

HOW MANY MEANINGS DOES A WORD HAVE?

John R. Taylor
University of the Witwatersrand

In order to fully understand what a person says to you, you need to activate many kinds of knowledge and ability. One requirement for comprehension is knowledge of the meanings of the words of which an utterance is composed. Suppose someone asks you to "open the window". Your understanding of the expression open the window requires - amongst other things - that you know the meaning of the verb open and the meaning of the noun window. You identify the window as a nominal constituent, whose referent is an entity of a certain kind - specifically, an entity of the kind designated by the noun window. You realise that you are supposed to perform a certain kind of activity with respect to this entity - specifically, the kind of activity designated by the verb open.

This much is surely uncontroversial - trivial, almost. Yet once we begin to investigate words and their meanings in any depth, the very notion of "the meaning of a word" seems to disintegrate before us.¹ The words open and window will illustrate the phenomenon I want to discuss as well as any. Let us subject the expression open the window to one of the hallowed techniques of linguistic analysis, the commutation test. We hold part of the expression constant, and substitute different items for the remaining segment. (1) lists some of the items that can be substituted for open:

- (1) {open / paint / break / deliver / brick up / sit in / look through / jump through} the window

Assuming the normal interpretation of the expressions in (1), we see that substituting different items for open has subtly changed the reference of the window. If I "paint a window" I paint a wooden (or metallic) frame; if I "break a window" I do not break the frame, I break the glass that the frame is holding; a workman who "delivers a window" delivers the total frame-plus-glass

structure; when I "open the window" I manoeuvre a movable frame enclosing a sheet of glass; if I "brick up a window" I brick up an aperture in a wall; and so on. In brief, window, in (1), denotes eight quite different kinds of entity.²

We observe the same effect if we keep the verbal element constant and change the direct object. If (1) lists the kinds of activities that can be performed with respect to a window, (2) lists some kinds of things that can be opened.

(2) open {the window / the door / a bottle of wine / a bottle of champagne / a can of beer / a book / a newspaper / a parcel / a pair of scissors / one's shirt / one's eyes / one's mouth / one's hand / one's arms}

The 14 phrases in (2) show that open can denote as many different kinds of activity. When I "open a bottle of wine" I insert a cork screw, rotate it, and pull; when I "open my arms", I move my arms forwards and outwards; when I "open a pair of scissors" I cause the blades of the scissors to separate; when I "open my shirt" I undo some buttons, and so on. It is not possible to "open a window" by performing the kind of activity I perform, say, when opening my arms or opening a bottle of wine.

The above examples with window and open are based on some brief remarks on these words in Lakoff (1987: 416). A more detailed discussion of open is offered by Searle (1983: 145f.). In the remainder of this paper I will focus specifically on the word open. It should be borne in mind, however, that the phenomenon exemplified in (1) and (2) could have been illustrated on just about any word, picked at random from the dictionary. Thus, "eating a steak" is a quite different kind of activity from "eating an ice-cream", or "eating soup". If something is "buried under the tree", it is in a quite different location than that of the picnickers who "picnic under the tree". "Losing \$1000" as a

result of my wallet being stolen is a different kind of happening than "losing \$1000" on the stock exchange (only in the first case is there a chance that I may "find" my \$1000 again).

Lakoff and Searle offer very different accounts of the phenomenon in question. For Lakoff, the fact that window can refer to different kinds of entity in the world appears to be sufficient reason to regard the word as polysemous. Searle likewise emphasises that open can denote different kinds of activity, depending on what it is that is opened. Searle is particularly insistent on this point, noting, for example, that the different uses of open determine different sets of truth conditions, and that directives instructing a person to open something can have different conditions of satisfaction, depending on the kind of thing that is to be opened. Searle invites us to consider the case of a person who, on being asked to "open the door", proceeds to act on the door in the way in which a surgeon would "open a wound", i.e. by making incisions in it with a scalpel. Such a person, Searle maintains, has not "opened the door", and has not obeyed the instruction given to him.

In contrast to Lakoff, however, Searle rejects the possibility that open, in expressions like those in (2), is polysemous.³ On the contrary, Searle insists that in phrases like those in (2), open has only one sense, and that the word makes exactly the same semantic contribution to each of the expressions. His main objection to the polysemy analysis would seem to be its inherent implausibility. Let us suppose, for the sake of argument, that window is eight-ways ambiguous, and that open is fourteen-ways ambiguous. It follows that open the window is $8 \times 14 = 112$ -ways ambiguous. This conclusion is highly counterintuitive, to say the least. It would entail attributing to the hearer a mechanism for scanning the 112 computed readings, rejecting 111 of them, in order to select just that reading that is intended by the speaker.⁴ We would have to assume that this

most banal of instructions, i.e. that a person should "open the window", triggers off mental computations of astounding complexity. Such a possibility seems inconsistent with the virtually instantaneous and effortless comprehension which the instruction is likely to elicit.

In fact, the situation is even worse. The number of different things that may be opened is indefinite. The number of different kinds of activity denoted by open is therefore also indefinite. To posit a separate sense for each collocation of open is to entertain the possibility that open is indefinitely polysemous, and that each sentence containing the verb open is indefinitely ambiguous. Indefinite ambiguity, Searle maintains, would be "absurd" (p. 146).

Searle uses the example of open as evidence for a construct which he calls "the Background". The Background is construed as a set of beliefs, practices, assumptions, etc., that make it possible for a human being to interact with the world. While a sentence may be *understood* in terms of its compositionality, i.e. in terms of the unitary meanings of its component morphemes, and the manner in which they are combined, a sentence is *interpreted* against the Background. We interpret open the window the way we do because of what we know about windows - we know what they are and how we can manually affect them, we know where they are found, the function they serve, the parts of which they are composed, and so on. And given our knowledge of what windows are, and what, for example, books are, we interpret open the book in terms of a different "practice" than open a window, even though open in both expressions is claimed to have exactly the same meaning. On the other hand, on being told that Sam opened the sun, we can readily "understand" the sentence (Searle maintains), in terms of its compositional meaning, but we can form no clear picture of what exactly Sam *did*, i.e. what activities Sam performed, because there is no generally accepted practice of

acting on the sun in this way. We could, perhaps, fabricate an ad hoc interpretation, say, in the context of a science fiction tale. Our ability to imagine an appropriate scenario, however, merely confirms the point that Searle is making, that interpreting a sentence means invoking the Background, and going beyond the compositional meaning of the sentence.

There is a long and respected tradition, in twentieth century linguistics, which is highly sceptical of polysemy. Perhaps the most forceful statement of the "unitary meaning hypothesis" is to be found in Jakobson's essay on the Russian cases (Jakobson 1936). Each of the Russian cases can express a wide range of apparently highly diverse meanings. Yet to attribute independent status to each of these particular meanings ("Sonderbedeutungen"), Jakobson argues, would lead inevitably to the disintegration of the linguistic sign, and its replacement by a multitude of form-meaning relations. Jakobson therefore set himself the task of identifying, for each of the cases, a unitary, and highly abstract "general meaning" ("Gesamtbedeutung"), which gets fleshed out in the range of particular meanings according to the context of its use.⁵

In recent years, the "one form - one meaning" position has again been forcefully stated by the German linguist Manfred Bierwisch, in terms which are essentially compatible with Searle's account (e.g. Bierwisch 1981, 1983). Bierwisch's two-level model ("zwei-Stufen-Modell") is to be understood within the context of the thesis of modularity. Of central importance is a postulated distinction between *semantics* (narrowly construed as an exclusively linguistic phenomenon) and *conceptualisation*. Semantic structures are represented by means of the traditional equipment of formal logic, i.e. relational predicates, individuals, and quantification. Conceptualisation, on the other hand, is claimed to be an essentially non-linguistic phenomenon.

incoming sensory information into mental representations, and it constructs "mental models" of real, imaginary, or counterfactual situations. *Conceptual structures* (i.e. the meanings of words and sentences as used by a speaker in different kinds of contexts) arise through an "interpretation" of semantic structures relative to conceptual knowledge.

Bierwisch's two-level model has been applied especially to the study of prepositions and other spatial predicates (e.g. Bierwisch 1988; Herweg 1988, 1989; Wunderlich 1991).⁶ Often in open polemics with prototype approaches to word meaning, with their postulation of extensive polysemy relations extending from a assumed "central sense"⁷, these studies have proposed unitary meanings for a range of German and English prepositions. For a flavour of the nature of the issues debated, compare the uses of in in the following expressions.

- (3) a. the water in the vase
- b. the crack in the vase
- c. the flowers in the vase
- (4) a. the coin in my hand
- b. the splinter in my hand
- c. the umbrella in my hand

It is evident that in denotes different kinds of relations in the (a), (b) and (c) expressions. In the (a) examples the one object is wholly located within a hollow region defined by the exterior sides of the reference object; in the (b) examples the one object is located within the material substance of the reference object; while in the (c) examples the one object is supported, or held in position, through partial containment in the reference object. In spite of these differences, Herweg (1989) proposes a unitary meaning for in, namely that one object is located within a space defined by the outer exterior of another object. The different interpretations of in follow from (conceptual) knowledge of the

dimensional and topological properties of objects, and the manner in which they are typically aligned with respect to each other. In the absence of conventional expectations in this regard, there may be no standard interpretation of an expression. On hearing of a mouse in the armchair⁸, we have no clear expectation as to whether the mouse is located in the hollow region defined by the seat, arms and back of the chair, or whether the mouse is located inside the upholstery.

The two-level model is not to be dismissed lightly. In the first place, the model has the hallmarks (much valued by many practitioners of linguistic science) of simplicity and elegance. By attributing a single sense (on the semantic level) to lexical items, the model fully respects the "unity of the linguistic sign" (cf. Taylor 1990), and thus solves at a stroke the problems ensuing from multiple, or even indefinite ambiguity. A further advantage is that the two-level model offers the possibility to account in a rather natural way for an important (and often overlooked) aspect of sentence meanings, viz. their vagueness, or indeterminacy. Most sentences are vague, till set in a specific context (cf. Sperber and Wilson 1986: 188). A statement to the effect that I painted the window is strictly speaking indeterminate with respect to what exactly I painted (and to how I painted it, for that matter). Normally, it would be assumed that the frame was painted. But the sentence does not exclude the (admittedly, somewhat unusual) possibility that the glass was painted over.⁹ On the two-level model, the distinction between painting the glass, painting the frame, painting the frame and the glass, or whatever, is made on the conceptual level; the different interpretations do not need to be captured in the (compositional) semantics of the expression.

Nevertheless, the two-level model - and, more generally, all proposals to the effect that (barring obvious cases of homonymy) the semantic pole of the linguistic sign is constituted by an

abstract unitary semantic representation - brings with it some serious problems.¹⁰ Consider a topic briefly touched on already: compositionality. According to the principle of compositionality, the meaning of the whole is a function of the meanings of the parts, and the manner of their combination. To put it another way: The meaning of a word is the contribution that the word makes, given the manner in which the word is combined with other words, to the meaning of the composite expression. For some semanticists (such as the Montague grammarians), the principle of compositionality has the status of an axiom, whose truth is self-evident, and without which no semantic investigation could be pursued at all. For in the absence of compositionality, it is argued, speakers would not be able to create an infinite number of new sentences from the finite resources of their language, and if they were to create novel sentences, their hearers would not be able to understand them.

Bierwisch's model, by positing two levels of meaning, raises the question of the domain of operation of compositionality. Does compositionality operate at the "semantic" level, or at the "conceptual" level? When a word makes its contribution to the meaning of a composite expression, does it contribute its semantic meaning, or (one of) its conceptual meanings?

It is clear that compositionality does not, and cannot, operate at the conceptual level (as understood by Bierwisch). On the two-level model, conceptual meanings are context-dependent entities. While there may be general principles for the conceptual elaboration of abstract unitary meanings (Bierwisch 1983), knowing the meaning of a word does not entail knowing the full range of conceptual interpretations that may be assigned to the word. On the contrary, one of the strengths of the two-level model lies precisely in the fact that it removes the need for such rampant polysemy. So what is being combined can only be the "semantic" meanings of component words. However, there are a number of considerations which speak against this hypothesis:

(a) Firstly, composite expressions often have conventionalised meanings which are not fully predictable from the meanings of their parts. Searle had noted that compositionally determined semantic meanings fail, in many cases, to specify the truth conditions of a sentence. A person can truthfully be said to have "opened the door", only if he has performed certain actions with respect to the door, actions which are very different from the actions he must perform if he is successfully to "open a wound". The example shows that - assuming a unitary meaning of the component words - the truth conditions of a composite expression may be *more specific* than compositionally predicted truth conditions.¹¹

(b) Composite expressions may have logical properties that are at variance with the logical properties of compositionally determined meanings at the semantic level. On Herweg's (1988) definition, in is a transitive predicate, at the semantic level. If a is in b, and b is in c, then a is in c. If the letter is in my briefcase, and my briefcase is in my car, then the letter is in my car. But the transitivity relation does not always hold. If there is a crack in the vase, and the vase is in my hand, it is not the case that there is a crack in my hand. One of the logical properties of open the window is presumably the entailment that, prior to its being opened, the window was closed. But if I "open my arms", one may not infer that previous to the event my arms had been closed (whatever that might mean). Neither does a discussion first have to be closed, for it to be possible for a person to "open the discussion".

(c) Compositionality at the semantic level presupposes an adequate characterisation of the semantic representation of the component units. It is remarkable that Searle, while insisting with such vigour on the unitary meaning of open, nowhere states what this unitary meaning is. Perhaps Searle thought that the unitary

meaning of open was too obvious to be worth stating. But this is surely not the case. English speakers - whether adult or child, naive or linguistically sophisticated - have not the slightest difficulty in explicating (e.g. by mime or ostention) what is meant by open a window, open a book, open one's arms. The same speakers react with puzzlement and embarrassment if asked to state what it means to "open X", where the value of "X" ranges over the full set of nominals that can serve as the direct object of open. It somehow doesn't make sense to speak of "opening something", where the identity of the "something" is unspecified. Given the claim that context-dependent meanings emerge from an interaction of semantic meanings with conceptual knowledge, one would expect that semantic meanings would be readily accessible to a native speaker's introspection; after all, the very possibility of context-dependent meanings presupposes knowledge of semantic meanings.

(d) Bierwisch (1981: 360) suggested that novel expressions are interpreted, at the conceptual level, by attempting to fit the compositionally determined (semantic) meaning to a (conceptually available) mental model. But this is not the only possibility. On learning that Sam opened the sun, a person would certainly try to figure out how exactly Sam could have acted with respect to the sun in order for it to be possible to claim that he "opened the sun". But the hearer does not need to access a unique, abstract sense of open (whatever this may be) to achieve this purpose. It is equally plausible that a person may mentally scan the various kinds of things that, conventionally, can be opened, in an attempt to establish a correspondence between how one acts on these things and how one could act on the sun. (I leave it to the reader to construct some interpretations for open the sun, and to judge which of the two procedures (s)he adopted.¹²)

(e) Severe problems arise once the field of investigation is extended to more than one language. Italian aprire corresponds, in the main, to the English verb open. One can aprire la finestra "open the window", aprire un libro "open a book", aprire le braccia "open one's arms", and so on. If open has a single semantic representation (whatever this may be), it would be reasonable to suppose that aprire has the very same semantic representation. However, aprire can also be used in collocations that are not sanctioned in English. In Italian, one can aprire la televisione "switch on the TV", aprire la luce "switch on the light", and aprire l'acqua calda "turn on the hot water". Now, the English expression open the TV (in the sense "switch on the TV") has a quite different status from Searle's open the sun. Open the sun cannot easily be interpreted because there is no generally accepted practice for acting on the sun in this way. But we can hardly claim that open the TV fails to be interpreted in the required manner because English speakers (unlike the Italians) are unfamiliar with the practice of switching on TV sets. To account for the different range of uses of Italian aprire and English open in terms of the two-level model, we would have to say that the semantic representation of aprire differed from the semantic representation of open, in such a way that aprire la televisione may receive a conceptual interpretation, while open the TV may not. The difficulty, already noted, in coming up with an abstract definition of open is thus compounded by the need for the semantic representation to be sufficiently abstract, such that the full range of conventional uses of the word may be derived from it, and at the same time sufficiently precise, such that the word is adequately differentiated from Italian aprire.

Other languages make finer lexical distinctions than English. Afrikaans (and Dutch) has several dozen verbs roughly translatable by open, but none, it would seem, that is fully equivalent to the English verb. Some of these verbs lexicalise

specific sub-meanings of the English verb. Thus Afrikaans open is restricted to the sense "cause (a debate, discussion, etc.) to begin to take place", while oopstel is restricted to the sense "open (a facility) to the public". Others focus on different facets of the opening activity. Die deur oopmaak focuses on the process of getting the door open, while die deur oopsit (Dutch openzetten) focuses on the result of the activity, i.e. the door is "put", and maintained, in the open position. A large number of verbs specify the manner in which a certain kind of entity is opened: oopknoop "open (an article of clothing) by unbuttoning", ooproll "open (a scroll) by unrolling", oopsprei "open (arms, wings) by spreading out", oopgooi "throw open, i.e. open (a door, window) suddenly, or violently", and so on. More problematic, perhaps, for the two-level approach are cases where a lexical item has a range of uses which only partially intersect with the uses of the English verb. Consider some uses of German aufschlagen:

ein Buch, eine Zeitung aufschlagen "open a book, newspaper"
die Augen aufschlagen "open one's eyes"
die Tür aufschlagen "force open the door"
eine Nuß aufschlagen "break open a nut"
den Preis aufschlagen "raise the price"
ein Zelt aufschlagen "pitch a tent"
einen Wohnsitz aufschlagen "take up residence".

Aufschlagen has the sense "open" only with respect to the opening of one's eyes, the opening of printed materials, or the forceful opening of a door, a nut, etc. The problem, on the two-level approach, would be to come up with a unitary definition of aufschlagen which could be conceptually elaborated by just these kinds of opening activities - as well as by the other kinds of activities denoted by aufschlagen, such as the raising of prices, the pitching of tents, and a person's establishment of a place of residence.¹³

(f) Finally, there is the question of learnability. On Bierwisch's model, each particular use of a word is interpreted through an interaction of conceptual knowledge with an abstract linguistic meaning. But how does the child acquiring his mother tongue come to know the abstract linguistic meaning of a word? Does the child, on hearing a new word for the first time, instantaneously construct a mental representation of the word's linguistic meaning, from which the full range of conceptual variants may be generated? This seems highly implausible. (In view of what was said above on the differences between English open and Italian aprire, we would have to suppose that the English child, on first encountering open in, say, the context open your mouth, instantaneously constructs a *different* semantic representation than the Italian child, who first encounters aprire in the context apri la bocca.) More likely, what the child first acquires is the specific meaning that the word has in the context in which the word is first heard. On first encountering open in the context open your mouth, the child infers that open denotes the kind of activity that one performs with respect to one's mouth. At this stage in the acquisition process, open designates only this specific kind of activity. Subsequently, the use of the word is extended, to cover many other kinds of activity (open the window, open one's eyes, etc.), until eventually the child's repertoire comes to approximate to that of the standard adult speaker (Taylor 1989: Ch. 13).

These various considerations all point, it seems to me, in the same direction, namely that in understanding a sentence a person need not, and typically does not, access for each component lexical item in the sentence a highly abstract unitary meaning, which then must be fleshed out according to the context in which the word is used. Rather, words are typically polysemous, to greater or lesser degrees; secondly, each established sense is "concrete" rather than abstract, that is to say, the semantic representation already makes intrinsic reference to what Bierwisch

would call "conceptual" information, and to what Searle would designate as aspects of "the Background". The speaker of English, that is, knows what is meant by open the window, not in virtue of his knowledge of a unitary, abstract meaning of open, but in virtue of his familiarity with the practice of opening windows, and his knowledge that this practice is conventionally designated by the expression open the window.¹⁴

Having rejecting a unitary meaning of open, the question arises whether we are not now in danger of coming back full circle to the extreme polysemy position that Searle found to be "absurd". If, as I have argued, opening a window and opening one's arms are two different kinds of activity - a fact which requires us to recognise two distinct senses of open - then by the same token opening a hinged window and opening a sliding window are also two different kinds of activity, as are opening a window hinged on the left and opening a window hinged on the right, and so on and so forth. Once polysemy is admitted, do we not run the risk of "polysemy inflation" (Herweg 1989: 106), of which Bierwisch, Searle, Jakobson, and many others, have been so critical?

In response to this argument, it needs to be pointed out that the postulation of a range of specific meanings does not per se preclude the possibility that the different meanings may be perceived to be related, in some respects. Indeed, the very essence of polysemy (as opposed to chance homonymy) is traditionally said to reside in the relatedness of the separate meanings. Furthermore, the perceived commonality between distinct meanings may permit the emergence of a more abstract meaning, of which the particular meanings are instances. These considerations lie behind Langacker's "network model" of category structure. Langacker (1988a) proposes that the various senses of a linguistic unit are associated through two kinds of relation, viz. relations of *extension* and relations of *schematicity*. Sense [B] is

an extension of sense [A] if the semantic representations of [A] and [B] are partially in conflict, i.e. certain specifications typical of [A] are suspended or modified in [B]. In spite of the conflicting specifications, a speaker may still perceive certain similarities between [B] and [A], such that [B] may be said to be "like" [A], in some respects. These perceived similarities may be the basis for the emergence of sense [C], which is schematic for both [A] and [B]. [C], that is, incorporates what is common to both [A] and [B], such that [A] and [B] can each be said to be a "kind of" [C], in that [A] and [B] each elaborates with greater specificity, but in different ways, the more abstract representation [C].

These relations are sketched in Fig. 1, where the broken line represents a relation of extension, the solid lines a relation of schematicity. The recursive operation of the relations of extension and schematicity can give rise to networks of considerable complexity. Consider a concrete example. A speaker perceives a certain similarity between the opening of a hinged window [A] and the opening of a sliding window [B], such that each may be thought as an instance of a more abstractly characterised activity [C]. Likewise, the opening of a window [C] is perceived to be similar, in many respects, to the opening of a door [D], thus permitting the emergence of a more abstract schema [E]. A still more abstract schema [G] may emerge through the perceived similarity between the opening of a door/window and sense [F], where [F] is schematic for the opening of a cork [H] and the opening of a lid [I]. This network fragment is sketched in Fig. 2.

Of special significance are the very lowest nodes in a network. These are individual "usage events", i.e. a speaker's employment of the linguistic form in a given context as a means for symbolising a specific conceptualisation (Langacker 1988b). A

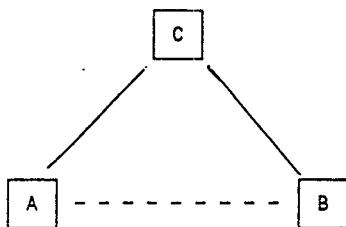


Fig. 1

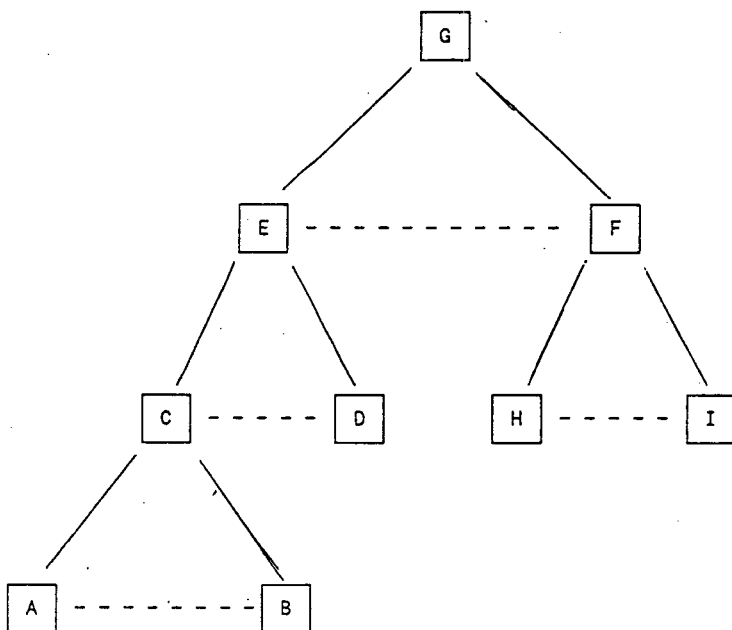


Fig. 2.

usage event might be fully compatible with an already established sense, i.e. the established sense will be fully schematic for the usage event. Alternatively, the usage event might represent a one-off extension from an established sense; the intended conceptualisation, that is, is not fully consonant with an already established sense.¹⁵ As such, the usage event has little import for the network structure. However, the repeated use of the linguistic form in a certain kind of context may reinforce the categorisation encoded by the usage events, and so lead to the establishment of a new node in the network. This is the mechanism, in fact, by which network is claimed to "grow" in the first place, as the speaker's knowledge of his language matures.

Superficially, it might look as though the network model could make possible a reconciliation of the extreme polysemy position with the abstract meaning position. The network model can tolerate a potentially very large number of separate established senses of a lexical item. At the same time, the model provides for the possibility of more abstract senses, even of a single overarching schema. We might thus be tempted to characterise the extreme polysemy and the abstract meaning position in terms of whether the analyst focuses solely on the lower nodes of the network, or on the highest node, i.e. on the superschema. However, there are some fundamental differences between a schema (in Langacker's sense), and the abstract linguistic meanings posited by Bierwisch, Searle, and others.

Firstly, the network model is neutral with respect to the possibility that *all* established senses may be brought under a single schematic sense. A category is still viable, even if it is not possible to bring all its members under a superschema. And even if it might be possible, in principle, to postulate a single superschema, knowledge of the superschema is neither a necessary, nor a sufficient condition for a speaker's adequate use of the linguistic form in question. Knowledge of the superschema is not

sufficient, because a network inevitably embodies a good deal of *conventionality*. A network is constructed "upwards", from the more particular to the more general, not "downwards", i.e. a schema does not function as a "generator" for the more specific meanings. Consequently, each logically possible elaboration of a schema, and each conceivable extension from a prototype, does not automatically have the status of an established node in the network. In the last analysis, the language user has to learn *which* instantiations, and *which* extensions, are conventionally sanctioned in the language. Finally, the network model assigns no special status to higher order schemas. There are certainly no grounds for supposing that a schema is a more "linguistic" kind of entity, while the instantiations of a schema are of a more "conceptual" or "encyclopaedic" nature. Each node in the network reflects acts of categorisation by the language user; more abstract and more concrete meanings alike reduce ultimately to the language user's ability to perceive similarities.

So far, I have assumed that "similarity" has to do with the sharing of some common aspects; with respect to Fig. 1, the schematic meaning [C] incorporates the perceived commonality of [A] and [B]. A study of open, however, points to the need to recognise another kind of similarity, viz. similarity by association. Compare the uses of open in the following pairs of expressions:

- (5) a. open the door, open the office
 b. open the lid, open the jar
 c. open the cork, open the bottle

The members of each pair could refer to exactly the same kind of activity. If one opens the door (to the office), one has thereby opened the office; likewise, one opens a jar by opening the lid, and one opens a bottle by opening the cork. In open the

door/lid/cork, the direct object of open is the name of a device which is moved, or removed, in order to create an aperture in the exterior surface of a container, thus permitting access to the interior (or the contents) of the container. In open the office/jar/bottle, the direct object is the name of a container, whose interior (or whose contents) is made accessible by the creation of an aperture in the exterior surface. Open the door and open the office are therefore related, not through some common aspect, but in virtue of the fact that each expression focuses on a different facet of the same activity. The relation, in fact, is one of metonymy, broadly defined (Taylor 1989: 125).¹⁶

A (partial) network for open is shown in Fig. 3.¹⁷ The solid lines represent relations of elaboration from a schema, the broken lines represent relations of extension, while the dotted lines symbolise metonymic relations. A few comments on Fig. 3:

(a) The three highest level schemas in Fig. 3 ("move apart", "create aperture", and "make accessible") are related by metonymy, not through some shared attributes. For this reason, I have refrained from proposing a superschema, which abstracts what is common to the three senses.

(b) Often, one and the same opening activity instantiates the three highest schemas simultaneously. When one opens one's mouth, parts of the mouth move apart, thus creating an aperture in the face through which the interior of the mouth is made accessible (e.g. to a dentist). On the other hand, when one opens a penknife, parts of the penknife move apart, yet an aperture is not created, nor is anything made accessible; while opening a parcel renders the contents of the parcel accessible, but not through the creation of an aperture.

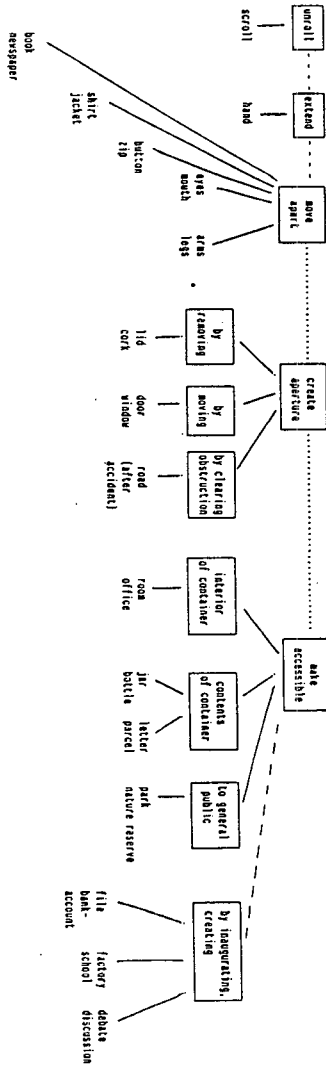


Fig. 3

(c) The very generality of the higher order schemas confirms a point made earlier, concerning the conventionality of a network. There are many ways in which one could conceivably "make accessible" the interior of a room. One could break a window-pane, make a hole in the ceiling, or tunnel under the room and through the floor. None of these activities corresponds to the conventionalised interpretation of open a room.

(d) Fig. 3 incorporates some senses that Searle (1983) had singled out as "non-literal". These senses may be seen as extensions of the "make accessible" schema. Thus, to "open a discussion" is to make it possible for people to participate in the discussion. The example shows that "non-literal" senses do not require a fundamentally different kind of treatment, in terms of the network model, from "literal" senses.

(e) Fig. 3 was constructed by the writer on the basis of his intuitions. Other linguists, working on their intuitions, might possibly come up with different proposals.¹⁸ It is important to emphasise, therefore, that the network depicted in Fig. 3 is meant more as a *hypothesis* than as a definitive account. Given the subjective procedure by which Fig. 3 was constructed, it is legitimate to ask whether any kinds of evidence could be adduced that might justify the proposed content and configuration.

Here we touch on a fundamental aspect of the network model, a full discussion of which would go beyond the scope of this paper. Various kinds of potential evidence for the structure of a network may be mentioned, however. Firstly, the relative "distance" of nodes from each other, and the grouping of nodes in "clusters", may be investigated experimentally by eliciting from speakers subjective judgements of meaning similarity, and then subjecting these judgements to hierarchical cluster analysis. This statistical technique has been employed by Schulze (1989) in

his study of prepositional polysemy. Secondly, longitudinal data from first language acquisition may enable the researcher to track the gradual growth of a network for an individual speaker over time (Taylor 1989: 253f.). Diachronic data may serve a similar function with respect to the development of a network in the speech community (Geeraerts 1983). Cross-language data may also be of interest. Afrikaans oopstel lexicalises one of the higher order schemas proposed for English open ("make accessible to the public"), while Italian extends the network proposed for English by the incorporation of an additional schematic sense, viz. "make (an electrical appliance) functional".

A crucial empirical issue (*the crucial issue, even*) raised by the network model concerns the depth in the network at which meanings of lexical items are accessed in the production and comprehension of utterances. On hearing that a person opened the window, at what depth in the network is the meaning of open accessed? I have presented some arguments against the view that it is some highly abstract sense, common to all uses to open, that is accessed. But equally, it seems unlikely that very low nodes are accessed, e.g. those appropriate for, say, opening a hinged window in contrast to opening a sash, or a sliding window. (Consequently, open the window is not felt to be ambiguous between these kinds of activity.) I suggest, rather, that the network is accessed - in default cases, at least - at an intermediate level in the network, namely at the level of "basic level concepts". Again, this proposal is to be taken as a hypothesis - one, furthermore, that should be accessible to techniques of psycholinguistic investigation.

The notion of the basic level concept has been empirically investigated by Eleanor Rosch and her colleagues, primarily in connection with nominal categories (Rosch et al. 1978; see also Lakoff 1987). The basic level is that level in a taxonomic hierarchy at which we normally think and talk about objects and

situations. The object on which I am sitting as I compose this paragraph would normally be categorised as a "chair", and not, say, as a "piece of furniture", even though, quite obviously, the object is a piece of furniture. "Chair" is a basic level category, whereas "furniture" is not. Rosch showed that basic level concepts are intimately associated with a speaker's imagistic abilities. The basic level is, namely, the highest level of abstraction that is still compatible with a person's ability to form a mental image of the category. I can form a mental image of "a chair" which is neutral with respect to more specific details of the chair (its colour, size, material, and so on); I can also readily form a mental image of the kinds of sensorimotor activities that I perform in interacting with a chair (e.g. sitting on it). I cannot form a mental image of "a piece of furniture" which is neutral with respect to different kinds of furniture (a chair, a table, a bed). Neither can I visualise the manner in which I would typically interact with "a piece of furniture".

I suggest, then, that the most salient, and most readily activated nodes in a semantic network are those that invoke basic level objects: "open a window", "open a book", "open a bottle", "open a parcel", "open a discussion", etc. One can readily form mental images of these different kinds of activities which are neutral with respect to specific details. My image of "opening a window", for example, is neutral with respect to the size, shape, and location of the window, to whether the window opens inwards or outwards, to whether (in the case of a hinged window) the hinge is on the left side, the right side, the top, or the bottom; to whether the window opens easily or with difficulty. That speakers experience so little difficulty in explicating - e.g. by mime - what it means to "open a window", "open a book", etc., is plausibly a consequence of the easy imaginability of the activity. Expressions with more schematically characterised objects - e.g. open a container - lack this ready imaginability. If I try to form

a mental image of "opening a container", I can scarcely avoid elaborating the schematic notion of a container by one of its basic level instantiations: open a box, open a bottle, open a can, etc.¹⁹

In claiming priority for the basic level, I do not wish to deny the possibility that a speaker may recognise commonalities amongst these various kinds of activities, and may thus construct more schematic senses of open. But these more schematic senses, not being associated with a basic level category, lack salience, and are not readily activated in speech production and reception, nor are they easily available to introspection. It is precisely for this reason that speakers find it so difficult to characterise the more schematic senses of open.²⁰

How many meanings, then, does a word have? From one point of view, the number of meanings that a word has is indefinite, since each word may be used of an indefinite number of situations, and the use of the word on each specific occasion will designate a unique state of affairs in the world. This conclusion Searle found to be "absurd". The alternative to rampant, or even indefinite polysemy, however, is not to be sought in the postulation of abstract, unitary meanings, but rather in more limited polysemy at an intermediate level of abstraction. I have suggested that the appropriate level of abstraction is that of the "basic level concept". It is at the basic level that the infinite variation in the world is reduced to manageable dimensions, it is at this level that a person can form maximally schematic mental images of objects and activities, it is at the basic level that - in default of good reasons to the contrary - a person conceptualises, and speaks about, the world.²¹

What, finally, are the implications of the above discussion for the theory and practice of lexicography? It is significant that the practice of lexicographers tends to confirm the need for

a middle way between unitary meanings and extreme polysemy. Few lexicographers have seen it as their duty to present, for each (non-homophonous) word in the language, only an abstract unitary meaning, leaving it to the dictionary user to deduce for himself the full range of acceptable uses of the word. For the vast majority of words in a language, such unitary definitions would be of little use to anyone. Neither is much to be gained by indefinitely multiplying attested examples of a word. If one gives the information that open may be used with respect to a window, there is little point in informing the dictionary user that one can open a window outwards, or open it inwards, or open a window onto the garden, or open a window in the roof, or even that one can open a broken window. Good lexicographical practice (as exemplified, for example, in Collins English Dictionary, or in the Cobuild Dictionary, also published by Collins), steers a middle course between these two extremes. Cobuild lists some 25 different senses of the verb open. There is little attempt to bring the different senses under more general schematic meanings. Rather, the focus of the definitions is on the explication of "practices" involving the manipulation of basic level entities. Consider, for example, the first three senses of open listed in Cobuild:

1. If you open something such as a door [...] you change its position or unlock it so that air, light, things or people can pass through. EG. *She opened the door with her key.*
2. If you open a bottle, box, or other container, you remove or unfasten the lid, cork, or other device that keeps it closed. EG. *Open the toolbox... I opened a can of beans.*

3. If you open a letter or parcel, you cut or tear the envelope, or remove its wrapping. EG. *I'll open the mail after breakfast.*

The ability of the dictionary user to understand these definitions clearly depends on knowledge of what Searle called "the Background" - the beliefs, practices, assumptions, etc. that enable a human being to function in, and to interact with the world. Inevitably, therefore, the dictionary is encyclopaedic in character. Normally, the lexicographer can assume familiarity with the Background. He takes for it granted that the dictionary user is familiar with doors, toolboxes, parcels, books, zippers, and so on, and the manner in which we interact with these kinds of objects. Only in the case of forgotten, specialised, or exotic practices is it necessary to give detailed, and perhaps ultimately not very satisfactory, accounts of the relevant Background. I suspect that a lexicographer assigned the task of compiling a dictionary for disembodied aliens, would have a hard time explicating the meaning(s) of open.

FOOTNOTES

¹ For a sceptical view on the possibility of defining words at all, see Fodor et al. (1980).

² The reference of window may also change if window is collocated with different adjectives. Compare the reference of a wooden window and a dirty window.

³ Searle does not deny in principle that open may have more than one sense. In open the meeting, open fire, and open a restaurant, Searle concedes that open may have distinct, "non-literal" senses. But none of the expressions in (2), he claims, can be said to instantiate "non-literal" senses of open.

⁴ There is evidence that in the processing of an ambiguous word, a listener accesses, if only briefly, each of the different senses of the word (Foss and Jenkins 1973, Conrad 1974, Holmes et al. 1977, Swinney 1979). It should be mentioned, though, that these studies focus on words - like bank, bat, punch - whose different senses have little, in anything, in common, i.e. on homonyms, not on polysemous words, i.e. on words whose different senses are felt to be related, in some respect.

⁵ For a recent defence of Jakobson's position, see Garcia (1991). Jakobson's position has not gone unchallenged, however. Wierzbicka (1980) criticised Jakobson's analysis of the Russian cases on the grounds that it fails to predict the full range of uses of each of the cases: "A person who does not know Russian *cannot* learn to use the Russian cases on the basis of Jakobson's formulae" (p. xv; author's emphasis). Wierzbicka proceeds to show that the Russian instrumental case has some seventeen clearly identifiable, yet related meanings, which she exemplifies in considerable detail.

⁶ There are some striking affinities between Bierwisch's two-level model and the theoretical framework of Botha's (1988) study of Afrikaans reduplication. Botha postulates a general, unitary meaning of reduplicated forms, which gets fleshed out in a range of specific meanings through the operation of "conceptualisation rules". Throughout, Botha contrasts his approach with "conventional" accounts, which had associated reduplication with considerable polysemy and semantic idiosyncrasy.

⁷ For examples of the prototype approach, see Hawkins (1988), Brugman (1989), and Schulze (1989); also Taylor (1991).

⁸ The example is from Pribbenow (1989).

⁹ During a class discussion of this example, one student related that her family had been bothered by the afternoon sun coming through a west-facing window, and had decided to "paint the window black", i.e. to paint over the glass portion of the window.

¹⁰ For a more extensive critique of the two-level model, see Taylor (to appear).

¹¹ The phenomenon is, of course, very general. Consider the effect of adding the agentive -er suffix to a verb stem. On the semantic level, we might want to say that a V-er is "one that V's". Yet agentive nouns frequently have conventionalised meanings not predictable from this formula. A person can normally be called a dancer only if he regularly, or professionally, or competently dances; it is not sufficient that a person has, on one occasion, danced. But a person does not have to regularly, or professionally, murder, in order to qualify as a murderer. One single instance of murdering (whether performed competently or not) is enough for a person to be categorised as a murderer for the rest of his life. On the other hand, a teacher, who regularly erases

the blackboard, may not thereby be described as a blackboard eraser. But would it be so outrageous to describe the clerk in Gogol's Diary of a Madman as a "deluded pencil sharpener"?

¹² Consider, as a related example, the thorny question of what you do with soup; do you eat it, or drink it? Suppose that, on the semantic level, eat and drink were to be differentiated in terms of the solid vs. liquid state of the substance being ingested. Soup, being liquid, would therefore be drunk, not eaten. Yet, counter to this prediction, one may in some circumstances also "eat soup". This collocation is licenced, I would suggest, not in virtue of some abstract definition of eat, but by appeal to the similarity (in various respects) between the consumption of soup and the consumption of other kinds of (solid) food served in the course of a meal. (Note also that one would probably say of a baby that is not yet consuming solid food that the baby is "eating well", not that the baby is "drinking well". Likewise of an invalid who is allowed only liquid food.)

¹³ A further task, perhaps, for practitioners of the two-level approach, might be to derive the unitary abstract meaning of aufschlagen from the composition of the unitary abstract meanings of its component morphemes, auf and schlagen.

¹⁴ In view of the primacy of the specific meaning encoded by open the window, it is of little concern that the expression may not be strictly compositional, in terms of hypothesised general meanings of the component words, nor that its logical properties may differ from those of open one's arms, or open the discussion.

¹⁵ It is in such terms that the "indeterminacy" of an utterance is to be explained. Suppose - cf. footnote 9 - that I wish to convey that I painted over the glass portion of a window. This is not a standard practice, nor is there in English an

expression which conventionally denotes this activity. In saying that "I painted the window", I would be using the expression in a non-standard way, in virtue of my perception of the similarity between the intended sense and the conventional sense. All the expressions in (1) and (2) may be interpreted in a variety of non-standard ways.

16 Jongen (1985: 131) makes a similar point with respect to the verb close.

17 No pretence for the completeness of Fig. 3 is made. Lower nodes in the network are not shown, neither are intransitive, and a range of more peripheral, metaphorical uses of open considered.

18 It is worth mentioning that Fig. 3 went through several versions, some of which bore little resemblance to the final product!

19 For some experimental data bearing on this process, see Anderson and Ortony (1975), and Garnham (1979).

20 The difficulty of coming up with general word definitions has been noted many times; see e.g. Fodor's (1981) discussion of the verb paint, and Shanon's (1988) comments on Fodor's analysis. Fodor observes that a simple definition like "cause (a surface) to be covered with paint" is inadequate, since not every example of a person causing something to be covered with paint counts as an instance of painting. A painter, in dipping his brush into a can of paint, covers the surface of his brush with paint, but has not thereby "painted the paint brush". The task, then, is to come up with a definition that is sufficiently general to cover all accepted uses of the word, but sufficiently restrictive as to exclude all conceivable counterexample. Fodor aimed to show that this goal was unattainable, and that words are therefore

undefinable. I would see the moral of Fodor's example as follows: It is indeed difficult, if not impossible, to come up with a definition of (to) paint that is schematic for *all and only* the specific uses of the word. Yet a person can readily form a very clear mental image of what it means to "paint the ceiling", "paint the window", "paint one's nails", etc. It is precisely in terms of such basic level activities (or "practices") that a person knows what paint means, and in terms of which paint is to be defined.

²¹ The objection raised by Searle against extensive polysemy - that extensive polysemy leads to an exponential increase in sentence ambiguity - thus turns out to be invalid. As Searle rightly pointed out, our interpretation of open the window is possible in virtue of our familiarity with the relevant practice. But interpretation does not need to proceed on a prior activation of more general meanings of open and window. What a person mentally accesses is the particularised sense of open, as this word is used with respect of windows, i.e. in the collocation open the window.

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