9 Predication: verbs, EVENTS, and STATES

Key words: VERB, PREDICATE, ARGUMENT, ALTERNATION, CONFLATION, EVENT, STATE, MOTION VERB, FIGURE, GROUND, PATH, MANNER, CAUSATIVE, COPULA, RELATIONAL ADJECTIVE, RELATIONAL NOUN, PREPOSITION

9.1 Overview

Grammatically speaking, sentences (at least in English) are organized around a main verb, while semantically speaking the heart of a sentence[1] is its main **predicate**, which is often represented by a verb. Sentences represent SITUATIONS (either STATES or EVENTS), and so verbs can be expected to play a big part in the expression of SITUATIONS. But a verb itself usually does not express a complete SITUATION – so verbs interact semantically with other parts of the sentence, their **arguments**, in order to represent complete SITUATIONS. This chapter starts with a focus on verb meaning, since most verbs have predicative meanings and verbs are central to sentences. The next section discusses predication, followed by a section on differentiating STATES and EVENTS. We look at these distinctions and at the relationship between verbs and other participants in STATES/EVENTS through a detailed analysis of MOTION verbs, particularly with reference to Jackendoff's Conceptual Semantics model. At the end of this chapter we examine how other word classes can serve as semantic predicates too.

9.2 The semantics of verbs

Verbs can be semantically classified in three ways:

First, they can be classified according to **what type of situation they denote**. In this way, they can be classified generally by ontological category (see

[1] I refer here to the semantics of a *sentence*, while other texts might instead talk about the semantic **proposition** that a sentence represents. *Proposition* is a technical term for a meaning that can be true or false, as is the case for meanings of declarative sentences, like *Harold is angry* or *I love you*. I have preferred the term *sentence* here because *proposition* does not apply to the meanings of non-declarative sentences, such as questions.

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chapter 7), such as EVENT or STATE, or more specifically by the semantic field (see §6.3.2) to which they belong – for example, verbs of MOTION, like *run* and *roll*, versus verbs of COGNITIVE ATTITUDE, like *know* and *believe*.

Second, we can group verbs according to **the types of argument structures** that they can have. This means looking at which other things and situations are needed to complete the verb meaning. For example, the situations described by *believe* and *report* both involve a conscious being and some proposition (that is believed or reported), as in *He believed/reported that aliens landed*. The SITUATIONS described by *crush* and *stroke*, on the other hand, both involve two things (whether conscious beings or not), one of which acts on the other, as in *The toddler crushed/stroked the flowers*. So, in this way we could say that *believe* and *report* belong to one category of verb while *stroke* and *crush* belong to another.

Finally, verbs can be categorized by **their interaction with time**, which affects which tense/aspect forms the verbs can take and what other temporal expressions they can go with. For instance, *recognize* and *arrive* describe actions that happen instantly, whereas *search* and *play* can go on for a long time. One can *search for hours* or *play for hours*, but one cannot #*recognize a friend for hours* or #*arrive at a conclusion for hours*. Thus in terms of their interaction with time, *recognize* and *arrive* belong to the same category – but note that if we were classifying them according to their argument structures or their semantic fields, they would belong to different categories. Since there are so many ways of classifying verbs, it almost goes without saying that there is a lot to keep in mind when analyzing verb meanings.

This chapter concentrates on the ontological categories represented by verbs and aspects of verbs' argument structures, while the next chapter focuses on the temporal issues. In both cases, we look at some particular verbal semantic fields and how they interact with these phenomena. We start in this section with the notions of predication and argument structure.

9.2.1 Predicates and arguments

In chapter 7, we noted that prototypical verbs describe ACTIONS, so let's start with a simple example of an ACTION verb, *pick*:

(1) Fran picked flowers.

That sentence describes a SITUATION, and the type of SITUATION that it describes (an ACTION, which is a kind of EVENT) is determined by the verb. In that way, the verb is the semantic heart of the sentence, determining the SITUATION type. Grammatically speaking, the verb determines much of the structure of the sentence, for instance which other types of phrases need to be in the sentence – in this case, two noun phrases, a subject (*Fran*) and a direct object (*flowers*). That grammatical requirement is related to (but not the same as) the semantic requirements of the verb, in that the grammatically required phrases denote entities that are a part of the kind of SITUATION that the verb describes.

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So, in a PICKING situation, there is more than just picking – there has to be something doing the picking and something that is being picked. We can think of verb meanings as having some "vacancies," or positions, that need to be filled in order to complete the description of the SITUATION. In discussing the meanings of verbs, we have to determine how much of the SITUATION description is communicated by the verb.

Let's start by discussing the types of semantic jobs that the elements of a sentence can do. We can make a distinction between the **referring expressions** in sentences, which refer to things, and **predicates**,[2] which tell what the referring expressions are doing, what they are or how they relate to one another. Noun phrases tend to be used as referring expressions, and verbs tend to be used as **predicators** (i.e. words that express predicates), although we have to be careful in making that equation, since *verb* and *noun phrase* are grammatical terms, and *referring expression* and *predicate* are semantic terms. So, we need to look at how a noun phrase is being used in a sentence to know whether it is a referring expression or not. For example in *It lives!*, *it* refers to something (perhaps Frankenstein's monster) that lives, whereas in *It is raining*, the "dummy" *it* does not refer to anything – so the form *it* doesn't tell us automatically what semantic job *it* does. In *Fran picked flowers*, *Fran* and *flowers* are referring expressions; they point out the things that are involved in the picking action. *Pick* is the predicator since it describes the situation that Fran and the flowers are in. We say that *pick* **predicates** a relation between *Fran* and *flowers*, and that *Fran* and *flowers* are **arguments** of the predicate *pick*. The usual way to show predication in a semantic representation is to put the predicate first, followed by its arguments, as in (2). (We have already seen this type of predicate–argument representation in the Conceptual Semantic representations in chapters 4 and 8.) Anything in parentheses is an argument of the predicate to the left of it.

(2) pick (Fran, flowers)

9.2.2 Generalizing about situation types

So far, the grammatical requirements of the verb *pick* (in its sense 'pluck and collect') and its semantic requirements look quite similar; the verb requires two noun phrases to fill grammatical positions and there are two semantic arguments of the *pick* predicate – which we can call the PICKER and the PICKED. But the grammatical and semantic requirements are not quite the same thing. A sentence can be grammatical while being semantically **anomalous** as is demonstrated in (3).

(3) #Pictures picked impishness.

[2] This is not the same as the use of the word *predicate* in traditional grammar, in which it means the same thing as *verb phrase*.

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Sentence (3) has two noun phrases, as required for a sentence with *pick*, so it is grammatical. Nevertheless it is semantically odd because the apparent PICKER is inanimate (*pictures*) and the PICKED (*impishness*) is an abstract concept. This leads us to conclude that there are limits on the range of possible semantic categories that *pick*'s arguments might have, for example that the PICKER must be something that can move and the PICKED must be a physical entity that can be grasped. Here is where it is useful to be able to make general claims about verbs and the arguments they take. It is not just *pick* that requires two physical entities, including one that can move. We could say the same of *erase* and *lift*:

(4) a. Elvis erased the picture.
b. #Flowers erased impishness.

(5) a. Eliza lifted the stone.
b. #The stone lifted calm.

We can make two generalizations about *pick*, *erase*, and *lift* and verbs like them. First, they all involve PHYSICAL ACTIONS. That is, they are members of the same (very general) semantic category, which we can call PHYSICAL ACTION. Second, they all involve a THING that moves in order to affect another THING. Not all PHYSICAL ACTIONS involve two entities. For instance, *jog* and *wander* denote PHYSICAL ACTIONS, but the JOGGER does not affect anything – there is no JOGGED argument. By starting to categorize the verbs in this way, we can start to sketch semantic representations of them:

- *Pick*, *erase*, *lift*, and *jog* denote PHYSICAL ACTIONS.
- A PHYSICAL ACTION forms the basis of a SITUATION that must involve at least one MATERIAL THING, and that THING moves.
- Some PHYSICAL ACTION situations involve a second MATERIAL THING, which is acted upon by the moving THING.

We can use the type subscripting convention from Conceptual Semantics to represent these relations between the predicate represented by the verb and the arguments of that predicate. So, for instance, we might make a first attempt at a skeleton representation for *jog*-type verbs that looks like (6) and another for two-argument physical action verbs like *pick* and *erase*, which looks like (7). In (6), it says that the predicate is of the PHYSICAL ACTION (abbreviated as *PHYSACT*) type, that the predicate involves moving, and that there is a THING that the movement is predicated of – i.e. a MOVER. In (7), it says that there is a type of PHYSICAL-ACTION predicate that involves two arguments (which are THINGS), one of which affects the other.

(6) $[_{PHYSACT}$ MOVE ([*THING*])]

(7) $[_{PHYSACT}$ AFFECT ([*THING*], [*THING*])]

Now, the predicate elements MOVE and AFFECT that I have used here are not particular enough for any of the verbs we have discussed so far (we need to

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specify the type of movement for *jog* and the way in which things are affected for *pick* and *erase*, etc.) and they may not be the components that we want to stick with – §9.4 discusses some other useful predicate components. But they start us thinking about how verb meanings might be structured. What we can see so far is that part of what we need to say about a verb's meaning has to do with its arguments – the things that the verb says something about.

9.2.3 Arguments as verb components

The examples we have seen so far involve the verb's arguments being expressed by referring expressions in the sentence. In that case, the verb tells us how those referring expressions relate to the ACTION or other kind of SITUATION expressed by the verb. But arguments can also be part of the verb's meaning itself. In other words, some verbs come with some of their argument "vacancies" pre-filled. Consider *paint*, as in (8):

(8) Whistler painted his kitchen floor.

Its meaning can be paraphrased as (9).

(9) Whistler applied paint to his kitchen floor.

The paraphrase in (9) shows that *painted* is equivalent to *applied paint to*, and thus it makes explicit some of the elements that make up the meaning of *paint*: an ACTION, 'apply'; a THING, 'paint'; and a DIRECTION, 'to.' If (8) and (9) mean the same thing, then the fact that the referring expression *paint* is an argument in (9) indicates that there is also a semantic argument 'paint' in (8), even though the noun *paint* does not occur. Another bit of evidence that the verb *paint* carries an argument is the fact that it would be redundant to mention the substance *paint* if we have used the verb *paint*, as in (10):

(10) ? Whistler painted his kitchen with paint.

So, a first step toward a representation of the meaning of the verb *paint* would be to represent it using the components that were expressed in the paraphrase, as in (11). Here, the main predicate represented by *paint* is APPLY, and its arguments include a THING that paints, a THING that is paint, and a complex argument 'TO (something).'

(11) *paint* = [$_{PHYSACT}$ APPLY ([*THING*], [$_{THING}$ paint], [$_{PATH}$ TO ([*THING*])])]

The verbs *apply* and *paint* have in common that they express the movement of something to something by something else. But the meaning of *paint* is more complex than that of *apply* because it incorporates more information about the arguments, and the verb *paint* requires fewer other elements in the sentence. When a verb incorporates elements other than the predicate itself, we say it **conflates** those elements.

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In addition to verbs like *paint*, which inherently represent a THING associated with the ACTION described, there are others that vary in how many of the semantic arguments must be expressed explicitly as grammatical arguments of the verb. For instance, sometimes verbs that usually take objects (that is, transitive verbs) are used without any object (intransitively). We see this in (12) and (13), where the (a) examples are transitive and the (b) examples are intransitive. In these particular cases, the intransitive versions are usually understood to paraphrase the (a) sentences here. Beth Levin, who has provided an extensive catalogue of verb-argument structures (Levin 1993), calls this the **unexpressed object alternation**.

(12) a. I've eaten a meal already.
b. I've eaten already.

(13) a. Jane drew a picture in her notebook.
b. Jane drew in her notebook.

These cases are a bit different from the conflation in *paint*. For *paint*, it was pretty obvious what the conflated argument was, since the verb has the same form as the substance whose application it describes: *paint*. In (12) and (13), the identities of the unspoken arguments are not obvious from the form of the verb. For example, (12b) says *I've eaten already*, not *I've mealed already*. Still, if someone uses intransitive *eat* to ask you *Have you eaten yet?*, it means 'Have you eaten breakfast/lunch/dinner yet?' (whichever is the most relevant meal for the time of day). So, if you had just eaten a breath mint or a slip of paper (because you are an international spy with evidence to destroy), you would not say *I've eaten already* even though, strictly speaking, you had just eaten something. Similarly, intransitive *draw*, as in (13b), is usually understood to mean 'draw a picture (or pictures),' and not just, say, 'draw a pencil line.' Thus something interesting is happening in these transitive/intransitive alternations that "adds something extra" to the interpretations of the verbs.

It is debated whether the identity of the unexpressed object is a lexical-semantic issue (part of the verb's meaning) or a pragmatic issue – that is, not part of the verb's meaning, but derivable from knowledge that we have about how the world works, and what kinds of objects are most relevant to these sentences. But while identifying the unspoken argument may be a pragmatic issue, whether or not a verb can drop an object is not just about pragmatics. For some of these types of alternations, semantic patterns can be discovered. For example, some verbs of 'caring for body parts' allow for unspoken arguments, as in (14). But none of the verbs to do with caring for the hair allow for the object to be left off, as (15) illustrates. In each of those cases, we need to add *her/his hair* to the sentence in order for it to be grammatical.

(14) a. William shaved (his face) haphazardly.
b. Kira flosses (her teeth) nightly.
c. Joan washed (her hands) before coming to the table.

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(15) a. *Rakesh combed after his shower.
Rakesh combed his hair after his shower.
b. *Karen curled on her wedding day.
Karen curled her hair on her wedding day.
c. *James parted a new way.
James parted his hair a new way.

The only thing we comb is hair – so if the unexpressed object alternation just depended on the pragmatic issue of whether we could identify the missing object, then we would be expect to be able to say *Rakesh combed*, since it would be obvious what he had combed. And it would certainly be more obvious than what Joan washed or what William shaved in (14). Thus, verb-argument alternations are not just a matter of leaving off information that can be recovered from the context. The lexical entry for a verb must record which arguments must appear and which may be left off, and aspects of the semantics of the verb or its arguments may influence which arguments can be left off which verbs.

Puzzle 9–1

We said that in (12b) intransitive *eat* is interpreted as 'eat a meal.' Consider the following verbs that allow the unexpressed object alternation, and determine what their unspecified arguments are when the verbs are used intransitively. Can you find a pattern to what kinds of objects can be left unmentioned?

drink, *hum*, *iron*, *pack*, *read*, *vacuum*

9.2.4 Summary

The points to take away from this section are:

- Sentence meanings are organized around a main predicating expression, which is usually a verb.
- Predicators tell us something about the referring expressions in the sentence: what they are doing, what they are or how they relate to one another.
- The nature of the predicate may determine what kinds of ENTITIES can fill its argument positions.
- The number of referring expressions required in a sentence is not necessarily the same as the number of arguments of the main predicate expressed by the verb.
- Some verbs have complex meanings that conflate some of their arguments.
- Some verbs can be involved in grammatical alternations, which can affect their interpretation.

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Based on our observations so far, the semantic representation of a verb meaning should include:

- a SITUATION type (e.g. PHYSICAL ACTION, STATE, MENTAL EVENT);
- indication of how many and what kinds of ENTITIES need to be involved in such a SITUATION, and what roles they play;
- more particular information about what is being predicated of the ENTITIES – that is, what kind of EVENT or STATE they are participating in.

9.3 STATES and EVENTS

The ontological category associated with whole sentences is SITUATION, which might involve a number of THINGS, ACTIONS, PROPERTIES, a TIME, a PLACE, etc. The SITUATION category has two major subcategories: STATES and EVENTS. So, when we look at verb sense (as used in a sentence), a primary concern is whether it denotes a STATE or an EVENT. If it describes a STATE, it is called a **stative verb**, and if it describes an EVENT, it is a **dynamic verb**.

In chapter 7, we saw that different ontological categories have different temporal qualities. STATES and EVENTS can be distinguished by how they relate to time, with STATES being more constant across time, and EVENTS less so. Let's take the example of *stand*, which can describe a STATE, as in (16), and *stand up*, which describes an EVENT, as in (17).

(16) The clock stands in the hall. [STATE]

(17) The children stood up to greet the teacher. [EVENT]

Sentence (16) describes a SITUATION that is **static**, or unchanging. The clock is fixed to its spot in the hall. Sentence (17), on the other hand, describes a SITUATION that is **dynamic** – something is happening or changing. The children are going from a sitting position to a standing one. This is the essence of the difference between STATES and EVENTS, and therefore one test for whether a SITUATION is an EVENT is whether the sentence could be sensibly used as an answer to the question *What happened?* In (18), (a) is a strange answer to the question, since standing in a place doesn't really *happen*. But we can see that (b) is dynamic, since it is a reasonable answer to the question.

(18) What happened?
a. ??The clock stood in the hall.
b. The children stood up.

There is much more to be said about the temporal aspects of stative and dynamic verbs – but we return to those issues in chapter 10. At this point, we

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are introducing the notions of STATE and EVENT so that we can look in more detail at the elements that make up verb meanings. We start doing this in the next section by looking at verbs of MOTION.

9.4 MOTION verbs

Verbs of MOTION have been the subject of a fair amount of semantic investigation. They make for a nice introduction to the componential analysis of verb meaning because they include a large number of fairly typical verbs and their meanings can be extended in various ways, allowing for further discussion of polysemy and metaphor. As we will see, it is also possible to conceptualize other types of EVENTS as if they were motions. Let's start by looking at what elements are necessary to a MOTION EVENT, then look at which of these elements are included within particular verb senses.

9.4.1 Components of a MOTION EVENT

MOTION verbs denote changes in location – that is, they are dynamic verbs that contribute to an EVENT description, as exemplified by the verbs in (19) through (21).

(19) Sheryl **went** into town on foot.

(20) Lance **cycled** across France.

(21) Wilma **left**.

These can be compared with **LOCATION verbs**, which are stative verbs that locate something, but do not involve a change in location. (Note that most verbs are polysemous, and therefore they might have both stative and dynamic senses. Make sure to pay attention to the particular contexts in which they occur in order to identify the sense in use.)

(22) The monument **stands** beside the fountain.

(23) Switzerland **lies** north of Italy.

The MOTION verbs all involve something going somewhere, so we can represent the 'motion' component of the verbs as the predicate GO. The LOCATION verbs, on the other hand, involve no 'going' and so, following Jackendoff, we can treat those as having a stative predicate BE_{loc}, which stands for 'be located.'

Other than the issue of whether or not the SITUATION is an EVENT or a STATE, the MOTION and LOCATION have a lot in common. Both SITUATION types include the following elements:

- **FIGURE** – the THING whose location is being discussed
- **GROUND** (sometimes called ***LANDMARK***) – the THING against which the LOCATION/MOTION of the FIGURE is judged

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- **POSITION** – the (final) location of the FIGURE with respect to the GROUND
- **MANNER** – the way in which the FIGURE moves/is situated

In addition, MOTION EVENTS involve a PATH:

- **PATH** – the direction of the FIGURE's travel with respect to the GROUND

We can see how each of these elements is included in the MOTION sentence (19) and the LOCATION sentence (22) in table 9.1. In (19), each of the elements is presented as a separate expression in the sentence. Some are required (e.g. *Sheryl*), and some (e.g. *on foot*) could be left out without any grammatical consequences, and the only semantic consequence is that the sentence is less informative. In (22), FIGURE, GROUND, and PATH are separate expressions in the sentence, but the information on MANNER is conflated in the verb *stand*.

Putting this into a Conceptual Semantics (see §4.2) componential structure, GO or BE_{loc} is the main predicative element, and these predicates take a THING (the FIGURE) as the first argument. LOCATIONS involve a PLACE as the second argument, while MOTION EVENTS have a PATH. PLACE is made up of another predicative element and one argument a THING (the GROUND), and likewise PATH involves a predicate and, as its argument, a PLACE. In other words:

(24) a. $[_{STATE}$ BE_{loc} ([*THING*], [*PLACE*])]
i.e. one kind of STATE involves a THING located in a PLACE

b. $[_{EVENT}$ GO ([*THING*], [*PATH*])]
i.e. one kind of EVENT involves a THING going along a PATH

c. $[_{PATH}$ TO ([*PLACE*])]
i.e. one kind of PATH is TO a PLACE
(another type might be FROM a PLACE)

d. $[_{PLACE}$ AT ([*THING*])]
i.e. one kind of PLACE is AT a THING
(other types = IN, NEXT-TO, etc.)

Table 9.1 *Elements of a MOTION EVENT/LOCATION STATE*

	MOTION EVENT	LOCATION STATE
	(19) Sheryl went into town on foot.	(22) The monument stands beside the fountain.
	GO	BE_{loc}
FIGURE	Sheryl	the monument
GROUND	town	the fountain
PATH	to	–
POSITION	in	beside (at the side of)
MANNER	on foot (walking)	standing (upright)

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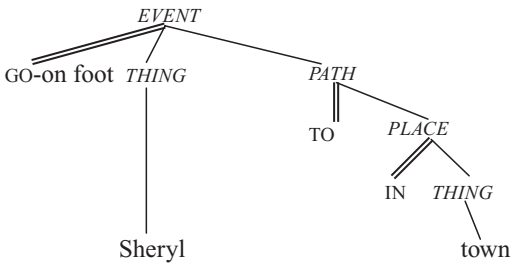
We can follow Talmy (2000) in considering MANNER to be a **co-event** to the MOTION EVENT. In other words, Sheryl's *going on foot* in (19) involves a MOTION EVENT co-occurring with a 'being-on-foot' event. Since our attention is on the MOTION EVENT, we can abbreviate our treatment of MANNER, simply including it as an unanalyzed co-event to GO, as in (25), where (24b) is updated with the MANNER information. MANNER is optional (which is indicated here by the angle brackets), since not every MOTION EVENT description includes a MANNER. The details of sentence (19) are elaborated in (26) and as a tree in (27).

(25) $[_{EVENT}$ GO$<+MANNER>$ ($[THING]$, $[PATH]$)]

(26) $[_{EVENT}$ GO+on-foot ($[_{THING}$ Sheryl], $[_{PATH}$ TO ($[_{PLACE}$ IN ($[_{THING}$ town])])])]

(27)



But enough about sentences – we're interested in verbs. What in (26) and (27) is the verb meaning, and what is the rest of the sentence? Since the verb is the element of the sentence that determines the SITUATION and the major argument requirements, the basic structure of (26) and (27) indicates the verb meaning. If we take out the parts of (27) that other elements in the sentence contribute, we are left with (28) as the representation of the MOTION sense of *go*.

(28) *go* =

= $[_{EVENT}$ GO ($[THING]$, $[PATH]$)]

This may seem a bit circular, since the predicate of *go* is just represented as GO. In this case, GO has been treated as a primitive component, which cannot be broken down further. Recall from §3.2 that semantic components may be presented in English for our convenience, but the components are not the words themselves and do not carry all the semantic baggage of English words. Furthermore, the meaning of *go* is not just the component GO – it is that component plus the rest of the information in (28), which includes identification of the SITUATION type and the argument structure that goes with GO. When we represent more complex MOTION verb meanings, we still use the primitive element GO. Let's take the example of *leave* in (20), *Wilma left*. Starting with the basic MOTION

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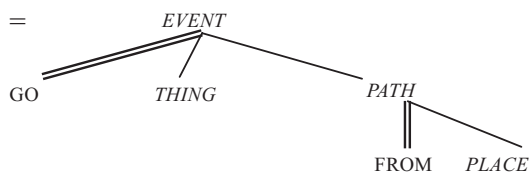
verb structure for *go* in (28), how do we differentiate the meaning of *go* from that of *leave*? The answer is to look for what elements of the MOTION EVENT have been conflated in *leave*. The FIGURE in *Wilma left* is *Wilma*, so that is not part of the verb meaning. Since there is nothing else in the sentence, the question is whether all of the elements (GROUND, PATH, POSITION) are in the verb or not. Remember, a test for whether something has been conflated can be whether it is redundant to mention it again. In the case of GROUND, (29) shows that it is not redundant to mention the place from which the leaver leaves. But it is redundant to say that the path was *from* the ground, as in (30). So it seems that PATH information is conflated in *leave*. Since *leave* says nothing about the means by which someone left, we can conclude that it does not conflate MANNER.

(29) Wilma left a place.

(30) *Wilma left from a place.

(31) *leave* =



= [$_{EVENT}$ GO ([$_{THING}$], [$_{PATH}$ FROM ([$_{PLACE}$])])]

Puzzle 9–2

Try your hand at putting the following expressions into Conceptual-Semantic-style representations, using the models in (24) through (31) as inspiration. For each, give the representation in both the bracketed notation and a tree format.

a. *The monument stands beside the fountain.* [= (22)]
b. *Lance crossed France.*
c. the LOCATION verb *stand*
d. the MOTION verb *cross*

9.4.2 More about conflation

We have already seen some cases of conflation of elements in MOTION/LOCATION verbs. For example, *cycle* in (19) indicates MANNER ('by bicycle') as well as movement. *Leave* in (20) indicates the PATH, and so it can be paraphrased as 'go from.' MANNER and PATH are most frequently conflated in English MOTION verbs, but there are also some verbs that conflate the GROUND element, such as *derail* in (32), which also conflates the PATH.

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(32) The train derailed outside the city.

(33) *derail* = [$_{EVENT}$ GO ([*THING*], [$_{PATH}$ FROM ([$_{PLACE}$ ON ([$_{THING}$rail])])])]

Talmy (1985) observed that languages differ in their preferred patterns of conflation. For instance, in some North American languages including Atsugewi and Navajo, MOTION verbs conflate information about the FIGURE. One Atsugewi verb, *-lup-*, is for the movement of small, round, shiny things, and another, *-caq-*, is for slimy, lumpy things. Thus, in order to say 'the pebble moved' in Atsugewi, one must use a different verb than one would use in the equivalent of 'the toad moved.' Such FIGURE-conflating MOTION verbs are rare in other languages. In English, we can point to occasional examples like *swarm*, which only [+internal structure] FIGURES can do (recall §8.3.2), and *seep*, which is for the movement of liquids.

In some cases, it may be that the conflated information is not sufficient (either grammatically or to express everything that one wants to express). For instance, in the Atsugewi case above, only the shape-class of the FIGURE is indicated, so the precise identity of the FIGURE may be spelt out elsewhere in the sentence. Similarly, going back to our *paint* examples, it would be redundant to say (34), but not redundant to say (35), since the latter adds new information about the 'paint' argument that is carried by the verb.

(34) ? Whistler painted paint on the kitchen floor.

(35) Whistler painted a blue latex emulsion on the kitchen floor.

9.4.3 Another EVENT type: causation

Many verbs, including many MOTION verbs, indicate that something caused an EVENT or STATE to come about. Some MOTION verbs are inherently **causative**, including *raise*. So, in (36) an EVENT in which a flag moved was caused by Peter.

(36) Peter raised the flag.
[= 'Peter caused the flag to move upward']

Many other MOTION verbs are polysemous with both causative and non-causative meanings, such as *roll* in (37):

(37) a. The ball rolled$_1$ down the hill. [not causative]
b. Sally rolled$_2$ the ball down the hill.
[causative = 'Sally caused the ball to roll down the hill']

The causative sense of *roll*$_2$ in (37b) takes one more argument (*Sally*) than the non-causative sense *roll*$_1$ – so we can refer to a **causative alternation** in argument structure. Translating this into a componential representation, CAUSE is an EVENT-type predicative component that shows the relationship between

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two arguments: a THING that is the causer and another EVENT. Compare the representation of non-causative *roll*$_1$ in (38) with the causative *roll*$_2$ in (39). Example (40) shows how the full causative sentence (37b) is represented.

(38) $roll_1 = [_{EVENT}$ GO+roll ($[THING]$, $[PATH]$)]

(39) $roll_2 = [_{EVENT}$ CAUSE ($[THING]$, $[_{EVENT}$ GO+roll ($[THING]$, $[PATH]$)])]

(40) $[_{EVENT}$ CAUSE ($[_{THING}$ Sally], $[_{EVENT}$ GO+roll ($[_{THING}$ the ball], $[_{PATH}$ TO ($[_{PLACE}$ DOWN ($[_{THING}$ the hill])])])]

Puzzle 9–3

None of the sentences below expresses a causative meaning, but some of the verbs involved may be polysemous, having a causative and a non-causative meaning. Determine which of these verbs are causative by adding an additional argument to each sentence. Based on these examples (and the case of *roll* above), form a hypothesis about which kinds of English verbs can have causative senses and which cannot.

Example:

- *The bolt slid into place.*
- Add an argument: *I slid the bolt into place.*
- Does this mean 'I caused the bolt to slide into place'?
- Yes: we can conclude that *slide* has non-causative and causative senses.

Now you try:

a. Fred descended the staircase.
b. The Boy Scout crossed the street.
c. Magdalena waltzed into the room.
d. Petals are falling from the flower.
e. The note slipped out of the book.

9.4.4 Language typology and polysemy of MOTION verbs

Besides conflating different components of MOTION EVENT descriptions, languages can also vary in which pattern of conflation is **unmarked** – that is, which element is most "naturally" or "unremarkably" conflated in the language's MOTION verbs. The unmarked conflation pattern is the one that is most colloquial in usage, most frequently used, and most pervasive in the language's lexis.

In English, German, and Chinese, MANNER-conflation and MANNER/CAUSE conflation is unmarked. Verbs like *walk*, *roll*, and *run* are colloquial ways to express MOTION EVENTS, whereas PATH-conflating verbs like *enter*, *rise*, and *descend* are more rare, both in the number of examples in the English

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lexicon and in terms of frequency of use. So, while one could say sentences (41) or (42), (43) is the more "everyday" way of talking about such an event in English.

(41) James entered the room.

(42) James entered the room by walking.

(43) James walked into the room.

Information that is conflated in the verb is perceived as being in the **background**, and information that is expressed by other sentence constituents seems **foregrounded**. Thus, while (42) and (43) report the same facts, you would probably reserve use of (42) for a situation in which it was particularly remarkable that James walked.

While English conflates MANNER, PATH-conflation is unmarked in Turkish and in the Romance languages, including French and Spanish. In fact, many of the PATH-conflating verbs in English, like *enter* and *descend*, came to us from French and Latin. Since it is not necessary to express the MANNER co-event in PATH-conflating languages, MANNER tends not to be mentioned as often. Compare, for example, the English original and Spanish translations of these passages in Lewis Carroll's *Alice's Adventures in Wonderland*:

(44) a. . . . when suddenly a white rabbit with pink eyes **ran** close by her. (Carroll 1865:2)

b. . . . cuando súbitamente **pasó corriendo** a su lado un Conejo Blanco de ojos rosados. (Stilman 2003:17)
'. . . when suddenly **passed running** at her side a White Rabbit with pink eyes.'

(45) a. she **walked** on in the direction in which the March Hare was said to live. (Carroll 1865:93)

b. ella **dirigió sus pasos** hacia el lugar donde, según se le había dicho, vivía La Liebre de Marzo. (Stilman 2003:75)
'she **directed her steps** toward the place where, according to what is said, lives the March Hare.'

While the English version in (44) uses the MANNER-conflating verb *run* with the preposition *by* giving the PATH information, the Spanish uses the PATH-conflating verb *pasar* 'to pass' and adds an adverbial *corriendo* 'running.' Both the PATH and MANNER information are mentioned, but the languages differ in which information belongs in the heart of the sentence, the verb. In (45), the literal translation of *dirigío sus pasos* 'directed her steps' or, more loosely, 'directed her path' sounds very unnatural in English, but it is the idiomatic way to say 'headed in a certain direction' in Spanish, again using a verb that has no MANNER information.

The unmarkedness of MANNER conflation in MOTION verbs has consequences for the polysemy of English verbs. Because MANNER is usually associated with MOTION, other verbs that encode an activity that could be associated

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with MOTION can be used to express a MOTION on a PATH, with the activity becoming the MANNER of MOTION. We can see this in (46)–(48). Notice that the (a) sentences make no claims about the subject moving anywhere; Whistler in (46) could be sitting in the middle of the room with a spray gun. But when a PATH description is added as in the (b) sentences, the verbs describe MOTION EVENTS. The NON-MOTION EVENT that is usually described by the verb is then understood as a co-event to the MOTION EVENT.

(46) a. Whistler painted the room.
b. Whistler painted himself into a corner.

(47) a. The train screeched.
b. The train screeched into the station.

(48) a. The raft floated.
b. The raft floated down the river.

We understand the MOTION interpretation of the verb when there are other elements in the sentence that indicate a DIRECTION. So here we have another case of alternation – in this case between uses of verbs without a directional adverbial (i.e. an adverb or a prepositional phrase that indicates a DIRECTION

Puzzle 9–4

An alternation that is found for some MOTION + MANNER verbs is the **Locative Preposition Drop Alternation** (Levin 1993), in which the verb can either occur with a prepositional phrase indicating the PATH and GROUND, or the preposition can be omitted and the verb has a direct object indicating the GROUND. *Jump* has this alternation; you can express a 'jumping-over' EVENT either with or without *over*:

The athlete jumped over the hurdle.
The athlete jumped the hurdle.

Other MOTION EVENTS do not allow such an alternation:

The ball rolled along the road.
*The ball rolled the road.

First, determine which of the following sentences allow this alternation. Next, look at the sets of verbs that do and do not allow the alternation. Do their meanings have anything in common?

a. Hilary climbed up the mountain.
b. The boat drifted across the lake.
c. John coiled the string around the spool.
d. The crowd charged at the ticket booth.
e. Earth revolves around the Sun.
f. Nomads wander around the desert.

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and possibly an endpoint for the movement) and verbs with them. And again the grammatical alternation is linked to a different semantic interpretation of the verb: the ACTIVITY sense versus a GO+[$_{MANNER}$*ACTIVITY*] sense.

9.4.5 Extending the LOCATION/MOTION structures

In chapters 3 and 4, we made the case that a strong componential approach to meaning should use components that can be recycled in a variety of meanings. The more useful a component is in describing a language's meanings, the better our justification for thinking that it is a basic building block of language, and the more different kinds of meanings that we can use that component in, the more explanatory the theory is. That is to say, it explains why we have the kinds of meanings we have by positing that there are primitive meanings that are just part of the way that humans think. While so far we have only considered components like GO and BE and semantic types like THING and PATH in the context of LOCATION and MOTION meanings, they can be extended to a range of other types of EVENTS and STATES (Jackendoff 1983, following Gruber 1965). Thus, it can be argued, the types of semantic structures discussed so far in this chapter are basic structures that can be applied broadly in language to different **conceptual fields** – that is, different types of situations that we can think about.

Let's start with the BE component, familiar from its BE$_{loc}$ location use. This BE can be the basis of many types of STATE, as illustrated in (49)–(51). Each of these applications of BE keeps the same basic structure of the locative BE, but varies in the types of arguments to be found in the PLACE. So BE$_{ident}$ indicates the STATE of having a PROPERTY, BE$_{poss}$ is the location of a THING in the possession of another THING, and BE$_{temp}$ is location in time. Their structures are the same as those used for location descriptions, except for the type of PLACE, which in these cases is a PROPERTY, a possessor THING, or a TIME.

(49) HAVING A PROPERTY
Charles is giddy.
[$_{STATE}$ BE$_{ident}$ ([$_{THING}$ Charles], [$_{PLACE}$ AT ([$_{PROP}$ giddy])])]

(50) POSSESSION
Hugh has a pencil collection.
[$_{STATE}$ BE$_{poss}$ ([$_{THING}$ pencil collection], [$_{PLACE}$ AT ([$_{THING}$ Hugh])])]

(51) POSITION IN TIME
The seminar is at 5:00 pm.
[$_{STATE}$ BE$_{temp}$ ([$_{THING}$ the seminar], [$_{PLACE}$ AT ([$_{TIME}$ 5:00 pm])])]

Example (50) is the odd one out here, in that possession does not involve the verb *be* in English. However, in some other languages, possession is expressed with the 'be' verb. For example, in Latin *Est mihi liber* 'I have a book' is literally

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'(There) is to me a book.' While English uses the form *have* for possession, the claim here is that underlyingly it involves the stative BE element.

The GO component can be extended in the same way, and it is telling that in English the word *go* can be used to express all of these types of EVENT.

(52) Charles went giddy.
[$_{EVENT}$ GO$_{ident}$ ([$_{THING}$ Charles], [$_{PATH}$ TO ([$_{PLACE}$ AT ([$_{PROP}$ giddy])])])]

(53) Hugh's pencil collection went to his heirs.
[$_{EVENT}$ GO$_{poss}$ ([$_{THING}$ Hugh's pencil collection], [$_{PATH}$ TO ([$_{PLACE}$ AT ([$_{THING}$ Hugh's heirs])])])]

(54) The seminar went from 2:00 to 5:00.
[$_{EVENT}$ GO$_{temp}$ ([$_{THING}$ the seminar], [$_{PATH}$ { FROM ([$_{PLACE}$ AT ([$_{TIME}$ 2:00])]) / TO ([$_{PLACE}$ AT ([$_{TIME}$ 5:00])]) }])]

Just as for the LOCATIVE/MOTION conceptual field, the other GO components here can be included in the meanings of a wide range of other verbs. For instance, the temporal verb *last* can be represented using GO$_{temp}$.

(55) The seminar lasted until 5:00.
[$_{EVENT}$ GO$_{temp}$ ([$_{THING}$ the seminar], [$_{PATH}$ TO ([$_{PLACE}$ AT ([$_{TIME}$ 5:00])])])]

The meaning of *last* can be represented as 'going on a temporal path.' Bringing the CAUSE component into play, we can represent the temporal meaning of the prepositional verb *drag out* in (56).

(56) Professor Jones dragged out her lecture until 5:00.

(57) *drag out* = [$_{EVENT}$ cause ([*THING*], [$_{EVENT}$ GO$_{temp}$+with-effort ([*THING*], [$_{PATH}$ to ([$_{PLACE}$ at ([$_{TIME}$ 5:00])])])])]

Thus, a variety of verb meanings can be described by appealing to the similarities between literal motion and other kinds of EVENT and between literal location and other kinds of STATE. Table 9.2 summarizes the components and structures discussed above.

A final point to make about MOTION verbs is that they can also be used metaphorically to describe EVENTS that involve no locomotion, as the following show:

(58) A thought crossed my mind.

(59) The economy slid into recession.

MANNER-conflating languages tend to use MANNER verbs metaphorically more than PATH-conflating languages do (Özçalişkan 2004). But in general, the full range of MOTION verb types is available for metaphor, including causative verbs. For instance, in (60), the baby is not literally moved to another place. Instead *sleep* is treated as a PLACE where one can be moved to.

(60) Albert rocked the baby to sleep.

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Table 9.2 *BE/GO predicates and their PLACE arguments across conceptual fields*

Conceptual field	STATE example	EVENT example	PLACE structure
Spatial location: BE/GO$_{loc}$	*It is at/in/on the box.*	*It went to/into/onto the box.*	AT ([THING]) (or IN, ON, etc. instead of AT)
Temporal location: BE/GO$_{temp}$	*The concert is at 8 o'clock.*	*The concert went past 8 o'clock.*	AT ([TIME])
Property ascription: BE/GO$_{ident}$	*It is blue.*	*It went blue.*	AT ([PROPERTY])
Possession: BE/GO$_{poss}$	*It is Jo's.*	*It went to Jo.*	AT ([THING])

Puzzle 9–5

Give bracketed Conceptual Semantics representations for sentence (60) and for the sense of the verb *rock* used in that sentence.

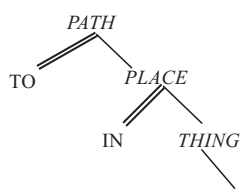
9.5 Non-verb predicates

So far, in considering predication in language, we have focused on verbs, since they most often represent the main predicators in sentences. But nouns, prepositions, and adjectives can be predicative too. In fact, we have already seen illustrations of predicate–argument structures represented by prepositional phrases. Recall sentence (19), re-presented with the PATH preposition highlighted in (61):

(61) Sheryl went **into** town on foot.

Extracting the meaning of *into* from the analysis of the whole sentence (which was presented above in (26) and (27)), we get:

(62) *into* [$_{PATH}$ TO ([$_{PLACE}$ IN ([*THING*])])]



This analysis shows *into* as consisting of a PATH predicate TO, which takes as its argument a PLACE. The PLACE, in turn, involves the predicate IN, which takes a

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THING as its argument. Those predicate–argument relations can be expressed, as they were here, using a preposition, or, as we have also seen already (recall §4.2) through verbs like *enter*, which have complex predicate structures that conflate PATH information.

The rest of this section looks in turn at adjectives, nouns, and prepositions and the predicate–argument structures that they may present. This involves, in the next section, also considering whether every verb is a predicator.

9.5.1 Are adjectives predicates?

The Conceptual Semantic approach that we have concentrated on in this chapter treats stative sentences as involving the component BE, which looks just like the base form of the verb in English that we use to link a subject to a adjective, noun, or prepositional phrase. The English verb *to be* is called a **copular verb** or a **linking verb**, meaning that it links a subject to a predicate, and, in many formal semantic approaches, it is essentially ignored when determining the predicate-argument structure of a sentence. In other words, some approaches would treat sentence (63) as having the predicate–argument structure in (64), where *giddy* is a predicate that takes one argument, *Charles*.

(63) Charles is giddy.

(64) giddy (Charles)

Why would one want to leave out the *be*-verb (*is*) when describing the predicate-argument structure of (63)? There are a few reasons to be suspicious that this copular *be* adds anything to the basic predicate–argument structure of the sentence:

- First, note that not every language would put a verb in this sentence. As we noted in chapter 7, some languages (like Chinese) lexicalize properties like *giddy* or *tall* as verbs rather than adjectives. Similarly, for sentences with nouns on either side of the copula in English (like *Gertrude is a podiatrist*), other languages (like Arabic) would need no verb there or might use a pronoun to link the two nouns ('Gertrude she podiatrist'). If a verb does not need to be there in order to describe a complete STATE in other languages, we can question whether the verb is really making a semantic contribution in English.
- Furthermore, English requires that every sentence has a verb, so it could be argued that the only reason that we use the copula *be* is so that that grammatical rule is fulfilled in sentences in which there is no semantic requirement for a verb.
- Finally, many adjectives denote PROPERTIES, and PROPERTIES do not exist on their own. That is, there is no giddiness without things that are giddy; so a PROPERTY-denoting adjective occurs

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with an expression that denotes something that is claimed to have that PROPERTY. We could thus interpret *giddy* as a predicate that requires an argument (in this case, *Charles*) in order to complete its meaning.

That is not how we have presented things in the Conceptual Semantics approach in the last section, however. Instead, there the PROPERTY is an argument deeper in the sentence structure, and it looks like the copular verb is represented as a predicate. That is a bit too simplistic a view of that approach, however, since the structure of a stative expression like *Charles is giddy* will include the BE predicate whether the language under analysis expresses it as *Charles is giddy*, *Charles giddy* or *Charles he giddy*. The BE component represents that the sentence as a whole represents a STATE, and in some languages that might map onto a verb that does the same job, and in other languages it might not. Jackendoff (1983) prefers this approach over the adjective-as-main-predicate treatment of (64), for which he sees two disadvantages. First, a semantic structure like *giddy(Charles)* bears little resemblance to the syntactic structure that is supposed to express it, at least for copular languages. Second, many adjectives cannot be interpreted without reference to their nouns. We come back to this in chapter 11, but for now note that an adjective like *good* relates to very different properties when it modifies different nouns:

(65) That roller coaster is really good. (= 'exciting')

(66) That nap was really good. (= 'restful')

If *good* is the predicate that runs the show, it is not terribly clear how the noun could have such a great effect on its meaning, rather than vice versa.

So, while some approaches hold that PROPERTY-describing adjectives like *giddy* or *good* are predicators, others do not. But all approaches must treat certain other adjectives as predicates because they express relations between at least two things. For example:

(67) Nancy is fond of Paul.

(68) Paul is proud of Nancy.

We can represent the meaning of *(be) proud (of)*, as (69), where 'proud' is a PROPERTY that takes a THING as an argument (as shown in bold) which can fit into a larger structure for describing the STATE of someone being proud of someone else, as in (69):

(69) $[_{STATE}$ BE *ident* ([*THING*], $[_{PLACE}$ AT ($[_{PROP}$ **PROUD** ([***THING***])])])]

This is to say that relational adjectives, like *fond* or *proud*, describe PROPERTIES that take a THING argument, while non-relational adjectives do not take arguments in the Conceptual Semantic treatment.

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9.5.2 Predicative nouns

If relational adjectives are predicates, then it stands to reason that relational nouns are predicates too. Which nouns are relational? The most obvious examples would be nouns for our family relations:

(70) Linda is the mother of the bride.

Besides kin relations, we can use nouns to denote other types of relations:

(71) Doj is the president of the Scrabble club.

(72) Piglet is the runt of the litter.

In these cases, we have a type of THING (*mother*, *president*, *runt*) that takes another THING (*the bride*, *the Scrabble club*, *the litter*) as an argument. Just focusing on the argument structure of *president* (and leaving off the analysis of the rest of the sentence), we have:

(73) [$_{THING}$ PRESIDENT ([*THING*])]

This represents that in order to be a president, one has to be president in relation to something else – that is, president *of* something. Similarly, one cannot be a mother without being someone's mother.

Deverbal nouns – that is, nouns that are morphologically derived from verbs (see §7.3.2) – can also take arguments. This should not be terrifically surprising, since the verbs that they are derived from also take arguments. Consider the relation between (74) and (75):

(74) Stan recited a poem.

(75) Stan's recitation of the poem

If *a poem* is an argument of *recited* in (74), it should also be an argument of the noun *recitation*, as in (75), since both examples describe an EVENT involving a recited THING. Notice, though, the contrast between the noun *recitation* in (76) and the gerund (i.e. the *-ing* form of the verb, used as a noun) *reciting* in (77):

(76) a. The recitation of the poem was beautiful.
b. The recitation was beautiful.

(77) a. The reciting of the poem was beautiful.
b. ? The reciting was beautiful.

While in both cases something is recited, the gerund is more natural with the overt expression of the 'recited THING' argument, while *recitation* is less so. This indicates that the gerund is more verb-like than the *-ation* form (since the verb also requires the argument) and a more direct expression of the EVENT than the *-ation* form, which puts the EVENT in a more THING-like package. (Recall §7.3.2.)

Of course, some deverbal noun senses do not denote EVENTS (§7.3.2), and in that case they will not reflect the argument structure of the EVENT verb from

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which they are derived. In the case of *decoration*, for example, the EVENT sense in (78) takes the argument *the office*, but in (79) *decoration* refers to a type of THING that requires no argument.

(78) The decoration of the office took hours.

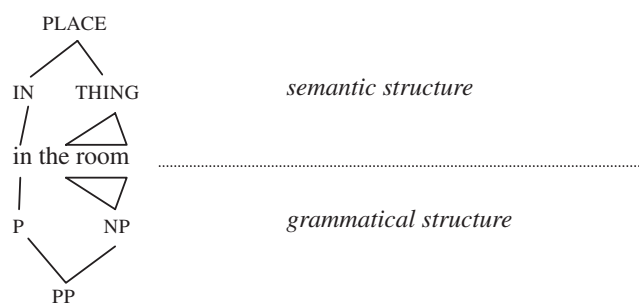
(79) The decoration hangs on the wall.

9.5.3 Predication and prepositions

In chapter 1, we noted that prepositions are sometimes considered to be lexical (or content) words and sometimes grammatical (function) words, and so we have paid them less attention than the more robust lexical categories of noun, verb, and adjective. But they have sneaked into our discussions of verb meaning in this chapter, with respect to MOTION EVENTS and LOCATION STATES. These prepositions, like *into* and *beside* and *from*, have definite semantic content, and are represented as predicates that take a THING (or TIME or PROPERTY) argument.

But, as should be evident from the predicative noun and adjective examples above, not every preposition is contentful. In cases like *the president of the Scrabble club* and *proud of Nancy*, the *of* serves the purpose of sticking an argument after a predicate, but it adds no additional predicative meaning itself. So, in the semantic representation of *Paul is proud of Nancy* in (69), the *of* is nowhere to be seen, unlike *into* in *Sheryl went into town*, which, as we saw in (62), has a complex predicative structure that (when combined with a THING argument) expresses a PATH. Most prepositions can be represented as predicates (PATH or PLACE types) that take THING arguments. In this way, the semantic structure echoes the syntactic structure, as shown in (80), because grammatically a preposition is the head of a phrase that includes an object noun phrase.

(80)



We have also seen (in §9.4.5) that the PATH and PLACE structures represented by prepositional phrases are used in a variety of conceptual fields. Note, for instance, that spatial prepositions like *in* (e.g. *in a room*) or *at* (e.g. *at the corner*) are also used in specifying TIMES (*in an hour*, *at noon*) and, in some cases, PROPERTIES (*you can get that dress in red*). But if you have studied another language, or if you have tried to teach English to anyone else, you will probably

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have found that the prepositions that seem to be each other's translations in the spatial realm often do not translate in the same way in other realms. For instance, an English speaker learning Swedish or a Swedish speaker learning English will have to learn that the Swedish preposition *till*, which translates as *to* for MOTION EVENTS, is also used for a range of other purposes that translate as other prepositions in English:

(81) a. Edvin åkte **till** Stockholm. = Edvin went **to** Stockholm.
b. Elin köpte en fisk **till** mig. = Elin bought a fish **for** me.
c. Hon är rörmokare **till** yrket. = She is a plumber **by** trade.
d. Vi stannade **till** igår. = We stayed **until** yesterday.
e. Per är vän **till** mig. = Per is a friend **of** mine.

It is in part this lack of predictability in prepositions' use that has caused them to traditionally be seen as a grammatical/collocational problem more than a semantic one, with our language teachers telling us that we'll just have to memorize which prepositions to use in which circumstances because there is no real system to it. In the past couple of decades, semanticists have started to question that received wisdom. Much of this work is in, or inspired by observations from, the Cognitive Linguistics school of thought (see §4.5.2) and deals in particular with the problem of prepositional polysemy – both within and beyond the spatial conceptual field. The strategies used to account for such polysemy include representing preposition meanings as complex networks of related senses or radical underspecification of prepositional meaning – that is, trying to find the essence of the preposition's meaning that predicts the ways in which it applies in different contexts.

9.6 Summary and conclusion

This chapter has introduced a number of key concepts related to verb meaning: predication, argument structure, argument alternation, and conflation. We have looked at two basic types of SITUATION, EVENT and STATE, and a componential analysis from Conceptual Semantics for representing a range of EVENTS and STATES. To do so, we started by looking at MOTION/LOCATION verbs – that is, verbs that describe spatial relations between things, as (a) they are fairly typical verbs in that they denote physical actions, and (b) they provide a good model for a range of other types of meanings. Analyses of such spatial verb meanings translate easily into analyses of other kinds of verb meanings (e.g. related to time or the having of properties), which indicates that notions of 'going' or 'being located' are fairly basic to our ways of thinking about EVENTS and STATES more generally. We have used two basic components, GO and CAUSE, to describe a range of EVENTS, and one basic component for STATES, BE. We have also seen how the notion of predication can apply to other word classes, besides verbs.

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9.7 Further reading

Beth Levin's *English Verb Classes and Alternations* (1993) is an extremely useful reference for different verb types. Levin and Malka Rappaport Hovav's *Argument Realization* (2005) takes the issues raised by the existence of different verb classes and argument alternations further. Their chapter on "Three conceptualizations of events" offers a good comparison of approaches to verb semantics discussed in this and the next chapter. Further discussion of the Conceptual Semantics approach and the GO and BE components is available in Jackendoff (1983, 2002). Talmy (1985) describes cross-linguistic variation in the conflation patterns and use (including metaphorical use) of MOTION verbs to a much greater extent than attempted here. Jane Grimshaw (1999) provides a detailed analysis of the argument structures of deverbal nouns, introduced in §9.5.2. On the semantics of prepositions, some in-depth studies are: Taylor (1993), Tyler and Evans (2003) (a cognitivist approach to spatial prepositions in English), and Saint-Dizier (2006) (a collection of articles on prepositions from a number of languages).

9.8 Answers to puzzles

9–1

While some authors characterize the unexpressed object alternation as involving "prototypical" arguments, it is unclear that this characterization always works. In their intransitive forms:

drink = 'drink alcoholic drinks'
hum = 'hum a tune'
iron = 'iron fabric/clothes'
read = 'read books' (possibly particularly 'read novels')
vacuum = 'vacuum the carpet/floor'

In some cases, the unspoken object seems to be the only possible object – for instance, what else can you hum besides a tune? In other cases, it is the most usual object for the verb – while you can iron hair or vacuum the furniture, it is usually clothes and carpeted floors that we iron or vacuum. Arguably, in the case of *read*, book-reading is the prototypical kind of reading, but note that it is not the most usual – most people read more e-mails or food labels than books. But in the case of *drink*, it is hard to see why drinking alcohol would be considered the most prototypical kind of drinking – especially since not everyone does it. Because there is so much variation among verbs with the unspecified object alternation, there is a lot of variation in how to treat it semantically. Some might say that it involves a regular polysemy involving the conflation of a prototypical object, while others would say that the intransitive meaning needs to be represented in the mental lexicon with a specification of the object. We could also take the position that most cases

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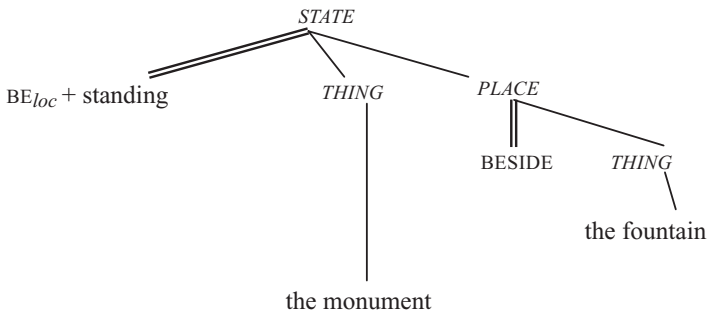
involve a regular polysemy alternation, but some exceptions (like *drink*) require that the identity of the missing argument be specified in the lexicon.

9–2

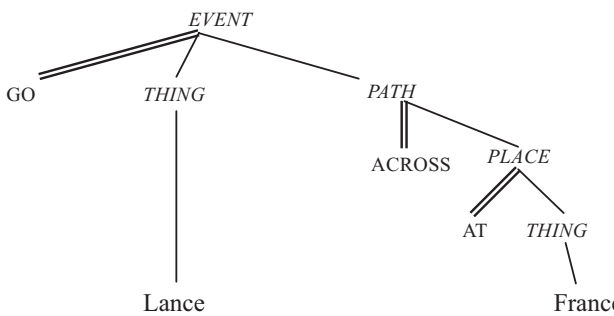
a. *The monument stands beside the fountain.*



[$_{STATE}$ BE$_{loc}$+standing ([$_{THING}$ the monument],
[$_{PLACE}$ BESIDE ([$_{THING}$ the fountain])])]

You might have chosen to represent *beside* as NEXT-TO or something similar, which is fine. Since we are not concerning ourselves now with the internal structure of the MANNER co-event, I have not broken it down into smaller parts here. It might be interesting for you to think about how that might be done, though.

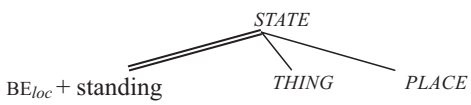
b. *Lance crossed France*



[$_{EVENT}$ GO ([$_{THING}$ Lance], [$_{PATH}$ACROSS ([$_{PLACE}$ AT ([$_{THING}$ France])])])]

Here, I have used ACROSS as the PATH, since *cross* indicates the direction of Lance's movement with respect to France. AT is a generic PLACE predicate.

c. the LOCATION verb *stand*



[$_{STATE}$ BE$_{loc}$ + standing ([*THING*], [*PLACE*])]

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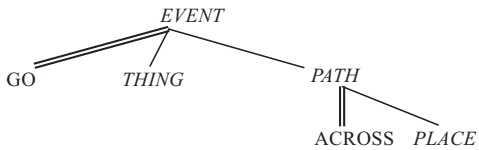
d. the MOTION verb *cross*



[$_{EVENT}$ GO ([*THING*], [$_{PATH}$ ACROSS ([*PLACE*])])]

9–3

a. no: *Rose descended Fred the staircase.
b. no: *The lady crossed the Boy Scout the street.
c. yes: Humphrey waltzed Magdalena into the room.
d. no: *The wind is falling petals from the flower.
e. yes: Greta slipped the note out of the book.

All the 'yes' verbs here conflate MANNER, while the 'no' verbs conflate PATH, giving rise to the hypothesis that MANNER verbs can be made causative, but PATH ones cannot. This is generally a good hypothesis for English, but a few exceptions can be noted. Some MANNER verbs sound strange when made causative; for instance, while *I walked the dog downstairs* sounds fine, #*I sauntered the dog downstairs* doesn't. A few PATH-conflating verbs have acquired causative senses, but these are generally more restricted in their use. For instance, while *enter* means 'cause to move (into)' in *Gill entered the numbers into the database* or *Gill entered Harold in the competition*, the movement here is more figurative than literal – Gill doesn't pick up the numbers to put them in the database. The more literal 'locomotive' sense of *enter* is not made causative: **Gill entered the cake into the room*.

9–4

Climb, *charge*, and *wander* have this alternation:

a. Hilary climbed the mountain.
d. The crowd charged the ticket booth.
f. Nomads wander the desert.

One hypothesis could be that you can leave out the preposition if the usual PATH is clear from the verb, since climbing is usually 'up' and wandering is usually 'around.' But that hypothesis does not explain why *coil* (**John coiled the string the spool*) and *revolve* (**Earth revolves the Sun*) do not allow the alternation, since coiling and revolving are always 'around.' Instead, what *climb*, *charge*, and *wander* have in common (and *drift*, *coil*, *revolve* do not share) is that they typically describe movement by animate beings. (Note that it is the string, not John that moves around the spool in (c).) Not every MOTION+MANNER verb follows this alternation "rule," but it can be noted as a tendency.

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9–5

Albert rocked the baby to sleep.

$[_{EVENT}$ CAUSE $([_{THING}$ Albert], GO$_{IDENT}$+rock $([_{THING}$ the baby],
$[_{PATH}$ TO $([_{PLACE}$ AT $([_{PROP}$ sleeping])])]
rock [causative]
$[_{EVENT}$ CAUSE $([THING], $ GO+rock $([THING], [PATH]))]$

You might have kept GO as GO$_{ident}$, which is fine, but note that the causative *rock* can be used for literal as well as metaphorical types of movement, so we might treat this as a vague sense that is compatible with any type of GO.

9.9 Exercises

Adopt-a-word

If your word is a verb, use your own intuitions and reference books (learner's dictionaries and/or Levin 1993) to determine the argument structure it is usually associated with, and any argument alternations that it has. Discuss the extent to which the verb's semantics and its grammatical behavior (in terms of argument structure and alternation) are intertwined and whether there is a general pattern of alternation for verbs in its semantic field.

General

1. Recall the use of the verb *paint* in example (8):

   Whistler painted his kitchen floor.

   In (11), the following description of this sense of the verb *paint* was given:

   paint = $[_{EVENT}$ APPLY $([THING], [_{THING}$ paint], $[_{PATH}$ TO $([THING])])]$

   Rewrite this semantic representation without APPLY, but instead with Conceptual Semantics predicative components discussed in this chapter (i.e. BE, GO, and/or CAUSE).

2. Assume that DEAD is a PROPERTY that a THING can have. Given this assumption, devise Conceptual-Semantics-style representations for the verbs in the following sentences. For each, give both the representation for the entire sentence and for the verb alone.
   a. The tulips died.
   b. Gordon killed the tulips.

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3. In this chapter, we saw that MOTION EVENTS involve certain elements and that MOTION verbs can conflate some of those elements, such as PATH (as in *enter*) or MANNER (as in *walk*). Now let's consider STRIKING EVENTS and verbs of striking, as in the following sentence:

   The girl struck the ball hard with her bat.

   STRIKING EVENTS like this one involve a number of elements besides the striking action itself:
   - a STRIKER (*the girl*)
   - a STRUCK object (*the ball*)
   - an INSTRUMENT of striking (*her bat*)
   - a MANNER (*hard*)

   Given this, answer the following questions:

   (a) The following verbs all conflate one of these elements. Which one? For each of these, identify the hidden argument.

   kick, *slap*, *punch*, *elbow*

   (b) For each of the following, determine if it conflates the same type of element (i.e. STRIKER, STRUCK, INSTRUMENT or MANNER) as the examples in (a) did, if it conflates a different element or if it conflates nothing. Do any of these conflate more than one element?

   head-butt, *poke*, *wallop*, *hit*, *spank*

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