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## Polysemy vs. Abstraction: Mutually Exclusive or Complementary?

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Given a word with several clearly related uses (i.e., an undoubted case of non-homonymy), a lexical semanticist can choose between two recognized alternative ways of accounting for the many-to-one mapping of function to form: **polysemy** and **abstraction**. Polysemy refers to a grouping of related but distinct senses of a single lexical item; often there is an observable direction to the relationship between these senses, one being more central than, or prior to, others. Such a situation is in sharp contrast to the case of a lexical item with a single, highly abstract sense, which is simply broad enough in meaning to apply to many different surface referents, or which happens to have many different pragmatically predictable uses. In specific cases, such as the English prepositions<sup>1</sup> or modal verbs,<sup>2</sup> debate continues as to whether to posit a single abstract sense for a word, or to take one surface sense as basic and the others as derivative. Some analysts have favored an abstractionist approach precisely to avoid bringing such controversial devices as metaphor or cognitive schemata into word meaning. This paper argues, however, that both abstractionist and metaphorically or prototypically structured polysemy analyses are necessary, and proposes some criteria for choosing the appropriate analysis for a given word.

Since the next section will make some fairly strong claims in favor of an abstract analysis for certain lexical items, let us first briefly recall the class of cases where no abstract meaning could reasonably be postulated to account for the facts of polysemy. As a *reductio ad absurdum*, consider for a moment the two senses of *cardinal* in English, referring to priests and to numbers. These two words have a common origin in a Latin word which meant "hinge": cardinals were priests on whom the rest of the church hinged, and cardinal numbers were the numbers on which the rest of the number system hinged. At one point, the relationship was a clear synchronic fact - not just a historical one, like the current relationship between the two English senses. But no abstractionist analysis of the English or the Latin word could ever succeed in uniting the two meanings of priest and number: since it would be hard to find any uniquely shared objective properties of priests, hinges, and numbers, any semantic structure abstract and unspecific enough to include all three as referents would perforce also be broad enough to include all sorts of other referents which have nothing to do with the actual use of the word *cardinal*. Only a metaphorically structured polysemy analysis can appropriately represent the one-time relationship between the senses of *cardinal*, presumably using statements like, "A cardinal (priest) is to the church as a hinge is to a door." Similar arguments can be made for countless other cases of polysemy, such as the use of *see* to mean "know," which I have discussed elsewhere (Sweetser 1984).

The question, then, is not really whether, but where a metaphorical rather than an abstractionist analysis is called for, in accounting for multiple uses of a word. Let us now turn to some cases for which an abstract analysis might more naturally be proposed.

### I. Some abstract, pragmatically ambiguous cases.

Perhaps the classic example of the need for an abstractionist analysis is the negative morpheme (English *not*). Horn (1985) argues in detail that negation is not polysemous between two senses exemplified in (1) and (2), but rather has one sense, which is "pragmatically ambiguous" between the two uses.

(1) She's not happy, she's sad.

(2) She's not happy, she's ecstatic.

Note that while (1) entails "she's not happy," (2) entails "she's happy" - a radical difference which might be taken as *prima facie* evidence for a difference in truth-conditional meaning between the two *not*s. It seems unusual, at least, to claim identity of sense between the initial clauses of examples (1) and (2), if each of those clauses is to be taken as consistent with the truth conditions of the following clause. Yet the two senses of *not* seem intuitively related, the first negating content (and thus entailing "she's not happy"), and the second negating some other feature (assertability?) at the metalinguistic level. For some other, general, assertability to come into question, truth has to be presupposed, since a false statement would *ipso facto* be unassertable as well. Would we wish to argue that sense (1) is basic, and sense (2) derived, or vice versa? Horn counters such suggestions with the observation that no language has distinct morphemes to mark these two "senses": if they were semantically distinguishable, one would expect them to be somewhere distinct. Instead, it appears that human languages just use one basic negative morpheme for both these functions, suggesting that its meaning is simply abstract enough to apply to both content and metalinguistic structures, given appropriate pragmatic context.

A second reason to suppose that *not* is monosemous is that pragmatic principles predict its different uses. We have independent reasons for believing that any speech act is so structured as to involve propositional content, speech act force, and form, and it appears that any one of these three aspects of speech act structure can be negated: the first two are exemplified above in (1) and (2), and here are further examples of possible ways to negate:

(3) She's not [Maria], she's [Maraya]. (form)

(4) I don't *regret* that John left, because I don't believe it's true.  
(presupposition)

Finally, and importantly, negation **does** seem inherently abstract; whether or not one believes that natural language is structured like logic, it seems clear that there was reason for negation's importation into logic as a higher, more abstract operator, rather than as a predicate.

A second likely case of inherently abstract meaning may be found in the domain of conjunction. Grice (1978) has argued that the different "senses" of *and* and *or* are largely to be explained in terms of pragmatics. Haiman (1978,1980,1985) has argued that iconicity, as well as Gricean principles, is relevant to the interpretation of conjunction: the order of conjoined clauses may be iconic for temporal or causal sequence. The difference between the "symmetric" *and* of *Sam was dancing and Mary was singing* and the asymmetric *and* of (5) or (6) is that the content of (5)-(6) pushes us towards an iconic interpretation of the order of conjuncts. The sense of *and* has not changed, but we have added to it a temporal or causal interpretation which depends on order, rather than on the presence of a conjunction: compare the interpretations of the unconjoined sequences in (7).

- (5) She came into the room and closed the door.
- (6) She slammed the door and woke up the dog.
- (7a) She came into the room. She closed the door.
- (b) She closed the door. She came into the room.

In support of Haiman's claims about the semantic unity of *and*, Horn (1985) remarks that there seems to be no language which cannot use its basic coordinating conjunction asymmetrically. If *and* had asymmetric meanings of "and then" or "and so", one might expect some language to have a conjunction which just happened to have the symmetric meaning of *and*, but lacked the asymmetric meanings. The nonexistence of such a language argues for (a) a general abstract concept of coordination ("putting things side by side") and (b) some universal iconic interpretive principles which further contribute to our actual understanding of conjoined clauses.

In Sweetser (1984) I proposed that another essentially pragmatic dimension must be taken into account in our understanding of conjunction, namely the different **domains** in which conjuncts can be taken as linked. In (8), one may say that the **content** of the two conjuncts is what is conjoined by *if*: Mary's real-world action is taken as dependent on John's. In (9), the conditional relationship is not in the content domain, but in the **epistemic** domain: Mary's action is no longer conditional (it has already happened or not happened), but my **conclusion** that Mary went is conditional on my **belief** that John went. And in (10), the only conditional relationship is in the speech act domain: the quality of the food at the deli, and my beliefs about it, are alike independent of whether you are going to the cafeteria - but my **speech act** of telling you that the deli food is better is presented as conditional on your being headed for the cafeteria.

- (8) If John goes, Mary will go.
- (9) If John went, Mary (probably) did too.
- (10) If you're headed for the cafeteria, there's better food at the deli.

The same possibility of applying in different domains exists for basic coordinating conjunctions like *and* and *or*. Taking *or* as having a general abstract meaning of alternativeness, it seems clear that (11) involves alternative real-world events in the content domain, while (12) involves possible

alternative conclusions in the epistemic world - note that (12), unlike (11), would not be bizarre if both conjuncts happened to be true. (13) involves speech-act conjunction: it is not that the real-world existence of one restaurant is an alternative to the existence of the other, or that my belief in the existence of one is an alternative to my belief in the other - rather, these statements are indirect offers or suggestions, and the speaker presents the suggestion of going to one restaurant as alternative to the suggestion of going to the other. It is the conjoined speech acts in (13) which are seen as mutually exclusive. As with negation, *and*, and *if*, the possible readings of *or* depend on the (independently motivated) pragmatic structuring of speech acts as having content, representing epistemic states, and bearing examples' constituent clauses fall out automatically from the domain over which conjunction is taken as applying: for example, the fact that both clauses of (13) are taken as true follows from the fact that they must both represent VALID alternative offers, rather than alternative claims about the real world.

- (11) John eats eggs **or** ham for breakfast every morning.
- (12) The letter hasn't come: so they must have delayed the decision, **or** the mail's just slow.
- (13) There's a great new Chinese restaurant on Solano; **or** there's the Thai place around the corner.

For conjunction, as for negation, it seems most reasonable to posit fairly abstract underlying senses with various surface applications: an abstract idea of "joining side-by-side" for *and*, of "alternativeness" for *or*, and of conditional dependence for *if*. Negation and conjunction are both good candidates for basic higher-level organizing principles of semantics - and hence for an abstractionist analysis. Furthermore, not only their **meanings**, but some of their pragmatic uses, appear to be universal and predictable from independent pragmatic principles such as word-order iconicity and the structure of speech acts.

## II. Prepositions: a more problematic case.

Herskovits (1985) has argued that English prepositions such as *in* and *on* have single abstract geometric senses, at least for their literal physical (and locational, rather than goal) ranges of meaning. This is an intuitively attractive approach which offers hope of unifying apparently disparate senses such as those in (14)-(16).

- (14) The wine is in the bottle.
- (15) The pear is in the basket.
- (16) You are standing in the doorway.

Bottles and doorways are very different objects, but one might extract some abstract notion of surrounding/containment which is exemplified by both (14) and (16). What I would like to argue is not that such an approach fails for the above examples, but that it is insufficient to account for the broader

range of meanings manifested by spatial prepositions.

Herskovits rightly notes that a significant number of pragmatic principles must be invoked to ensure the correct range of interpretations for spatial prepositions: for example, to understand why we use *in the bowl* to describe the pear's location in (17) but not in (18), we must invoke some notion of **canonical** or **normal** containment: this notion is probably rooted in the functional, rather than the geometric, aspects of our understanding of containers. An upside-down container does not give support to its contents, or allow them to be carried as a unit.

(17)



(18)



Another important factor noted by Herskovits is **viewpoint** or perspective. Although a person inside a supermarket building may be correctly said to be either *in* or *at* the supermarket, to say *at* is to adopt a more distant perspective wherein the supermarket is a POINT on a larger map, while *in* takes a closer perspective and sees the building as a container. The modifiability of viewpoint might be taken, like functional notions of containment, as being an essentially pragmatic parameter, which structures possible pragmatic uses of spatial prepositions, rather than affecting their semantics.

However, let us consider some more complex uses of spatial terms in English. The difference between (19) and (20) lies in the interpretation of *over* as meaning "at a point above" in (19), but "on a path passing through a point above" in (20).

(19) The bird is hovering over the hill.

(20) The bird flew over the hill.

The relationship between these two senses of *over* is regular (cf. Lakoff and Brugman, this volume): many though not all English spatial prepositions share this ambiguity, which may be described in terms of an **image-schematic transformation** relating a point to a path.<sup>5</sup> But such ambiguities are not universal or completely predictable; although image-schematic transformations are certainly rooted in the human perceptual system's ability to relate constructs such as point and path, different languages and even different words may show different image-schematic links actually present in polysemy-structures. It does not seem necessarily the case that the path use of *over* follows automatically from the locative use, given universal pragmatic principles. Other image-schematic transformations involved in the semantics of English prepositions include that relating the sense of *in* in (21) to that in (22)-(24):

- (21) John was in the room.
- (22) John came in the room.
- (23) John came in the door.
- (24) John looked in the window.

In (21) *in* marks the landmark of a stative relation; in (22) it marks the end-point of a path (landmark of a final stative relation); in (23)-(24) it marks the point of entry of the trajector into the landmark (or end of path). Since French, which has the use of *in* in (21), does not extend it to the senses in (22)-(24), it would be necessary to claim that whatever principles are at work here are language-particular, which would significantly diminish the similarity to our ideal abstractionist cases. In particular, if the relationship between (21) and (22) is part of the structure of English, who is to say it is not part of the **semantics** of English: which leads us rapidly towards the conclusion that *in* is really polysemous. Given that prepositions are an area where highly abstract semantic entities have frequently been recognized as universals, polysemy in this case may be a motivation for more concrete universal semantics in this domain - the universal part of the meaning of *in* is the physical spatial meaning, although there may also be very general cognitive motivations for some of the extensions of that meaning.

Venturing further into dangerous territory, we can finally take up the case of examples like (25)-(27):

- (25) There are wrinkles in the shirt you ironed.
- (26) I'll be with you in 5 minutes.
- (27) Can she be in love again?

The "containment" relation between the shirt and the wrinkles is a far from straightforward one, and surely not straightforwardly **geometric**. The temporal *in* of (26) is a metaphorical projection of spatial structure onto temporal structure - a seemingly semiuniversal (cf. Clark 1973) but nonetheless directional process, involving the transfer of basically spatial concepts and vocabulary to the abstract domain of time, rather than the application of common abstract concepts to both domains. An abstractionist analysis cannot reflect the directional nature of the relationship between spatial and temporal *in* as effectively as a polysemy analysis.

(27) is an even clearer case for polysemy: we metaphorically describe ourselves as being contained by mental or emotional states. There are no common objective features, geometric or otherwise, shared between a physical container and a mental state. It is not that emotion and space happen to be structured alike, so that the same abstract concepts apply to both. Where polysemy is structured by a metaphor, an abstractionist analysis has to give up. Only a metaphorically structured polysemy analysis can appropriately describe the earlier synchronic relationship between the meanings of *cardinal* -- or the current relationship between the spatial and non-spatial senses of English prepositions.

### III. The English Modals: pragmatics and polysemy.

It is a well-recognized fact that the English modal verbs have two distinct sets of uses: a **root** or **deontic** reading which expresses such concepts as permission, obligation, and ability; and an **epistemic** sense which expresses possibility, certainty, or conceivability in the domain of reasoning. I have argued (Sweetser 1982, 1984) that these two senses are indeed related - that the epistemic *may* of (29) should be taken as a metaphorical extension of the root sense of *may* in (28).

(28) John may come. ("It is permitted.")

(29) John may have come. ("It's possible but not certain.")

Adopting Talmy's (1985) concept of force dynamics, let us assume that the basic meaning of *may* is that of a potentially present barrier which is not **actually** present. In (28) the possible barrier would be a real-world obstacle to the actual event of John's arrival, while in (29) it would be a logical obstacle to a reasoner's arriving at the **conclusion** that John will come.

In Sweetser (1984) I discussed a third usage of the modals which is almost undocumented in the literature, but is clearly distinct from the root and epistemic uses. Consider the contrast between the epistemic *may* of (30) and the non-root, non-epistemic *may* of (31)-(32):

(30) He may be a university professor, but I doubt it cuz he's so dumb.

(31) He may be a university professor, but he sure is dumb.

(32) You may be winning, but we go to Harvard.

(said by losing Harvard team)

Although (30) indicates that there is no known obstacle to concluding that "he is a professor," (31) has another reading wherein it is **assumed** that the person in question is a professor. What is *may* doing here? Similarly, in (32), neither permission (absence of a real-world barrier) nor epistemic possibility (absence of a logical barrier) is involved. My claim is that in these cases, *may* expresses modality towards the speech act itself: "There's no social or discourse barrier to admitting into the universe of discourse the claim that he is a university professor - but I refuse to admit the normal conversational implicature of this claim (i.e., that he is intelligent)." Or, for (32), "Nothing bars you from claiming or stating that you are winning; but we don't admit the normal implicature of the winner's being superior."

Now for the question: does *may* have a single over-arching force-dynamic sense, or three different related senses? In favor of an abstractionist position we could make the following observations: (1) modals really do seem to have fairly abstract meanings - as opposed, for example, to the concrete spatial senses which are the basic senses of many prepositions; (2) this looks suspiciously like the case of *and* or *if*, which arguably have very abstract senses and can be pragmatically applied to either the content, the epistemic structure, or the speech-act force of an utterance. Perhaps modals are like negation and conjunction, semantically monosemous, but pragmatically ambiguous. To add to the persuasiveness of this argument, the root/epistemic ambiguity at least is not specific to English (the speech-



act use of modals is not well enough documented for me to know how widespread it is). Many unrelated languages, including members of the Philippine and Semitic and Finno-Ugric families as well as the familiar Indo-European languages, show morphemes which are ambiguous between root and epistemic modal senses. Perhaps, as with *and*, universal pragmatic principles account for the different uses of the modals.

However, there are important differences, as well as important similarities, between the behavior of the conjunctions and the behavior of the modals. First and most importantly, there is a clear directionality to the relationship between root and non-root modal senses. Not only are the epistemic modal senses known to be later developments of words which had only root modal meanings in earlier English (cf. Shepherd 1981, Traugott 1982), but the root modal senses also precede the epistemic senses in children's acquisition of language (Kuczaj and Daly 1979, Shepherd 1981) and there is some evidence that creoles develop overt expression of root modality before going on to extend root modal expressions to epistemic senses (Shepherd 1981). No such directional development is evident between the "senses" of *and* or of *not*. Under an abstractionist hypothesis, we would have to assume that there was some (objective) isomorphism between the root and epistemic modal domains, or the same abstract sense could not cover both sets of denotata. There would then be no explanation for why the historical and developmental direction should be as it is, rather than from epistemic to root: if a meaning becomes more abstract, it could do so equally well starting from either of two more specific meanings.

Second, in the case of the English modals we have an extensive and productive synchronic metaphorical system which motivates the connection between root and epistemic senses. Phrases such as "a *strong* premise," "a *weak* conclusion," "I am *forced* to conclude" all indicate the extent to which we metaphorically model our reasoning processes in terms of the more concrete forces and barriers of the social and physical world around us. This metaphor is unidirectional, and seems to be the motivation for the English modals' historical development of non-root senses. We cannot express the directional, metaphorical nature of the relationship between the modals' senses by proposing a single abstract sense for *may*: it seems clear that the root sense is synchronically basic.

Third, unlike the iconic uses of conjunction or the metalinguistic uses of negation, the non-root senses of modal expressions are not universals. We cannot predict that all root modal verbs will automatically also express corresponding epistemic modal meanings. Many languages do show this ambiguity, which is probably attributable to a universal tendency to describe the abstract epistemic and speech-act worlds in terms borrowed from more concrete domains. But we have seen that English modals were once restricted to the root domain; and plenty of languages have vocabulary which is specially dedicated to the expression of root or of epistemic modality, to the exclusion of the other. We are forced to conclude that it is a fact about the English semantic system that English modals regularly

metaphorically extend from the root (content) domain to the epistemic and speech-act domains. This conclusion seems comforting, since we also notice some *irregularities* in the extension - *can* is epistemic only in negatives and interrogatives, for example, and *may* is far more productively used in the speech act domain than the other modals. It is unclear how an abstractionist analysis would account for these irregularities, since whatever isomorphism accounted for the multiple uses of the modals would also predict these non-occurring uses. But polysemy, since it actually deals with all the separate, related meanings of a word, can more readily coexist with occasional non-connections between such meanings, while allowing for a regular motivation of existing connections.

It therefore seems as if the modals are polysemous, rather than just highly abstract in meaning. Not only are their different senses directionally and metaphorically connected, but their polysemy is contingent rather than being automatic and inevitable (given universal pragmatic principles) like the ambiguity of *not*. Further, the metaphorical link between epistemic and root modality is supported by a lively synchronic metaphor-system.

### Conclusions.

In conclusion, let us review the criteria we have used to distinguish between abstract and polysemously structured lexical meanings. First comes the question of **directionality**: does one use show regular historical, acquisitional, or other priority? Second, and perhaps even more crucial, is the question of whether the directionality (if any) is **metaphorical**: evidence of a productive metaphor at some stage of the language's history seems fairly conclusive evidence for polysemy rather than abstraction at that historical period. Third, how **abstract** are the surface senses? Without laying down a rigid rule, we can say that it seems more appropriate to suggest a highly abstract underlying meaning for an obviously abstract word like *and* than for fairly specific, concrete words like *cardinal*.

The final question which we have seen to be relevant is: how **predictable** is the grouping of uses crosslinguistically? If it is completely universally predictable that any word used for X will also be used for Y (as in the case of linguistic and metalinguistic negation), then we may well want to postulate an abstract meaning applicable to cases X and Y. If there is no crosslinguistic predictability at all (if this polysemy structure exists only in one language, like *cardinal*), then we may generally conclude that the two senses are separate and that their relationship is one of polysemy - assuming that there is some connection available to current speakers, so that the word is not (like *cardinal*) synchronically actually a case of homonymy. And if there is correlation, but not complete predictability, fix between the two senses, then we may wish to postulate separate meanings rather than a single abstract one, but nonetheless be on the lookout for possible universal factors which might motivate a link between these two disparate senses. Polysemy, as we have seen in the cases of the modals and prepositions, may have very specific or very general motivation: the more general the

motivation, the more common a polysemy structure is likely to be across languages.

It is particularly instructive to note that we have been forced to treat the conjunction cases as abstract, while the modals seem clearly polysemous. The pragmatic structure of speech acts as propositional content, epistemic structure, and speech act force is a probable universal. Conjunctions and modals both regularly apply to all three aspects of this universal structure. But conjunctions simply are abstract enough to apply to speech acts as well as to propositional content, while modals have a more concrete basic meaning and are metaphorically extended to the epistemic and speech act domains. It is important to distinguish between these two kinds of semantic "metastructure" -- and the two metastructures are highly probable linguistic universals.

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### Notes

- 1) cf. Lindner 1981; Brugman 1981; Herskovits 1985.
- 2) cf. Boyd and Thorne 1969; Kratzer 1977; Shepherd 1981; Sweetser 1982, 1984; Traugott 1982 and elsewhere.
- 3) cf. Brugman 1981, Lindner 1981, although neither uses the term *transformation* to describe relationships between image schemas. Lakoff (1986) does use this term.

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