be seen as an extension of this reflexive sense.

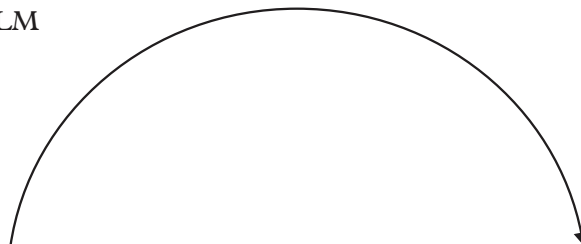
We have looked at four of the major sense groups of *over* identified in this analysis. In each sense group there is a prototypical schema which is related to a number of extended senses, thus exhibiting the radial category structure we mentioned earlier. This prototypicality also extends to the relationship between the sense groups: see Brugman and Lakoff (1988) for arguments that our first sense group, the **above-across** sense, is the prototypical group for *over*.

An important element of this analysis is the claim that the processes which extend senses from a central prototype to form a radial category are systematic and widespread. Brugman and Lakoff (1988) claim, for example, that any path schema will allow a focus on the end point, as we saw for *over* in 11.18e. We can see this with the prepositions in 11.19–21 below:

- 11.19 a. He walked across the road.
b. He works across the road.
- 11.20 a. You go around the corner.
b. She lives around the corner.
- 11.21 a. Walk through the atrium and turn to the left.
b. His office is through the atrium and to the left.

Figure 11.10 Reflexive sense of *over*

TR = LM



Each of the prepositions in 11.19–21 shows this ability to support a motion variant in the a sentence and a stative variant in the b sentence, where the latter identifies the end point or destination of the path.

11.3.2 Modal verbs

Force schemas have been used to describe polysemy in modal verbs. As we saw in chapter 5, modal verbs like English *may* and *can* typically have both **deontic** and **epistemic** senses. Talmy (1985, 1988), for example, uses force schemas to analyze modal verbs like *must*, *may*, and *can* in their deontic uses: for example *must* used to express obligation as in 11.22a below, *may* used for permission as in 11.22b and *can* used for ability as in 11.22c;

- 11.22
- a. You *must* hand in your term essay before the end of this week.
 - b. You *may* enter the studio when the light goes out.
 - c. She *can* swim much better than me.

Talmy analyzes these deontic uses in terms of forces and barriers. He proposes, for example, that a typical use of *may* as permission is an example of removing a barrier or keeping back a potential but absent barrier. Thus in 11.22b some potential barrier to entering the studio is identified as being negated.

Sweetser (1990) adopts and extends this analysis of *may*. She observes that the normal use of *may* is when the barrier is a social one (deriving from authority). The verb *let* is used in a similar way, as in 11.23a below, but as Sweetser notes, with this verb there are physical analogues to this removal of a potential barrier as in 11.23b:

- 11.23
- a. I'll *let* you smoke in the car, but just for today.
 - b. The hole in the roof *let* the rain in.

In this approach, the other deontic modals can also be given a force schema analysis: for example, the use of *must* for obligation is an example of the Compulsion Force schema. In 11.22a above the force is the teacher's authority but it can also be a moral or religious force as in *You must respect your parents* or *You must pray five times a day*. The idea seems to be that there is a conceptual link between someone physically pushing you in a direction and a moral force impelling you to act in a certain way. Both are forces which can be resisted or acceded to; in this approach a common conceptual schema unites the characterization of the two situations.

Sweetser (1990) analyses the **epistemic** use of modals as a metaphorical extension of these deontic uses. We can take the examples of *must* and *may*. In its epistemic use *must* can express a reasonable conclusion as in 11.24a and b:

- 11.24
- a. It's dead. The battery *must* have run down.
 - b. You've traveled all day. You *must* be tired.

The epistemic use of *may* expresses possibility as in 11.25:

- 11.25
- a. You *may* feel a bit sick when we take off.
 - b. He *may not* last out the whole game.

Sweetser argues that such uses of modals for rational argument and judgment are derived from their uses for the real world of social obligation and permission. This derivation follows the usual metaphorical extension from the external concrete world to the internal world of cognition and emotion. Thus to take the example of *may*, the epistemic use is again taken to represent a lack of barrier. Here though the barrier is to the line of reasoning leading to the conclusion expressed. Thus a sentence like 11.26a below can be paraphrased as 11.26b:

- 11.26 a. You may be right.
 b. There is no evidence preventing the conclusion that you are right.

Thus an overt parallel is drawn in this account between barriers in social action and barriers in mental reasoning.

In a similar way epistemic *must* is interpreted as the Compulsion Force schema extended to the domain of reasoning. So 11.27a below is paraphrased as 11.27b:

- 11.27 a. You must have driven too fast.
 b. The evidence forces my conclusion that you drove too fast.

Thus Sweetser is arguing that evidence is conceptualized as a force analogous to social pressure and laws, moving a person's judgment in a certain direction.

This type of analysis is extended to other modals but we need not follow the analysis further: we can identify from these few examples her claim that the relationship between the deontic and epistemic use of each modal is not accidental but a further example of polysemy: that is, the different uses are semantically related. What relates them, in this view, is the metaphorical extension of the force and barriers schemas from the social world to our inner reasoning.

So to conclude this section, we have seen that polysemy in both prepositions and modal verbs is characterized in this approach by the image schemas we introduced in section 11.2.2 as experientially based conceptual constructs by which we characterize, for example, spatial relations. These can be metaphorically extended across a range of domains, typically shifting from the external and concrete to the internal and abstract. Such schemas are seen as the building blocks of metaphor, allowing us to conceive of emotional states as containers (*She's in love*), evidence as compulsion (*He must be guilty*), or purposes as paths (A: *Have you finished the book?* B: *I'm getting there*). Polysemy is the result of this extension of schemas to form radial categories and is seen as a natural and ubiquitous phenomenon in language. In the next section we look in more detail at what has been an important element in the cognitive account of polysemy, **metaphor**.

11.4 Metaphor

11.4.1 Introduction

We have mentioned the interaction of metaphor with a number of the conceptual structures and processes identified so far in this chapter. The cognitive semantics approach to metaphor is central to this theory of language and has been very

influential in a number of disciplines. In particular the cognitive approach stands in contrast to traditional views of metaphor where it is seen as the most important form of **figurative** language use, and is usually seen as reaching its most sophisticated forms in literary or poetic language. We can, however, begin with a couple of examples from journalism. Both are from reports on films: 11.28 about US box office sales and 11.29 about the Hollywood film awards, the “Oscars”:

- 11.28 Next weekend’s action release *Need for Speed* may apply the brakes to a degree, but that movie’s largely unknown cast and brand may struggle to stop *Rise of an Empire* from holding on to pole position for a second weekend.
- 11.29 But my, how ill-fitting the crown of best picture seems to fit on the recent pretenders to that throne: *The Artist*, *Argo*, *The King’s Speech*.¹⁰

As we can see, in 11.28 the competition for sales is portrayed in terms of motor sport, while in 11.29 the image is of a coronation. There are many explanations of how metaphors work but a common idea is that metaphor is somewhat like **simile** (e.g. *Reading that essay was like wading through mud*) in that it involves the identification of resemblances, but that metaphor goes further by causing a transference, where properties are transferred from one concept to another. This transference has some interesting properties, as we will see later.

To begin we can introduce some terminology. The two concepts involved in a metaphor are referred to in various ways in the literature. We can select two: the starting point or described concept (in 11.28 above US movie sales; in 11.29 the Oscar awards) is often called the **target** domain, while the comparison concept or the analogy (in our two examples, car racing and coronations) is called the **source** domain. In I. A. Richards’s (1936) terminology the former is called the **tenor** and the latter, the **vehicle**. Both sets of terms are commonly used in the literature; we will adopt the former: target and source.

There are two traditional positions on the role of metaphor in language. The first, often called the **classical** view since it can be traced back to Aristotle’s writings on metaphor, sees metaphor as a kind of decorative addition to ordinary plain language; a rhetorical device to be used at certain times to gain certain effects. This view portrays metaphor as something outside normal language which requires special forms of interpretation from listeners or readers. A version of this approach is often adopted in the **literal language theory** we described in chapter 1. In this view metaphor is often seen as a departure from literal language, detected as anomalous by the hearer, who then has to employ some strategies to construct the speaker’s intended meaning. We can take as an example of this general approach Searle (1979: 114) who describes the start of the process thus (where a contextual assumption is that Sam is a person):

- 11.30 Suppose he hears the utterance, “Sam is a pig.” He knows that cannot be literally true, that the utterance, if he tries to take it literally, is radically defective. And, indeed, such defectiveness is a feature of nearly all the examples that we have considered so far. The defects which cue the hearer may be obvious falsehood, semantic nonsense, violations of the rules of speech acts, or violations of conversational principles of communication.

This suggests a strategy that underlies the first step: *Where the utterance is defective if taken literally, look for an utterance meaning that differs from sentence meaning* [author's italics].

We won't go into details of the various proposals that have been made for the next steps that the hearer uses to repair the "defective" utterance; see Ortony (ed. 1993) for some proposals.

The second traditional approach to metaphor, often called the **Romantic** view since it is associated with eighteenth- and nineteenth-century Romantic views of the imagination, takes a very different view of metaphor. In this view, metaphor is integral to language and thought as a way of experiencing the world. In this view metaphor is evidence of the role of the imagination in conceptualizing and reasoning, and it follows that all language is metaphorical. In particular, there is no distinction between literal and figurative language.¹¹

11.4.2 Conceptual Metaphor Theory

An important characteristic of cognitive semantics is the central role in thought and language assigned to metaphor. Lakoff and his colleagues (e.g. Lakoff and Johnson 1980, 1999, Lakoff 1987, 1993, Johnson 1987, Lakoff and Turner 1989) proposed an approach termed **Conceptual Metaphor Theory** (CMT). Given the classical/Romantic opposition we have described, CMT can be seen as an extension of the Romantic view.¹² Cognitivists argue that metaphor is ubiquitous in ordinary language, though they pull back a little from the strong Romantic position that all language is metaphorical. While metaphor is seen as a very important mode of thinking and talking about the world, it is accepted that there are also non-metaphorical concepts:

- 11.31 Metaphors allow us to understand one domain of experience in terms of another. To serve this function, there must be some grounding, some concepts that are not completely understood via metaphor to serve as source domains. (Lakoff and Turner 1989: 135)

In emphasizing the important role of metaphor in ordinary language, Lakoff and his colleagues identified a large number of common metaphors. One group, for example, they describe as **spatial** metaphors, for example the many metaphors associated with an UP-DOWN orientation. These include the following, where we select a few of their examples (Lakoff and Johnson 1980: 14–21):

- 11.32
- a. HAPPY IS UP; SAD IS DOWN
I'm feeling *up*. My spirits *rose*. You're in *high* spirits. I'm feeling *down*. I'm *depressed*. He's really *low* these days. My spirits *sank*.
 - b. CONSCIOUS IS UP; UNCONSCIOUS IS DOWN
Wake *up*. He *fell* asleep. He *dropped* off to sleep. He's *under* hypnosis. He *sank* into a coma.
 - c. HEALTH AND LIFE ARE UP; SICKNESS AND DEATH ARE DOWN
He's at the *peak* of health. He's in *top* shape. He *fell* ill. He's *sinking* fast. He came *down* with the flu. His health is *declining*.

- d. HAVING CONTROL OR FORCE IS UP; BEING SUBJECT TO CONTROL OR FORCE IS DOWN
I have control *over* her. He's at the *height* of his powers. He's in a *superior* position. He ranks *above* me in strength. He is *under* my control. He *fell* from power. He is my social *inferior*.
- e. GOOD IS UP; BAD IS DOWN
Things are looking *up*. We hit a *peak* last year, but it's been *downhill* ever since. Things are at an all-time *low*. He does *high*-quality work.
- f. VIRTUE IS UP; DEPRAVITY IS DOWN
He is *high*-minded. She has *high* standards. She is an *upstanding* citizen. That was a *low* trick. Don't be *underhanded*. I wouldn't *stoop* to that. That was a *low-down* thing to do.

As the authors point out, these metaphors seem to be based on our bodily experiences of lying down and getting up and their associations with consciousness, health, and power, that is of verticality in human experience. These then support the experiential basis of meaning described in section 11.2. For now we can see that Lakoff and Johnson's point is that in using language like this, speakers are not adding rhetorical or poetical flourishes to their language: this is how we conceive of happiness, health, and so on. As a result metaphors are conceptual structures which pervade ordinary language. In the next section we look at some of the features of metaphor identified in Conceptual Metaphor Theory.

11.4.3 Features of metaphor

Cognitive semanticists argue that, far from being idiosyncratic anomalies, metaphors exhibit characteristic and systematic features. We can look at some of these characteristics under the headings of conventionality, systematicity, asymmetry, and abstraction. The first, **conventionality**, raises the issue of the novelty of the metaphor: we could say, for example, that the first of our two examples in 11.28 and 11.29 is less novel than the second. As we discussed in chapter 1, some writers would claim that some metaphors have become fossilized or **dead** metaphors. In the literal language theory this means that they have ceased to be metaphors and have passed into literal language, as suggested by Searle (1979: 122):

- 11.33 *Dead metaphor.* The original sentence meaning is bypassed and the sentence acquires a new literal meaning identical with the former metaphorical meaning. This is a shift from the metaphorical utterance . . . to the literal utterance.

Cognitive semanticists argue against this approach, pointing out that even familiar metaphors can be given new life, thus showing that they retain their metaphorical status. If we take, for example the UP-DOWN metaphor, we might consider an instance like *My spirits rose* to be a dead metaphor, yet this general metaphor is continually being extended: it is no accident in this view that stimulant recreational drugs were called *uppers* and tranquillizers, *downers*.

The second feature, **systematicity**, refers to the way that a metaphor does not just set up a single point of comparison: features of the source and target domain are joined so that the metaphor may be extended, or have its own internal logic. We

can take an example from a *Science* magazine article about genetic research on the history of European peoples, where genetic contacts are metaphorically viewed as a cookery recipe:

- 11.34 How do you make a modern European? For years, the favored recipe was this: Start with DNA from a hunter-gatherer whose ancestors lived in Europe 45,000 years ago, then add genes from an early farmer who migrated to the continent about 9,000 years ago.

This metaphor is part of an extended metaphorical structure which surfaces through the rest of this article; see the following extracts, which continue the mapping:

- 11.35 a. An extensive study of ancient DNA now points to a third ingredient for most Europeans: blood from an Asian nomad who blew into central Europe perhaps only about 4,000 or 5,000 years ago...
 b. But if the genomicists are right, the chief components of the latest European recipe will endure...¹³

This systematicity has been an important focus in cognitive semantic views of metaphor: Lakoff and Turner (1989) discuss, for example, the metaphor mentioned earlier, LIFE IS A JOURNEY, which pervades our ordinary way of talking. Thus birth is often described as arrival as in *The baby is due next week*, or *She has a baby on the way*; and death is viewed as a departure as in *She passed away this morning* or *He's gone*. Lakoff and Turner (1989: 3–4) identify systematicity in this mapping between the two concepts:

- 11.36 LIFE IS A JOURNEY
- The person leading a life is a traveler.
 - His purposes are destinations.
 - The means for achieving purposes are routes.
 - Difficulties in life are impediments to travel.
 - Counselors are guides.
 - Progress is the distance traveled.
 - Things you gauge your progress by are landmarks.
 - Material resources and talents are provisions.

Their point is that we use this mapping every day in ordinary speech as when we use expressions like: *Giving the children a good start in life*; *He's over the hill*; *I was bogged down in a dead-end job*; *Her career is at a standstill*; *They're embarking on a new career*; *He's gone off the rails*; *Are you at a cross-roads in your life?*; *I'm past it (= I'm too old)*; *He's getting on (= he's aging)*, and so on.

Another example comes from the role of metaphor in the creation of new vocabulary: the coining of the term *computer virus* for a specific type of harmful program; see Fauconnier (1997: 19ff) for discussion. This coining is based on a conceptual model of biological viruses which is generalized or schematized away from the biological details:

- 11.37 Biological virus schema (Fauconnier 1997: 19)
- a. *x* is present, but unwanted; it comes in, or is put in, from the outside; it does not naturally belong;

- b. x is able to replicate; new tokens of x appear that have the same undesirable properties as the original x ;
- c. x disrupts the “standard” function of the system;
- d. the system should be protected against x ; this might be achieved if the system were such that x could not come into it, or if other elements were added to the system that would counteract the effects of x , or eject x , or destroy x .

This schema is transferred to the general aspects of the computer situation; it provides a way of characterizing the new domain. The schema in 11.37 is itself based on lower-level schemas like the image schemas of Container and Path discussed earlier in this chapter, and force dynamics of entry, resistance and so on (Talmy 2000, 1: 409–69).

This metaphorical mapping between a health schema and a computer domain can be viewed as a form of **analogical mapping** (Gentner 1983, Holyoak and Thagard 1995). It licenses a whole system of lexical innovations so that files can be said to be “infected”; files downloaded from the internet might be “contagious”; the anti-virus programs are said to “disinfect” programs, and may place them in special areas of memory called “quarantine.”

The importance of the process of metaphorical extension of the vocabulary can be seen from the following list of conventionalized mappings from parts of the human body:

11.38 Conventionalized metaphors of body parts in English (Ungerer and Schmid 2006: 117)

head	of department, of state, of government, of a page, of a queue, of a flower, of a beer, of stairs, of a bed, of a tape recorder, of a syntactic construction
face	of a mountain, of a building, of a watch
eye	of a potato, of a needle, of a hurricane, of a butterfly, in a flower, hooks and eyes
mouth	of a hole, of a tunnel, of a cave, of a river,
lip	of a cup, of a jug, of a crater, of a plate
nose	of an aircraft, of a tool, of a gun
neck	of land, of the woods, of a shirt, bottleneck
shoulder	of a hill or mountain, of a bottle, of a road, of a jacket
arm	of a chair, of the sea, of a tree, of a coat or jacket, of a record player
hands	of a watch, of an altimeter/speedometer

Our third feature, **asymmetry**, refers to the way that metaphors are **directional**. They do not set up a symmetrical comparison between two concepts, establishing points of similarity. Instead they provoke the listener to transfer features from the source to the target. We can take the metaphor LIFE IS A JOURNEY as an example: this metaphor is asymmetrical and the mapping does not work the other way around. We do not conventionally describe journeys in terms of life, so that it sounds odd to say *Our flight was born (i.e. arrived) a few minutes early* or *By the time we got there, the boat had died (i.e. gone)*. Even if we are able to set up such a metaphor, it is clear that the meaning would be different from that of the original structure.

Our final feature, **abstraction**, is related to this asymmetry. It has often been noted that a typical metaphor uses a more concrete source to describe a more abstract target. Again the LIFE IS A JOURNEY metaphor exhibits this feature: the common, everyday experience of physically moving about the earth is used to characterize the mysterious (and unreported) processes of birth and death, and the perhaps equally mysterious processes of ageing, organizing a career, and so on. This pattern reflects the embodiment of conceptual structures discussed earlier. This is not a necessary feature of metaphors: the source and target may be equally concrete or abstract, but as we shall see, this typical viewing of the abstract through the concrete is seen in cognitive semantics as allowing metaphor its central role in the categorizing of new concepts, and in the organization of experience.

11.4.4 The influence of metaphor

Cognitivists argue that because of their presence in speakers' minds, metaphors exert influence over a wide range of linguistic behaviors. Sweetser (1990), for example, identifies a cross-linguistic metaphor MIND-AS-BODY, as when in English we speak of *grasping* an idea or *holding* a thought. She identifies this metaphorical viewing of the mental in terms of the physical as an important influence in the historical development of **polysemy** and of cognate words in related languages. Thus in English the verb *see* has two meanings: the basic physical one of "perceiving with the eyes" and the metaphorically extended one of "understanding" as in *I see what you mean*. Sweetser discusses how over time verbs of sense perception in Indo-European languages have shown a consistent and widespread tendency to shift from the physical to the mental domain. Her claim is that this basic underlying metaphor underlies the paths of semantic change in many languages so that words of seeing come to mean understanding, words of hearing to mean obeying, and words of tasting to mean choosing, deciding or expressing personal preferences. Some of her examples are given below (1990: 32ff):

11.39 a. seeing → understanding

Indo-European root **weid-* "see":¹⁴

Greek *eídon* "see," perfective *oído* "know" (> English *idea*)

English *wise*, *wit*

Latin *video* "see"

Irish *fí* "knowledge"

b. hearing → paying attention to, obeying

Indo-European root **k'leu-s-* "hear, listen"

English *listen*

Danish *lystre* "obey"

c. tasting → choosing, expressing preferences

possible Indo-European root **g'eus* "taste"

Greek *geúomai* "taste"

Latin *gustare* “taste”
 Gothic *kiusan* “try”
 Old English *ceosan* “choose”
 Sanskrit *jus-* “enjoy”¹⁵

Sweetser’s point is that historical semantic change is not random but is influenced by such metaphors as MIND-AS-BODY. Thus metaphor, as one type of cognitive structuring, is seen to drive lexical change in a motivated way, and provides a key to understanding the creation of polysemy and the phenomenon of semantic shift. See also Heine et al. (1991) who provide a wide range of examples to support their own version of the same thesis: that metaphor underlies historical change.

In this section we have looked briefly at cognitivist investigations of the role of metaphor in language. Next we turn to a related process: metonymy.

11.5 Metonymy

We discussed metonymy in chapter 7 as a referential strategy, describing it in traditional terms as identifying a referent by something associated with it. This reflects the traditional definition in terms of **contiguity**. For cognitive semanticists metonymy shows many of the same features as metaphor: they are both conceptual processes; both may be conventionalized; both are used to create new lexical resources in language and both show the same dependence on real-world knowledge or cognitive frames. The same terminology of target and source can be used. The distinction between them is made in this literature (Lakoff and Johnson 1980, Lakoff 1987, Lakoff and Turner 1989) in terms of these cognitive frames. Metaphor is viewed as a mapping across conceptual domains, for example disease and computers in our example above of *computer virus*. Metonymy establishes a connection within a single domain. The traditional notion of contiguity can be expressed in cognitive terms using Lakoff’s idealized cognitive models (ICMs) discussed earlier. The source may support a link to the target when they both belong to the same ICM. Thus in 11.40 below the British Prime Minister’s office and residence and Downing Street in London are part of the same ICM of the UK government. Other writers describe metonymy as highlighting (Croft 1993) or activating (Barcelona 2011) different elements of an ICM for special purposes.

Various taxonomies of metonymic relations have been proposed including those by Lakoff and Johnson (1980), Fass (1991), Nunberg (1995), Kövecses and Radden (1998), and Ruiz de Mendoza and Díez (2002). We give some typical strategies below, with examples (and traditional terms in parentheses):

11.40 Types of metonymic relation

PART FOR WHOLE (synecdoche)

There are a lot of new faces in the squad.

WHOLE FOR PART (synecdoche)

Germany won the world cup.

CONTAINER FOR CONTENT

I don't drink more than two bottles.

MATERIAL FOR OBJECT

She needs a glass.

PRODUCER FOR PRODUCT

She always wears Stella McCartney.

PLACE FOR INSTITUTION

Downing Street has made no comment.

INSTITUTION FOR PEOPLE

The Senate isn't happy with this bill.

PLACE FOR EVENT

Hiroshima changed our view of war.

CONTROLLED FOR CONTROLLER

All the hospitals are on strike.

CAUSE FOR EFFECT

His native tongue is Hausa.

As with metaphor, metonymy is a productive way of creating new vocabulary. We can give just two conventionalized examples from the PRODUCER FOR PRODUCT relation: *shrapnel* from the English general who invented the type of shell, and *silhouette* from the French finance minister who designed the technique.

There have been attempts to account for the particular choice of metonymic reference points. Some choices seem more common and natural than others, for example to use *tongue* for *language* rather than *throat*, or *head* or *face* for a person rather than, say *waist*. Langacker (1993: 30) suggested a general notion of salience, where items are graded for relative salience, for example (where $>$ = more salient): human $>$ non-human, whole $>$ part, visible $>$ non-visible, and concrete $>$ abstract. Kövecses and Radden (1998) develop this idea further by appealing to experiential and in particular perceptual motivation for principles governing the choice of metonymic reference point.

We have now seen something of the related processes of metaphor and metonymy. In the next section we look at a proposal for a cognitive theory of meaning construction: mental spaces.

11.6 Mental Spaces

Mental spaces are conceptual structures, originally proposed by Fauconnier (1994, 1997), to describe how language users assign and manipulate reference, including the use of names, definite descriptions, and pronouns. Fauconnier's structures are set up in the light of a particular view of meaning: that when we study linguistic meaning we are studying the way that language provides a patchy and partial trigger for a series of complex cognitive procedures. In this view meaning is not "in" language; rather, language is like a recipe for constructing meaning, a recipe which relies on a lot of independent cognitive activity. Moreover, this process of meaning

construction is a discourse-based process, implying that typically a single sentence is only a step in the recipe and cannot be clearly analyzed without recognizing its relationship to and dependency on earlier sentences.

So Fauconnier's focus is on the cognitive processes triggered during discourse by linguistic structures. Within this, a particular topic of investigation has been the management of reference: the issue of how speakers and hearers keep track of the entities referred to in the language. The central idea is that when we are involved in using language, for example in conversation, we are continually constructing domains, so that if we talk about, say, Shakespeare's play *Julius Caesar*, we might maintain several relevant domains, or mental spaces. One domain is the world of the play, while another might be the real world, where Julius Caesar is a historical figure. Our referential practices make use of such divisions into domains so that we can use the same name *Julius Caesar* to talk about the historical person and the character in the play. Between our different uses of the name there are nevertheless links: we might want to say for example that Shakespeare's character is meant to describe the historical figure. Such processes can be quite complicated: we might go to see a performance of the play and afterwards say *Julius Caesar was too young*, referring now to the actor playing the part. Or if we saw some children running off with the foyer's life-size figure of the actor in costume, we might say *Hey, they're stealing Julius Caesar*. So we can use the same name to refer to a historical person, a role in a play written about him, an actor playing that role and a figure of that actor playing the role. Fauconnier's point is that such flexibility is inherent in our use of referring expressions: his mental spaces are an attempt to explain such behavior.

Mental spaces can be seen as a cognitive parallel to the notion of possible worlds in formal semantics, as discussed in chapter 10, since it is assumed that speakers can partition off and hold separate domains of reference. Some of these might be very complex: we might for example be talking of the world of Charles Dickens's *A Tale of Two Cities* and refer to individuals in that novel, like *Charles Darnay* and *Sydney Carton*. Or the domain might be very sparsely furnished, provoked just by a counterfactual as in *If I were you, I'd go on a diet*, where once the shift from the real to the non-real domain is made in the first clause, the *I* in the second clause identifies not the speaker but the addressee. Here, however, any further implications of this domain, or mental space, are not explored and it remains a local, minimal space.

11.6.1 Connections between spaces

One important issue is what links there might be between mental spaces. What, for example, allows us to use the name *Julius Caesar* as we did, for a historical person, a role in a play, an actor, and so on? Fauconnier (1994), building on work by Jackendoff (1975), and Nunberg (1978, 1979) discusses the way that speakers can make reference to entities by a number of indirect strategies. We can for example refer to a representation of someone by their name: so that looking at a photograph of a friend I might say *Graham looks really young*, where *Graham* refers to the picture of Graham (who in reality might look far from young). Fauconnier uses the terms **trigger** and **target** here: the name of the real Graham is the trigger and the target (what I want to describe) is the image. Clearly photographs and the people in them are related by the viewer's recognition of resemblance, but similar strategies are widespread. We can refer, for example, to a book or books by the author's name and say sentences like

Shakespeare's on the top shelf. Similarly, a nurse might say *The gall bladder in the end bed is awake*; or in a favourite type of example in this literature, a waiter might say *The ham omelette wants his bill*. As we have seen, this phenomenon has traditionally been termed **metonymy**. Fauconnier employs an **identification principle** which allows speakers to use such referential shifts; one version is in 11.41 below (Fauconnier 1994: 3):

- 11.41 If two objects (in the most general sense), *a* and *b*, are linked by a pragmatic function *F* ($b = F(a)$), a description of *a*, d_a , may be used to identify its counterpart *b*.

So since in our photograph example real Graham (*a*) and photo Graham (*b*) are linked by the pragmatic function IMAGE, a description of real Graham (his name, d_a) can be used to identify his photographic image (*b*). It is assumed that there might be a number of such pragmatic functions, as we shall see.

We can look at some more complicated examples of this referential shifting by looking at Fauconnier's account of Jackendoff's (1975) example in 11.42 below:

- 11.42 In Len's painting, the girl with blue eyes has green eyes.

Let us take as an interpretation of this sentence the situation where the speaker knows the identity of the artist's model, knows that she has blue eyes and is pointing out that the painter has decided to give her green eyes in the picture. The proposal is that here two mental spaces are set up: one is the real world (as the speaker knows it) which has in it a girl with blue eyes; the other the space of the painting which has a girl with green eyes. The sentence 11.42 explicitly connects these two girls, saying in effect they are in the image–person relationship we discussed for our hypothetical friend Graham earlier. This can be represented in figure 11.11, which shows the connection (our image relationship) as an arrow.

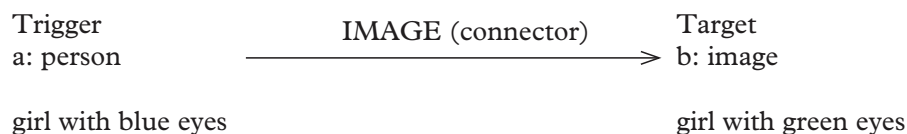
Fauconnier, following Jackendoff (1975), makes the point that this can be likened to the relationship between beliefs and reality: thus, paralleling 11.42 above we can say 11.43 and 11.44 below:

- 11.43 Len believes that the girl with blue eyes has green eyes.

- 11.44 Len wants the girl with blue eyes to have green eyes.

Here Len's belief and wish are at odds with reality as known by the speaker. In the semantics literature such examples are often described as instances of **belief contexts**. In this theory they are viewed as a mental parallel to the image relation,

Figure 11.11 Person–image connector



Source: Based on Fauconnier (1994)

Figure 11.12 World–mind connector

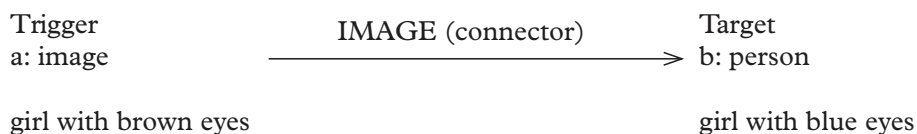
Source: Based on Fauconnier (1994)

and are represented by similar diagrams, using a belief or MIND connector, as in figure 11.12. As Fauconnier points out, the speaker can work such relationships in the other direction. Taking the image relationship as an example, a speaker might say, looking at a picture: *In reality, the girl with brown eyes has blue eyes.* Here the trigger is the image and the target is the real girl, as shown in figure 11.13.

These examples are of mental spaces created by talking of paintings and a person’s beliefs and wishes. There are in fact a whole range of linguistic elements which serve as triggers for setting up mental spaces, which Fauconnier calls **spacebuilders**. These include adverbials of location and time like *in Joan’s novel, in Peter’s painting, when she was a child, after we find the crash site*, and so on. They also include adverbs like *possibly* and *really*; connectives like *if . . . then*; and certain verbs like *believe, hope, and imagine*. The context in which a sentence is uttered will provide the anchoring or background mental space. Where spaces are stacked inside one another, the including space is referred to as the **parent** space. Often of course the default (unmarked) highest parent space will be reality, or more accurately the current speaker’s assessment of reality. Take for example, a speaker uttering the sentences in 11.45 below:

11.45 Barry’s in the pub. His wife thinks he’s in the office.

Here the initial space is the speaker’s reality (*R*) where Barry is in the pub, then the phrase *his wife thinks* sets up a new mental space (*M*) in which his counterpart Barry2 is in the office. The speaker can then develop either space, talking about what Barry1 is doing in *R* or what Barry2 is (supposedly) doing in *M*.

Figure 11.13 Image–person connector

Source: Based on Fauconnier (1994)

11.6.2 Referential opacity

One important advantage to this idea of mental spaces and links between them is that it can be used to explain the phenomenon of **referential opacity**. This is the traditionally problematic area where, as we discussed in chapter 2, knowledge interacts with reference. Let's take, for example, sentence 11.46 below to be true of a policeman called Jones:

11.46 Jones believes that the leader of the Black Gulch Gang is a sociopath.

If Jones does not know that his wife is the leader of the Black Gulch Gang we can also take the sentence 11.47 below to be true at the same time:

11.47 Jones doesn't believe his wife is a sociopath.

Because of what Jones knows, we are not ascribing contradictory beliefs to him, even though the nominals *his wife* and *the leader of the Black Gulch Gang* denote the same individual. This is a typical effect of belief contexts and in chapter 2 we saw that such examples have been used to argue that there must be more to meaning than simply denotation.

As we discussed in chapter 10, sentences like 11.46 are described as **opaque contexts**. In this type of example the opacity is associated with embedded clauses under verbs of propositional attitudes like *believe*, *want*, *suspect*, *hope*, and so on. To give another example, a sentence like 11.48 below can have two distinct interpretations:

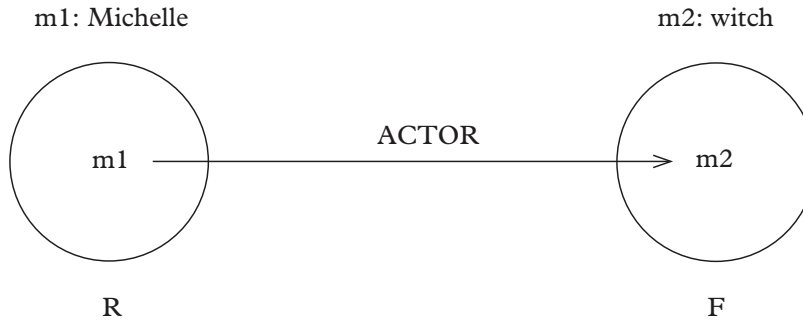
11.48 The Captain suspects that a detective in the squad is taking bribes.

If we take 11.48 to mean that the Captain suspects a particular detective, this is called the **specific** or **transparent** reading. If on the other hand we take 11.48 to mean that the Captain suspects that one of the detectives is involved but doesn't know which one, this is called the **non-specific** or **opaque** reading. In another terminology used in logic, the transparent reading (the captain knows which individual) is given the Latin label the *de re* interpretation (meaning roughly "of the thing") while the opaque reading is called the *de dicto* interpretation (roughly "of what is said").

In the mental spaces approach these two interpretations do not arise from any ambiguity in the sentence but from two different space-connecting strategies that hearers may use. Nor are opaque contexts restricted to verbs of propositional attitude: they are a regular consequence of referential strategies. To show this, we might go back to an example of identifying actors and parts. Suppose for example a speaker says 11.49 below:

11.49 In the film, Michelle is a witch.

This sentence sets up two spaces which we can identify as speaker's reality (*R*) and the film (*F*). The name *Michelle* can be used to refer in two ways. In the first there is the kind of referential shifting we described earlier: *Michelle* is the name of a person in *R*, but the speaker uses her name to describe the film images of her acting the role of a witch (here of course the film images may or may not resemble real-life Michelle). We could call this connector ACTOR. We can represent this interpretation

Figure 11.14 First interpretation of *In the film, Michelle is a witch.*

in figure 11.14. We can roughly describe this as: real-life Michelle plays the film part of a witch. In the second interpretation there is no referential shifting between the two mental spaces: *Michelle* is the name of a character in the film space and we predicate of this character that she is a witch. This interpretation can be represented as in figure 11.15. We can roughly describe this as: in the film the character Michelle is a witch.

These two interpretations are predicted to be regular options whenever two spaces are set up like this and this same behavior is used to explain the examples of referential opacity we have been looking at. If we go back to example 11.46 *Jones believes that the leader of the Black Gulch Gang is a sociopath*, the verb *believe* is a spacebuilder which adds the space of Jones's belief (call it space *B*) to the parent space, which we can take to be the speaker's reality (call this space *R*), although of course our sentence could easily be embedded in a story or someone else's belief. The transparent reading of this sentence will be where Jones knows the identity of the gang leader in reality and sets up a belief space where he describes the gang leader as a sociopath. There is therefore a referential link between the gang leader in reality and the gang leader in Jones's belief, shown by the connector arrow in figure 11.16. We can roughly describe this as: Jones knows the identity of the gang leader in *R* and in his belief space *B* the gang leader is a sociopath.

The opaque reading of this sentence will be where Jones doesn't know the identity of the gang leader in *R* but has a belief about this person in *B*: here there is no referential link between the reality space and the belief space, as we show in figure 11.17. We can roughly describe this as: Jones doesn't know the identity of the gang leader in reality but in his belief the gang leader is a sociopath.

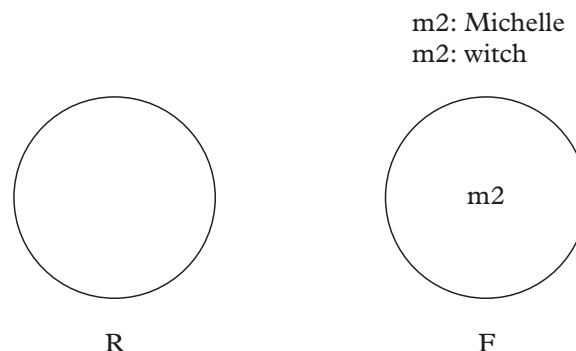
Figure 11.15 Second interpretation of *In the film, Michelle is a witch.*

Figure 11.16 Transparent reading of example 11.46

In this approach any spacebuilder can trigger such ambiguities of interpretation so that a time adverbial like *in 1966* can trigger two readings for the sentence 11.50 below:

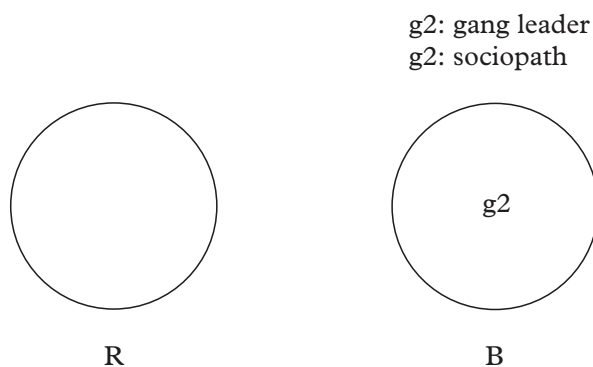
11.50 In 1966 my wife was very young.

Here two time spaces are established: the “now” of the speaker and the time 1966. The reference to the nominal *my wife* can be interpreted in two ways. The first simply identifies a wife in the 1966 time space and is consistent with the speaker either having the same wife in the “now” space or not. The second interpretation is that the person who is the speaker’s wife now was not his wife in 1966, but is referred to as *my wife* by a shift linking the mental spaces. On this type of reading there is nothing odd about the sentence *In 1966 my wife was a baby*. As Fauconnier points out, this ability to connect or not connect spaces allows the transparent non-contradictory readings for his examples in 11.51 and 11.52 below:

11.51 In Canadian football, the 50-yard line is 55 yards away.

11.52 In this new Californian religion, the devil is an angel.

In this approach then the regular system of establishing mental spaces predicts these types of referential flexibility and the prediction naturally includes referential opacity.

Figure 11.17 Opaque reading of example 11.46

The advantage over traditional accounts, perhaps, is that this approach moves the phenomenon center-stage, so to speak, in the study of reference and predicts that such ambiguities are very widespread and regular.

11.6.3 Presupposition

One further advantage of the mental spaces approach is that it unifies the account of referential opacity with an analysis of **presupposition**. In our discussion of presupposition in chapter 4 we saw that one of the problematic features is the defeasibility or cancelability of presuppositions. Thus, for example, sentence 11.53a below has the presupposition 11.53b, but this is canceled in 11.53c by the added clause:

- 11.53 a. John hasn't stopped smoking.
 b. John used to smoke.
 c. John hasn't stopped smoking, because he never smoked.

We saw that presuppositions can be canceled by various kinds of contextual information, including general background knowledge. We used examples like 11.54 and 11.55 below, where the presupposition trigger *before* in 11.54a produces the presupposition in 11.54b, while in 11.55 no such presupposition is produced because of what we know about death:

- 11.54 a. Aunt Lola drank the whole bottle of wine before she finished the meal.
 b. Aunt Lola finished the meal.

- 11.55 Aunt Lola dropped dead before she finished the meal.

We won't go into very much detail of the analysis here but the mental spaces approach explains the cancellation phenomenon by viewing presuppositions as moving ("floating" in Fauconnier's term) from space to space unless blocked by contradiction with the entities and relations (essentially the facts) identified in a space.

We can take the well-worn example of *the king of France* as an example. Fauconnier (1994: 101) discusses the example in 11.56 below:

- 11.56 Luke believes that it is probable that the king of France is bald, even though in fact there is no king of France.

Here we have three mental spaces: we begin with the first parent space of the speaker's reality *R*; then *believe* sets up a space of Luke's belief *B*; and *probable* sets up another space *P*. The presupposition *There is a king of France* originates in *P* from the sentence *The king of France is bald* and is thus a presupposition of *It is probable that the king of France is bald*. It then "floats" up to the encompassing parent space *B* and thus becomes a presupposition of *Luke believes that it is probable that the king of France is bald*. However, the presupposition is blocked from floating into the space *R* by the explicit clause *in fact there is no king of France*. The advantage of this analysis is that though the presupposition is blocked in *R* and therefore for the sentence as a whole, the analysis shows how it remains associated with parts of the sentence which relate to other spaces.

The floating or sharing of presuppositions between spaces is possible because of a general similarity principle, or laziness principle, of space creation, which Fauconnier calls optimization, as defined below:

- 11.57 Optimization (Fauconnier 1994: 91)
 When a daughter space *M* is set up within a parent space *R*, structure *M* implicitly so as to maximize similarity with *R*. In particular, in the absence of explicit contrary stipulation, assume that
- a. elements in *R* have counterparts in *M*,
 - b. the relations holding in *R* hold for the counterparts in *M*, and
 - c. background assumptions in *R* hold in *M*.

Though this is only an initial stab at such a principle, we can see that it must operate in all space building and thus not only explains the sharing of presuppositions across mental spaces but also explains why in counterfactuals like 11.58 below:

- 11.58 If I were rich, I'd move from Ireland to a Caribbean island.

we assume in the hypothetical space that the world is pretty much the same as in reality except for the speaker's increased wealth. We don't assume for example that Caribbean islands change to acquire Ireland's climate.¹⁶

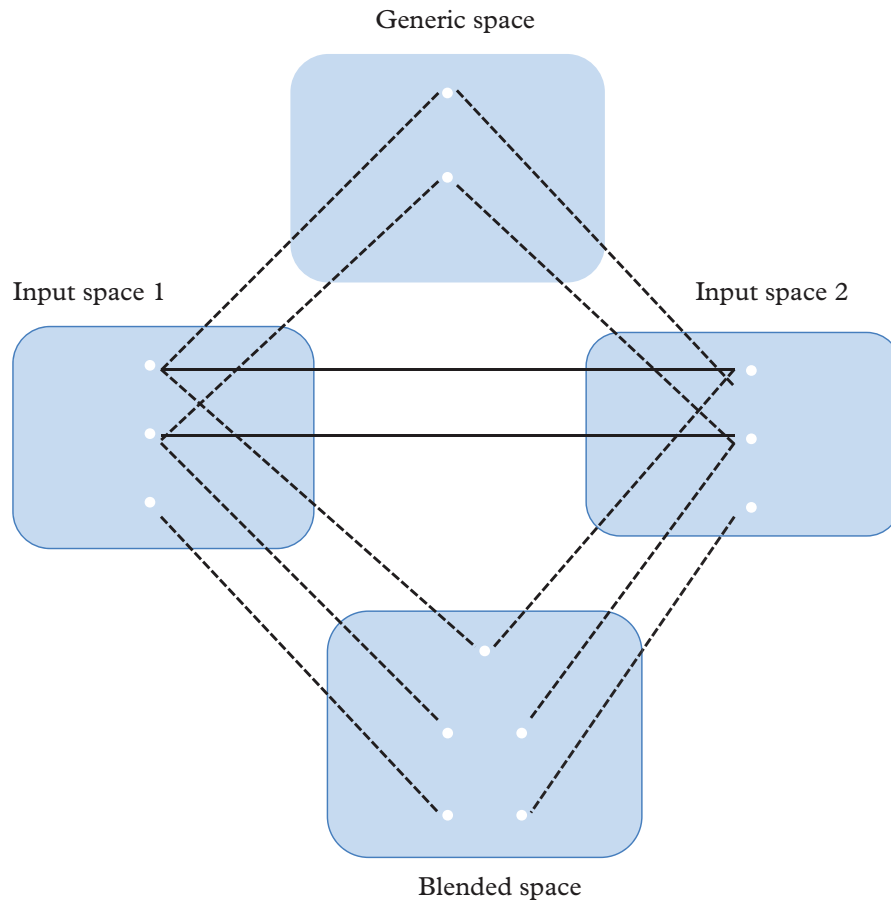
Given such a principle and the mechanism of presupposition floating, it is a straightforward prediction of this approach that all kinds of knowledge about a parent space, say reality, can cancel an incompatible presupposition.

11.6.4 Conceptual integration theory

Conceptual integration theory, or **conceptual blending**, is a development of mental spaces theory which, taking on board aspects of the notion of conceptual metaphor, seeks to account for speakers' abilities to create and develop extended analogies. In cognitive semantic terms this ability involves speakers taking knowledge from different domains of experience, viewed as mental spaces, and combining them to create a new analogy. Conceptual blending involves the creation of a relationship between four or more mental spaces. In the simplest case two of them are input spaces which combine conceptual structures that will contribute to resulting output structure. A third space, the generic space, represents a schematic structure abstracted from both input spaces. The bringing together of these spaces creates an output, the blended space that contains new conceptual structure. This can be represented in a diagram like figure 11.18, where the solid lines represent the cross-space correspondences that constitute the mapping between the input spaces, and the dotted lines represent projections between spaces. The pattern of links shows that some elements of the input spaces correspond to each other in the blended space while other elements project independently from the input spaces to the blended space.

Fauconnier and Turner (2002) discuss an application of this, the counterfactual example below:

- 11.59 If Clinton had been the *Titanic*, the iceberg would have sunk.

Figure 11.18 Conceptual integration network

This example from the time of US president Clinton's administration is a joke that works by linking knowledge about the scandals of the Clinton years with the well-known episode of the sinking of the ship, the *Titanic*. These two domains of knowledge are characterized as mental spaces that act as input to the created blend where Clinton becomes the counterpart of the *Titanic*, and the scandals the iceberg. In this blend the first input space contains knowledge about Clinton, threatened by scandals but surviving; the second contains knowledge about the sinking of the *Titanic*. The generic space contains a schema about an entity experiencing threats. The blended space links elements from these domains to create a new scenario, where, far from being harmed, the Clinton-*Titanic* sinks the scandal-iceberg, reversing the causal relationship between the ship and the iceberg (Fauconnier and Turner 2002: 222). An important feature of blends such as this is that they create material that is not in any of the input spaces; and speakers can elaborate the blend as far as they wish. This is often referred to as the blend's emergent structure.

Fauconnier and Turner (1998) propose a number of principles that constrain the creation of conceptual blends. Grady et al. (2007: 425–26) describe them as follows:

11.60 Principles of Conceptual Integration

a. Integration:

The scenario in the blended space should be a well-integrated scene.

b. Web:

Tight connections between the blend and the inputs should be maintained, so that an event in one of the input spaces, for instance, is construed as implying a corresponding event in the blend.

c. Unpacking:

It should be easy to reconstruct the inputs and the network of connections, given the blend.

d. Topology:

Elements in the blend should participate in the same sorts of relations as their counterparts in the inputs.

e. Good reason:

If an element appears in the blend, it should have meaning.

f. Metonymic tightening:

Relations between elements from the same input should become as close as possible in the blend.

Grady et al. (2007: 426) suggest that these principles are flexible and combine under tension in the creation of a blend. They reflect the cohesion and dynamism of successful blends.

Example (11.59) above is taken to be merely a striking and original example of a much more general process.¹⁷ Fauconnier and Turner (1996, 1998) discuss another example: of a present-day philosophy professor positioning his views relative to Immanuel Kant's by an imaginary debate:

11.61 I claim that reason is a self-developing capacity. Kant disagrees with me on this point. He says it's innate, but I answer that that's begging the question, to which he counters, in *Critique of Pure Reason*, that only innate ideas have power. But I say to that, what about neuronal group selection? He gives no answer.

This is taken as a more everyday example of conceptual integration. The input spaces contribute information about the speaker on the one hand, and Kant on the other, but the blended space has its own emergent features. These include the debate, particularly the fact that the contemporary philosopher and Kant, who lived 1734–1804 and wrote his works in German, are engaging with each other at the same point in time and using the same language, English.

Conceptual blending theory has been applied to a variety of linguistic processes from the formation of lexical blends, such as *hacktivist* and *infobesity*, and lexical compounds, such as *bank deserts* and *digital wildfire*, to the creation of proverbs (Andersson 2013), for example, *Necessity is the mother of invention*, jokes (Coulson 2001), advertisements (Joy et al. 2009), fiction (Dancygier 2012) and literary language in general (Turner 2006). There is a growing literature on blending as cognitive semanticists have sought to identify the sub-processes involved in the creation of blends. These include processes of composition, where the speaker creates links between spaces, in our example by links of identity; of completion, where speakers can bring in and rely on knowledge from the relevant spaces; and of elaboration, where the blend's innovative structure is developed and new inferences formed (Fauconnier and Turner 2008). As with metaphor earlier, blending is proposed as a cognitive

process that is more general than language: blending has been identified in non-linguistic areas such as rituals (Sweetser 2000).

11.6.5 Section summary

At this point we must leave our discussion of mental spaces. From our brief view of this theory, we can see that in proposing these mental structures, Fauconnier has created a procedural view of the creation of meaning, where very simple processes of space formation and linking are triggered by the linguistic input and combine to allow the participants considerable flexibility in the manipulation of reference and knowledge about domains. The diagrams we have seen in this section are a form of notation which helps us to view these various referential strategies as a unified phenomenon. As such, of course, these are still linguistic tools, which presumably must be translated into realistic psychological models. As we have seen, one advantage of this approach is that it firmly situates referential opacity and belief contexts in a family of regular linguistic processes. Thus they are not seen as irregular or exceptional features of languages but as part of the wonderful referential flexibility allowed to speakers by the semantic structures of their languages. The theory has been applied to a variety of other areas including tense, mood, and counterfactuals; see Fauconnier (1997) for details. An important development is conceptual blending theory, a dynamic model of how speakers selectively integrate elements of input spaces to create novel blended spaces; this is applied to a wide range of linguistic and cognitive processes in Fauconnier and Turner (2002). In the next section we look briefly at Ronald W. Langacker's theory of Cognitive Grammar, which identifies a range of other cognitive processes important in language.

11.7 Langacker's Cognitive Grammar

Ronald W. Langacker (especially 1987, 1991, 1999, 2002, 2008, 2009) has proposed a theory called Cognitive Grammar that has been very influential in the development of the cognitive linguistics approach. As we have noted at several points, this theory makes no distinction between grammar and semantics. The lexicon, morphology and syntax are all seen as symbolic systems. A linguistic sign is in this view a mapping or correspondence between a semantic structure and a phonological structure. This is a familiar view of lexical items but Langacker views grammar in the same light. Grammatical categories and constructions are also symbols. This may sound no different than the basic assumption of all linguists who rely on the notion of compositionality: sentences are articulated groupings of words, which are sound-meaning mappings. However, Langacker differs from the structuralist and formalist grammatical traditions, in viewing larger structures as directly symbolic in the same way as words. Moreover, in a departure from the traditional view of levels of analysis, items at all levels of the grammar are characterized in the same conceptual terms. This is a view we shall see developed further in section 11.8 when we discuss Construction Grammar.

We can outline some important features of this approach, beginning by looking at how the categories of noun and verb are characterized in semantic/conceptual terms,

and related to a cognitive account of clause structure. Thereafter we move on to look at the importance of construal in this theory.

11.7.1 Nouns, verbs, and clauses

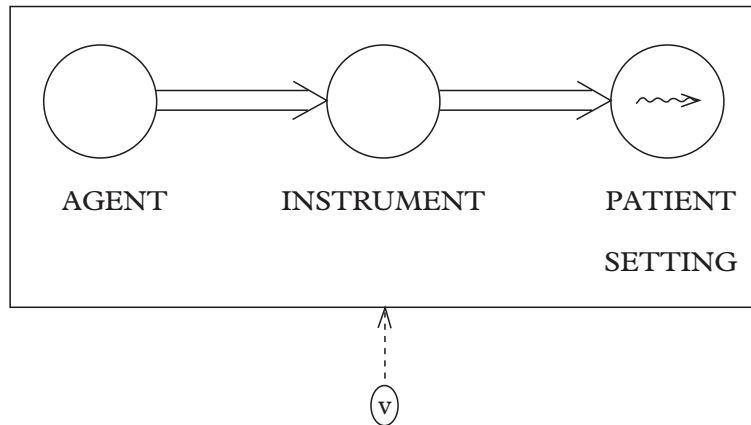
In this theory linguistic categories reflect conceptual models, such as the idealized cognitive models (ICMs) we discussed in section 11.2.1. Among such models Langacker identifies a naïve world-view that he calls the **billiard-ball model**. This is a view or theory of reality that incorporates concepts of space, time, energy, and matter. He describes it as follows:

- 11.62 These elements are conceived as constituting a world in which discrete objects move around in space, make contact with one another, and participate in energy interactions. Conceptually, objects and interactions present a maximal contrast, having opposite values for such properties as domain of instantiation (space vs. time), essential constituent (substance vs. energy transfer), and the possibility of conceptualizing one independently of the other (autonomous vs. dependent). Physical objects and energetic interactions provide the respective prototypes for the noun and verb categories, which likewise represent a polar opposition among the basic grammatical classes. (Langacker 1991: 283)

Thus the linguistic categories of noun and verb are characterized in terms of a cognitive model, a conceptual partitioning of reality. Though the quotation above identifies physical objects as the prototypical nouns, the crucial cognitive process is the bounding of a portion of experience to create a thing distinct from its surroundings. So nouns may describe time-stable states and of course may describe processes or “interactions” normally identified by verbs, as in *his arrival among us* or *dieting is bad for you*. This characterization emphasizes that the conditions for something being a noun are not objectively out in the world but a product of cognitive processes and a communicative decision.

The model in 11.62 extends naturally to the characterization of the prototypical transitive clause. Langacker describes this from the viewpoint of a speaker wanting to communicate a description of an event or scene. The initial identification of a scene is described (1987: 6) as the “chunking into discrete events of temporally contiguous clusters of interactions observed within a setting.” The tasks of a describer in this account include distinguishing between the occurrence and the setting, establishing a vantage point, determining what types of entities are to be interpreted as participants and identifying their forms of interaction. A schema of a canonical transitive event is given in figure 11.19.

In this schema the viewer, shown as V, is outside the setting and thus is not a participant, making this a third-person report of an event. The viewer identifies three elements in an **action chain**: an asymmetrical relationship where energy is transmitted from one entity to a second entity, and in this case on to a third. In figure 11.19 the energy transfer is shown as a double-shafted arrow, and the wavy arrow in the PATIENT represents the change of state within this entity caused by the interaction. This schema describes a prototypical case where energy originates with an AGENT and ends with a PATIENT, via an intermediate entity the INSTRUMENT.

Figure 11.19 Prototypical event schema

Source: Based on Langacker (1990: 209ff.)

Thereafter, in choosing to talk about this scene the speaker is faced with a number of choices. An important emphasis in this theory is on the speaker's active characterization of scenes, employing the conventional conceptualizations of language and a range of cognitive processes. A general term for these processes is **construal**: as we mentioned earlier, a basic tenet of cognitive linguistics is that speakers can construe a scene in alternative ways. We will now discuss some aspects of this choice of construal.

11.7.2 Construal

One type of construal discussed by Langacker is **profiling**: within the action chain the speaker can choose to profile certain segments of the chain. We can use Langacker's (2008: 369) example of *Floyd broke the glass with a hammer* to illustrate the possibilities below, where each sentence profiles a different part of the depicted action chain:

- | | | | |
|-------|----|--------------------------------------|--|
| 11.63 | a. | Floyd broke the glass with a hammer. | $AG_s \Rightarrow INSTR \Rightarrow PAT_O \rightarrow$ |
| | b. | The hammer broke the glass. | $AG_s \Rightarrow INSTR_s \Rightarrow PAT_O \rightarrow$ |
| | c. | The glass broke. | $AG_s \Rightarrow INSTR \Rightarrow PAT_s \rightarrow$ |

We can see here Langacker proposing his own version of the mapping hierarchies we saw in chapter 6 proposed by Dowty (1991) to relate thematic roles, grammatical relations and syntactic structure. This is a characterization of subjects based on the focal prominence of agents. For discussion, the reader is referred to Langacker (2008: 366–82).

Another important notion is **perspective**, which in Langacker (1987) is taken to include the notions of **viewpoint** and **focus**. This notion of perspective is a reflection of the importance that cognitivists attach to the role of the observer in scenes: in particular, the selection of the observer's viewpoint and the choice of elements to focus on. We can take as a simple example of the former the choice between external

and internal viewpoints of a container, as reflected in the two interpretations of the preposition *around* in sentence 11.64 below:

11.64 The children ran around the house.

If we choose an external viewpoint of the house as a container, this sentence describes a scene where the children's motion circles the outside of the house, whereas if we choose an internal viewpoint, the children are moving around within the house's internal space.

We saw something of the linguistic implications of focus in chapter 7 and again in chapter 9, when we discussed Leonard Talmy's analysis of motion events into features including **Figure** and **Ground**, as in for example Talmy (1975, 1985). We saw there that the Figure (which Langacker terms the **trajector**) is an entity chosen to stand out in some way from the background, the Ground (called the **landmark** by Langacker). In the case of motion events, the entity which is moving with respect to stationary surroundings tends to be chosen as the Figure. The choice to focus on either Figure or Ground in a scene can have lexical significance: Talmy (1985) describes the choice in English between the verbs *emanate* and *emit* in 11.65 and 11.66 below:

11.65 The light emanated from a beacon.

11.66 The beacon emitted light.

The verb *emanate* requires the Figure as subject; while *emit* requires the Ground as subject. Talmy argues therefore that choosing the former reflects a choice of focus on the Figure; and the latter, focus on the Ground. As we saw in earlier chapters, sometimes the choice of focus involves not separate verbs but different argument structures for the same verb, as in the pairs below:

11.67 a. The bees swarmed in the field.
b. The field swarmed with bees.

11.68 a. The ice glistened in the moonlight.
b. The moonlight glistened on the ice.

For Langacker the trajector/landmark distinction is fundamental to all relational expressions, including the subject/object distinction, spatial distinctions such as *X is above Y* or *Y is below X*, and the semantics of motions verbs like *come*, *go*, *leave*, and *enter*.

There are other related processes of construal proposed in this theory, for example **scanning** (Langacker 1987: 101–05), by which speakers are able to structure a scene in order to form a description. Langacker makes a distinction between **sequential** and **summary** scanning. These are different ways that a reporter may construe a scene. Sequential scanning is a way of viewing a process as a sequence of component sub-events. Summary scanning is a way of viewing a process as a complete unit where all its sub-events are viewed as an integrated whole. Langacker proposes that this difference is reflected in grammar in a number of ways including a speaker's decision to use a noun or a verb to describe an event. So someone going into a room

or falling off a cliff can be viewed in sequential mode and described verbally as in the a sentences in 11.69–70 below, or be viewed in summary mode and described with nominals as in the b versions:

- 11.69 a. Keegan entered the room.
b. Keegan's entrance into the room
- 11.70 a. Wheeler fell off the cliff.
b. Wheeler's fall from the cliff

Langacker uses an analogy to bring out the difference between these modes: sequential scanning is like viewing a motion picture sequence while summary scanning is like viewing a still photograph.

These examples of viewpoint, focusing, profiling and scanning reveal the importance attached in this theory, and in cognitive linguistics generally, to the role of the speaker's construal of a situation in determining meaning.

11.8 Construction Grammar

Construction Grammar (CG) developed from work by cognitive linguists such as Lakoff (1987), Fillmore et al. (1988), Langacker (1987, 1991) and is a cognitive theory (or group of theories) that began with the recognition that grammatical constructions may map to semantic or conceptual representations in a similar way to lexical items. Fillmore et al. (1988) discussed a number of English constructions such as the comparative construction *the X-er the Y-er* as in 11.71 below and analyzed in great detail the coordination construction with *let alone*, schematically *X A Y let alone B* as in 11.72 (where the capitals show intonational focus):

- 11.71 a. The more carefully you do your work, the easier it will be.
b. The bigger they come, the harder they fall.
- 11.72 a. I was too young to serve in World War TWO let alone World War ONE.
b. I barely got up in time to EAT LUNCH let alone COOK BREAKFAST.

These constructions cause problems for standard views of syntax where the verb projects the argument structure for the clause, as in the thematic role grids discussed in chapter 6. Fillmore et al.'s analysis of the meaning of such constructions shows that they have a conventional meaning that is not dependent on the verbs that occur in them. In traditional terms this would be nonstandard semantic composition. This might suggest that these constructions be treated as a form of idiom. However Jackendoff (1990, 1997) and Goldberg (1995) discuss other English constructions such as the caused-motion construction in 11.73 below, which has the schematic syntactic form *SUBJ V OBJ PP* and means "X causes Y to move along a path represented by the PP," and the sound-motion construction in 11.74 which has the form *V PP* and means "go PP while emitting sound of type W":

- 11.73 a. She sneezed the powder off the table.
b. The audience laughed him off the stage.

- 11.74 a. The car screeched around the corner.
 b. The two planes roared into the night sky.

These cause the same problems for a traditional view of verb-projected argument structure. The verb *sneeze* in 11.73 a, for example, is normally intransitive, not normally causative, nor selects a Path argument. Thus the syntactic and semantic characteristics of the verb do not seem to be licensing the structure of the clause in the predictable way. In fact the verb seem to be adding a Manner component to a motion event. We could account for this by simply adding the additional senses and syntax to the specification of the verb but this would suffer the disadvantage of obliging us to do this for all verbs that can occur in this construction, and other similar ones, and also leave us with no explanation for the apparent disjunctions in meaning. The alternative strategy of treating the constructions as unanalyzable idioms is undercut both by the fact that there do seem to be semantic regularities in their construction, for instance for the examples in 11.73 the causation and motion elements of what Goldberg (1995) characterizes as a caused-motion scene, and by the productivity of these constructions. The Construction Grammar solution is to allow constructions to have meaning in themselves and thus to license argument structure.

Other constructions identified in the literature include the **resultative** in 11.75 below (Goldberg and Jackendoff 2004), which, as the schematic syntactic form SUBJ V OBJ X-COMP and means “X causes Y to become Z”; and the time-away construction in 11.76, which has the form V –NP[time period] *away*, and means “spend NP V-ing”

11.75 Isabel combed her hair dry.

11.76 Alexander danced the night away.

Here again the constructions contribute their own element of meaning instead of being entirely the compositional result of the meanings of their words.

Rather than viewing these constructions as an alternative form of mapping between form and meaning, Goldberg (2006) argues for a general **constructionist** view of language that covers all form–meaning relations. In this view all linguistic expressions from words to clauses exhibit form–meaning correspondences. In constructions larger than words the meaning is a combination of word meaning and construction meaning. Goldberg (2009: 95–96) uses the example of the verb *cook* in a range of syntactic constructions as in 11.77 below (where the constructions are named in parentheses):

- | | | | |
|-------|----|--|----------------------------|
| 11.77 | a. | The chicken cooked all night. | (intransitive inchoative) |
| | b. | Pat cooked the steaks. | (transitive) |
| | c. | Pat cooked the steak well-done. | (resultative) |
| | d. | Pat cooks. | (deprofiled object) |
| | e. | Pat cooked Chris some dinner. | (ditransitive) |
| | f. | Pat cooked her way into the Illinois State bake-off. | (<i>way</i> construction) |

Goldberg suggests that the verb *cook* adds a consistent meaning to each of these examples, of preparing food by heating, while the constructions contribute individual elements of meaning: of change of state in a; someone acting on something

in b; someone causing something to change state in c; someone acting generically in d; someone intending to cause someone to receive something in e; and someone (metaphorically) moving somewhere in f. The task then is to characterize the semantic interaction between verbs and constructions that license their co-occurrence. Goldberg (1995) suggests that this involves the creation of a semantic link between the event denoted by the verb and the event denoted by the construction. Such links include semantic categories of means, manner, and result. These links allow the combination of the arguments licensed by both verb and construction. So in 11.73a the verb *sneeze* contributes manner information to the caused motion construction and while only licensing a single subject argument it occurs with two additional arguments, a direct object and a prepositional phrase that indicates the Path of the motion.

There are a number of varieties of Construction Grammar in the literature, including the Cognitive Construction Grammar we have been discussing (Goldberg 1995, 2006, 2009), the typologically oriented Radical Construction Grammar (Croft 2002) and computationally oriented Embodied Construction Grammar (Bergen and Chang 2005). A central claim of all these accounts is that there is no strict division between grammar and the lexicon: form and meaning are associated in similar ways with units of all sizes from words to sentences. As we saw in the last section, Langacker (e.g. 2008) calls these **symbolic units**; he proposes that they are arranged on a continuum of schematicity, or conversely specificity. Units at one pole are more phonologically and semantically specific, such as words, while at the other they are more abstract and schematic, such as constructions. However, the same form–meaning relation holds for all and they can be characterized in the same way.

11.9 Summary

In this chapter we have reviewed the approach known as cognitive semantics. We have seen that it includes a group of theoretical approaches that, influenced by cognitive psychology, rejects many of the assumptions and methods of what they characterize as the formal approach to language, arguably the dominant paradigm of the twentieth century. Cognitive linguists propose that linguistic structure is not qualitatively distinct from general cognitive structures and processes. In rejecting the classical theory of categories they adopt an experientialist basis for meaning. Cognitive semanticists propose that the common human experience of maturing and interacting in society motivates basic conceptual structures which make understanding and language possible. They propose a range of structures that are characterized by positing no distinction between linguistic knowledge and general or encyclopedic knowledge. These include Johnson's (1987) pre-linguistic **image schemas** and Lakoff's (1987) **radial categories** that seek to explain the polysemy of words. These notions have been developed in the subsequent literature and have been central to the description of **metaphor** and **metonymy**, both seen as general cognitive process rather than linguistic devices. We saw in Fauconnier's (1994, 1997) theory of **mental spaces** a mechanism for explaining how participants in a discourse maintain referential links, set up referential domains and regulate knowledge sharing between them. **Conceptual integration theory** (Coulson 2000, Fauconnier and Turner

2002), often called **blending** for short, seeks to account for a speaker's abilities to integrate conceptual structures in dynamic and novel ways.

In the final sections we turned to how this conceptual theory impacts on the understanding of grammar. We saw the importance in Langacker's (2008) Cognitive Grammar of the cognitive processes which underpin the speaker's construal of a scene, for example by determining **perspective**, selecting **viewpoint**, establishing **Figure-Ground focus**, **profiling**, and **scanning**. In Construction Grammar we saw the claim that linguistic expressions larger than words show the same form-meaning relations as words themselves. The result is the complete integration of grammar and meaning, with these form-meaning pairings being termed **symbolic assemblies** (Langacker 2008) or **constructions** (Goldberg 2006).

In earlier chapters we discussed the claim that semantic representations have to be grounded in some way, if semantic analysis is not to be simply a form of translation. In chapter 10 we saw that in formal semantics this is done by establishing denotational links with the external non-linguistic world. In this chapter we have seen that in cognitive semantics a similar grounding is sought but, not directly in reality (which in this view is not directly accessible) but in conceptual structures derived from the experience of having human bodies and of sharing in social conventions, and all that this implies.

EXERCISES

11.1 In this chapter we discussed the tendency for prepositions to exhibit **polysemy**. As we saw, within cognitive semantics this is described in terms of extension from a prototypical image schema. Below we give examples of three English prepositions: *on*, *under*, and *over*. For each set of examples discuss any differences you detect in how the preposition leads you to conceive of the spatial relations. Discuss how you could informally capture the shared meaning. Then try to use schemas like the diagrams we saw in section 11.3 to capture the distinctions you identify. (Similar examples are discussed in Lakoff 1987, Brugman 1988, and Vandeloise 1991.)

a. *on*

The camera is on the table.

The fly is on the ceiling.

The painting is on the wall.

The shoe is on my foot.

The leaves are on the tree.

The house is on fire.

b. *under*

The mechanic is under the car.

Under the wallpaper the plaster is very damp.

Our next goal is to explore under the oceans.

It can breathe under water.

We have the house under surveillance.

Try looking under “Crime Novels.”

c. *over*

The horse jumped over the fence.

The boys walked over the hill.

The hawk hovered over the field.

The bridge stretches over the highway.

The runner looked over her shoulder at the following group.

He’s over the worst.

11.2 In a cognitive semantic approach the uses of language in the examples below are seen as metaphorical. For each example try to identify the underlying **image schema** from the list of Containment, Path, Compulsion, and Blockage:

- a. She’s fallen out of love with him.
- b. The director didn’t let us deviate from the script.
- c. They leaned on him to take a loan.
- d. You can’t get out of this contract if you change your mind.
- e. The meeting ran smoothly to its conclusion.
- f. You will have to learn how to push past the pain barrier.
- g. He was blown away by her performance.
- h. She’s definitely headed for stardom.
- i. The minimum wage will not obstruct job creation.
- j. We saw a man who appeared to have stepped out of the last century.

11.3 Give example sentences in English, or any other language you know, of the **metaphors** LOVE IS A JOURNEY, IDEAS ARE OBJECTS, and TIME IS MOTION.

11.4 For the metaphors you gave in exercise 11.3, try to establish some of the systematic correspondences between the two concepts.

11.5 For any two languages you know discuss similarities and differences in conventionalized metaphors of body parts (e.g. head of a bed, hand of a watch).

11.6 Discuss the types of **metonymic relationship** involved in the use of the nominals in bold in the examples below:

- a. **The BMW** is waiting for his ticket.
- b. The gallery has just bought **a Monet**.
- c. The demonstrators saw **Iraq** as another **Vietnam**.
- d. **Brighton** welcomes careful drivers.
- e. **The piano** upstairs keeps waking the baby.
- f. We do all the stuff **the back office** don't do.

11.7 Provide your own examples of the following metonymic strategies:

- a. CONTAINER FOR CONTENTS
- b. WHOLE FOR PART
- c. PART FOR WHOLE
- d. CONTROLLER FOR CONTROLLED
- e. OBJECT USED FOR USER

11.8 Clearly different prepositions allow different characterizations of spatial relations. However, if we compare two prepositions, say English *on* and *in*, we may find different conceptualizations chosen between individual speakers or between dialects. For example in Irish English, some people, speaking of an item of news, might say *It was **on** the newspaper yesterday*, while others might say ***in** the newspaper*. How would you describe the two different metaphorical strategies in this example? Below are pairs of sentences differing only in the choice of *on* and *in*. Discuss the meaning relationship between the sentences in each pair. Once again discuss whether diagrammatic schemas would help your analysis.

- 1 a. I heard it on the radio.
b. I heard it in the radio.
- 2 a. I heard it on the news.
b. I heard it in the news.
- 3 a. He lay on his bed.
b. He lay in his bed.
- 4 a. He lay on his deathbed.
b. He lay in his deathbed.
- 5 a. I put a new engine on the car.
b. I put a new engine in the car.
- 6 a. I put a new set of tires on the car.
b. I put a new set of tires in the car.
- 7 a. The children on the bus need to be counted.
b. The children in the bus need to be counted.

11.9 Using the theory of **mental spaces**, **spacebuilders**, and **referential connectors** outlined in this chapter, discuss the referential interpretations of the items in bold in the sentences below:

- a. In the novel, **Hitler** wins **World War II**.
- b. If **I** were **you** I'd ask **myself** "Why?"

- c. On Sundays **the 8 a.m. bus** leaves an hour later.
- d. In 1947 **the president** was a child.
- e. In Andy Warhol's prints **Marilyn Monroe's face** keeps changing color.

11.10 Discuss the **conceptual blends** in the examples below:

- a. Let's respect our Mother Earth.
- b. They're digging their graves with their teeth.
- c. Edinburgh is the Athens of the North.
- d. Ireland is the poster child of austerity.
- e. If department stores are the cathedrals of commerce, Christmas windows are the stained glass that lifts the spirits of the faithful.¹⁸

FURTHER READING

A lively introduction to cognitive semantics is Lakoff (1987), which has been very influential in the development of this approach. Kövecses (2002) is a book-length introduction to Conceptual Metaphor Theory. Gibbs (2008) includes an interdisciplinary collection of essays on metaphor. Benczes et al. (2011) contains articles on cognitive approaches to metonymy. Fauconnier and Turner (2002) discusses the theory of conceptual blending. Oakley and Hougard (2008) contains articles on mental spaces and conceptual integration. Langacker (2008) provides an overview of his Cognitive Grammar. There are a number of good general introductions to cognitive linguistics, in particular Croft and Cruse (2004), Ungerer and Schmid (2006), and Evans and Green (2006). Geeraerts (2006) and Evans et al. (2007) provide important selections of primary readings. Evans (2014) presents the general case for the cognitive linguistic view of language.

NOTES

- 1 The label *cognitive* is used in this approach in a number of related ways. Ronald W. Langacker uses the term *cognitive grammar* to describe his own and close colleagues' work, in for example Langacker (1987, 2008). George Lakoff (1988) uses *cognitive semantics* as a cover term for the work of a number of scholars including Langacker, Lakoff himself, Claudia Brugman, Mark Johnson, Gilles Fauconnier, Leonard Talmy, and Eve Sweetser, among others. References to work by these authors can be found in the end-of-chapter references. As we note, this a very varied group of scholars, working on different topics and not always sharing the same interests. However, there are unifying factors: there is an International Cognitive Linguistics Association, which publishes a journal *Cognitive Linguistics*, holds an annual conference, and links researchers who share the basic outlook we describe here. In this chapter we will use the term *cognitive semantics* in the spirit of Lakoff (1988) as a loose, inclusive term for scholars who, while they may not form a tight, coherent school of thought, do share some basic assumptions about the direction a semantic theory must take.
- 2 For such views see J. A. Fodor (1983) and Chomsky (1988).

- 3 For discussion of these aims, and a rejection of them as premature for linguistics, see Fauconnier (1994: xxviii–xlvi).
- 4 See Saussure (1974) for discussion.
- 5 Heine et al. (1991) discuss examples of such processes of grammaticalization. These include full lexical nouns becoming pronouns, e.g. (p. 35) “Latin *homo* ‘person, man’ to French *on* (impersonal subject pronoun), German *Mann* ‘man’ to *man* (impersonal subject pronoun), and Latin *persona* ‘person’ to French *personne* (negative pronoun, negation marker).” Another example (p. 131) is of nouns for parts of the body becoming spatial adverbs and prepositions, as in the example of Swahili, where what was historically a noun **mbele* “breast” became a noun *mbele* “front” and then an adverb “in front” as shown below:

Gari liko mbele
car is front
“The car is in front, ahead.”

Similar processes have been identified for a number of African languages; see Heine et al. (1991) for discussion.

- 6 This of course leaves open the question of the “fit” between human categorization and what is really out there in the world. The cognitivist position is consistent with a range of views. The point perhaps is that from a linguistic perspective, it is the mapping between language and conceptual structure that is crucial. Clearly conceptual structure is intimately related to perception: for example we don’t have words in our ordinary vocabulary for the light wavelengths we cannot see as color, or to describe the sound waves we cannot hear. The perceptual and experiential basis of conceptual categories is an important topic of inquiry in cognitive semantics. See the relations identified in Mark Johnson (1987) for example, which we discuss in section 11.2.2.
- 7 A similar notion is that of *frames* in Frame Semantics (Fillmore 1985, Fillmore and Atkins 1992), which are bodies of real-world knowledge against which words are interpreted and which influenced the notion of *scripts* discussed in chapter 7.
- 8 Our discussion concentrates on what might be termed *corporeal* embodiment, that is the effect that characteristics of the human body may have on language, and *experiential* embodiment, the influences of the experiences an individual has had. The cognitive semantics literature also discusses *neural* embodiment, the influence of how the brain is structured, and *social* embodiment, the effects of the social purposes to which language is put and the social contexts in which it is used. See Rohrer (2007) for discussion.
- 9 These are equivalent to the terms **Figure** and **Ground** we met in chapter 9 in our discussion of Leonard Talmy’s description of motion events (e.g. Talmy 1985).
- 10 Example 11.2 is from the article *300: Rise of an Empire action film assaults US box office* by Jeremy Kay in the British newspaper *The Guardian*, Monday March 10, 2014. Example 11.3 is from the article *Oscars 2014: is any director strong enough to unite the Academy?* by Tom Shone in *The Guardian*, Tuesday February 25, 2014.
- 11 For a discussion of this distinction between classical and Romantic views of metaphor, see the accessible overview in Hawkes (1972), and the more extended discussions in Black (1962), Ortony (1979) and Kittay (1987).
- 12 Given what we have already said about the cognitivist rejection of objectivist semantics, it is interesting to read the remarks of the English Romantic poet Samuel Taylor Coleridge in a letter to James Gillman, written in 1827 (cited in Hawkes 1972: 54–55):

It is the fundamental mistake of grammarians and writers on the philosophy of grammar and language to suppose that words and their syntax are the immediate representatives of *things*, or that they correspond to *things*. Words correspond to thoughts, and the legitimate order and connection of words to the *laws* of thinking and to the acts and affections of the thinker’s mind.

- 13 From *Science* magazine, volume 345, no. 6201, pp. 1106–07, September 5, 2014: “Three-part ancestry for Europeans” by Ann Gibbons.
- 14 The symbol * is used in example 11.39, as in historical linguistics, to identify a hypothetical reconstructed form.
- 15 We could of course add modern Indo-European examples like French *goûter* “taste,” Spanish *gustar* “please,” *gustarse* “like,” etc.
- 16 This principle can be seen as a cognitive parallel to the notion in formal semantics of **resemblance** or **similarity** between possible worlds; see Stalnaker (1968) and Lewis (1973) for discussion.
- 17 This blend was striking and memorable enough to be quoted later by Clinton’s successor, president George W. Bush, at the dedication of the Clinton Presidential Center in Little Rock, Arkansas (Press Release, November 18, 2004, Office of the Press Secretary, The White House, Washington DC).
- 18 Imogen Fox, *The Guardian* newspaper, November 9, 2007, G2, p. 18.

REFERENCES

- Allwood, Jens 1999: Semantics as meaning determination with semantic-epistemic operations. In: J. Allwood and P. Gärdenfors (eds.) *Cognitive Semantics*, 1–18. Amsterdam: John Benjamins.
- Anderson, M. 2003: Embodied cognition: A field guide. *Artificial Intelligence* 149: 91–130.
- Andersson, Daniel 2013: Understanding figurative proverbs: a model based on conceptual blending. *Folklore* 124.1: 28–44.
- Barcelona, Antonio 2011: Reviewing the properties and prototype structure of metonymy. In Benczes et al. (eds.), 7–60.
- Benczes, Réka, Antonio Barcelona, and Francisco José Ruiz de Mendoza Ibáñez (eds.) 2011: *Defining Metonymy in Cognitive Linguistics: Towards a Consensus View*. Amsterdam: John Benjamins.
- Bergen, Benjamin K. and Nancy Chang 2005: Embodied Construction Grammar in simulation-based language understanding. In J.-O. Östman and M. Fried (eds.), *Construction Grammar(s): Cognitive and Cross-Language Dimensions*, 147–90. Amsterdam: Johns Benjamins. (Reprinted in Evans et al. (eds.) 2007.)
- Black, Max 1962: *Models and Metaphors*. Ithaca, NY: Cornell University Press.
- Blank, Andreas and Peter Koch (eds.) 1999: *Historical Semantics and Cognition*. Berlin: Mouton de Gruyter.
- Brugman, Claudia 1988: *The Story of Over: Polysemy, Semantics and the Structure of the Lexicon*. New York: Garland.
- Brugman, Claudia and George Lakoff 1988: Cognitive topology and lexical networks. In S. Small, G. Cottrell, and M. Tanenhaus (eds.) *Lexical Ambiguity Resolution: Perspectives from Psycholinguistics, Neuropsychology and Artificial Intelligence*, 477–508. San Mateo, CA: Morgan Kaufmann.
- Charles, David 2002: *Aristotle on Meaning and Essence*. Oxford: Clarendon Press.
- Choi, Soonja 2006: Influence of language-specific input on spatial cognition: categories of containment. *First Language* 26.2: 207–32.
- Chomsky, Noam 1988: *Language and Problems of Knowledge. The Managua Lectures*. Cambridge, MA: MIT Press.
- Coulson, Seana 2000: *Semantic Leaps*. Cambridge: Cambridge University Press.
- Coulson, Seana 2001: What’s so funny? Conceptual blending in humorous examples. In V. Herman (ed.). *The Poetics of Cognition: Studies of Cognitive Linguistics and the Verbal Arts*. Cambridge: Cambridge University Press.
- Croft, William 1993: The role of domains in the interpretation of metaphors and metonymies. *Cognitive Linguistics* 4.4: 335–70.

- Croft, William 2002: *Radical Construction Grammar: Syntactic Theory in Typological Perspective*. Oxford: Oxford University Press.
- Croft, William and D. Alan Cruse 2004: *Cognitive Linguistics*. Cambridge: Cambridge University Press.
- Dancygier, Barbara 2012: *The Language of Stories: A Cognitive Account*. Cambridge: Cambridge University Press.
- Dowty, David R. 1991: Thematic proto-roles and argument selection. *Language* 67: 574–619.
- Evans, Vyvyan 2009: *How Words Mean: Lexical Concepts, Cognitive Models, and Meaning Construction*. Oxford: Oxford University Press.
- Evans, Vyvyan 2014: *The Language Myth: Why Language is Not an Instinct*. Cambridge: Cambridge University Press.
- Evans, Vyvyan and Melanie Green 2006: *Cognitive Linguistics: An Introduction*. Edinburgh: Edinburgh University Press.
- Evans, Vyvyan, Benjamin K. Bergen and Jörg Zinken (eds.) 2007: *The Cognitive Linguistics Reader*. London: Equinox.
- Fass, Dan 1991: met*: A method for discriminating metonymy and metaphor by computer. *Computational Linguistics* 17.1: 49–90.
- Fauconnier, Gilles 1994: *Mental Spaces: Aspects of Meaning Construction in Natural Language*, second edition. Cambridge: Cambridge University Press.
- Fauconnier, Gilles 1997: *Mappings in Thought and Language*. Cambridge: Cambridge University Press.
- Fauconnier, Gilles and Mark Turner 1996: Blending as a central process of grammar. In A. Goldberg (ed.) *Conceptual Structure, Discourse, and Language*, 113–30. Stanford, CA: Center for the Study of Language and Information.
- Fauconnier, Gilles and Mark Turner 1998: Conceptual integration networks. *Cognitive Science* 22.2: 133–87.
- Fauconnier, Gilles and Mark Turner 2002: *The Way We Think: Conceptual Blending and the Mind's Hidden Complexities*. New York: Basic Books.
- Fauconnier, Gilles and Mark Turner 2008: Rethinking metaphor. In Gibbs (ed.), 53–66.
- Fillmore, Charles J. 1982: Frame semantics. In Linguistic Society of Korea (ed.), *Linguistics in the Morning Calm*, 111–38. Seoul: Hanshin.
- Fillmore, Charles J. 1985: Frames and the semantics of understanding. *Quaderni di Semantica* 6.2: 222–54.
- Fillmore, Charles J. and B. T. Atkins 1992: Towards a Frame-based organization of the lexicon: the semantics of RISK and its neighbors. In Adrienne Lehrer and Eva Kittay (eds.) *Frames, Fields, and Contrasts: New Essays in Semantics and Lexical Organization*, 75–102. Hillsdale, NJ: Lawrence Erlbaum.
- Fillmore, Charles J., Paul Kay and Catherine O'Connor 1988: Regularity and idiomaticity in grammatical constructions: the case of *let alone*. *Language* 64: 501–38.
- Fodor, Jerry A. 1983: *The Modularity of Mind*. Cambridge, MA: MIT Press.
- Gärdenfors, P. 1988: Semantics, conceptual spaces and the dimensions of music. In V. Rantala, L. Rowell, and E. Tarasti (eds.), *Essays on the Philosophy of Music* (Acta Philosophica Fennica, vol. 43), 9–27. Helsinki: Philosophical Society of Finland.
- Geeraerts, Dirk 1997: *Diachronic Prototype Semantics: A Contribution to Historical Lexicology*. Oxford: Clarendon Press.
- Geeraerts, Dirk (ed.) 2006: *Cognitive Linguistics: Basic Readings*. Berlin: Mouton de Gruyter.
- Gentner, Dedre 1983: Structure-mapping: a theoretical framework for analogy. *Cognitive Science* 7: 155–70.
- Gibbs, Ronald W. (ed.) 2008: *The Cambridge Handbook of Metaphor and Thought*. Cambridge: Cambridge University Press.
- Goldberg, Adele E. 1995: *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago: University of Chicago Press.

- Goldberg, Adele E. 2006: *Constructions at Work: The Nature of Generalization in Language*. Oxford: Oxford University Press.
- Goldberg, Adele E. 2009: The nature of generalization in language. *Cognitive Linguistics* 20.1: 93–127.
- Goldberg, Adele E. and Ray Jackendoff 2004: The English resultative as a family of constructions. *Language* 80: 532–68.
- Grady, Joseph E., Todd Oakley, and Seana Coulson 2007: Blending and metaphor. In V. Evans, B. K. Bergen and J. Zinken (eds.) *The Cognitive Linguistics Reader*, 420–40. London: Equinox.
- Hawkes, Terence 1972: *Metaphor*. London: Methuen.
- Heine, Bernd and Tania Kuteva 2002: *World Lexicon of Grammaticalization*. Cambridge: Cambridge University Press.
- Heine, Bernd, Ulrike Claudi and Friederike Hünemeyer 1991: *Grammaticalization: A Conceptual Framework*. Chicago: University of Chicago Press.
- Herkovits, Annette 1986: *Language and Spatial Cognition: An Interdisciplinary Study of the Prepositions in English*. Cambridge: Cambridge University Press.
- Holyoak, Keith J. and Paul Thagard (1995). *Mental Leaps: Analogy in Creative Thought*. Cambridge, MA: MIT Press.
- Jackendoff, Ray 1975: On belief contexts. *Linguistic Inquiry* 6.1: 53–93.
- Jackendoff, Ray 1990: *Semantic Structures*. Cambridge, MA: MIT Press.
- Jackendoff, Ray 1997: Twistin' the night away. *Language* 73: 534–59.
- Johnson, Mark 1987: *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*. Chicago: University of Chicago Press.
- Johnson, Mark 1993: *Moral Imagination: Implications of Cognitive Science for Ethics*. Chicago: University of Chicago Press.
- Johnson, Mark 2008: Philosophy's debt to metaphor. In Gibbs (ed.), 39–52.
- Joy, Annamma, John F. Sherry, and Jonathan Deschenes 2009: Conceptual blending in advertising. *Journal of Business Research* 62: 39–49.
- Kittay, Eva F. 1987: *Metaphor: Its Cognitive Force and Linguistic Structure*. New York: Oxford University Press.
- Kövecses, Zoltán 2002: *Metaphor: A Practical Introduction*. Oxford: Oxford University Press.
- Kövecses, Zoltán and Günter Radden 1998: Metonymy: developing a cognitive linguistic view. *Cognitive Linguistics* 9.1: 37–77.
- Lakoff, George 1987: *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind*. Chicago: University of Chicago Press.
- Lakoff, George 1988: Cognitive semantics. In Umberto Eco, Marco Santambrogio and Patrizia Violi (eds.), *Meaning and Mental Representations*, 119–54. Bloomington and Indianapolis: Indiana University Press.
- Lakoff, George 1993: The contemporary theory of metaphor. In Andrew Ortony (ed.), 202–51.
- Lakoff, George and Mark Johnson 1980: *Metaphors We Live By*. Chicago: University of Chicago Press.
- Lakoff, George and Mark Johnson 1999: *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought*. New York: Basic Books.
- Lakoff, George and Rafael Núñez 2000: *Where Mathematics Comes From: How the Embodied Mind Brings Mathematics into Being*. New York: Basic Books.
- Lakoff, George and Mark Turner 1989: *More than Cool Reason: A Field Guide to Poetic Metaphor*. Chicago: University of Chicago Press.
- Langacker, Ronald W. 1987: *Foundations of Cognitive Grammar, Vol 1: Theoretical Prerequisites*. Stanford, CA: Stanford University Press.
- Langacker, Ronald W. 1991: *Foundations of Cognitive Grammar. Vol. 2: Descriptive Applications*. Stanford, CA: Stanford University Press.
- Langacker, Ronald W. 1993: Reference-point constructions. *Cognitive Linguistics* 4: 1–38.

- Langacker, Ronald W. 1999: *Grammar and Conceptualization*. Berlin: Mouton de Gruyter.
- Langacker, Ronald W. 2002: *Concept, Image, Symbol: The Cognitive Basis of Grammar*, second edition. Berlin: Mouton de Gruyter.
- Langacker, Ronald W. 2008: *Cognitive Grammar: A Basic Introduction*. Oxford: Oxford University Press. 2008
- Langacker, Ronald W. 2009: *Investigations in Cognitive Grammar*. Berlin: Mouton de Gruyter.
- Langacker, Ronald W. and Eugene H. Cassad 1985: "Inside" and "outside" in Cora grammar. *International Journal of American Linguistics* 51: 247–81.
- Lewis, David K. 1973: *Counterfactuals*. Oxford: Blackwell.
- Mahon, Bradford Z. and Alfonso Caramazza 2013: Organization of conceptual knowledge of objects in the human brain. In Kevin N. Ochsner and Stephen Kosslyn (eds.) *The Oxford Handbook of Cognitive Neuroscience. Volume 1: Core Topics*, 554–77. Oxford: Oxford University Press.
- Mervis, Carolyn B. and Eleanor Rosch 1981: Categorization of Natural Objects. *Annual Review of Psychology* 32: 89–115.
- Murphy, Gregory L. and Douglas L. Medin 1985: The role of theories in conceptual coherence. *Psychological Review* 92: 289–316.
- Nunberg, Geoffrey 1978: *The Pragmatics of Reference*. Bloomington, Indiana: Indiana University Linguistics Club.
- Nunberg, G. 1979: The non-uniqueness of semantic solutions: polysemy. *Linguistics and Philosophy* 3.2: 143–84.
- Nunberg, G. 1995: Transfers of meaning. *Journal of Semantics* 12.2: 109–32.
- Oakley, Todd and Anders Hougaard (eds.) 2008: *Mental Spaces in Discourse and Interaction*. Amsterdam: John Benjamins.
- Ortony, Andrew (ed.) 1979: *Metaphor and Thought*. Cambridge: Cambridge University Press.
- Richards, I. A. 1936: *The Philosophy of Rhetoric*. London: Oxford University Press.
- Rohrer, Tim 2007: Embodiment and experientialism. In D. Geeraerts and H. Cuyckens (eds.) *The Oxford Handbook of Cognitive Linguistics*, 25–47. Oxford: Oxford University Press.
- Rosch, Eleanor 1973: Natural categories. *Cognitive Psychology* 4: 328–50.
- Rosch, Eleanor 1975: Cognitive reference points. *Cognitive Psychology* 7: 532–47.
- Rosch, Eleanor and Carolyn Mervis 1975: Family resemblances: studies in the internal structure of categories. *Cognitive Psychology* 7: 573–605.
- Rosch, Eleanor, Carolyn Mervis, Wayne Gray, David Johnson and Penny Boyes-Braem 1976: Basic objects in natural categories. *Cognitive Psychology* 8: 382–439.
- Ruiz de Mendoza Ibañez, F. J. and O. I. Diez Velasco 2002: Patterns of conceptual interaction. In R. Pörings and R. Dirven, *Metaphor and Metonymy in Comparison and Contrast*, 501–46. Berlin: Mouton de Gruyter.
- Saussure, Ferdinand de 1974: *Course in General Linguistics*. Edited by Charles Bally and Albert Sechehaye, translation by Wade Baskin. Glasgow: Fontana/Collins. (First published 1915 as *Cours de Linguistique Générale*. Paris: Pyot.)
- Searle, John R. 1979: Metaphor. In Andrew Ortony (ed.), 92–123.
- Stalnaker, Robert 1968: A theory of conditionals. In Nicholas Rescher (ed.) *Studies in Logical Theory*. Oxford: Blackwell.
- Sweetser, Eve E. 1990: *From Etymology to Pragmatics*. Cambridge: Cambridge University Press.
- Sweetser, Eve E. 2000: Blended spaces and performativity. *Cognitive Linguistics* 11.3–4: 305–33.
- Talmy, Leonard 1975: Semantics and syntax of motion. In John P. Kimball (ed.) *Syntax and Semantics* 4, 181–238. London: Academic Press.
- Talmy, Leonard 1985: Lexicalization patterns: semantic structure in lexical forms. In Timothy Shopen (ed.) *Language Typology and Syntactic Description*, vol. 3: 57–149. Cambridge: Cambridge University Press.
- Talmy, Leonard. 2000: *Toward a Cognitive Semantics*, 2 vols. Cambridge, MA: MIT Press.

- Taylor, John R. 2003: *Linguistic Categorization*, third edition. Oxford: Oxford University Press.
- Taylor, John R. 2008. Prototypes in cognitive linguistics. In P. Robinson and N. Ellis (eds.) *Handbook of Cognitive Linguistics and Second Language Acquisition*, 39–65. London: Routledge.
- Turner, Mark 1987: *Death is the Mother of Beauty: Mind, Metaphor, Criticism*. Chicago: University of Chicago Press.
- Turner, Mark 2006: *The Literary Mind*. Oxford: Oxford University Press.
- Ungerer, Friedrich and Hans-Jörg Schmid 2006: *An Introduction to Cognitive Linguistics*, second edition. London: Longman.
- Vandeloise, Claude 1991: *Spatial Prepositions: A Case Study from French*. Chicago: University of Chicago Press.
- Winters, Margaret E., Heli Tissari and Kathryn Allan (eds.) 2010: *Historical Cognitive Linguistics*. Berlin: Mouton de Gruyter.
- Wittgenstein, Ludwig 1953: *Philosophische Untersuchungen/ Philosophical Investigations*. (Translated by G. E. M. Anscombe). Oxford: Blackwell.
- Yee, Eiling, Evangelia G. Chrysikou, and Sharon L. Thompson-Schill 2013: Semantic memory. In Kevin N. Ochsner and Stephen Kosslyn (eds.) *The Oxford Handbook of Cognitive Neuroscience. Volume 1: Core Topics*, 353–74. Oxford: Oxford University Press.