2 Polysemy and related phenomena from a cognitive linguistic viewpoint

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2.1 Introduction

One of the fundamental problems of lexical semantics is the fact that what C. Ruhl (1989) calls the 'perceived meaning' of a word can vary so greatly from one context to another. In this chapter I want to survey the ways in which the contribution the same grammatical word makes to the meaning of a larger unit may differ in different contexts. There are two main sources of explanatory hypotheses for contextual variations in word meaning: lexical semantics and pragmatics. While there are probably no contexts where each of these is not involved in some way, their relative contributions can vary. For instance, in the following examples the difference between 1 and 2 in respect of the interpretation of the word *teacher* (i.e., "male teacher" and "female teacher", respectively) can be accounted for entirely by differential contextual enrichment of a single lexical meaning for *teacher* (in other words, pragmatically):

1. The teacher stroked his beard.
2. Our maths teacher is on maternity leave.

The only involvement of lexical semantics here is that the specification of the meaning of *teacher* must somehow make it clear that although it is unspecified for sex, it is, unlike, say, *chair*, specifiable for sex. Examples 3 and 4 exemplify a slightly different type of contextual enrichment, in that the extra specificity in context is of a meronymous rather than a hyponymous type:

3. John washed the car.
4. The mechanic lubricated the car.

The different actions performed on the car allow us to infer that the agents were occupied with different parts of the car in each case. Here the different readings are not even clearly conceptualizable, and one can envisage numbers of verbs each evoking a slightly different portion of the car. Lack of distinctness is confirmed by the impossibility of zeugma:

5. The mechanic washed and lubricated the car.

Another case of apparently different interpretations arising from inferential enrichment on the basis of contextual clues is provided by 6 and 7:

6. The ostrich is a strange bird.
7. I wish I could fly like a bird.

Obviously the class of birds referred to in 7 does not include ostriches, but only prototypical birds. There is, however, no reason to believe that different senses of *bird* are involved:

8. An ostrich is a bird, but it cannot fly like one.

Probably similar to these are the loose as opposed to precise uses of words, as in 9 and 10:

9. A circle is the locus of a point equidistant from a given point.
10. The mourners stood in a circle around the grave.

There may be some dispute in this case as to which is the unmarked use and which the contextually modulated use; whatever the answer, it seems clear that we are dealing with differential contextual modulation and not with polysemy.

By contrast, the difference between 11 and 12 in respect of the interpretation of *bank* has an important semantic component. Associated with the word form *bank* are two pre-existing bundles of semantic properties; in addition to their usual role of enrichment (for instance, the bank in 12 is unlikely to be one of the so-called clearing banks), contextual factors must first select one of these bundles:

11. We moored the boat to the bank.
12. I need to go to the bank to cash a check.

It is necessary to distinguish two separate (although interrelated) notions that are often conflated in discussions of contextual variation of word meaning. The first is the degree of distinctness of two (or more) readings; the second is the extent to which separate entries in the lexicon are justified. The first type of distinctness will be referred to by the traditional term polysemy; the second type will be called polylexy. It is assumed that until a certain degree of polysemy has been demonstrated, questions of polylexy do not arise (i.e., polylexic variants are a sub-class of polysemic variants). In examples 1 and 2, *teacher* displays neither polysemy nor, a fortiori, polylexy, merely contextual modulation; *bank* in 11 and 12 displays both polysemy and polylexy (in addition to contextual modulation); *omelette* in 13 and 14 is polysemic, but not polylexic:

13. Mary ordered an omelette.
14. The omelette left without paying.

In many accounts (Nunberg, 1979, is typical), the difference between the readings of *omelette* in 13 and 14 would be attributed to pragmatics rather than semantics. It is undoubtedly true that one of the readings is generated from the other by a general rule of sense-transformation triggered by context. However, the important point for present purposes is that there is a kind of selection by context from distinct alternatives (although these are potential, rather than pre-existing, as with the readings of *bank* in 11 and 12) and not merely differential contextual enrichment. Many recent studies of contextual variation in word meaning have concentrated on what I call polylexy, often with the avowed aim of minimizing the number of lexical entities and maximizing the role of pragmatic factors. This chapter, however, concentrates on types and degrees of distinctness of meaning variants insofar as these can be established by linguistic criteria. No attempt is made to describe or predict recurrent patterns of variation, as, for instance, in Apresjian (1972), Lehrer (1990) or Pustejovsky (1991), although, of course, these are important matters. The present work does, however, raise questions concerning the relationship between the semantic nature of readings and their polysemic status, but these are not pursued here. A preliminary attempt will be made to accommodate the facts concerning polysemy within the framework of cognitive semantics as represented by, for instance, Lakoff (1987), Taylor (1989) and Cruse (1990).

2.2 Antagonistic readings

There is a considerable variety of ways in which meaning variants of some distinctness can occur, and I shall attempt to survey the whole range (excluding those associated with syntactic differences). A major dichotomy within this range is effected by means of the feature of antagonism. Some variants are competing alternatives, in the sense that the choice of one of them excludes the others. Variants with this mutual property I shall describe as antagonistic. A clear example is provided by *bank* in examples 11 and 12. Each of these contexts of course favors one reading over the other, but the readings can be seen in direct conflict in a context such as 15:

15. We finally reached the bank.

Just as with the well-known visual ambiguity produced by the so-called Necker cubes, a processing constraint prevents us from attending to the two construals simultaneously. This does not mean that both readings of 15 cannot be simultaneously true, nor even that they cannot both be intended by the utterer to be picked up by the receiver. But in the latter case there is a penalty: the utterance is a marked one, and produces a sense of punning or zeugma, perhaps arising from the necessity to alternate rapidly from one construal to the other. In normal language use, only one sense at a time is intended to be operative.

In contrast to antagonistic readings are discrete clusters of semantic properties which normally co-exist and co-operate within the meaning of a word. A paradigm example of this is provided by *book*, which is simultaneously a physical object and an abstract text. These distinct units of meaning are not normally in competition, in that when they both occur, there is no sense of markedness or punning:

16. Mary is reading a book.

In the event described in 16, Mary is (probably) holding an object in her hands, turning the pages and so on, and at the same time attending to and processing a text. It is only in non-prototypical occurrences that these two components (in a non-technical sense) of the meaning of *book* are not simultaneously operative. The properties of antagonism and co-operation create two families of relation-

ships between meaning variants. I shall deal first with the antagonistic type. (The traditional distinction between homonymy and polysemy, that is, between accidental and motivated multiplicity of readings, will be ignored in what follows: in respect of the criteria for distinctness discussed here, there is no difference between accidental variants and the most distinct motivated variants.)

One of the main points to be made in this chapter is that the traditional sharp dichotomy between polysemy and monosemy is misleading: there is, in fact, a continuum of degrees of distinctness ranging from not distinct at all (as with the two readings of *teacher*), to fully distinct (as with the two readings of *bank*). (There may, in fact, be two continua, one, a continuum of antagonism, ranging from discrete and antagonistic to discrete and co-operative, and the other, a continuum of discreteness.) I shall begin by looking at the highest degree of distinctness – what is traditionally regarded as full ambiguity of sense.

2.2.1 *Full ambiguity*

Fully ambiguous senses are characterized by (a) discreteness and (b) antagonism. It is worth noting that the standard ambiguity criteria of an identity constraint in co-ordination and independent truth conditions do not reliably discriminate between the bank type of variation and the book type. Consider 17:

17. Mary likes the book; so does Sue.

This would be a very unusual, if not actually an anomalous way of describing a situation in which Mary liked the text, but found the cover design, typography and so on to be of poor quality, whereas Sue liked the book as an object, but considered the contents to be rubbish. Perhaps the identity constraint here is not quite so strong as it is in 18:

18. Mary was wearing a light coat; so was Sue.

But I do not believe the difference is great enough to make the test reliable for ambiguity. What the identity test diagnoses is discreteness; it is indifferent to the distinction between antagonism and co-operation. The same is true of the independent truth condition criterion. Clearly, if Mary is wearing a coat which is light in color, but heavy in weight, 19 could be truthfully answered either 'Yes' or 'No':

19. Is Mary wearing a light coat?

This is usually considered to be diagnostic of ambiguity, but consider 20 and 21:

20. A: Do you like the book?
    B: (i) Yes, it's one of my favorite novels.
    (ii) No, it looks ghastly – and yet it's one of my favorite novels.

21. A: Do you like the book?
    B: (i) No, I find the sentimentality nauseating.
    (ii) Yes, it's magnificently produced – a pity the poems are such rubbish.

The crucial point is the normality of a negative answer when one of the readings would justify an affirmative answer. Contrast 20 and 21 with 22, where the presence of a teacher of either sex forces an affirmative answer:

22. A: Were you accompanied by a teacher?
    B: (i) Yes, it was Mrs. Smith, the maths teacher.
    (ii)? No, it was Mr. Jones, the geography teacher.

It seems that this test, too, responds to discreteness, but is indifferent to antagonism or co-operation between readings.

One of the clearest indices of antagonism is the potential to form puns as in 23:

23. I love the banks of the Thames – Barclays, NatWest . . .

This correlates closely with the zeugma which results when one attempts to use the word in a superordinate sense:

24. ?The north side of the Thames at Richmond and Barclays are my two favorite banks.
25. ?John and his driving license expired last Thursday.
26. ?The omelette was not properly cooked and left without paying.

It should be noted that zeugmatic effects cannot be produced with *book*:

27. This book is difficult both to read and to carry around.

The same is true of *teacher*. Although it is true that the notions "male teacher" and "female teacher" are in a sense mutually exclusive, this is not a property of the word *teacher*, which in the plural form can refer to male and female teachers simultaneously without anomaly:

28. A third of our teachers are either on maternity leave or paternity leave.

It has already been mentioned that discreteness is a characteristic, but not uniquely diagnostic feature of truly ambiguous words. Two further similar features are worth mentioning. The first is that it is not possible to use such a word without an implicit commitment to one (more rarely more than one) of its senses. In using the word *teacher*, for instance, one can leave it undetermined whether reference is to a male or a female teacher; a similar indeterminacy with regard to the two meanings of *bank* is impossible. This feature is not uniquely diagnostic of ambiguous items because it is, for instance, true also of *play* (a musical instrument). Thus 29 is normal only when a specific instrument can be retrieved from the context, and cannot be used to ask whether Mary plays some unspecified instrument or other:

29. Does Mary play?

However, *play* shows no signs of antagonism between readings: if Mary is playing the piano and Sue is playing the violin, there is nothing odd about saying *Don't they play well?* The second characteristic feature of ambiguous words is that they display what Geeraerts (1989) calls 'definitional polysemy', that is to

say, more than one meaning definition is required to cover the full range of their uses. This feature correlates well with the lack of a superordinate use, but not perfectly, because (a) some words are 'autohyponymous', that is, one of their senses is hyponymous to the other, and (b) some monosemic words require a disjunct definition of the form 'A or B'. It is arguable that, for instance, *princess* is of the latter type, since separate definitions are required for princesses 'of the blood' and princesses by marriage. However, *princess* differs from *bank* in that simultaneous reference to the two types of princess is quite normal.

A slightly more controversial type of ambiguity is the so-called autohyponymous type, where one reading is hyponymous to the other, as in the case of *dog* ("canine"/"male canine") and *drink* ("ingest liquid"/"imbibe alcoholic beverage"). It is often claimed that ambiguity cannot be demonstrated in such cases (see, for instance, Kempson, 1977); Ruhl (1989) states that it is pointless to postulate a separate hyponymous sense, since the hyponymous reading can always be explained by contextual modulation. I am prepared to concede that a polylexic analysis may in some cases be unjustified, especially where, as in the case of *dog* (but not *drink*), the existence of the more specific reading can be predicted by general rule. But there can be no doubt about the polysemy of *dog* and *drink*. The separate nature of the specific reading shows up in contexts like 30 and 31, where the superordinate reading would give rise to contradiction:

30. I like bitches, but I don't like dogs.
31. John doesn't drink – he'll have an orange juice.

In spite of Ruhl's claims, contextual modulation cannot explain the appearance of a specific reading in these cases. If Ruhl were correct, it ought to be possible to interpret *children* in 32 to mean "boys", but it clearly is not possible:

32. ?I'm glad it's a girl – I can't stand children.

The antagonism between the two readings of *dog* can be felt intuitively when for instance *That's a dog* is used to refer to a male dog (both readings are applicable). Witness also the zeugmatic nature of 33:

33. ?Dogs can become pregnant at the age of 12 months, but mature later than bitches.

(For a fuller discussion see Cruse, 1986: 58–65.)

2.2.2 *Semi-distinct readings*

The examples of polysemy that have been considered so far have involved readings which are fully antagonistic and fully discrete. I now want to consider two types of case where the readings must be considered antagonistic rather than co-operative, but where antagonism and/or discreteness are weaker. The first type of case involves what in Cruse (1986) were called 'local senses' on a 'sense spectrum'. The example given there was ***mouth***, as in *a horse's mouth, the mouth of a bottle, the mouth of a cave, the mouth of a river*, etc. I argued that there is not a determinate number of such local senses: if less-than-fully-established

instances of such senses are taken into account, they form a kind of continuum of meaning, without fully discrete separation of senses. This state of affairs seems to be typical of sets of metaphorical extensions of a common ontological type based on a similar relational correspondence. Local senses which are contiguous on the continuum do not give rise to zeugma:

34. The mouth of the cave resembled that of a bottle.

This suggests that we have local superordinates. More distantly separated points on the continuum, however, do give rise to zeugma:

35. ?The poisoned chocolate entered the mouth of the Contessa just as her yacht entered that of the river.

Contiguous local senses, although their distinctness is in a sense incomplete, do not give rise to problems in use, because they are kept apart by being restricted to different domains; within its own domain, each local sense plays the part of a fully distinct sense. The basic, or literal, reading of *mouth* (judging by its relative contextual freedom) is "mouth of animal/human". The extensions of this are relatively fragile in the sense that they require fairly precise conditions for their appearance. Only the base sense appears in a neutral context such as *We did a project on mouths*; the reading "mouth of a river" is scarcely possible unless the lexical item *river* occurs in the near vicinity within the previous discourse. Even given the contextual setting of a boating trip on a river, I would judge 36 to be more normal than 37 if no recent mention of the word *river* has occurred:

36. Shall we go down to the mouth of the river?
37. Shall we go down to the mouth?

In some ways further removed from fully-fledged polysemy are what I call sub-senses. These, like local senses, are protected from mutual competition by being domiciled in different domains; one of the ways in which they differ from local senses, however, is that there exists a fully functional superordinate sense. An example of a word with sub-senses is *knife*, as in 38 and 39:

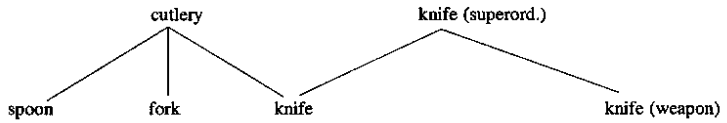
38. When you set the table, make sure that the knives are clean.
39. The intruder threatened me with a knife.

The superordinate sense of *knife* can be observed in 40:

40. The drawer was full of knives of various sorts – items of cutlery, pen-knives, hunting knives, etc.

Why is it not sufficient to say that the readings of *knife* in 38 and 39 are simply the result of contextual enrichment of the superordinate sense, like those of *teacher* in 1 and 2? There are several reasons. First, consider the following scenario. A young boy is sitting at a table in front of a plate of sausages and chips. He has been given a fork, but no knife. On the table beside him is a pen-knife that he has been playing with. He picks up a sausage and tears it into two with his fingers. His mother says: 'Johnny, use your knife to cut your sausage'. Johnny replies: 'I haven't got one.' (Had he been asked whether he had a knife to sharpen

a pencil with he would have answered 'Yes'.) This needs to be contrasted with another scenario. Two schoolgirls are discussing their respective teachers. Sue says that she dreams of marrying her teacher, and asks Beth: 'Would you like to marry your teacher?' Now Beth's teacher is a woman. Although it is contextually clear that Sue's question concerns a male teacher, Beth cannot answer: 'I haven't got one.' There is therefore a crucial difference between the *knife* case and the *teacher* case: the "cutlery" reading of *knife* has a significantly greater degree of discreteness than the "male" or "female" readings of *teacher*. A second point of difference between *knife* and *teacher* is that the "cutlery" reading of *knife* has its own lexical relations, and participates in certain lexical fields independently of other readings:



Nothing comparable can be observed in the case of the specific readings of *teacher*. Third, within its home domain, the "cutlery" reading of *knife* needs no qualifying adjective – indeed, it is not obvious which adjective would be appropriate. Within the taxonomy of items of cutlery, *knife* shows all the signs of being a basic level item: it is used for neutral reference, and represents the highest taxonomic level with which distinct behavior patterns and visual images can be associated. Fourth, the superordinate sense is marked and appears only under contextual pressure; the unmarked readings of *knife* are specific ones, but they vary from domain to domain. In a neutral context, the dominant reading of teacher is sex-neutral: *You would do better with a teacher, rather than trying to learn on your own*; *knife*, on the other hand, like *bank* (only less so) is somewhat uneasy in a neutral context: *I want you to go out and buy a knife*. One has a need to know what kind of knife. Clearly it would be misleading simply to describe *knife* as polysemous (there would be an embarrassing question of how many senses to recognize); on the other hand, it would be inappropriate to relegate it to the level of *teacher*. It seems, therefore, that a sharp dichotomy between polysemy and monosemy is untenable, and *knife* must be assigned an intermediate status.

Before leaving the topic of antagonistic readings to consider co-operative ones, some mention should be made of another phenomenon, which shades imperceptibly into polysemy with no clear dividing line, and that is syntactic metonymy. There are two varieties of syntactic metonymy: in one variety, the ellipted element is invariable; in the other variety, the ellipsis is 'open' and the missing element must be recovered from the context. In both cases we find a continuum from zero to full lexicality, the main features determining position on the continuum being the identifiability and determinateness of the missing elements, and their acceptability when overtly expressed. I shall first discuss instances of latency, that

is, cases where the deleted elements are recoverable from the context, and I shall begin with examples from the non-lexical end of the continuum.

I take the term 'latent' from Matthews (1981), who used it to designate a particular type of ellipsis. Consider 41 and 42:

41. We'd better stop – John's watching.
42. Mary is reading.

Zero object realization with the verb *watch* acts as a signal of definiteness: in 41, the hearer is required to recover a specific direct object from the context. This type of ellipsis is a property of certain lexical items in English (see Fillmore, 1986, where a number of examples of this phenomenon are discussed). Notice that the absence of an overt direct object for *read* in 42 has a different effect; here, the object is not latent, and there is no implicit instruction to the hearer to identify a specific deleted item. The patterns of occurrence of latency are language specific. In Turkish, for instance, the direct object of any transitive verb, if not overt, is latent; in a Turkish translation of 42, an overt indefinite direct object expression must be supplied. Now consider 43 and 44:

43. John is watching. [He is watching a football match on TV.]
44. John is watching the parade.

Do we say that *watch* displays polysemy here? Or do we say that the same interpretation of *watch* occurs in 43 and 44, but that 43 has a covert direct object? One observation that might seem to favor a lexical (i.e., polysemic) solution is that *watch* behaves in some respects like an ambiguous word. For instance, in 45, John and Mary have to be watching what is in some sense the same thing:

45. John is watching; so is Mary.

This stands in clear contrast to 46, where there is no identity constraint:

46. John is reading; so is Mary.

However, the arguments against a lexical solution for watch are more weighty. First, there would be the embarrassment of an indefinitely large number of readings. Second, the deleted elements are easily identifiable and can be overtly expressed without loss of normality. Thus, corresponding to 41 we find:

47. We'd better stop – John's watching us.

Third, the identity constraint in 45 and the lack of it in 46 can be attributed entirely to the properties of the deleted items, i.e., to the fact that the deleted item in 45 is definite, while that in 46 is indefinite, Thus, the identity constraints in 48 and 49 parallel those in 45 and 46:

48. John is watching it; so is Mary.
49. John is reading something; so is Mary.

Two other words which behave in a similar way to *watch*, but with some differences, are *patient* and *cub* (in the sense, respectively, of "recipient of medical

treatment" and "young animal"). Both take complements, which, if not overtly expressed, are latent. Thus, 50 cannot be used to mean that Mary is undergoing some unspecified form of medical treatment, and 51 is odd if there is no intention to refer to some specific animal species that the hearer can readily identify:

50. Mary is a patient.
51. I saw three cubs this morning.

Patient must be understood as "patient of X", where X is something like Doctor A, Dentist B, Clinic C, or whatever, and if none of these is overtly expressed, then the missing item must be recovered from the context. Here again, a lexical solution is disfavored: the number of possible readings is indefinitely large, and the latent complements are normally readily identifiable and can be overtly expressed without abnormality.

I would now like to discuss three examples which take us nearer to polysemy, but without leaving the realm of latency. The first concerns the use of *heavy* in expressions such as *heavy rain, a heavy smoker, a heavy prison sentence, a heavy work load, heavy responsibilities*, and so on. How are these instances of *heavy* related? Is *heavy* polysemous? One approach is to say that *heavy* means "having a high value on scale X", where X is latent. This has a certain plausibility. But there are some pointers against a non-lexical latency analysis. It is not difficult to produce zeugma:

52. ?John's prison sentence and the rain on the courtroom roof were both heavier than expected.

More important, perhaps, is that the missing elements, although usually identifiable, cannot usually be expressed overtly without producing a stilted and clumsy effect:

53. John received a heavy prison sentence (?in terms of length).
54. The picnic was ruined by heavy rain (?in terms of rate of precipitation).

The somewhat indeterminate number of possible readings would count against a lexical analysis; however, unlike, say, *watch*, there are unpredictable restrictions, which makes it more lexical: **heavy wind, *a heavy famine*. Similar observations are valid for my second example, the verb *like*, as in 55 and 56:

55. John likes blondes.
56. John likes marshmallows.

As Lyons (1977) points out, a co-ordination of these is somewhat odd:

57. ?John likes blondes and marshmallows.

In this case we can gloss *like* as "find pleasing in respect of property X", where X is again latent, needing to be recovered from the context. Notice that overtly specifying the relevant properties in 57 removes the zeugma:

58. John likes marshmallows for their taste and blondes for their beauty.

This makes the readings of 55 and 56 more like contextual enrichments of a superordinate. On the other hand, such overt specification of properties is in general less normal than leaving them unspecified, and their identification in particular instances is somewhat uncertain (have we identified the appropriate property in respect of which John likes blondes?).[1] My third example concerns the French verb *sentir* as in *Ça sent l'ail*, which can be translated into English, according to context, as either *That smells of garlic* or *That tastes of garlic*. Is *sentir* ambiguous (in respect of these two readings) or is it simply that English lacks a verb with the required range of generality? There is some evidence for ambiguity. For instance, 59 must be interpreted in such a way that Jean and Marie are both doing the same thing, i.e., either both smelling or both tasting (although I understand the former would be the default reading):

59. Jean peut sentir l'ail; Marie aussi.

Also, my French informants tell me that in the use of *sentir* they feel themselves to be committed to one reading or the other. Notice, however, that provided the sensory modalities are made explicit, the two readings can co-ordinate quite normally:

60. Jean sentait l'odeur du citron et le goût de l'ail.

Here again we can appeal to latency and say that if the sensory modality is not overtly specified with *sentir*, then it is latent. In all three cases – *heavy*, *like* and *sentir* – we have something which is not-quite-polysemy, not-quite-syntactic-metonymy and not-quite-contextual-modulation.

The examples discussed in the previous paragraph raise the question of whether a similar analysis is not possible for *knife*, i.e., *knife* = "knife of type X", where X is latent. There are certainly many resemblances to the former cases. If this analysis were adopted, *knife* would be situated near the polysemy end of the continuum, because of the difficulty of identifying, and the abnormality of overtly expressing, the deleted material.

A similar continuum can be observed in those cases of syntactic metonymy where the deletions are specific and not to be sought in the context. At one extreme we find examples like *Mary is expecting*, where the deleted item is readily identifiable and is fully normal if overtly expressed: *Mary is expecting a baby*. Here the argument for polysemy is weakest. The same is probably true of *engaged* in the sense of "engaged to be married", although in this case the full form is slightly less common. Moving further along the continuum toward polysemy, we must ask whether for instance *drink* in *I gave up drinking when I got married* should be analyzed as a syntactic metonym. The arguments for polysemy in this case would be the usual ones, namely, the difficulty of precisely identifying the deleted item, and the relative abnormality of overtly expressing it.

2.3 Cooperative readings

Turning now to non-antagonistic bundles of semantic properties associated with a single word form, we can recognize two types according to whether the distinct bundles are related paratactically or hypotactically. Within each type a range of degrees of discreteness is found. I shall not deal here with the hypotactic sort (related to classical semantic components like [MALE] and [HORSE] of stallion) as this would take us too far from polysemy. The most discrete of the paratactic sort are those to which I give the name 'facet' (a facet is a discrete component of a single sense). Facets are well represented by the example of *book*, whose facets I shall refer to as [TOME] and [TEXT]. Facets have the following properties:

(a) They are non-antagonistic.

We have seen how this applies to *book* (see the discussion of example 16).

(b) They are autonomous.

There are two criteria for autonomy, a strong one and a less strong one. The stronger criterion is that the word form can be used in connection with one of the meaning-bundles, in explicit contrast to the other, in expressions such as *the X itself* and/or *the real X*. Sentences 61 and 62 illustrate this with the [TEXT] and [TOME] facets of *book*, respectively:

61. I am not interested in the cover design, lay-out, typography and so on; I am interested in the book itself.
62. I am not interested in the contents; I am interested in the book itself.

Example 63 shows that the [BIRTH-GIVER] facet of *mother* is autonomous:

63. Mary brought me up, but Sue is my real mother.

A weaker indication of autonomy is that the word form may be used to refer to an entity which possesses properties corresponding only to one of the meaning-bundles. For instance, a set of blank pages between two covers may be referred to as a book: *I have a book to write the minutes of the meeting in*, as can a text which has a purely mental existence but is not yet physically embodied: *I have composed the book in my mind, but I have not yet committed it to paper*. Likewise a woman who adopts a child can count as the child's mother.

(c) They give rise to identity constraints and the possibility of independent sets of truth conditions (see the discussion of examples 12 and 13).
(d) Multi-faceted words are not themselves ambiguous, but they may give rise to ambiguous phrases.

For instance, *a long book* can mean either a long text, as in *This book is too long to read in one day*, or a long physical object, as in *This book is too long to fit between those two shelves*; these two readings of the phrase are fully antagonistic. There are similarly two antagonistic readings of *a new book*, depending on whether *new* modifies [TEXT] or [TOME]. More generally, predicates can focus

on one facet to the exclusion of the other(s): thus, in *a difficult book, difficult* focuses on [TEXT], whereas in *a thick book, thick* focuses on [TOME]. This is not the same as autonomy. An adjective in an NP, for instance, can take a single facet of a multi-faceted word as its scope, but the NP as a whole may still refer normally. For example, in *That's a friendly shop, friendly* describes the personnel in the shop, but the phrase *a friendly shop* does not refer uniquely to the personnel, but to the whole establishment in which they are employed.

(e) Each facet may be independently involved in lexical relations.

Both *It's a novel* and *It's a hardback* entail *It's a book*, from which we may conclude that *novel* and *hardback* are hyponyms of *book*. However, they are not straightforward co-hyponyms in the way that *cat* and *dog* are of *animal*. For one thing, they are not incompatibles, as co-hyponyms of the same superordinate prototypically are: *It's a hardback* does not entail *It's not a novel*. This is because each represents a specification of a different facet of *book*. If we assume that *novel* has the facets [NOVEL] and [TOME], it can be seen that all the extra specificity of *novel* as compared to *book* arises through a specification of the [TEXT] facet of *book*: the two [TOME] facets are identical. In the case of *hardback*, the [TEXT] facet is shared with *book*, and the additional specificity comes from a narrowing down of the [TOME] facet.

(f) The different facets of a word sense form a gestalt.

Typically there is no taxonomic superordinate notion which covers a set of facets; nor is there anything to which they stand in a meronymic relation. But there is a kind of global notion, whose components are felt to go together naturally.[2]

The detailed properties of facets and facet-like semantic bundles display considerable variation. For instance, what was assumed above to be the [TOME] facet of *novel* fails both the tests of autonomy, in spite of the normality of 64, which shows that a novel has weight:

64. A: Why is this suitcase so heavy?
B: I packed all those novels you brought from the library.

For instance, although 61 is still well-formed semantically if *book* is replaced by *novel*, 62 becomes unintelligible:

65. ?I am not interested in the contents, I am interested in the novel itself.

Also, whereas an as yet unembodied text could be referred to as a novel, a textless tome could not. Some facets satisfy the weaker criterion of autonomy, but not the stronger one. Consider the [PERSONNEL] facet of *shop* and *factory*. We can use *factory* and to a lesser extent *shop* to refer only to the personnel:

66. The whole factory/?shop came out on strike.

However, *the shop itself* and the *factory itself* could never refer to the personnel, but only to the buildings and other physical installations. This is a little-explored area. Why is it that the first interpretation of *a long book* that comes to the mind

of an English speaker is a long text, the other reading being much more contextually restricted, whereas the first interpretation of *ein langes Buch* to a German is a long tome? Perhaps this is because *Buch* has a relatively weak [TEXT] facet, like the [TOME] facet of *novel*. It cannot be quite as weak as that, however, because although *?a green novel* is a trifle odd, *ein interessantes Buch* is perfectly normal. Why is *a friendly shop* normal, but not *?a well-trained shop* or *?a pretty shop* (in the sense of having pretty assistants)? Also, why is *a friendly shop* not matched by *?un magasin aimable* or *?eine freundlicher Geschäft*, whereas *ein freundlicher Laden* is normal, and has the same interpretation as the parallel English construction? I assume that the answers to at least some of these questions lie in the way the meanings of the words are represented in the cognitive system.

2.4 Polysemy and cognitive linguistics

The framework within which I want to consider the facts that I have just described is that of cognitive linguistics. One of the main tenets of this approach is that the meanings of linguistic expressions do not have their being in some autonomous linguistic domain, but arise by the evocation of patterns of conceptual content in the cognitive system. I start out with a somewhat simplistic model of the cognitive system. I assume that in the human mind there is a set of established, more-or-less discrete concepts forming a highly interconnected network. Every concept is connected directly or indirectly with every other concept in the network. The direct links are of specific kinds, such as "-is a-", "-is a kind of-", "-is a part of-", "-is used for-", and so on. Much of what we think of as the properties of a concept will thus be represented in terms of linkages with other concepts; these links will be of varying strengths, reflecting degrees of centrality or necessity according to some appropriate measure or measures. The identity of a concept does not necessarily consist entirely of relational links with other concepts; at least some concepts must have a substantive core of some kind, perhaps a complex of sensory-motor images. A concept also has an inner coherence; it forms a unified gestalt. A typical concept has some sort of prototype representation, or, at least, a representation from which the so-called prototype effects follow naturally. I shall not attempt to be more precise about the nature of prototypes, but I shall assume that a prototype forms a kind of working unit of the cognitive system. The established concepts (finite in number) are not the only conceptual units available to us. An unlimited number of ad hoc concepts can be generated from patterns of combination of established concepts.

A natural language possesses an inventory of word forms, and these are mapped onto the concept network. In the simplest cases, a word serves only to activate a concept. This gives access at the same time to all the connections that the concept has with other concepts. For some words, for instance, basic level items, the mapping onto the associated concept constitutes the whole of their meaning. So, for example, if we hear the word *horse*, this gives immediate access

to the concept [HORSE]. The semantic connections between the concept [HORSE] and other related concepts such as [ANIMAL], [MARE], [COW], [HOOF], [STABLE], [JOCKEY], etc. will be represented in the concept network, and there will be no direct connections between these and the word form *horse*. This means that many meaning relations, such as hyponymy, incompatibility, meronymy and so on are, on this view, primarily conceptual relations, and only secondarily lexical relations.

The mapping relations between lexical forms and concepts are not always one-to-one (perhaps they are only rarely so). Obviously many word forms will map onto more than one concept: for instance, *bank*. Another possibility that must be catered for is the mapping of several word forms onto the same concept. An example of this would be: *die*, *kick the bucket*, *decease*, *pass away*, *snuff it*, etc. Like many synonym clusters, this group contains a neutral, basic term, namely, *die*, and we may surmise that this derives all its meaning from the fact that it is mapped onto the concept [DIE]. The stable meaning properties which distinguish the other members of the group from *die* and from each other can then be viewed as properties of the individual lexical items, as distinct from properties of the common concept (although these properties, too, must have some sort of representation in the cognitive system). Word-specific properties will include such things as emotive coloring, evaluative features, and various sorts of contextual affinities, such as allegiance to particular dialects, registers, or domains of discourse such as medical, legal and ecclesiastical. These properties will have the power to modulate the central concept.

We may now turn to a consideration of what sort of account of polysemy and its relatives is possible within the framework outlined in this chapter. No more than a beginning can be made here. I would like to take as a starting point Taylor's proposal (1989) that polysemy should correspond to multiple prototype representation. I accept the implication that a prototype representation is a significant cognitive unit; furthermore, I do not deny that in many cases, polysemy corresponds to multiple prototypes. But there are two aspects of the proposal that I would like to take up. First, Taylor's proposal has more merit if it is taken to refer to polylexy rather than polysemy. It seems reasonable to me to require that separate entries in the lexicon should correspond to discrete, permanently laid down, conceptual representations. Polysemous variants, at least as I have characterized them, can correspond to concepts which are completely ad hoc, or only partially established. The second aspect of Taylor's proposal that I wish to question is that it takes no account of the distinction between antagonistic and cooperative interpretations. There seems little doubt that *book*, for instance, corresponds to two separate prototype structures, yet is not truly ambiguous. This raises a number of questions, perhaps the most obvious of which concerns the nature of antagonism and cooperation: how is the difference between these two to be accounted for?

Presumably the answer will lie in the nature of the mapping from word form to concept. Antagonistic readings will have separate mappings to each prototype,

whereas for co-operative readings there will be a single mapping, with two prototypes somehow included within the same conceptual envelope. A mechanism to produce antagonism is not too difficult to envisage: cases of 'lateral inhibition' are well known in psychology and physiology, where out of a battery of elements, the one responding most strongly to some stimulus inhibits the responses of the others. What is more difficult, perhaps, is to explain the ontogenesis of the two arrangements: what contextual features lead to the setting up of facets rather than polysemes?

Within non-antagonistic readings, the major problem is to explain the different statuses of, for example, the [TOME] facets in *book*, *Buch* and *novel*. There are two possible ways of picturing the differences of status. One is to say that the two prototypes corresponding to a word like *Buch* are not equally accessible: it may take more cognitive work to activate one rather than the other. This might account, for instance, for the difference in preferred reading between *a long book* and *ein langes Buch*. Something more radical seems to be needed for the difference between *book* and *novel*, though. I suggest that for *novel*, only the [TEXT] prototype is established, while the [TOME] facet is generated ad hoc as and when the context demands it.

Antagonistic sub-polysemic readings pose a number of problems. I shall consider only the case of *knife*. I am not sure whether the notion of latency is helpful in connection with *knife*, but if it is, it is difficult to see how it can be a property of a concept: it must be a property of the lexical item (this applies also to *watch* and the rest). Taylor suggests that the prototype model is most appropriate for basic level items like *chair* and *table*, superordinate categories like *furniture* often being vaguer and more loosely organized. Perhaps this is a helpful way of looking at the readings of *knife*: the basic level knives are represented by prototypes, while the superordinate is a more diffuse structure. We might then think not of the contextual enrichment of a superordinate, but of the contextual impoverishment of a basic level term, or even of the superordinate being generated on an ad hoc basis.

Notes

1. A monosemic solution would be possible within Qualia Theory (see Pustejovsky, 1991), with *heavy* and *like* selecting suitable roles in the semantic specifications of their associated nouns to modify. However, as far as I can see, there is nothing in Qualia Theory that would predict the zeugma in 52 and 57.
2. There would seem to be some correspondence between what are here called facets and what Pustejovsky (1991) calls qualia roles. However, facets are defined on linguistic criteria as a particular degree of distinctness, or polysemic status, without regard to their semantic properties. Qualia theory (at least as expounded in the work cited) does not make predictions as to the polysemic status of variant readings. It remains to be discovered what the precise correspondences are between polysemic status and qualia structure.

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