Cognitive Exploration of Language and Linguistics Second Revised Edition

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2 What's in a word? Lexicology

2.0 Overview

The next three chapters offer a systematic study of the meanings of linguistic expressions as they are related to one another and to entities in our conception of the world. This field of linguistics is called **semantics**, which deals with lexicology (Ch. 2), morphology (Ch. 3), and syntax (Ch. 4). In the present chapter the meanings and the structure of words are studied. This is lexicology, i.e., the systematic study of the meanings (or senses) of words. In this approach we can go from the form of a word to the various senses. Or we can adopt the opposite approach: Take a given concept and then see what different words are available as synonyms to refer to the entities in our conceptual world.

In both approaches the same general route will be followed. First of all, we will look at the central members of a category and at prototype effects; then we will look at the links between the different members of a category; and finally, we will look at the marginal members at the periphery and their "fuzzy" character. Categories are clear-cut at the centre but tend to be more fuzzy towards the periphery.

2.1 Introduction: Words, meanings and concepts

In Chapter 1 we saw that language helps us categorize our experiences of the world. Therefore, the answer to the question in the title "What is in a word" is relatively simple: "The whole world", or at least all the experiences we have of our world that have somehow been categorized linguistically. These are probably the experiences that have more prominence in a given cultural community.

In one very naïve way, one might be tempted to expect that for each conceptual category we have just one linguistic category, or word, and, conversely that each word stands for one conceptual category or one meaning. But this is not the way that language works. On average, a word form has three to four senses. A word with different, related senses is a **polysemous** word (from Greek *poly* 'many' and *sema* 'sign, meaning'). A good dictionary usually lists several senses for one lexical item. Here is part of a slightly adapted example of the item *fruit* from the DCE:

- (1) fruit / fruit/ n plural fruit or fruits
 - a. something such as an apple, banana, or strawberry that grows on a tree or other plant and tastes sweet: *Fresh fruit and vegetables, a bowl of fruit*
 - b. technical the part of a plant, bush, or tree that contains the seeds
 - c. *The fruit/fruits of sth* the good results that you have from something after you have worked very hard
 - d. *The fruits of the earth/nature* all the natural things that the earth produces such as fruit, vegetables, or minerals
 - e. *old-fashioned slang* an insulting way of talking to or about a man who is a homosexual
 - f. (not in DCE) *fruit of the womb* offspring

As the example shows, a dictionary starts from a word form and lists the various senses and therefore follows a semasiological approach. **Semasiology** (from Greek *sêma* 'sign') is thus an approach to the lexicon which describes the polysemy of a word form and the relationship between these various senses. The two literal senses in (1a,b) come before the figurative one in (1c). The most common senses in (1a–d) are in contrast to the less common ones as in (1e,f), and so on. Sometimes the same form may in reality stand for two entirely different words, as in *Pole*, used for inhabitants of Poland and for the North and South Pole. This is called **homonymy**, which means that two different words have the same form.

But we can also follow the opposite approach. This second approach is the onomasiological approach (from Greek *ónoma* 'name'). In **onomasiology** we start from a concept such as "fruit/fruits" and see which other words or expressions we can use as synonyms to denote the same or similar concepts. This is what a **thesaurus** does. A thesaurus is "a book in which words are put into groups with other words that are related in meaning" (DCE). *The Cambridge Thesaurus of American English* gives the following synonyms and other related words for the literal meanings (2a) and figurative meanings (2b) of *fruit*:

- (2) fruit, n.
 - a. berry, vegetable, grain, nut, root, tuber, crop, harvest, produce, product, yield
 - b. result, outcome, consequences, aftermath, effect, profits, pay, benefit, return, yield, harvest

An onomasiological approach in a thesaurus goes from a concept or meaning to the various synonyms which can be used to denote that concept. Onomasiology thus deals with the fact that different words may express similar meanings like *rich* and *wealthy*, called **synonymy**; with the fact that words have opposite meanings like *rich* versus *poor*, called **antonymy**; and with the fact that the meanings of groups of words are related, like *richness, affluence, wealth, poverty*, called a **lexical field**. This is summarized in Table 1.

Semasiology	Onomasiology
Word form (e.g. <i>fruit</i>)	Concept (e.g. "fruit")
senses a, b, c, d, etc. in (1)	words a, b in (2)
polysemy; homonymy	synonymy, antonymy

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Table L.	Word forms and	meanings or	concepts
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Definitions of four terms used in Table 1:

Polysemy

The fact that a word may have two or more related senses as illustrated in (1); sometimes even more than ten senses are possible, as in the case of the preposition *over*.

Homonymy

The fact that two words of different origin have the same form, e.g. *Pole* as in the sense of 'Polish' and *Pole* as used in 'North Pole'.

Synonymy

The fact that two words have the same or nearly the same meaning, e.g. happy, joyful, pleased.

Antonymy

The fact that two words have the opposite or nearly the opposite meanings, e.g. *large* and *small, thick* and *thin,* to *buy* and to *sell.*

Thus, given the nature of the lexicon, we can use a semasiological approach, concentrating on the many different senses of words, or an onomasiological approach, concentrating on what is common or different between the various words in capturing the essence of our experiences. These two paths will now be systematically explored in Sections 2.2 and 2.3. In Section 2.4, however, we will see that these approaches interact and overlap.

2.2 From words to meanings: Semasiology

Let us suppose you want to communicate to someone else that you can see an apple. As already discussed in Chapter 1, you can make this clear in three different semiotic ways. You can point to it (indexical sign), you can draw a picture that resembles the thing (iconic sign), or you can say the word *apple*, which is a symbolic sign. In the last case, how does the word that I pronounce [æpəl] relate to the thing I see? The word itself is of course not the thing itself, but only a symbol for the thing. A symbolic sign is a given form which symbolizes or stands for a concept (or a meaning) and this concept is related to a whole category of entities in the conceptual and experiential world. The relationship between these three elements (a) form, b) concept or meaning, and c) **referent** or entity in the conceptual and experiential world) was presented in a triangle in Chapter 1, Table 2 and is reproduced here as Table 2 for the sake of clarity.





Although many different interpretations have been proposed for this semiotic triangle since it was devised by its inventors Ogden and Richards (1923), the interpretation proposed here is generally acceptable. There is a direct, though conventional link between A (form) and B (concept, meaning) and between B (concept) and C (referent, i.e., entity in conceptual and experienced world). But there is only an indirect link between A (form) and C (referent or entity in world), indicated by the interrupted line AC. This semiotic triangle is a further elaboration of the views of the Swiss linguist Ferdinand de Saussure, who introduced two essential terms: The word form is the *signifiant* (that which signifies), and the meaning of the word is the *signifié* (that which is signified). We will refer to the former simply as word form or word and put it in italics, and to the latter as meaning — or if a word form is polysemous, as its senses — and put it in single quotation marks. For example, the word (form) *apple* stands for the meaning 'a kind of fruit'.

As the dictionary entry of the word *fruit* in Section 2.1 shows, this word has more than one meaning. Next to the basic, every-day sense 'sweet and soft edible part of a plant' as in (1a), illustrated in Figure 1a, it has various other senses. In its technical sense (1b) 'the seed-bearing part of a plant or tree', the word refers to things that are not usually included in its every-day use, as shown in Figure 1b. It also has a more general use in an expression like *the fruits of nature* (1d), which refers to 'all the natural things that the earth produces' (including, for instance, grains and vegetables). In addition to these literal senses, there is a range of figurative senses, including the abstract sense in (1c) 'the result or outcome of an action' as in *the fruits of his labour* or *his work bore fruit*, or the somewhat archaic senses in (1e) 'homosexual' or in (1f) 'offspring, progeny' as in the biblical expressions *the fruit of the womb, the fruit of his loins*.

Each of these different uses represents a separate sense of *fruit*. In turn, each sense may be thought of as referring to a different set of things in the outside world, a set of referents. For example, when we use the word *fruit* with the basic sense 'sweet and soft edible part of a plant', we refer to a set of referents that includes apples, oranges, bananas, and many other sweet and soft edible objects as in Figure 1a. If we use *fruit* in its second sense 'seed-bearing part of plant', we think of the fruit's function as a seed for future plants, typically shown by the seeds or the referents in the middle of the melon in Figure 1b.

But the seed-bearing part may be the whole fruit as is the case with a walnut, which is "technically speaking" a fruit (in the second sense), but it is probably not a fruit in the every-day sense. Thus in the case of a walnut, the referent is the whole seed-bearing part. In the case of the melon (in the second, technical sense), the referent is rather the core with the seeds. However, in the every-day sense, it is rather the edible part. A referent can be defined in a



Figure 1.

simplified way as an entity or part of an entity evoked by words. Each word sense evokes a member of a different conceptual category. In the *fruit* example, the category members happen to be material objects, but in the case of verbs, they could be actions and in the case of adjectives, they could be properties.

There is no precondition that the "things" in the category need exist in the real world. The category "fruit" contains all real and imaginary apples and oranges that *fruit* could possibly be applied to, in the same way in which *goblin* will have a set of members associated with it, regardless of whether goblins are real or not.

In the next sections we will look more closely at the relationships among members of a category. We will look at which member is considered the most central or salient one (2.2.1), how the members are linked to each other in meaning (2.2.2), and how meanings are fuzzy, i.e. cannot always be distinguished clearly (2.2.3).

2.2.1 Salience: Prototypical word senses and referents

In Chapter 1.3.1, it was shown that categories, e.g. the category "chair", have **prototypical** or central members and more marginal or peripheral members. This principle does not only apply to the members of a category, but also to the various senses of a word form. The question then is: How can we tell which sense of a word form like *fruit* is the most central? There are three interrelated ways that help us determine which sense of a word is the most central. In order to establish the **salience** of a sense, we can look at what particular sense comes to mind first, we can make a statistical count as to which use is the most frequent, or we can look at which sense is the more basic in its capacity to clarify the other senses.

When you hear someone say "I like fruit", probably the first thing that comes to everybody's mind, not only to the dictionary maker's, is the 'sweet and soft edible part' sense and not the archaic 'offspring' sense. The technical sense of 'seed-bearing part of a plant or tree' would not occur to us as immediately, unless we were talking about *fruit* in that sort of context. If you were to count the types of senses where a word like *fruit* is used in every-day language, you would probably discover that the 'edible part' sense is used far more frequently than the other senses. From this we may infer that the sense 'edible part' is much more central or salient in our conception of *fruit* than the 'seed-bearing part' sense and certainly more salient than the archaic 'offspring' sense. Another reason for regarding both the 'edible part' and also the 'seed-bearing part' sense

as more central than the other senses is the fact that these senses are a good starting-point for describing the other senses of *fruit*. For example, suppose you don't know the expression *fruit of the womb*. This sense can be understood more easily through the central 'seed-bearing part' sense of *fruit* rather than the other way round. In other words, the most salient, basic senses are the centre of semantic cohesion in the category: They hold the category together by making the other senses accessible to our understanding.

Thus centrality effects or prototypicality effects mean that some elements in a category are far more conspicuous or salient, or more frequently used than others. Such prototypicality effects occur not only at the level of senses but also at the level of referents. As we saw earlier, *fruit* has many different referents. When Northern Europeans are asked to name fruits, they are more likely to name apples and oranges than avocados or pomegranates whereas Southern Europeans would name figs. Also, if we were to count the actual uses of words in a Northern European context, references to apples or oranges are likely to be more frequent than references to mangoes.

2.2.2 Links between word senses: Radial networks

The fact that some word senses are more salient and others more peripheral is not the only effect under consideration here. Word senses are also linked to one another in a systematic way through several cognitive processes so that they show an internally structured set of links. In order to analyze these links and the processes that bring them about, let us consider the senses of *school* in (3).

(3) school 'learning institution or building' a. Is there a school nearby? b. 'lessons' School begins at 9 a.m. 'pupils and/or staff of teachers' The school is going to the British c. Museum tomorrow. We must hand in the geography project to the school in May. 'university faculty' At 18 she went to law school. d. 'holiday course' Where is the summer school on e. linguistics to be held? f. 'group of artists with similar Van Gogh belongs to the Imstyle' pressionist school.

g. 'views shared by a group of people'

There are two schools of thought on drinking red wine with fish. A school of whales followed the boat.

h. 'a group of big fish swimming together'

The first sense of *school* in (3a) is in fact not just 'learning institution', but it can also be the place or building where the learning institution is housed. Thus in the sentence *She left school at the age of 14*, the word *school* can only mean 'learning institution', but in *She left the school after 4 p.m.*, *school* can mean both, and in *The school was burned down* only the building is meant.

The last case in (3h) is a problem. As stated before (see definition of *homonymy*) there are, historically speaking, two words *school*. The senses in (3a–g) of *school* go back to a Latin word *schola*; the last meaning (3h) is not an extension of the other senses but it stems from a different word form, i.e. Old English *scolu* 'troup' and has its own development. Still, in the present use of the meaning of *school* as 'group of big fish', the language user appeals to folk etymology and may rather see this meaning as a metaphorical extension of the other senses. Accordingly we will treat the 'group of big fish' sense of *school* as a process of folk etymology, taking all the senses of this word to be related to each other.

So, these eight senses appear to form a cluster that is structured in the shape of a **radial network**, i.e. a centre with radii going in various directions. For the radial network representing the senses of *school* we find four main directions as represented in Table 3.

What are now the processes that constitute the links within this radial network? It is clear that the central meaning of *school* has to do with 'learning by a group of (young) people'. There are four different processes that allow us to focus on one or more components in this general category. The first is metonymy. In metonymy (from Greek meta 'change' and onoma 'name') the basic meaning of a word can be used for a part or the part for the whole. For instance, school as a 'learning institution for a group of people' allows us to focus upon each subset (the pupils, the staff) of this complex category and we can take the subset (e.g. the head of the school) for the whole category. In metonymy the semantic link between two or more senses of a word is based on a relationship of contiguity, i.e. between the whole of something, i.e. school as an "institution for learning in group" and a part of it, e.g., the lessons. In fact, the expression the school can metonymically stand for each of its components, i.e. the building itself, the lessons, the pupils, the staff, the headmaster etc. More generally, contiguity is the state of being in some sort of contact such as that between a part and a whole, a container and the contents, a place and its inhabitants, etc.



Table 3. Radial network of the senses of school

For example, in English and most languages we may say something like *He drank the whole bottle*. With such an expression we mean of course the contents in the bottle and not the bottle itself. Because the bottle and its contents are literally in contact with each other, this is considered a metonymic link. As we will see in Chapter 3.3, however, the concept of contiguity does not apply only to real physical or spatial contact, but also to more abstract associations such as time or cause.

The link which language users as folk etymologists make between the sense of school as a 'group of pupils/teaching staff' and its most peripheral sense as 'a group of fish swimming together' is based on the process of metaphor. Metaphor (from Greek metapherein 'carry over') is based on perceived similarity. Referring to the bottom part of a mountain as the foot of the mountain is based on a conceived similarity between the structure of the human body and a mountain and hence a transfer is made from the set-up of the human body to that of the environment. Even the interpretation of a homonym such as school in the sense of 'group of fish' can be related to the senses of *school* as 'group of pupils' and may thus be motivated by the relation of similarity which language users perceive between a group of pupils following a master and a group of fish swimming together and following a leader. But the similarity is completely in the eyes of the beholder: If he wants to see the similarity, it is there. But the link is never objectively given as in the case of metonymy, where the relation of contiguity always involves some objective link between the various senses of a word. In metaphor one of the basic senses of a form, the source domain, e.g. elements of the human body, is used to grasp or explain a sense in a different domain, e.g. the elements of a mountain, called the target domain.

If we try to give the necessary conditions or characteristics for *fruit*, characteristics such as *sweet*, *soft*, and *having seeds* may come to mind as good candidates. But these are not always necessary since lemons are not sweet, avocados are not necessarily soft, and bananas do not contain parts that are immediately recognizable as seeds. There are of course a number of characteristics that are necessary. All fruits "grow above the ground on plants or trees" rather than in the ground. They have "to ripen" before you can eat them, and if you want to prepare them rather than eat them raw, you would primarily use sugar, or at least use them in dishes that have a predominantly "sweet taste". Taken together, however, these obligatory features are not sufficient since they do not exclude almonds and other nuts or a vegetable like rhubarb, which grows above the ground and is usually cooked with sugar.

We must conclude, then, that the central sense of *fruit* cannot be defined in a classical sense, satisfying both necessary and sufficient conditions and covering all the eventualities of what speakers understand by *fruit*. However, this does not mean that our conceptualization of fruit, our mental picture of fruit, what we call to mind when we think of fruit, is necessarily fuzzy or illdefined. It could very well be that the image that spontaneously comes to mind when we think of fruit is very clear-cut. Indeed, when we ask people to name a few examples of fruit, they will come up with very much the same list. But all the same, we also have to accept that such a mental image does not fit all fruits equally well.

2.3 From concepts to words: Onomasiology

Whereas semasiological analysis starts with a word and tries to discover the various senses it may have, onomasiological analysis starts from a given concept and investigates the words that are used to name that particular concept. What is the purpose of onomasiological analysis? First of all, it can help us find out where (new) lexical items come from and which mechanisms are used to introduce different words for the same concept into the vocabulary of a language. The main purpose of onomasiological analysis is to discover patterns in a group of conceptually related words, called a lexical field. A **lexical field** is a collection of words that all name things in the same conceptual domain. Thus words such as *breakfast, lunch* and *brunch* are related and belong to the same lexical field because they all name things in the domain of "meals". A **conceptual domain**, in its turn, can be defined as any coherent area of conceptualization,

such as meals, space, smell, colour, articles of dress, the human body, the rules of football, etc., etc.

The question is: What is the position and status of single words in a lexical field delimited by a more general word like *meal*? Other typical examples of lexical fields are found in conceptual domains such as disease, travel, speed, games, knowledge, etc. As we will show in the next sections, the conceptual relations that occur between words in a lexical field are very analogous to those between the senses of a word identified in the section on semasiology: salience effects, links and fuzziness.

2.3.1 Salience in conceptual domains: Basic level terms

Just as there are **salience effects** in semasiology, which tell us which one of all the senses of a word or which one of the referents is thought of first and used most often, there are salience effects in onomasiology. For example, in a group of words like *animal, canine*, and *dog*, the hierarchical order goes from more general to more specific. If faced with something that barks at you, probably a word like *dog* would come to mind first. This would be one type of salience effect. Another type of salience effect may occur in a group of words that are at the same level of a hierarchy, such as *labrador, Alsatian, German shepherd*, and so on. Some names for dog breeds may occur more often than others. Both types of salience effects are discussed below.

According to anthropologist Brent Berlin, popular classifications of biological domains usually conform to a general organizational principle. Such classifications consist of at least three — for Berlin's investigation even five levels, which go from very broad or generic to very narrow or specific. Thus in conceptual domains (see Table 5) with several levels, the most general category is at the highest level, and the most specific one is at the lowest level. A basic level term is a word which, amongst several other possibilities, is used most readily to refer to a given phenomenon. There are many indications that basic level terms are more salient than others. For example, while learning a language, young children tend to acquire basic level terms such as tree, cow, horse, fish, skirt before generic names like plant, animal, garment, vehicle, fruit or specific names such as oak tree, labrador, jeans, sports car and Granny Smith. From a linguistic point of view, basic level terms are usually short and morphologically simple. From a conceptual point of view, the basic level constitutes the level where salience effects are most outspoken. At the basic level category, individual members have the most in common with each other, and have the least in

Levels	Conceptual domains				
Generic level	plant	animal	garment	vehicle	fruit
Basic level	tree	dog	trousers	car	apple
Specific level	oak tree	labrador	jeans	sports car	Granny Smith

Table 5. Folk classifications of conceptual domains

common with members of a related basic level category. In the domain of garment, items such as trousers, skirts, and coats may be considered basic level members. All members of the category "skirt" have in common that (1) they are normally restricted to female wearers, (2) they do not cover the legs separately, (3) they cover the body from the waist down, and (4) they usually are no shorter than the upper thighs. Features that "skirt" has in common with "trousers" or "sweater" are much more difficult to find. On the other hand, members of categories at the generic level such as *garment* have only one rather general characteristic in common: They all represent "a layer of clothing".

This basic level model is useful in that it predicts to a certain extent which level is the most salient in a folk classification. However, it cannot predict which term among the terms at the same level is preferred and used most often. Imagine you are looking at a magazine and you see a very short skirt with two loose front panels that are wrapped. Is it both a *wrap-over skirt* and a *miniskirt*? What are we most likely to call it? A detailed analysis of such terms has shown that fashion journalists prefer the term *miniskirt* in such a case. If there are several equally descriptive terms at one level, what criteria are applied in the choice of one term over another? (See Figure 2.)

We can explain this fact with the notion of **entrenchment**. This concept was first introduced by Ronald Langacker to explain how new expressions may be formed and then remain deeply rooted in the language. For example, in the past the two words *by* and *cause* formed the new compound *because*. This newly formed compound was used so often that people were no longer aware of its origin. In other words, a word group may develop into a regular expression, until it is so firmly entrenched in the lexicon that it has become a regular, wellestablished word in the linguistic system. A similar process may apply to the choice of one particular member of a category rather than the other. The name *miniskirt* is highly entrenched since it is used much more often than the name *wrap-over skirt* or another more general or more specific name.



Figure 2. Some women's garments

2.3.2 Links in conceptual domains: Taxonomies

In Section 2.2.2 on the links between the senses of a word (semasiology), we saw that words may develop new senses through the processes of metonymy, metaphor, specialization, and generalization. These processes may also be applied in onomasiology. As we saw earlier, onomasiology deals with the relations among the names we give to categories. These categories, in turn, are not just there in isolation, but they belong together according to a given conceptual domain.

Within a conceptual domain, we not only find a distinction between a generic level, a basic level and a specific level, as illustrated in Table 5, but these levels may also form a hierarchical taxonomy, as illustrated in Table 6. In a hierarchical taxonomy the higher level is the **superordinate level**, e.g. *vehicle*, which is a hypernym and subsumes all the concepts below it, e.g. *car*. But *car* is itself a superordinate category or hypernym, if compared with *sports car*, which is a hyponym of car. Thus Table 6 combines two things, i.e. a folk classification and a hierarchical taxonomy. A hierarchical taxonomy is also a special instance of a lexical field in that the lexical items are now hierarchically ordered. Thus in all cases of a lexical field, e.g. "article of dress", we can always distinguish between three hierarchical levels: Going up in the taxonomy is generalization, going down in the taxonomy is specialization. As the third group of words like





shirt, *T-shirt*, *sweater*, etc. shows, in a number of cases there may be a **lexical gap**, i.e. there is no basic level term available where we might expect one.

Other links between conceptual domains are made by means of metaphor and metonymy. We often use a whole conceptual domain to structure our understanding of some other domain. Thus, in our anthropocentric drive, we have used the domains of the human body to structure our view of the parts of a mountain. The lower part of the mountain is the foot of the mountain, the higher curving part is its shoulder and the top of the mountain is, in many languages, seen as its "head" or "crown". Here the process of metaphorization does not just apply to a given sense of a word as was shown for school in the sense of 'a group of fish' in Table 3. In the case of mountain a whole conceptual domain such as the human body is used to structure another conceptual domain such as the shape of a mountain. George Lakoff, who recognized this thought process, calls this use of metaphor a conceptual metaphor. Our understanding of abstract, conceptual domains such as reasoning and emotions is particularly affected by many conceptual metaphors. Thus Lakoff proposes an underlying conceptual metaphor ARGUMENT IS WAR for all the concrete metaphors found in English to denote arguing, such as to win or lose an argument, to give up an indefensible position, to attack someone's views, and many more. Likewise, emotions are conceptualized as HEAT OF A FLUID IN A CONTAINER, SO that we can boil with anger, or make someone's blood boil, reach a boiling point, or *explode*.

Just as a conceptual metaphor restructures a conceptual domain like mountains in terms of another conceptual domain such as the human body, a **conceptual metonymy** names one aspect or element in a conceptual domain while referring to some other element which is in a contiguity relation with it. The following instances are typical of conceptual metonymy.

I'm not in the telephone book.

This year we read Shakespeare.

My new Macintosh is superb.

My village votes Labour.

My tyre is flat.

- (4) Instances of conceptual metonymy
 - a. Person for his name:
 - b. Possessor for possessed:
 - c. Author for book:
 - d. Place for people:
 - e. Producer for product:
 - f. CONTAINER FOR CONTAINED: This is an excellent *dish*.

In each of these instances, the thing itself could be named. Thus in (4a) we could also say *My name is not in the telephone book*, in (4b) *The tyre of my car is flat*, in (4c) *This year we read a play by Shakespeare*, etc. By the use of the metonymical alternative, the speaker emphasizes the more salient rather than the specific factors in the things named.

Table 7 summarizes the conceptual relations we find in semasiological and onomasiological analyses. In both we discern hierarchical relations (from more salient to more specific), relations based on contiguity and relations based on similarity.

Conceptual relations		In semasiology (how senses of one word relateto each other)	In onomasiology (how concepts and words relate to each other)	
1.	hierarchy (top/ bottom)	generalizing and specializing e.g. school of artists vs. school of economics	conceptual domain: Taxonomies (e.g. <i>animal, dog, labrador</i>) and lexical fields: e.g. <i>meals</i>	
2.	contiguity (close to sth.)	metonymic extensions of senses (school as institution \rightarrow lessons \rightarrow teaching staff)	conceptual metonymy, e.g. Container for contained	
3.	similarity (like sth.)	metaphorical extensions of senses (<i>win an argument</i>)	conceptual metaphor, e.g. ARGUMENT IS WAR	

Table 7. Conceptual relations in semasiological and onomasiological analysis

2.3.3 Fuzziness in conceptual domains: Problematical taxonomies

In Section 2.2.3 we saw that whenever categorization of natural categories is involved, there is by definition some **fuzziness** at the category edges. Tomatoes, for example, can be categorized as either vegetables or fruit, depending on who is doing the categorizing. The same goes for the onomasiological domain.

For example, when we look at the basic level model introduced in 2.3.1, we might feel that if we "puzzle" long enough we will discover a clear, mosaic-like

7.3.2 The cooperative principle and maxims of conversation

Considering the fact that in just a few words such as (13) so much information is implied, so much is assumed to be known, and that so much is not to be taken literally, it is amazing that anyone can interpret this utterance at all. But we manage to do so, and on many other occasions like it. This relies on our following a number of "silent" rules or principles, also called "maxims".

According to the language philosopher Grice (1975), human communication is based on the following overriding **cooperative principle**:

(14) Make your conversational contribution such as is required, at the stage [of the talk exchange] at which it occurs.

The use of the imperative form in (14) does not mean that speakers must do all this, but that these are the internalized rules for cooperative interaction. Within this guiding principle, Grice (1975:45–6) establishes four specific sub-principles called **maxims of conversation**, which he takes to govern all rational interaction.

- a. Quality: Try to make your contribution one that is true.
 - i. Do not say what you believe to be false.
 - ii. Do not say that for which you lack evidence.
- b. Quantity: Make your contribution as informative as is required (for the current purposes of the exchange).Do not make your contribution more informative than is

required.

- c. Relevance: Be relevant.
- d. Manner: i. Be perspicuous (transparent and clear).
 - ii. Avoid obscurity of expression.
 - iii. Avoid ambiguity.
 - iv. Be brief (avoid unnecessary prolixity).
 - v. Be orderly.

Let us first have a closer look at each of these maxims. The first is the **maxim of quality**. It requires that we only give information for which we have evidence. Suppose we ask for the result of a sports contest, e.g. *Do you happen to know who won yesterday*? and our conversational partner does not know the result and gives one of the following answers:

- (15) a. No, I don't.
 - b. I bet Chelsea did.
 - c. Chelsea did.

In the first answer, our partner is "truthful" since he says he does not have the information. In the second answer, our partner is still "truthful", since by using *bet* he indicates indirectly that he does not know the answer, but that he has good grounds to "assume" that Chelsea won. Only in the third answer is our partner not being truthful, since he presents things as if he has the correct information himself. Note that he is not necessarily lying, but only asserting something to be the case for which he has no evidence.

The second maxim is the **maxim of quantity**. It means that one gives all the necessary information one has for the present needs of the partner — not too much, and not too little. Suppose a driver has run out of petrol on a Sunday and asks you where the nearest petrol station is. You answer with one of (16):

- (16) a. There is a petrol station round the corner.
 - b. There is a petrol station round the corner, but it is closed on Sunday. The next one is 5 miles ahead.
 - c. The petrol station round the corner is closed on Sunday, but you can fill up there if you have a credit card.

If you know that the petrol station is closed on Sunday and say (16a), you give too little information and thus violate the maxim of quantity. Only the answers in (16b or c) would be cooperative answers.

The third maxim is the **maxim of relevance**, which Grice himself calls the maxim of relation. It can best be illustrated by a deviant case. We often do not answer information questions straightforwardly, probably because we do not know the answer or because we think that the questioner can interpret the answer himself or herself. Therefore, at first sight, the answer in (17b) does not seem to be a relevant one:

- (17) a. Ann: Did Tony Blair win the election?
 - b. Bill: The paper is on the table.

There is indeed no obvious link between Ann's question. and Bill's reply. But on closer inspection, as Grice says, speakers always tend to be cooperative, even if they do not seem to be so. On the assumption that Bill has been cooperative and hence that his utterance is relevant to the question, one can infer, via the maxim of relevance, that the paper contains the answer to the question. The fourth maxim is the **maxim of manner** and it can also best be illustrated by a negative example. The following dialogue fragment from Lewis Carroll's *Through the Looking Glass* would have to be classified as uncooperative conversation since it seems to flout each sub-maxim of manner: Humpty Dumpty's utterances in (18c,d,f) are not perspicuous or transparent (i), they are ambiguous (ii), not brief (iii); only the maxim 'be orderly' (iv) is not violated.

- (18) a. "There's glory for you", (said Humpty Dumpty.)
 - b. "I don't know what you mean by glory", Alice said.
 - c. Humpty Dumpty smiled contemptuously. "Of course, you don't, till I tell you.
 - d. I meant, 'There's a nice knock-down argument for you!'"
 - e. "But 'glory' doesn't mean 'a nice knock-down argument'", Alice objected.
 - f. "When I use a word", Humpty Dumpty said in a rather scornful tone, "it means just what I choose it to mean — neither more nor less."

Indeed, this seems like a very uncooperative conversation, in which the partners are fully "obscure" to each other. But this conversational exchange is only obscure if one takes Alice's "literal" point of view, which would exclude all metaphors from our normal cooperative strategies. What Humpty Dumpty suggests to Alice is that she might earn glory from a very good argument. On the basis of the conceptual metaphor ARGUMENT IS WAR, such a good argument has the force of a knock-down blow for the opponent in the discussion and, just like victory in a fight or war, a good argument also brings glory to the winner. So what Alice in (18e) criticizes is the metaphorical use of language. "Glory" indeed does not mean "a nice knock-down argument", as she objects, but the reverse is absolutely true; using "a nice knock-down argument" may indeed mean "glory" for her. We find here a blend of two conceptual metaphors: ARGUMENT IS WAR and WINNING A WAR/ARGUMENT BRINGS GLORY. It is in this sense that we use clusters of metaphors, and instead of obscuring what we say, they just express levels of insight which would be impossible to express with language used in a literal sense.

If we interpreted Grice's maxim of manner in too narrow a sense, the maxim would no longer be tenable. However, if we accept the insight that metaphor and metonymy are part of every-day language and are often necessary to express what we mean, we can see that a number of utterances that seemed to be totally obscure or ambiguous on the surface, are not so in actual fact. We

can therefore conclude that the maxim of manner must be extended to include figurative language. In addition, we should realize that the maxim of manner is highly culture-specific and that each culture has different norms and interpretations for the maxim of manner. For example, as we saw in Chapter 6.4, different cultures have very different cultural scripts for saying basically the same thing.

To conclude, even though cooperative principles and conversation "rules" may be realized in very culture-specific ways, it is probable that the cooperative principle can be regarded as a **universal** principle and that the maxims of conversation constitute some fundamental **pragmatic** or **interpersonal universals**.

7.3.3 Conversational and conventional implicatures

As the first maxim of conversation, i.e. the maxim of quality says, cooperative speakers are expected to speak the truth. Without this assumption conversation could not work. If speakers were to go about randomly making true and false statements about our world, without any indication to the hearer which are the true statements and which are the statements not to be taken too literally, the communicative process would break down.

But are speakers also expected to speak the whole truth? Are they expected to say as much as they can, as the maxim of quantity (make your contribution as informative as is required, but not more informative) would have us believe? The answer is no. Why would this be so? If speakers are too explicit about their communicative intentions, they enhance the hearer's comprehension of those intentions but the hearer may feel overinformed and thus feel insulted in some way.

Therefore, people in interaction should not be bored with overinformation and hearers must infer to what extent information and communicative intentions in a conversation are only left implicit. Classical examples of implicit communicative intentions are complaints in the context of family scenes as in (19):

(19) (Wife to husband): You left the door of the fridge open.

Following the maxims of relevance, quantity, and manner, the hearer will "read" more into such an utterance than was explicitly said. Such an utterance will be interpreted as a request to do something about the situation rather than as a description of it. The description stands metonymically for the whole situation that fridges are normally closed and, since this is not the case, action should be taken to bring it about.

Sometimes, people's utterances seem totally irrelevant. However, Grice claims that even such apparent violations of the rules should be interpreted cooperatively. Consider the following example.

- (20) a. Mathilda: How do you like my new hairstyle, Francis?
 - b. Francis: Let's get going, Mathilda.

The radical topic change that Francis makes is an obvious violation of the rule that speakers should say "nothing beyond the truth". A cooperative reply to Mathilda's question would have been "I like it a lot" or "I think it looks awful". Francis' blatant violation of this rule is not simply a case of misunderstanding, but has a meaning of its own. Francis evades a relevant answer to the question and the implication that Mathilda can draw from this is that a relevant answer to her question may very well be too painful.

The kind of implications that follow from the maxims are called **implicatures**. Implicatures come in various sorts, two of which are of special importance: conversational implicatures and conventional implicatures. A **conversational implicature** is the information inferred but not literally expressed in the speech act. The implicatures in (17, 19, and 20) are tied to the conversation, and this makes the implicature context-dependent. The implicature need not be true, or we say that it can be cancelled. The paper in (17) does not necessarily contain the election results about Tony Blair, since it may have been printed too early to give these results.

A conventional implicature or an implicature by convention, is an implicature that is tied to linguistic expressions. This is why a conventional implicature cannot be cancelled. One of Grice's examples of conventional implicatures is the contrastive meaning of a connective like *but*.

The difference in context-dependency is apparent in examples like (21) and (22):

- (21) The flag is red, but not completely red.
- (22) [?]John is a Republican but honest; and I don't mean that there is any contrast between being a Republican and being honest.

In example (21) it is possible to use *but* in order to deny the implicature of the first clause, namely that the flag is completely red. The same holds for the part before the semi-colon in (22), which contains the conventional implicature that there is by definition a contrast between being a Republican and being honest. Therefore, the clause after the semi-colon presents a contradiction, and as a result, the whole sentence is rather questionable (indicated by the question mark).

On the other hand, one can also say that the meaning of a text is also more restricted than the sum of the interpretations of the individual sentences in the text. Texts are usually interpreted with respect to a context. This context can resolve ambiguities or vague allusions in separate sentences. For example, in isolated sentences, the pronouns *him* or *you* may remain unspecified, but in a text such references are fixed.

To conclude, these points can be summarized as follows: A writer or speaker (from now on S) has the intention of conveying a message to a reader or hearer (from now H). In order to realize this intention, S formulates a message consisting of linguistic expressions, called the text. However, one cannot understand the functioning of texts by merely looking at the linguistic information in the text. One also has to study the **representations** that S and H have of the text. Therefore, it is argued here that it is a crucial property of natural language that there is no direct mapping of communicative intentions to linguistic expressions, but that this mapping is mediated through a conceptual level: the level of **text representation**. This is particularly true for the most distinctive characteristic of texts, namely the fact that well-formed natural texts are coherent. **Coherence** is the property that distinguishes texts from arbitrary sets of sentences. Much of the remainder of this chapter will be devoted to an exploration of this notion of text coherence.

8.3 Coherence vs. cohesion

A text is called coherent if it is possible to construct a coherent representation of that text. The following is an example of a coherent text.

(4) (a) "The Adventures of Huckleberry Finn" must be pronounced the most amusing book Mark Twain has written for years. (b) *Moreover, it* is a more minute and faithful picture of Southwestern manners and customs fifty years ago than was "Life on the Mississippi", (c) *while* in regard to the dialect *it* surpasses any of *the author's* previous stories in the command of the half-dozen species of patois which passed for the English language in old Missouri. (San Francisco Chronicle, March 15, 1885)

In this example, a number of elements have been italicized. These are elements that link a clause to its surrounding text. The **cohesion** of a text is the explicit

marking of its coherence by means of cohesive links. The following is also an example of a coherent text.

(5) (a) *Twelve year term of imprisonment*. (b) LONDON, APRIL 10. (c) The London court has convicted a Brighton resident to twelve years imprisonment for accessory to murder. (d) The victim was fatally wounded in a shooting incident in a Winchester restaurant last year.

Even though this mini-text seems quite coherent, there are no words that explain what the situations described in (c) and (d) have to do with each other. Also, none of the concepts mentioned in the fourth sentence repeat any material from the third sentence. In other words, there are no cohesive links (or there seems to be no cohesion) between (c) and (d). Yet, no one would find it difficult to understand. The explanation is that we add the missing links from cultural knowledge, i.e. our knowledge of the world. For this we use the murder script, whereby the term *script* refers to our idea of what a murder case is composed of and is used in a slightly more general sense than it was in the phrase *cultural script* introduced in Chapter 6, which only relates to our norms of behaviour. We know from previous experience that murders come along with murderers, victims, means, motives, murder sites, and the like, and it is this cultural knowledge that allows us to construct a coherent representation of text (5). The example shows, therefore, that it is possible to have coherence without explicit cohesion.

The coherence of a text can be signalled through cohesive links such as word repetition or the use of subordinate or superordinate terms, but the following fragment shows that the presence of such cohesive links is not a guarantee for coherence:

(6) I bought a Ford. A car in which President Wilson rode down the Champs Elysées was black. Black English has been widely discussed. The discussions between the presidents ended last week. A week has seven days. Every day I feed my cat. Cats have four legs. The cat is on the mat. Mat has three letters.

This text seems to have many cohesive links, mostly word repetitions. Still, it is very difficult to assign it a coherent interpretation. Therefore, we may conclude that coherence is not so much a property of the linguistic expressions in the texts itself, but of the representation that S and H make of this text.

Coherence can be established in one of two ways: By repeated reference to the same referents or 'mental objects' in a text, called **referential coherence**, and

by linking text parts with **coherence relations** like "cause-consequence" and "contrast", called **relational coherence**. In the next two sections we will explore these two coherence-creating devices separately.

8.4 Referential coherence

Part of the coherence of a text stems from the fact that texts are used to talk coherently about a set of concepts and their referents. Texts contain referential expressions. One of the insights of modern linguistics is that the referents of these text words are not so much things in the outer world as the mental images people have of them. That is why it is possible to refer to things that do not exist but can be thought about, such as unicorns and Santa Claus.

Typical referential expressions are pronouns (*she*, *my*) and full noun phrases (*the woman next door*). The reference can be to something outside the text, or to other concepts mentioned in the text. The first case is called **exophoric reference** or **deixis**, the second is called **endophoric reference**. Example (7) is a clear case of exophoric reference.

(7) [Wife to her husband while pointing to the ceiling:] Did you speak to *them* upstairs?

The wife's utterance can only be interpreted completely if information about the situational context is available. This is typical of exophoric or deictic elements.

Endophoric elements get their interpretation from the textual context, either the preceding context as in (8), called **anaphoric reference**, or the following context as in (9) called **cataphoric reference**. The terms *anaphoric* and *cataphoric reference* pertain to the use of pronouns to refer to a noun that precedes or follows. In the examples, the referential expressions and their antecedents are marked by the indices *i*.

- (8) Last year we were in $[\text{the Alps}]_i$. We think $[\text{they}]_i$ re beautiful.
- (9) a. $[That]_i$'s just my luck: [first my tyre bursts and then the bridge is closed, too]_i.
 - b. Did you hear [the news]_i? [Clinton will be impeached]_i

By depending on the textual context for their interpretation, endophoric elements contribute to the coherence of a text, and that is why it can be said that referential coherence is established through endophoricity.

Not all of the referents in a text are equally prominent. Some are talked about continuously, some are new to the text, and others have a subsidiary role. Careful studies of this **identificational function** of referential expressions have shown that the way in which concepts are referred to depends on the prominence of the concept. For instance, if an object is completely new to the text, it has to be introduced. In a Lagadan conversation this would mean that an object is taken from the bag. In natural language, at least in West European languages, the typical way to do this is by using an **indefinite expression** i.e. an expression with an indefinite article or pronoun. This is found in the typical introductory sentence of fairy tales:

(10) Once upon a time there was a little girl.

Once the referent has been introduced it can be referred to in various ways, depending on the **prominence** of the concept. The more prominent it is, the less linguistic material is needed to identify the referent. If it has constantly been in the 'focus of attention', the natural way of referring to it is by the use of a pronoun:

(10) a. She was called Goldilocks.

This is a reduced way of referring to the girl whereas a non-reduced form would be *The girl was called Goldilocks*. An English pronoun contains semantic information only about gender, person and number (pronouns in other languages may give even less information). More information, in the context of (10a), is not needed because the referent can be inferred from the immediate context. Sometimes, if the reference is even further reduced, it becomes elliptical:

(10) b. Once upon a time there was a little girl Ø called Goldilocks.

If the girl is less prominent, for instance because she was referred to a while ago, meaning that another object has come into focus, more content, e.g. not a pronoun but a full noun phrase is needed to establish **co-reference**, i.e. reference to the same person or object.

(10) c. Once upon a time there was a little girl called Goldilocks. She lived in a forest that belonged to a rich and powerful king. The king had a son called Jeremy, who loved hunting. One day, as he was chasing a deer, he saw {^{??}her/the little girl}. It can also be the case that objects or persons have not yet been introduced, but that their 'existence' can be inferred from situational or background knowledge. This we saw in example (3). *The engine* in (3) is presented as if it has been introduced, and in a way it has, because we know from previous experience that one of the ways to get to a reception is by car, and cars have engines.

These examples clearly show the identificational function of referring expressions. There is a strong correlation between the degree of prominence of a referent and the form of referential expressions. Thus these expressions form a signal showing H where to look for the referent of the expression.

Recently text linguistics has realized that an anaphor (i.e. an anaphoric expression) may also have a **non-identificational function**. There are cases in which the form of an anaphor is not in accordance with its referential function, either because it is overly specific, called **referential overspecification**, or because it presents a referent as new although it has already been introduced, referred to as late indefinites. An example of the former can be found in the last sentence of the following fragment from an encyclopaedic text on Goethe.

(11) He_i was fascinated by humanity and its progeny, and he_i expressed his_i ideas, questions, and struggles by means of poems, songs, plays, prose, maxims, and short essays. Goethe_i, besides being an artist, was also a leading physicist.

The use of the full name *Goethe* in the last sentence is a clear case of overspecification. Here the use of *he* would have sufficed for identificational purposes. Every sentence of this fragment is 'about' Goethe, and therefore he is fully in the focus of attention. In this case, though, the name is used rather than a pronoun in order to signal that a new aspect or topic will be discussed. The full name *Goethe* is used now to obtain a specific text-structural effect, namely text **segmentation**, i.e. the structuring of a text into larger conceptual units such as a paragraph. In experimental research it was found that readers experience thematic discontinuity of the text because the name helps to indicate that a new topic is introduced.

Late indefinites is the use of indefinite noun phrases or pronouns at a later moment in the text where one would expect a definite expression. Late indefinites also have an informational effect, but of a different nature:

(12) Girl subdues attacker

A brave young woman turned the tables on a robber and beat him with an iron pipe which she had wrested from him, then handed him over to the police in Osaka Wednesday night.

At about 11:25 p.m. Wednesday, *a man* attacked Miss Mayumi Sanda, 23, of Oyodo-cho, Oyodo-ku, Osaka, on a street in the same ward. He struck her several times on the head with an iron pipe and tried to strangle her. [...]

The phrase in question is *a man* in the second sentence. From an identificational point of view this use of an indefinite expression is rather odd. The referent has already been introduced and frequently referred to in the context. Therefore one might expect a pronoun like *he* or a definite phrase like *the man*. The effect of this indefinite phrase renders the text more lively. We experience the event through the eyes of Miss Mayumi, so to speak, and to her the robber is an unidentified person. This use of a late indefinite is called **perspectivization**, which means that a given scene is seen from a given person's perspective. This 'perspectivizing' way of reporting dramatic events has by now become almost standard procedure in English newspapers.

To sum up, we have seen that referential coherence can be established through endophoric reference. Endophoric reference has primarily an identificational function, which means that the referential choice is as a rule in accordance with the informational needs of H. In the case of special, i.e. marked reference, non-identificational effects like text segmentation and perspectivization can be achieved. It is clear that in a Lagadan type of communication only very few of these different means for establishing referential coherence are available.

8.5 Relational coherence

Whoever reads or hears a text has not fully understood that text unless he or she has also interpreted the **coherence relations** like "cause-consequence", "contrast", "evidence", and so on between the sentences or clauses of the text. A coherence relation is that aspect of the interpretation of the text that is additional to the interpretation of the sentences or clauses in isolation. This is yet another reason why a Lagadan 'procedure' would not work very well. Such a conversation consists of groups of objects, and there are no objects that can stand for complete situations and events expressed in natural language via event schemata in clauses (see Chapter 4.2). Therefore, since there is no Lagadan equivalent for the notion "clause", there cannot be an equivalent for relations between clauses either. Below are some examples of such coherence relations. Some are explicitly signalled using words like *because* and *although* as in (13, 15); other coherence relations are left implicit as in (14).

- (13) The unicorn died because it was lonely. (Consequence-cause)
- (14) Maggie must be eager for promotion. She's worked late three days in a row. (*Evidence*)
- (15) Although Greta Garbo was called the yardstick of beauty, she never married. (*Concession*)

In (13) the second clause gives the cause for the death of the unicorn. In (14) the second clause does not so much give a cause for a specific state of affairs, but rather evidence upon which a supposition about Maggie is based. In (15) the relation is a so-called concession, i.e. the second clause denies an expectation raised by the first clause. In fact, (15) is quite a famous case. It appeared in an obituary on Greta Garbo in a national Dutch newspaper, *De Volkskrant*. Because the sentence contains the implicature that "beautiful women normally marry", there were many angry letters to the editor about the author's old-fashioned world view.

A coherence relation can be encoded explicitly through the use of **connectives**. The class of connectives consists of subordinating conjunctions (*because*, *if, although*), coordinating conjunctions (*and, but*), conjunctive adverbs (*so, therefore, yet*) and conjunctive adverbial phrases (*as a consequence, in contrast with this*). An interesting claim of current theories of text linguistics is that the same coherence relations that can occur between clauses can also occur between larger text segments, such as paragraphs and even complete sections. That is why the presence of a coherence relation between two paragraphs (e.g. one containing a hypothesis and one presenting its analysis) is sometimes signalled by complete sentences (*This problem is in urgent need of a solution*). There are also more subtle ways of signalling the coherence relation, for instance by the use of 'relational' content words like the pair *some...others* to signal a contrast relation, or by means of stress and intonation. For example, in (16) there is rising intonation at the end of the first clause and a steep fall in the second clause to signal the concession link between the two clauses.

(16) John may have written a famous book, but he has absolutely no manners.

Sometimes speakers use connectives that do not seem to "match" the coherence relation. An example is (17).

(17) (a) Since June 1 Jan Kaal has been editor in chief of the monthly O. (b)
Kaal was approached last year by the publisher, Maurice Keizer, (c) after he had written a critical article in *NRC Handelsblad* on the first issue of the magazine.

Obviously the writer of this text intends to say Kaal is now editor in chief because he had written a critical article. However, instead of *because* the connective *after* is used, which specifies only a temporal relation rather than a causal relation between the two events. This is called **relational underspecification**. Underspecification could of course add to the complexity of text interpretation, and apparently speakers use it only if the context provides enough information for H to derive the correct interpretation.

These contextual restrictions are very diverse in nature. One important factor is **genre** or **text type**. In narratives H expects events to be causally related and consequently it is fairly common to leave causal relations underspecified in narratives. By contrast, in testimonies S and H expect each other to be very explicit, and consequently there is little underspecification in texts of this type.

How should one account for the occurrence of underspecified coherence relations? In Chapter 7 the notion of **conversational implicature** was introduced. Participants in a conversation need not express all of the information they intend to convey explicitly, because they can rely on the cooperation of their conversational partners to make the relevant inferences. If, as stated in Chapter 7 (example 16), someone responds to an utterance 'I've run out of petrol' with 'There is a petrol station round the corner', then one can safely assume, on the basis of the maxim of relevance, that the respondent believes that one can get petrol in the petrol station, even though this has not been stated explicitly. If this is not the case, then the respondent may not have said something that is not true, but he or she can certainly be accused of having been uncooperative.

The underspecification of coherence relations can also be explained as a case of conversational implicature based on the maxim of relevance. Mere temporal ordering of events is hardly ever relevant, and as (18) and (19) illustrate, that explains why explicit temporal connectives receive a causal interpretation:

- (18) After John entered the room, Bill jumped out of the window.
- (19) I couldn't work when the television was on.