Metaphorical Models of Thought and Speech: A Comparison of Historical Directions and Metaphorical Mappings in the Two Domains
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Introduction: puzzles for historical semanticists.

Recent semantic research has begun to dispel what I regard as two fundamental misconceptions: (1) the idea that semantic change is whimsical and random in direction and (2) the idea that metaphor is a "frill" on the fabric of linguistic meaning, rather than a structural part of our meaning-system. One of the clearest cases of regular direction in semantic change is the tendency for words to change from a more concrete to a more abstract meaning: for example, for words describing abstract domains such as time to be derived from words for more concrete spatial concepts.[1]

However, within such broad domain-to-domain mappings, the specific routes of change often remain apparently obscure. For example, the English verbs *report and refer* come from a pair of near-synonyms in Latin, both meaning "carry back (again)." It seems reasonable to say[2] that speech exchange is a relatively abstract, subjective domain, and thus would tend to draw vocabulary from the physical domain of spatial motion and location of objects. But this leaves further questions: why don't *report* and *refer* have very close meanings as speech-act verbs in English, if their original sources were so close in meaning? Given that there are regular, directional paths of semantic change between domains such as spatial movement/location and speech exchange, how regular or irregular are the correspondences between senses in one domain and newly-developed senses in the other domain?

The claim of this paper will be that in fact much regularity can be uncovered by examining the details of the metaphorical mappings involved in word-histories, and in particular that it is important to analyze these mappings at the appropriate level of generality. Specifically, I shall explore the metaphorical relationships which allow verbs referring to mental states (or reasoning processes) and speech exchange to develop historically from words which once signified physical motion or location. The object of my analysis is to account for observed commonalities and differences between the semantic origins of speech-act verbs and mental-state verbs: both often start life as physical motion/location verbs, but *which* physical-domain verbs map onto *which* senses in the two more abstract domains? The commonalities in (synchronic and diachronic) metaphorical structuring of the two abstract domains turn out to account for both similarities and contrasts between historical semantic sources for the two classes of verbs: we can use detailed metaphorical analysis to account for observed directions of meaning-change, and to *avoid predicting unobserved changes.* En route, it will emerge that *report* and *refer* are both regular instances of two distinct metaphorical mappings between the physical domain and the speech-act domain.

I shall be drawing my data from two sources: the historical semantic development of the current English vocabularies of mental states and speech acts, and current English metaphors for speech and mental activity. I regard these two sources as mutually reinforcing, since it turns out that the principal metaphors involved in the relevant semantic histories are lively metaphors in spoken English today. This appears to me to be interesting evidence of the commonality and longevity of the said metaphors in the Indo-European language family, especially since many of the historical semantic shifts involved took place in Latin, before the words in question were borrowed into English.

The vocabulary of mental states and speech acts.

Meaning-change remains perhaps the least understood area of linguistic change, but recent work (Traugott 1982, Traugott 1985, Fleischman 1982, Sweetser 1984) has strongly suggested that there are regular, often "one-way" historical directions in semantic change.[3] One of the best-recognized directions of meaning-shifts is the tendency for the vocabulary of physical space and motion to be a source from which languages draw their expressions for more abstract concepts, such as time and mental activity. Crucially, shifts in meaning going the opposite direction are so rare as to be almost unknown. Corresponding to this direction in historical development, Reddy (1979) and Lakoff and Johnson (1980) have further shown that the vocabulary of spatial relations synchronically pervades our description of speech-interaction.

Traugott (1985) and Traugott and Dasher (1985) demonstrate that there is a historical direction in meaning-change (1) from verbs of physical location/motion to both mental-state senses and speech-act senses and (2) from mental-state senses to speech-act senses. But verbs describing speech acts do *not* develop mental-state senses. These observations fit well with Traugott's (1982) theory that semantic change in general tends to be from the propositional to the textual to the expressive, or (more broadly) words tend to move towards more *personal* meanings. A similar direction can be observed in the semantic history of the English modal verbs (cf. Shepherd 1981, Sweetser 1984): they developed from non-modal senses (often involving physical strength or force) to root modal senses such as (1), and then added epistemic uses such as (2). (3) is an example of a speech-act use of an English modal, though the history of such uses has not yet been established.

(1) You may go. (permission to go in the real world)
(2) John may be coming. (possibility of conclusion in epistemic world)
(3) There may be a six-pack in the fridge, but we have work to do.
(admission of premise & offer into discourse-world, but
refusal to admit normal implicature)

When we say that semantic change tends to move from concrete to abstract, or from less to more personal, we crucially do *not* mean that any old concrete meaning can be extended to any old abstract sense: rather there is some ***mapping*** between concrete and abstract domains, which

designates *correspondences* between entities in the two domains. Permission is extended to mean possibility, and obligation (*must*) is extended to mean certainty or necessity in the realm of reasoning: we would indeed be surprised if *John may be coming* meant "I am forced to conclude that John is coming." The first question before us, then, is what connections make it possible for spatial verbs to extend to the mental-state and speech-act domains, and for mental-state verbs to extend their meanings to the speech-act domain (but not the opposite direction)?

Traugott and Dasher comment that one strong connection between mental states and speech acts is that a particular mental state is often a precondition for the sincere or felicitous performance of a particular speech act. For example, one must have mentally *certified* or "made certain" that something is true, before verbally *certifying* its truth to others; mental (sometimes via physical) *observation* precedes *observing* in the sense of "making a remark;" mental *recognition* is required to *recognize* a person by giving him/her the floor. The same is true of affective states, as well as of epistemic states: a sincere speech act of consent has emotional *consent* ("feeling with") as a precondition. In the cases just mentioned, and in others, the mental sense of the verb precedes the speech act sense historically; and this historical direction mirrors our understanding of the structure of speech acts.

Besides the unidirectional connection between our mental-state and speech-act vocabularies, Traugott and Dasher also note some simple *commonalities* in the sources of speech-act and mental-state verbs, and some differences in the sources. To begin with the differences, mental verbs frequently come from the semantic domain of physical vision, while speech-act verbs do not. This fact seems to have its basis in a very strong metaphor which is at least pan-Indo-European: *I see* can mean "I know/understand" but not "I say" (or some other speech act sense), because cognition but not speech-exchange is metaphorically understood as physical sense-perception, and most primarily as vision.[4] On the other hand (and unsurprisingly) speech-act verbs but not mental-state verbs commonly derive from words meaning various kinds of sound-production (e.g., *acclaim* from Lat.*clamare* "cry out", *invoke* from Lat.*vocare* "call, cry"). The major common sources for the two domains are (1) mental state verbs (we already mentioned that these are a source for speech-act verbs: and by default, as it were, they are naturally also a source for mental-state verbs) and (2) verbs of spatial location and motion. Thus the mental (and hence marginally speech-act) *suppose* comes from Latin *sub+ponere* "put under"; while the basically speech-act *propose* comes from Latin *pro+ponere* "put forward": here we see one verb indicating physical movement coming to mean mental activity, while another (and apparently parallel) verb of physical movement has come to refer to speech instead.

The rest of this paper will be an examination of the metaphors inherent in the histories of spatially-derived English speech-act and mental-state verbs. What I shall argue is that a detailed examination of

these metaphorical structures points out both the differences and the similarities between our views of speech and of mental states. There are areas of overlap in our metaphorical structuring of the two domains, and areas of non-overlap: where the metaphors overlap, so do the etymological source-domains - and where the metaphorical treatments of the two domains are at variance, the etymological sources are distinct.

Shared metaphorical structuring in the mental and speech-act domains.

Traugott and Dasher mention that Reddy's conduit metaphor seems to be at the base of many of the metaphorical semantic developments of speech-act and mental-state verbs. This metaphor is, briefly, that ideas are objects which can be packaged in language, and given or sent to an interlocutor, who unpacks the linguistic package to get at the ideas inside. Traugott and Dasher further comment that this seems to be part of a broad, Indo-European metaphor of ideas as objects. In other words, both our concept of linguistic acts and our concept of mental states treat ideas as objects.

Let us examine some metaphorical semantic shifts in more detail, to see exactly what structures are shared in our metaphorical treatments of the two domains in question. One important shared metaphor is that of **travel**: mental activity and conversation are both movement through some metaphorical space, the space being identified with the subject-matter of thought or speech. Evidence of this lively metaphor (cf. Lakoff & Johnson 1980) can be found in usages such as "We haven't *gotten anywhere* in this conversation, or "When I figure out this problem I can *go back* to the issues I really care about." Spatial particles and prepositions, as well as verbs, are extended from the domain of physical movement to movement in the worlds of thought or speech. Just as we can *walk about* the grounds or *go over* the house in space (where *over* and *about* signify what kind of trajectory was followed), similarly we can *talk over* a problem, or *talk about* a topic, or *think about* or *think over*. With talking and thinking, as with physical movement, *over* has an implication of full "coverage" of the territory which is not present with *about*. We will later have reason to distinguish this metaphorical travel through an abstract space from other spatial metaphors of thought and speech, and in particular from the "ideas as objects" metaphor mentioned above, which has structured both domains as well.

Returning to "ideas as objects," let us first examine how this metaphor structures our language of mental states. Possibly the single most productive etymological source-domain for English mental-state verbs is that of object-manipulation: the mind is a manipulator of thoughts or ideas, which are identified with manipulable objects.[5] Our cognitive processes are seen as holding, touching, and moving mental objects. Something understood is said to be *grasped* or *comprehended* (< Lat. comprehendere, "to seize"): or a mind can *catch on to* a new idea, or more informally just "get it."

Once suitably captured and internalized, mental objects can be united or separated, arranged or reordered. *De-cide* (< Lat. de+caedo "cut off from") and *distinguish* (Lat. di(s)- "apart") suggest that both mental choices and mental distinctions or categorizations have been metaphorically structured as physical separation processes. Decision-making is mentally separating the chosen option from the rejected option. Categorization is mentally putting concepts into sets (delimited areas of our mental space); thus two objects which are distinguished or differentiated from each other are mentally "separated" by being put in different sets. (Cf. "I can't tell them *apart.*" or "I can't tell one *from* the other" where *from* marks separation.) Proper mental order is "a set for everything and everything in its set;" but sometimes we *mix up* things, putting different things in a common container rather than successfully keeping them in their appropriate containers. *Con-fuse* (Lat. con+fundere "pour together, mix") portrays ideas specifically as mixable liquids which must be kept separate if we are to be able to make mental distinctions between them.

Prefer (< Lat. prae+ferre, "carry before") shows a model of our likes and dislikes as a linear mental array wherein "favorites" are at the front, closest to the ego.[6] The array appears to be the same one invoked by usages such as "My family comes *first*" and "That project is *close to my heart.*" The word *priority* (Lat. prior, "ahead of > before > of greater importance than") historically reflects the same metaphorical structuring of subjective importance-ratings. Being first in a linear sequence would not necessarily indicate subjective importance, if the linear dimension in question were not "closeness to self," hence "importance to self."

One important set of idea-manipulation processes is the set of logical processes, and indeed we find spatial metaphors in this domain. *De-duce* (< Lat. de+ducere "lead out/from") relies on a metaphorical structuring of deduction as *bringing out* some previously unknown conclusion from the background of known premises; *in-fer* (< Lat. in+ferre "carry in") models a reasoning process which allows certain conclusions to *enter* the mind from outside premises (or perhaps to enter a new mental space from some other mental space external to the new one). The idea here is that a new piece of knowledge or belief is "imported" into some mental space - perhaps from outside, perhaps from elsewhere in the mind. Such a view of reasoning is consistent with the above-mentioned views of categorization and understanding: Ideas are objects "contained" in our mental space, which has smaller "containers" like categories as subspaces. A newly "grasped" concept will thus be brought *into* a mental space where it was not previously located.

Reasoning can also be viewed as *building* a logical object: *sup-pose* (< Lat. sub+ponere, "put under") and *hypo-thesize* (< Gk. hypo+thesis "under-putting") see premises as lower parts of a structure, supporting conclusions.[7] Our belief-system is here seen as not simply a bunch of idea-objects and container-spaces, but as involving *structural relationships* between objects within spaces. In a theoretical *construct*, the most basic,

strongest, most firmly placed beliefs are a foundation, while contingent beliefs "rest on" our less contingent beliefs: we could change the contingent beliefs without altering the rest of the structure, rather as one can change a roof-tile on a house without taking up the foundations. *Pre-sume* (< Lat. prae+sumere "take before, take in advance") suggests a similar precedence of premises over conclusions, but this time linear: our reasoning processes are seen as a mental journey, starting from *presumptions* and *presuppositions* and moving on to finish the movement at some *conclusion*, which is "later" in the journey than the starting-point.[8] Phrases like "line of reasoning" and "prove it step-by-step" are modern English evidence that this metaphor is still alive. *As-sume* (< Lat. ad+sumere "take to (oneself), lay claim to as one's own") sees an idea as an object which the speaker already lays claim to as his/her own, rather than being in the process of acquiring, hence an assumption is a presupposed rather than a logically developed idea. *Sur-mise* (< Lat. super+mittere "send/throw upon") and *con-jecture* (< Lat. con+iacere "throw together") portray hasty reasoning as a pot-shot and a quickly "tossed together" structure respectively.

Mental activity, then, is metaphorically structured as the manipulation of ideas (= mental objects). In particular, such objects may be seen as inside or outside a mental *space*, they may be placed in a subjective linear order or participate in a linear reasoning sequence, or they may be building-blocks in a theoretical construct. How are these metaphors similar to or different from our understanding of speech-acts as object-manipulation?

Most obviously, speech-exchange is normally metaphorically viewed specifically as *exchange* of objects (=linguistically packaged ideas), rather than, for example, grasping or separating or ordering objects. A particular speech act is, then, a single act of transferring an object. Or is it? I can *pro-pose* (< Lat. pro+ponere, "put forward") something: physically putting something forward towards my interlocutor (who is presumably considered to be facing me) offers the object, but does not ensure its acceptance. And this metaphorically represents a speech situation wherein there is no certainty that the hearer will "accept" the speaker's proposal by agreeing with it.[9] Other similar cases are *sub-mit* (< Lat. sub+mittere, "send under"), and *sug-gest* (< Lat. sub+gerere, "drive/do under"[here, something like "offer or tender (from) below]). The prefix *sub-* marks some deference or uncertainty on the part of the person offering the object: the recipient is seen as being *higher* than the giver (authority is up, subjection is down). The *pro-* of *propose* is echoed in *promise* (< Lat. pro+mittere, "send forward").

The two-way structure of the speech act can be seen in the uses of the prefixes *ad-* and *re-* in the Latinate sector of the English speech-act vocabulary. *ad-mit* (< ad+mittere, "send (in)to"), *as-sert* (< ad+serere, "claim," lit. "join/connect to"), and *as-sent* (< ad+sentire "feel towards") show the use of *ad-* to indicate directionality from speaker towards interlocutor.[10] On the other hand, *re-ply* (<re+plicare, "fold back, unroll"), *re-fute* (<

re+futare "beat back"), *re-fuse* (< re+fundere, "pour back") and *re-ject* (< re+iacere, "throw back") show the opposite direction of movement. An answer "folds back" the topic to the interlocutor, while a refutation hostilely beats back the content-gift (not accepting the proffered object at all), a rejection throws it back, and a refusal pours it back (the proffered object here is presumably a liquid, ungratefully dumped at the giver's feet). In each case, the verb stem indicates an act of moving, of transferring a speech-act object to the hearer, while *re-* indicates that the movement retraces a previous trajectory. If it is the *same object* retracing that trajectory, then the natural interpretation is that it was not accepted by the intended recipient. Another similar case is *ob-ject* (ob+iacere, "throw against/in the way of") here the adversative sense comes from *ob-*, and the thrown object is seen as being thrown in response or defense against objects coming the other direction. These verbs, then, so not so much assert as presuppose an exchange: if there had not been previous traversal of the metaphorical path between speaker and hearer, then it could not be re-travelled.

At first glance, *re-fer* (< re+ferre, "carry back") seems parallel to the examples given above: it comes from an earlier sense of conveying an object back to its source. Yet it carries with it no sense of answering or of rejecting an interlocutor's speech act, which are the two speech events commonly metaphorically represented by retraversal of a trajectory, within the structure of the Conduit Metaphor. In fact, *refer* is not an example of the Conduit Metaphor at all: the hearer's mind is "carried back" to some known or previously mentioned point in the space traversed by the conversational journey, rather than the speaker "carrying back" an unaccepted proposal to the interlocutor. The metaphor here is thus (as previously mentioned) that conversation (like mental activity) is a movement through mental space, and that an utterance or a word may *relocate* the conversationalists in this space. We can contrast *refer* with its erstwhile synonym *re-port*, whose route of semantic change *was* the Conduit Metaphor: here, what is carried is content (information), and it is carried "back" to the interlocutor either because the information-giver may physically have returned to the interlocutor after being absent to do investigation, or more metaphorically because the information is given *in response* to a request, returning back along the trajectory established by the query.

An important methodological point is brought up by the preceding examples: earlier senses of words do not in themselves suffice to tell us how they acquired their current senses. The retraversal of a path may be mapped onto the structure of conversation in more than one way: the path may be the Conduit for information-exchange, or alternatively it may be a path in the joint mental space established for the interlocutors by the conversation. Whether *re-* carries a sense of answering/opposition depends on which of these two metaphors was involved in the semantic history. There seems no way to predict, *a priori*, which of these two verbs of motion would develop which of the two speech-act senses in question: but the

interesting fact is that neither development is "random" in the sense of being incoherent with other larger metaphorical systems which existed in both Latin and English. There were not limitless numbers of equally likely mappings into the speech-act domain, for a verb meaning "carry back."

Another crucial point is that there is only systematic structure to these metaphorical semantic shifts if we examine them at the correct level of generality. It would be unhelpful to say that *refuse* is evidence that there was a Latin metaphor of conversation as pouring: it is more useful to say that conversational exchange can be seen as pouring *because* it is more generally seen as transfer of physical objects along a spatial trajectory between interlocutors. The Conduit Metaphor is *schematic* (cf. Langacker 1982, Brugman 1981, Lindner 1981): it is not a single metaphorical mapping of one specific image onto another, but a schema for such mappings. Pouring, throwing, sending, and putting are different specific structures, all of which fit this schema because they are all examples of physically moving an object from one place to another along a spatial trajectory which does not end at the location of the person causing the movement. Any such physical transfer away from the agent can be mapped onto the speech-act situation of a speaker "transferring" content to an interlocutor. But the regularity is to be observed at the schematic level.

Contrasts and likenesses in spatial metaphors of thought and speech.

The above collection of etymologies and synchronic metaphors is intended to give some idea of the ways in which "ideas as objects" turns out to structure two different semantic domains. Although object-transfer is a kind of object-manipulation, it seems fairly clear that verbs of speech are taken specifically from expressions indicating some phase of a mutual object-exchange process, while verbs of thinking are taken from descriptions of other kinds of object-manipulation, such as holding, setting in order, or construction of a building.

As an example of the special structuring of speech as object-exchange, let us examine the pattern of metaphorical uses of spatial particles in English. We have already mentioned that speech and thought are both metaphorically viewed as journeys, with the result that *think about/over* and *talk about/over* exist as parallel metaphorical extensions of the spatialization seen in *walk about/over.* In the physical spatial domain, there exists a regular contrast between the use of the prepositions *to* and *at,* as in *throw the ball to Sally* and *throw the ball at Sally,* where *to* tends to indicate both active reception on the part of the goal and successful completion of the trajectory, while *at* tends to mark an inactive goal and/or unsuccessful aim.[11] The use of *at* vs. *to* thus serves as a linguistic marker of reception or completion, as opposed to non-reception or incompleteness (and thus unaffectedness of the goal) in a physical spatial object-transfer process. In the speech-act domain, we find a regular use of this linguistic contrast to mark non-reception or incompleteness of the metaphorical transfer process (i.e., unsuccessful attempts to communicate, in particular cases where the

hearer is - intentionally or unintentionally - not receiving the message). Compare *talk to* with *talk at, shout to* with *shout at, whisper to* with *whisper at,* and so on. A broad class of speech-act verbs show this contrast. However, we do not find a parallel contrast in the domain of mental state and activity verbs: *think to* and *think at,* for example, do not have such a contrasting pair of senses, presumably because *think* is not metaphorically mapped onto a schema involving a trajectory over which an object is transferred.[12]

A second domain which is particularly metaphorically linked to speech acts as opposed to mental states is that of combat: conversation (in this case, argument) but not thought is standardly seen as warfare or single combat. This is the basis for the etymologies of several speech-act verbs, e.g.*concede* (< Lat. concedere, "to yield, give up, cede") and *insist* (< Lat. insistere, "stand in/on, stay"): *insist* in particular would be rather mysterious without an understanding of argument as war, since there is nothing particularly "insistent" about staying where you are, unless there is somebody trying to drive you away forcefully. We may also note perlocutionary verbs like *convince* (< Lat. con+vincere, "(intensifier)+conquer" > "convict, prove mistaken"): winning a debate or argument is viewed as victory in a battle. Although there exist metaphorical ways of seeing psychological processes as battle ("wrestle with your conscience"), there do not seem to be mental-state verbs derived from such metaphors. Unlike argument, which is *primarily* metaphorically seen as combat, thinking and other mental states/acts are only very secondarily so viewed.[13] Presumably this is not by chance: speech exchange, like battle, is active and multi-participant, while mental activities and states are essentially single-participant and usually viewed as more stative. As evidence of the lively state of the "argument is war" metaphor in modern English, notice how ordinary and unpoetic it seems to say that one is "gaining" or "losing ground" in an argument, that your opponent "hit below the belt," or even that someone "brought out the heavy artillery."[14]

It is worth pointing out that our ways of metaphorically viewing speech exchange are not only somewhat divergent from our ways of viewing mental states, but are also not completely *internally* coherent. For example, if you *gain ground* in an argument, you are imposing your beliefs on someone else: while if you *lose ground,* you are *accepting* another viewpoint. So on one level, the object-exchange model of conversation says that success consists of *giving* (and not having one's contribution rejected): but alternatively, the war model of argument (a subclass of conversation) says that success consists of *taking territory* from your opponent (besides, of course, seeking to stay unhurt and hurt your opponent). There seems no way to reconcile these two models.

Summing up the comparison of the two domains.

We have now looked in some detail at the spatial metaphors which are synchronically and diachronically prominent in the vocabularies of speech acts and mental states. The general idea of an idea as an object

("packaged" in words, if communicated) is common to the two domains, though different in its specific instantiations. Speech exchange is seen as transferring an object from the speaker's mental space to the hearer's (or possibly sometimes to a joint conversational space). Mental activity is seen as many different kinds of object-manipulation, but can be specifically seen as bringing objects into a mental space: hence (as discussed above) *infer* and *admit.*[15] However, the exchange and battle models seem to be specific to our metaphorical treatment of speech-acts.

In other areas, the sources of speech-act and mental-state verbs are either more distinct or more identical with each other. We have mentioned the existence of a journey metaphor in both domains, and some similar spatialization of the two domains occurs as a result; whereas noise/vocalization appears to be a direct source only for the speech domain, not for mental verbs.

Conclusions.

The theoretical issues behind this analysis are far more important than the specific questions of where exactly mental-state verbs and speech-act verbs come from. The idea that past metaphorically-motivated meaning transfers are reflected in current meanings of words is an idea which has been argued for in various other places (cf. Traugott 1986, Brugman 1984, Sweetser 1984) but which is further supported by this data. It is particularly important to note that the metaphors discussed above are *both* synchronically lively and diachronically important in past meaning-shifts. Without treating *convince* as an instance of "argument as war" in modern English, one must conclude that at an earlier stage of its history it was influenced by the same sort of metaphorical mapping evident in our modern "win an argument" or "hold your ground in a discussion."

There is yet another alternative to be considered, besides that of synchronic polysemy based on a lively metaphor (I believe that the speech-act sense of *admit* may be an example of such a structure) and historically metaphorical but synchronically non-metaphorical cases (such as, perhaps, *convince*). For prefixes such as *in-*, *ad-*, *re-*, and roots such as *-pose*, *-mit*, *-duce*, or *-fer*, English speakers almost certainly do not have the sort of literal interpretations available to classical Latin speakers. However, given the liveliness of some of these spatial metaphors in modern English, and given still-extant spatial meanings for many of these prefixes and roots, it seems to me to be an empirical question to what extent the spatial metaphors inherent in the Latinate English vocabulary of speech and thought are still metaphorical. The answer may well vary with the morpheme, and I hope to address this issue further in the near future.

Finally, the preceding analysis brings out the crucial importance of doing metaphorical semantic analysis at the relevant level of generality. I have already mentioned how non-insightful it would be to analyze the semantic history of *refuse* as involving a Latin metaphor of speech exchange as pouring: this is too low-level and specific to capture the generalization at

stake, which is that speech exchange is schematized as transfer of an object. Likewise, it can be misleading to view metaphorically based meaning-relations at *too* general a level. The "ideas are objects" metaphor, as we have seen, underlies many of the metaphorical schemata involved in our vocabulary of both thought and speech acts. However, it is important to see that more specific metaphorical mappings ("speech-exchange is object-transfer," "reasoning is building a structure") are involved in the actual mappings between domains: "ideas are objects" is almost a meta-metaphor. Choosing the wrong level of generality would either result in our failing to see any regularity (just saying "speech can be seen as pouring, or throwing, or..."), or in our failing to distinguish between separate regularities which share some background (and thus, for example, missing the contrast between the histories of *refer* and *report*). But a metaphorical analysis at the relevant level can motivate both observed sense-changes and gaps in the observed range of sense-changes, besides giving a more satisfying account of the semantic relationships involved in polysemy relations synchronically.

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Footnotes.

1 I refer to well-known examples such as "past is behind, future is ahead," wherein a timeline is metaphorically mapped onto a path stretching ahead of and behind the speaker, with speaker's location mapped onto the present moment (e.g., *That deadline is two weeks ahead*). For discussion of relations between temporal and spatial vocabulary, see Clark 1973, Traugott 1982, Fillmore 1971, Lakoff and Johnson 1980.

2 cf. Traugott 1985, Traugott and Dasher 1985.

3 In particular, it now seems clear that a word's earlier meaning determines whether it is likely to add some particular meaning to its later senses, and that (Traugott 1986) synchronic polysemy-relations are the product of past meaning-shifts, which can often be reconstructed from the polysemy-relations.

4 See Sweetser (1984) for a discussion of this metaphor and the motivations behind it.

5 See Sweetser (1984) for a discussion of this metaphor with respect to both vision and mental-state vocabulary.

6 Note that this coheres with other distance/closeness metaphorical structurings, e.g. ideas of emotional "closeness" and "distance." A friend is "closer to" us than a

stranger. Family trees show the same egocentric structure: we have "closer" as opposed to "more distant" relatives.

7 Cf. expressions such as "supporting evidence," etc. Lakoff and Johnson (1980) have an excellent discussion of this metaphor, which is extremely lively in modern English.

8 Note the difference between the *pre-* of *prefer* and that of *presume*. A preference is placed "ahead" of less preferred objects in an order of emotional closeness to ego: the logical order from premise to conclusion is also linear, but here the *pre-* indicates priority on a metaphorical time-line as the reasoner journeys towards the conclusion.

9 It is worth noting here that the thing given, accepted, or refused is understood to be the *mental* object (the idea conveyed, the intention expressed), not the linguistic form itself. If a proposal is accepted, the *content* of the proposal was accepted. This is rather reminiscent of real packages: if you send me a gift in a box, and I later send you a gift in the same box, you would not say I hadn't accepted your gift, or that I had sent it back, which is what you would say if I sent back the contents.

10 This includes, interestingly, a clear sense of *psychological* exchange, as well as verbal exchange: note the original psychological sense of *-sent* in *assent* and *consent*. It seems that it is possible for these speech-exchange verbs to come into being via mental verbs: but the mental verbs have to themselves be verbs structured around the mental back-and-forth of speech exchange: a consent is not simply a mental state, it is a (probably communicated) reaction to an interlocutor's mental state.

11 *At* has a broader range of such uses, including the well-known contrast between *shoot* and *shoot at*.

12 There is one possible case of a mental verb with such a contrasting use of *to* and *at*: the mental (metaphorical) readings of *look to* and *look at*, as in *Look at how miserable Joan was until she moved to the city* or *You can look to Joan for an example of how to get projects finished.* The contrast is perhaps more subtle with *look*, but *look to* here seems to mark more participation on the part of the object: Joan is actively providing an example, rather than merely being viewed. It should be unsurprising by now that this marginal use of the language of trajectory-completion in the mental-verb domain is found precisely in an area where the domain of sight itself (the source-domain for this metaphorical expression of cognitive processes) is metaphorically viewed as traversal of a (visual) trajectory between subject and object: mental activity is spatialized in this way because vision is.

13 Mark Turner points out to me that our emotions and moral judgements are far more frequently seen as metaphorically involved in struggle and conflict than are our reasoning capacities. I have not yet investigated enough etymologies in these semantic areas to know whether there is a correlation between these metaphors and polysemy structures or semantic change directions. It is also true that we can discuss problem-solving (including reasoning) in terms of combat: "grapple with a new idea," "get this problem beaten," "this theorem really threw me." Part of our metaphorical understanding of cognition seems to be that knowledge is not always tractable to our mental grasping and manipulation. We may then try to *overcome* it and subject it to these mental manipulation processes. However, I do

not find much etymological evidence (so far) for the lively interference of this metaphor in semantic change.

14 There is a perhaps independent, but coherent, metaphor wherein words or utterances are seen as projectiles or weapons. Thus a last word in an argument may be a "parting shot." *Mud-slinging* and *take a (verbal) pot-shot at* seem coherent with both "argument is war" and this more specific instance of the Conduit Metaphor schema. *Sharp-tongued* and *cutting remark* may possibly also fit in with the idea of words as weapons, if not projectiles.

15 *Admit* falls right into the intersection between the metaphorical models for speech acts and mental states: it involves transfer of an object from one space into another (the two spaces in question could be either mental or speech-act personal spaces). So it is scarcely surprising to see it with lively uses in both domains, besides a still-extant use in the spatial domain.

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