Polysemy: Categories of Senses

It is common for a single word to have more than one meaning. In some cases the meanings are unrelated, like the two meanings of bank—the place where you put your money and the land along the edge of a river. In such cases, there is not one word, but two. They are called instances of homonymy, where two words with two totally different meanings happen to be pronounced the same way. In other cases, the senses are related, often in such a close and systematic way that we don’t notice at first that more than one sense exists at all. Take the word window, for example. It can refer either to an opening in a wall or to the glass-filled frame in that opening. Or take the word open. We open doors and open presents, and though the actions described by the words are very different, we would normally have to think twice to notice the difference. Or the word run. It is very different for Harry to run into the woods and for the road to run into the woods. Again, there is a single verb with two senses so intimately related that we have to think twice to notice the difference. Such cases are called instances of polysemy. They are cases where there is one lexical item with a family of related senses.

The classical theory of categories does not do very well on the treatment of polysemy. In order to have a single lexical item, the classical theory must treat all of the related senses as having some abstract meaning in common—usually so abstract that it cannot distinguish among the cases and so devoid of real meaning that it is not recognizable as what people think of as the meaning of a word. And where there are a large number of related senses that don’t all share a property, then the classical theory is forced to treat such cases as homonymy, the same way it treats the case of the two words bank. Moreover, the classical theory has no adequate means of characterizing the situation where one or more senses are “central” or “most representative.”

Fillmore (1982a) observes that the adjective long has two senses, one spatial and one temporal. The spatial sense is generally taken to be more central, or prototypical, and the temporal sense is related to it via metaphor. Another example would be the word up, which can mean happy, in “I’m feeling up today,” or can have a spatial sense, in “The rocket went up.” The spatial sense is generally taken as the more central sense.

These and other observations about prototypical uses of lexical items can be united with other data on natural categorization by viewing lexical items as constituting natural categories of senses. Thus some senses of a word may be more representative than other senses. The senses of a word are related to one another more or less closely by various means, one of which is conceptual metaphor. As Lakoff and Johnson (1980) observe, a metaphor can be viewed as an experientially based mapping from an ICM in one domain to an ICM in another domain. This mapping defines a relationship between the idealized cognitive models of the two domains. It is very common for a word that designates an element of the source domain’s ICM to designate the corresponding element in the ICM of the target domain. The metaphorical mapping that relates the ICMs defines the relationship between the senses of the word. It is most common for the sense of the word in the source domain to be viewed as more basic. Thus, in the case of up, the source domain is spatial and the target domain is emotional, and the spatial sense is viewed as being more basic.

Polysemy Based on Correspondences within an ICM

In other cases, a single idealized cognitive model can be the basis on which a collection of senses forms a single natural category expressed by a single lexical item. Window is a good example. In our cognitive model of a window there is both an opening in the wall and a glass-filled frame fitting into it. This correspondence provides motivation for using the same word to refer to both. In isolation, an opening in the wall doesn’t have much if anything in common with a glass-filled frame. Independent of any knowledge about the way windows happen to work, there would be no objective reason to place these two very different kinds of things in the same category. The fact that the opening in the wall and the glass-filled frame have been brought together to fit one another physically and to correspond to one another in the same cognitive model seems to make them members of the same cognitive category—so much so that in sentences like the following the word window doesn’t seem to distinguish between them.

How many windows are there in your living room?

Here window seems to refer not to either the opening or the glass-filled frame, but to the combination. It takes sentences like the following to tease the senses of window apart.
- This room is too dark; we're going to have to cut a new window in that wall.
- They've just delivered our new windows.

Window can also refer to the frame alone or the glass alone:
- This window has rotted; we're going to have to replace it.
- The kids were playing ball and broke a window.

In the case of window the correspondences are physical: the glass fitting the frame, the frame fitting in the opening in the wall. These correspondences within our model of what a window is motivate our use of the word window in these three senses, and in addition allow us to view these three senses (opening, frame, and glass) not as unrelated, but as forming a natural category of senses. The idea that lexical items are natural categories of senses has been studied extensively in the domain of English prepositions, and we will turn to those results next.

Chaining within Categories: The Case of Over

Most of the research on categorization within cognitive psychology has been in the domain of physical objects and physical perception. But perhaps the strongest evidence against traditional views of categorization and in favor of a prototype approach comes from the study of verb-particles and prepositions. The most detailed studies of prepositions by far are those done by Lindner (1981) and Brugman (1981). Lindner's study looked at more than 1800 verb-particle constructions using the two words up and out and surveyed the contributions to meaning made by the particles. Brugman's study is an extended survey of the highly complex network of senses of the English word over. It covers nearly one hundred kinds of uses. The two studies reach substantially the same conclusions, though Brugman's has a more thorough discussion of the consequences for the theory of categorization, and she is the first to explicitly propose the idea that lexical items are natural categories of senses. This case study presents part of that analysis and extends it in two ways: first, in showing the precise relations among the spatial senses and second, in describing metaphorical extensions of the spatial senses.

The Problem

To get some sense of the problem, let us consider a handful of the senses of over:
- The painting is over the mantle.
- The plane is flying over the hill.
- Sam is walking over the hill.
- Sam lives over the hill.
- The wall fell over.
- Sam turned the page over.
- Sam turned over.
- She spread the tablecloth over the table.
- The guards were posted all over the hill.
- The play is over.
- Do it over, but don't overdo it.
- Look over my corrections, and don't overlook any of them.
- You made over a hundred errors.

Even this small number of examples shows enormous complexity. Not all the complexity is semantic; the word over in these examples is in several grammatical categories, e.g., preposition, particle, adverb, prefix, etc. The problem Brugman undertook was how to describe all these senses and the relations among them. The analysis we will be presenting is a minor refinement of the semantic aspect of Brugman's analysis. Let us begin with what Brugman found to be the central sense.

The Above-Across Sense

The central sense of over combines elements of both above and across. In figure 1, the plane is understood as a trajector (TR) oriented relative to a landmark (LM). TR and LM are generalizations of the concepts figure

```
   TR
   _ _ _ _ _ _ _ _ _
  /               /
 /                 /
  LM
```

Fig. 1 The plane flew over.
Scheme 1

and ground (Langacker 1986). In this case the landmark is unspecified. The arrow in the figure represents the path that the TR is moving along. The LM is what the plane is flying over. The path is above the LM. The dotted lines indicate the extreme boundaries of the landmark. The path goes all the way across the landmark from the boundary on one side to the boundary on the other. Although the drawing in figure 1 indicates non-contact between the TR and LM, this sense is actually neutral on the issue of contact. As we will see shortly, there are instances with contact and in-
stances without contact. In this respect the schema cannot be drawn correctly. Any drawing would have to indicate contact or the lack of it. The image schema is neutral and that is part of what makes it schematic. What we have here is an abstract schema that cannot itself be imaged concretely, but which structures images. We will return below to the question of what it means for an image schema to structure an image.

Let us now turn to some special cases of the schema in figure 1. These are instances of the schema that are arrived at by adding information, in particular, by further specifying the nature of the landmark and by specifying whether or not there is contact. We will consider four kinds of landmark specifications: (1) LM is a point, that is, the landmark is an entity whose internal structure is irrelevant as far as the schema is concerned. (2) LM is extended, that is, the landmark extends over a distance or area. (3) LM is vertical, in that it extends upward (for example, a fence or a hill). (4) LM is both extended and vertical. For each such case, we will consider two further specifications: contact between TR and LM and noncontact. Each schema will be named using the following abbreviations: X, extended; V, vertical; C, contact; NC, no contact. Thus, the schema name 1.VX.C stands for the special case of schema 1 in which the landmark is both vertical and extended (VX) and there is contact (C) between the LM and the TR. The schemas in figures 2-7 can be related by a diagram of the sort shown in figure 8, where the links among schemas indicate similarity. Thus, all the contact schemas are linked, as are all the schemas that share noncontact. Moreover, each pair of schemas that share everything except contact are linked. In addition, they are all linked to schema 1, since they are all instances of that schema.

The schemas in figures 2-7 can be viewed in two ways. Take, for example, a sentence like Sam walked over the hill in figure 6. We can think of over in this sentence as being represented by the minimally specified schema 1 of figure 1, and we can think of the additional information as being added by the object and the verb. Thus, a hill is vertical and extended (VX) and walking requires contact (C) with the ground. Let us refer to this as the minimal specification interpretation. Equivalently, we can view the minimally specified over of figure 1 as generating all the fully specified schemas of figures 2-7. On this full specification interpretation, we can think of the over in Sam walked over the hill as having the full specification of schema 1.VX.C in figure 6. The verb walk would then match the contact (C) specification, and the direct object hill would match the vertical extended (VX) specification. The difference is whether the verb and direct object add the VX and C information or whether they match it.

These two interpretations make slightly different claims about the lexical representation of over in these sentences. On the minimal specifi-
Consider the following case, where there is a focus on the end point of the path. We will use the abbreviation E in naming schemas where there is end-point focus. In figure 10, there is an understood path that goes over the hill, and Sam lives at the end of that path. The end-point focus is not added by anything in the sentence, neither hill, nor lives, nor Sam. Here over has an additional sense which is one step away from schema 1.VX.C, a sense in which end-point focus (E) is added to yield schema 1.VX.C.E. As we shall see below, such end-point focus senses are the result of a general process that applies in many, but not all, English prepositions.

End-point focus cannot be freely added to just any of the schemas in figures 2–7. It can only be added to those with an extended landmark, as in

![Diagram](image)

Fig. 5. Sam drove over the bridge.
Schema 1.X.C

Fig. 6. Sam walked over the hill.
Schema 1.VX.C

Fig. 7. Sam climbed over the wall.
Schema 1.V.C

Fig. 8. Links among schemas

Fig. 9. Instances of schema 1

Fig. 10. Sam lives over the hill.
Schema 1.VX.C.E
In these cases, *over* has the sense of "on the other side of" as a result of end-point focus. However, *over* does not in general mean "on the other side of." For example, sentences like *Sam lives over the wall and Sam is standing over the door*, if they occur at all, cannot mean that he lives or is standing on the other side of the wall and the door. And a sentence like *Sam is sitting over the spot*, can only mean that he is sitting on it, not that he is sitting on the other side of it. Thus, there is no end-point focus schema corresponding to schema 1.V.C. of figure 7. Assuming the full specification interpretation, we can extend the chain in figure 8 to include the schemas in figures 10 and 11.

![Diagram](image)

**Fig. 12. Links among schemas**

So far, we have considered two types of links among schemas: *instance links* and *similarity links*. Here are two examples, where ⇐ indicates an instance link and ↔ indicates a similarity link:

- **Instance link:** 1.V.C. ⇐ 1
- **Similarity links:** 1.VX.NC ⇐ 1.VX.C

Thus, the link between schema 1 and schema 1.V.C is an instance link, with 1.V.C being an instance of 1. And the link between schema 1.VX.NC and schema 1.VX.C is a similarity link, where 1.VX is shared.

*The Above Sense*

*Over* has a stative sense, with no path. It is roughly equivalent in meaning to *above*. Schema 2 has no particular constraints on either the TR or LM. It is linked to schema 1 in that it has the TR above the LM. However, it differs from schema 1 in two respects: First, it has no path and no boundaries; in other words, the *across* sense is missing. Second, it does not permit contact between the TR and LM. The no-contact requirement can be seen in examples like *The helicopter is hovering over the hill*. If the helicopter lands, it is no longer *over* the hill, it is *on* the hill.

From time to time, linguists have suggested that schema 2 is the core meaning of the preposition *over*, that is, that schema 2 is present in all the uses of *over* as a preposition. It should be clear from what we have seen so far that this is false. Since schema 2 requires no contact, it cannot be present in those cases where contact occurs, for example, in schema 1.X.C exemplified by *Sam drove over the bridge*. Schema 2 also does not occur in the cases of end-point focus, such as schema 1.VX.C.E, which is exemplified by *Sam lives over the hill*. In this case, the TR is not above the LM.

One of the instances of schema 2 is the case where the TR is one-dimensional (which we will abbreviate as 1DTR). This schema is a minimal variant of schema 1.X.NC, exemplified by *The bird flew over the yard*, as shown in figure 2. The extended path in figure 2 corresponds to the one-dimensional solid trajectory in figure 14. We will call this kind of link between schemas a *transformational link*. This particular link between an extended path (X.P) and a one-dimensional trajectory (1DTR) will be represented as:

\[ X.P \leftrightarrow 1DTR \]
This relationship is not directly reflected in the naming system for schemas that we have adopted. However, we can state the relationship more systematically if we do a little renaming of a sort that reflects image-schema decompositions. Let us use ABV for the above subschema. And let us use PATH (P) for the across subschema. Schema 1 would be renamed ABV.P, and Schema 1.X.NC of figure 2 would be renamed ABV.NC.X.P. This name would reflect the fact that in this schema the TR is moving above (ABV) the LM, along a path (P), where the landmark is extended (X) and there is no contact between TR and LM (NC). Correspondingly, schema 2 would be renamed ABV.NC, and schema 2.IDTR in figure 14 would be renamed ABV.NC.IDTR.

Schema 1.X.NC = ABV.NC.X.P
Schema 2.IDTR = ABV.NC.IDTR

This decomposition displays the relationship between the schemas directly. The schemas are transforms of one another, given the transformational link X.P ← 1DTR.

It is important to bear in mind the difference between similarity links and transformational links. In the case of similarity links, the link is defined by shared subschemas. In the relationship described above, there are, indeed, shared subschemas: both schemas contain ABV.NC. But the transformational link is not a matter of shared subschemas, but of related subschemas.

The links among the schemas that we have described so far can be seen in figure 15.

The Covering Senses
There is a group of schemas for over that have to do with covering. This group is linked to the grid of figure 15 in two ways. The basic covering schema is a variant of schema 2, where the TR is at least two-dimensional and extends across the boundaries of the LM. There are two differences between schema 2 and schema 3. In schema 2 the dimensionality of the trajector is unspecified, while in schema 3 it must be at least two-dimensional. But whereas schema 2 requires noncontact, schema 3 is neutral with respect to contact, allowing either contact or lack of it.

There is a minimal variant of schema 3 in which the TR moves into the configuration of schema 3. This schema is composed of schema 3 plus a path (P) indicating motion to the final position. Schema 3.P.E is linked to schema 1. It shares motion of the TR above and across the LM. It also shares a lack of specification for contact. Schema 3.P.E differs from schema 1 in two ways. It is specified for the dimension of the trajector and it has end-point focus, which indicates that the final state is that of schema 3.

The board is over the hole.

The city clouded over.

Fig. 14. The power line stretches over the yard.
Schema 2.IDTR

Fig. 15. Links among schemas

Fig. 16. The board is over the hole.
Schema 3

Fig. 17. The city clouded over.
Schema 3.P.E.
There are two covering schemas in which over is paired with a mass quantifier that quantifies regions of the landmark, e.g., all, most, a lot of, entire, etc. The quantifier all may combine with over in this sense to form the unit all over. The first of these two schemas has a multiplex (MX) trajectory, that is, a trajector made up of many individuals.

- He has freckles over most of his body.
- There are specks of paint all over the rug.
- There is sagebrush over the entire valley floor.

In these cases, the individuals—the individual hairs, specks of paint, and bushes—don't completely cover the part of the landmark quantified by over. Rather, the landmark has small regions which jointly cover its surface (or most of it), and there is at least one trajector in each region. The relationship between schema 3 and schema 3.MX is the relationship between a continuous region (or mass) and a multiplex entity. Such relationships are very common in language. Compare cows (multiplex) and cattle (mass). Quantifiers like all and most can occur with either masses (all gold, most wine) or multiplex entities (all ducks, most trees). The relationship between multiplex entities and masses is a natural visual relationship. Imagine a large herd of cows up close—close enough to pick out the individual cows. Now imagine yourself moving back until you can no longer pick out the individual cows. What you perceive is a mass. There is a point at which you cease making out the individuals and start perceiving a mass. It is this perceptual experience upon which the relationship between multiplex entities and masses rests. The image transformation that relates multiplex entities and masses characterizes the link between schema 3 and schema 3.MX. We can characterize that transformational link as follows:

MX ↔ MS

There is a second covering schema for over in which over is associated with a mass quantifier. It is a minimal variant on schema 3.MX in which the points representing the multiplex entity of 3.MX are joined to form a path (P) which "covers" the landmark. Examples are:

- I walked all over the hill.
- We've hiked over most of the Sierras.
- I've hitchhiked over the entire country.

We can represent this schema in figure 19. This schema is linked to schema 3.MX by an image transformation that forms a path through a collection of points. We will represent this transformational linkage as:

MX ↔ MX.P

Schema 3.MX.P is also minimally linked to schema 3.P. In schema 3.P, the landmark is gradually covered as the trajector moves along the path. This is also true in schema 3.MX.P.

Fig. 19. I walked all over the hill.
Schema 3.MX.P

The covering schemas all have variants in which the TR need not be above (that is, higher than) the LM. In all cases, however, there must be an understood viewpoint from which the TR is blocking accessibility of vision to at least some part of the landmark.

- There was a veil over her face.
- As the rain came down, it froze and ice spread all over the windshield.
- There were flies all over the ceiling.
- The spider had crawled all over the ceiling.

We will refer to these as rotated (RO) schemas, though with no suggestion that there is actual mental rotation degree-by-degree involved. One might suggest that instead of rotation from the vertical, there is simply a lack of specification of orientation. If there were, we would expect that the contact restrictions would be the same in all orientations, but they are not. The rotated versions of the MX schemas (3.MX and 3.MX.P) re-
quire contact, while the unrotated versions do not. Here are some typical examples that illustrate the distinction:

- Superman flew all over downtown Metropolis. (TR above LM, non-contact)
- *Superman flew all over the canyon walls. (TR not above LM, non-contact)
- Harry climbed all over the canyon walls. (TR not above LM, contact)

Thus, Superman’s flying alongside the canyon walls does not constitute flying over them.

We will add RO to the names of the unrotated covering schemas to yield names for the corresponding covering schemas. The rotated covering schemas have the following names: 3_RO, 3_P, 3_MX, RO, and 3_MX.P. Figure 20 is a diagram indicating the links among the covering schemas and the links to the other over schemas. And figure 21 indicates the overall linkage among the schemas discussed so far.

The Reflexive Schemas

Perhaps the most remarkable of the discoveries made by Lindner (1981, 1982) was the discovery of reflexive trajectories. The concept can be illustrated most simply using the example of out. The simplest use of out occurs in cases like Harry ran out of the room. In figure 22 the container (the room) is the landmark, and the trajector (Harry) moves from the interior to the exterior of the room. But this schema won’t do for cases of out like:

- The syrup spread out.
- The posse spread out.

They stretched out the taffy.
We rolled out the carpet.

Here the relevant trajectors are the syrup, the posse, the taffy, and the carpet. But they are not moving out with respect to any other landmark. Take the case of the syrup. Pour some syrup on a table. It will have a certain outer boundary at first. But the boundary moves. Some of the syrup that was inside the initial boundary is now outside that initial boundary. The syrup, or at least part of it, is moving “out” relative to its own prior boundary. We can schematize this as in figure 23. In short, the syrup is its own landmark. TR = LM. Such a relation between a landmark and a trajector is called reflexive. Since there is only one entity under consideration, it is referred to as a reflexive trajector.
The equal sign in "TR = LM" is not strict identity; it is "identity" of part of a bounded mass relative to itself as it used to be bounded. As we will see below, there are several ways in which "TR = LM" can be realized. An important one is when parts of a single entity act as TR and other parts of the same entity act as LM. This kind of reflexive trajector occurs in the case of over. Consider examples like:

- Roll the log over.

Here a major part (roughly half) of the log is moving above and across the rest. That is, half the log is acting as landmark and the rest as trajector. The same is true in a case like

- Turn the paper over.

Both of these are variations on schema 1; they differ only in that LM = TR in the sense just described.

We can represent the schema for these cases in figure 24. Schema 4 can be viewed as a transform of schema 1, with schema 4 adding the condition TR = LM. We will represent such a transformational link as

\[
\text{NRF} \leftrightarrow \text{RF}
\]

where NRF means nonreflexive and RF means reflexive. If we had chosen to name scheme 4 according to its status as a variant of schema 1, we would have called it 1.RF.

The path of over in schema 4 traces a semicircle above and across other parts of the thing being moved. We will refer to this as a reflexive path.

There is a variant on schema 4 in which no part of the thing moving moves above or across any other part; instead, the entity as a whole traces the reflexive path:

- The fence fell over.
- Sam knocked over the lamp.

These are cases where the TR is initially vertical and moves so as to follow the last half of a reflexive path (RFP). The relationship between schemas 4 and 4.RFP (fig. 25) can be stated as follows: In schema 4, half of the TR follows the whole reflexive path; in schema 4.RFP, all of the TR follows the last half of the reflexive path.

This schema is not only a variant of schema 4. It is also a minimal variant of one of the most common instances of schema 1, the instance that characterizes over in *The dog jumped over the fence*. In this case, there is a vertical landmark and the path of the trajector both begins and ends on the ground (G). This results in a semicircular path, as in figure 26. If we take the reflexive transform of this schema, letting TR = LM, we get the schema of figure 25, schema 4.RFP. Thus, schema 4.RFP has close links to two other schemas.

The Excess Schema

When over is used as a prefix, it can indicate excess, as in:

- The bathtub overflowed.
- I overate.
- Don't overextend yourself.

![Fig. 23. The syrup spread out.](image1)

![Fig. 24. Roll the log over. TR = LM](image2)

![Fig. 25. The fence fell over. Schema 4.RFP](image3)
Overflow provides a link between the excess schema in general and the schema of figure 26. For overflowing to take place, there must be a fluid in a container, which has vertical sides. The path of the overflowing fluid is upward and over the side of the container. This makes the over of overflow an instance of figure 26, where the LM = the side of the container, the PATH = the path of the flow, and the TR = the level of the fluid.

But overflowing is more than just flowing over the edge of a container. Semantically, it involves excess. Syntactically, the over becomes a prefix. Let us look at the semantics first. The concept of overflowing presupposes that there is a container with vertical sides and that the height of the sides characterizes the maximal normal amount of fluid, relative to some assumed norm. For example,

- The river overflowed.

Here the banks of the river are the vertical sides and define the maximal normal height of the river. Thus, we have in addition: the height of the LM defines the maximal normal amount of fluid. Thus, flowing over the LM constitutes exceeding the norm.

We regularly fill containers with fluids for some purpose, drinking, washing, etc. The container used defines a maximal normal amount of the fluid. Overflowing is a very common occurrence. When it occurs, the fluid put into the container is wasted and creates a mess. This regular correlation in experience is the basis of the metaphor on which the excess schema is based. The metaphor involved is not specialized to the excess schema; it is more general. In the metaphor, an activity is a container for the effort (or energy) put into it. The sides of the container define the maximal normal effort required to achieve the goal of the activity. Overdoing something involves putting more than the maximal normal amount of effort into an activity that is required to achieve the goal. This results in wasted effort, and sometimes in awkwardness (a social mess).

The excess schema is thus not merely an image schema, but an image schema (I.V.N.C.G as in fig. 25) plus a metaphor. We will refer to it as schema 5.

The Repetition Schema

One of the most common uses of over is to indicate repetition, as in

- Do it over.

Here over is used as an adverb. As in the case of the over of excess, the over of repetition makes use of a complex schema built on an instance of schema 1, namely, schema 1.X.C. This schema has an extended landmark and indicates motion above and across it (cf. fig. 5). The repetition schema uses schema 1.X.C and adds two metaphors to it. Again, the path is metaphorically understood as the course of the activity. This is via the very general activity is a journey metaphor. There is, however, an important idiosyncrasy in this sense: the landmark is understood metaphorically as an earlier completed performance of the activity. This is a special-purpose constraint on the general metaphor, which is, to my knowledge, used only in this complex schema. This is the part of the repetition schema for over that is not motivated by an occurrence elsewhere in the conceptual system. For this reason, the repetition sense of over is less naturally tied into the category of senses than the other senses.

At this point, we are in a position to give a link diagram that shows a good deal of the complexity of over. In that diagram, we will refer to the repetition schema as schema 6. Figure 27 displays all the links we have discussed so far. A number of additional metaphorical links will be discussed below.

Figure 27 shows what is meant by a radial structure. Schema 1 occupies a central position; it and its instances are of primary importance in the system of links. The links correspond to what Wittgenstein called "family resemblances." The links are sometimes defined by shared properties, but frequently they are defined not by shared properties, but by transforms or by metaphors.

Some Metaphorical Senses

It is extremely common for metaphors to take image schemas as their input. A great many metaphorical models use a spatial domain as their source domain. Among the most common source domains for metaphorical models are containers, orientations, journeys (with paths and goals), vertical impediments, etc. In this section, we will give a number of cases where over has a metaphorical sense based on an image schema discussed above.

- She has a strange power over me.

This is an instance of a very common metaphor: Control is up; lack of control is down (cf. Lakoff and Johnson 1980, p.15). Over in this sen-
one: CHOOSING IS TOUCHING. This occurs in such sentences as He was tapped for service and The bass handpicked his successor. Since the schema indicates that there is no contact, it is entailed that Sam was not chosen.

We are now in a position to make sense of the difference between overlook and oversee.

- You've overlooked his accomplishments.
- We need to find someone who can oversee this operation.

The over in overlook is based on schema 2.1DTR (fig. 14). There are two metaphors involved. The first is a metaphor for understanding vision: seeing is touching. This occurs in examples like I couldn't take my eyes off her, Her eyes picked out every detail of the pattern, He undressed her with his eyes, and He fixed his gaze on the entrance. According to this metaphor, one's gaze goes from one's eyes to what one sees. You see whatever your gaze touches. Under the metaphorical mapping, the path in schema 2.1DTR is the gaze. Since there is no contact in schema 2.1DTR, the metaphorical gaze doesn't touch the landmark; thus the subject of overlook is not looking at, and therefore does not see, the landmark. The second metaphor is the general MIND-AS-BODY metaphor (cf. Sweetser 1984). The relevant aspect of that metaphor is the part in which LOOKING AT SOMETHING IS TAKING IT INTO CONSIDERATION. Accordingly, I'll take a look at it normally entails I'll consider it. Therefore, to overlook someone's accomplishments is not to take them into consideration.

The over in oversee is based on schema 2 (fig. 13), in which the TR is above the LM. There are a metaphor and a metonymy that are relevant to this example. The metaphor is CONTROL IS UP. Thus, the one who does the overseeing has control over the persons overseen. The metonymy is SEEING SOMETHING DONE STANDS FOR MAKING SURE THAT IT IS DONE. This metonymy is based on an idealized model in which making sure of something typically involves seeing it. Because of this metonymic relation, See that he gets his money means Make sure that he gets his money. Thus, to oversee means to be in control and make sure that something is done.

We can now compare overlook to look over.

- Look over my corrections, but don't overlook any of them.

The over in look over is based on schema 3.MX.P (fig. 19), and the seeing is touching metaphor. The resulting complex schema is one in which the subject's gaze traces a path that "covers" the direct object, corrections. In the resulting schema, the gaze does make contact with the landmark. The MIND-AS-BODY metaphor again yields a sense of look in which looking at something involves taking it into consideration. Thus, when one looks
over X, one directs one’s attention to a representative sampling that “covers” X, and one takes into consideration each subpart that one directs attention to.

Motivation

Before we go on, it is worth commenting on what is and what is not being explained in these analyses. We are not explaining why oversee, overlook, and look over mean what they mean. Their meanings cannot be predicted from the meanings of over, look, and see. But their meanings are not completely arbitrary. Given the range of spatial meanings of over and the metaphors present in the conceptual system that English is based on, it makes sense for these words to have these meanings. We are explaining just why it makes sense and what kind of sense it makes.

In each of these cases, the metaphorical and metonymic models exist in the conceptual system independently of the given expression. For example, we understand seeing metaphorically in terms of a gaze that goes out of one’s eyes and touches the object seen. This metaphorical understanding is present regardless of whether any of the expressions just discussed have those meanings. Similarly, the schemas for over exist for expressions in the spatial domain independent of the existence of oversee, overlook, and look over. What one learns when one learns these words is which of the independently existing components of their meaning are actually utilized. Each of these expressions is a specialized “assembly” of independently existing parts. The only arbitrariness involved is the knowledge that such an assembly exists.

The psychological claim being made here is that it is easier to learn, remember, and use such assemblies which use existing patterns than it is to learn, remember, and use words whose meaning is not consistent with existing patterns. What is being explained is not why those expressions mean what they mean, but why those are natural meanings for them to have. Thus, if one is going to have a word that means “to fail to take into consideration,” it is more natural to use overlook than to use an existing unrelated word like saw, or a complex word whose components are in conflict with the meaning, such as underplan, or taste at, or rekick. It is common sense that such expressions would not be used with such a meaning, and we are characterizing the nature of that “common sense.”

As we have mentioned before, such an explanation requires going beyond the predictable-arbitrary dichotomy. It requires introducing the concept of motivation. Thus, the meaning of overlook, though not predictable, is motivated—motivated by one of the spatial schemas for over and by two metaphors in the conceptual system. Similarly, all of the noncentral schemas for over in the chain given in figure 27 are motivated—motivated by other senses and by principles of linking.

More Metaphorical Senses

There are some additional common metaphorical senses of over that are worth discussing. Take get over, for example.

- Harry still hasn’t gotten over his divorce.

This use of over is based on schema 1.VX.C (fig. 6) and two metaphors. In the first metaphor, obstacles are understood in terms of vertical landmarks—which may be extended or not. This metaphorical model is the basis for expressions such as There is nothing standing in your way. The second metaphorical model is one that understands life as a journey. This occurs in sentences like It’s time to get on with your life. In the above use, the divorce is an obstacle (metaphorically, a vertical extended landmark) on the path defined by life’s journey.

- Pete Rose is over the hill.

Over the hill makes use of schema 1.VX.C.E (fig. 10) and a metaphor for understanding a career in terms of a journey over a vertical extended landmark like a hill. In this metaphorical model of a career, one starts at the bottom, may go all the way to the top, and then goes downhill. Thus, over the hill means that one has already reached and passed the peak, or “high point,” of one’s career and will never have that high a stature again.

- The rebels overthrew the government.

This is an instance of schema 4.RFP (fig. 25) which is the schema in fall over, and the control is up metaphor. Before the event takes place, the government is in control (metaphorically upright), and afterwards it is not in control (metaphorically, it has fallen over).

- He turned the question over in his mind.

This is an instance of schema 4 (fig. 24), plus an instance of the MIND-AS-BODY metaphor in which THINKING ABOUT SOMETHING IS EXAMINING IT. This metaphorical model occurs in such sentences as Let us now examine the question of factory chickens. In examining a physical object, one turns it over in order to get a look at all sides of it. Questions are metaphorically understood as having sides, and when one turns a question over in one’s mind, one is examining all sides of it.

- The play is over.

Here we have an instance of schema 1.X.C.E (fig. 11). In general, activi-