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FROM ETYMOLOGY TO PRAGMATICS

Metaphorical and cultural aspects of semantic structure

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In reconstruction we must deal both with forms and with
functions. To reconstruct forms alone, without attention to their
functional position, is first and foremost to create a hopelessly
unrealistic linguistic situation.
        Calvert Watkins, *Indo-European origins of the Celtic verb, vol I.*
                                The sigmatic aorist

Most of the older morphemic splits – *that* and *that*, *it* and *it*, etc.
– were perpetrated on relatively defenseless grammatical
morphemes, in order to accommodate some hypothesis about
syntax ... But with the advent of generative semantics, other parts
of the lexicon have been exposed to attack.
        Dwight Bolinger, *Meaning and form*

In our understanding of language in general, there seems to be a
schema for lexicalization the sense of which is that the act of
lexicalizing something is the act of presenting it as an established
category of human thought. If a lexical item exists, in other
words, it must exist as some part of a frame and must correspond
to some part of a schema.
        Charles Fillmore, Topics in lexical semantics

(1985), and Sweetser (1987b). Similarities between the behavior of root and epistemic modals, and also some apparently idiosyncratic differences between the two, can be shown to fall out naturally from an appropriate understanding of the different natures of the domains in which they operate, and hence from our understanding of these domains as metaphorically identified with each other.

Chapters 4 and 5 extend the analysis further, arguing that sentence conjunction and *if–then* conditionals must also be understood against a background of this network of inter-domain metaphorical connections. Conjunction and conditionality, I claim, are subject to interpretation in the epistemic and speech-act domains, as well as in the sociophysical domain. Thus it is not simply the interpretation or the history of individual lexical items which is shaped by this cognitive structure. Our interpretation of sentence semantics, and in particular of the relationships between clauses, is influenced as well, including traditionally "logical" relationships such as *and*, *or*, and *if*. Although logical operators have been assumed to be the simplest part of language for objective logical analysis, in fact their use cannot be successfully described without reference to experientially based cognitive structure.

I shall not be arguing that conjunctions such as *and* have multiple semantic values, but rather that they have meanings so general that they apply equally to our conceptions of the sociophysical, epistemic, and speech-act domains. But this is only true given certain metaphorical understandings of the epistemic and speech-act domains – for example, the understanding of reasoning processes as following a *spatially linear trajectory sequentially moving from one point to another*.

It is of particular interest to notice that the same cognitive structure underlies (a) polysemy patterns in lexical meaning; (b) historical patterns in meaning-change; and (c) multiple possibilities for interpretation of conjoined or conditional sentences. In particular, there is persistent parallelism between formal markers of aspects of content, aspects of the speaker's reasoning, and aspects of the current speech-act. There is evidence that this metaphorical structure is not restricted to Indo-European; if it represents any universal semantic tendencies, then this work may be of further use to analysts beyond the limited linguistic area here described. In any case, formal feature-based semantic analysis would not be able to account for the observed regularities; while a cognitively based analysis can not only describe the observed meaning patterns naturally and elegantly, but motivate them and explain them.

2   *Semantic structure and semantic change: English perception-verbs in an Indo-European context*[1]

2.1   Introduction

As mentioned in chapter 1, recent work on polysemy structures (see Brugman 1988; G. Lakoff 1985) has suggested that a word meaning is a structured and unified entity. In order to better understand that structure, we need further investigation of the connections between the different (sub-)meanings of polysemous lexical items. In phonology, analysts have frequently assumed that units which were related, or could be classed together, would be more likely to undergo parallel historical changes. For the restricted semantic field of English perception-verbs, this chapter will investigate the interaction between synchronic semantic groupings and parallelisms in historical change of meaning. I shall argue that the historical and synchronic data point to one and the same cognitively based analysis of the relevant semantic domain.

The general study of semantic change has undergone a long period of relative neglect, largely because the phonological part of word history proved so much more immediately tractable to systematic analysis. Semantic shifts have been felt to be random, whimsical, and irregular; general rules concerning them are nearly impossible to establish.[2] Of course, two hundred years ago the same charges might well have been leveled against phonological change, and only work based on the opposite assumption of regularity could have changed our understanding of sound change as it has been changed since then. But it is scarcely surprising that to many linguists, the non-phonological side of etymology appears inherently non-scientific. Synchronic as well as diachronic linguistics has found sound a more accessible domain for study than meaning. There are natural limits set by our vocal and auditory physiology to the possible

(1a)

ken- "compress" (Pokorny 1959–1969, 1.ken- 558)

"hill"	Eng. *neck*	"nut"	"finger-joint"
Ir. *cnoc*	Eng. *nook*	Eng. *nut*	Gk *kóndulos*
Br. *k(e)nec'h*	Eng. *nock*	Ir. *cnú*	
	(arrow-nock)		

(1b)

kwelp- "arch" (Pokorny 1959–1969, 2.kṷelp- 630)

Gk *kólpos* "gulf, bosom, womb"

OHG *hwelben* "to arch over"

?OE *hwelman* "overturn, engulf"

NE *over whelm*
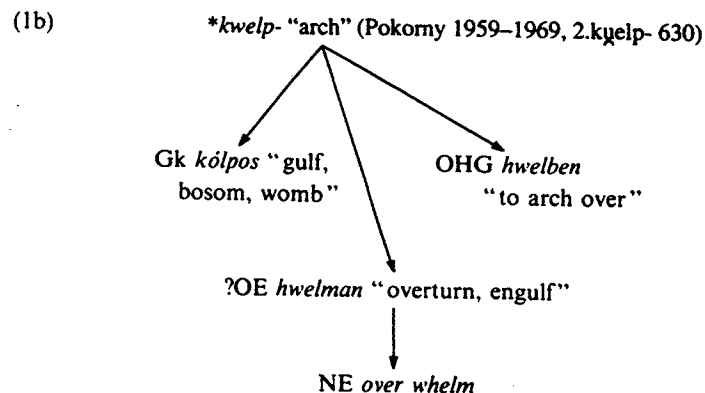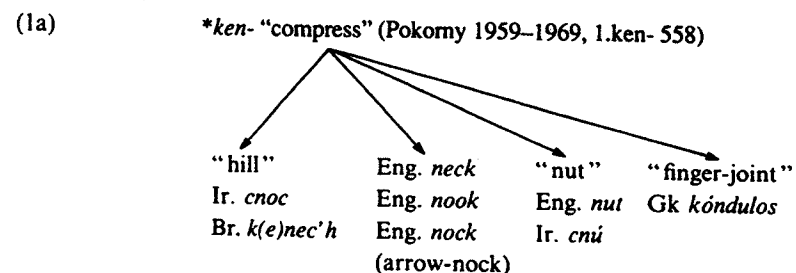
parameters involved in phonology. Semantics is limited only by our capacity for meaning, i.e. by our cognitive capacity, which is dauntingly ill-understood in comparison to the physical limits of the vocal tract. And yet lexical semantics, and semantic change, have frequently been analyzed as based on groupings of features, the semantic analogues of phonological distinctive features. Semantic feature-analyses, and feature-based etymologies such as those in (1a) and (1b), abound in the literature. In these etymologies, the supposed common semantic *feature* of the descendent words is the *compressed state* or *arched shape*; this feature is viewed as being retained by the descendent lexemes, while other features are added or dropped. The parallel to phonological rules is again evident; change is equivalent to feature addition or feature loss. The resulting proto-meaning thus becomes a sort of "lowest common denominator" of the descendent meanings.

If we took these feature-based semantic etymologies in general at their face value, the resulting Proto-Indo-European vocabulary as a whole would be an improbably abstract one.[3] It is widely acknowledged that basic vocabulary terms are the most likely to survive in a number of

descendent languages, and hence to be securely reconstructible. Thanks to studies by Rosch (1977, 1978) and Mervis and Rosch (1981), we have some idea of a plausible abstractness-level for basic vocabulary items; and that level is much closer to the level of abstractness represented by Eng. *neck* or Gk *kólpos* than to the level of the proposed ancestral semantics of *kwelp-* or *ken-*. Furthermore, such generalizations about semantic change as we do have (see Stern 1931; Benveniste 1969, 1971; Traugott 1974, 1982; Fleischman 1982) suggest very strongly that meaning more frequently shifts from concrete to abstract than in the opposite direction; an observation which makes the semantic side of many feature-based etymologies doubly suspect.

This is not to say that there are not relevant parameters of semantic contrast, with respect to which words may change their meanings; but such parameters are more complex and less objective than feature analysts have thought them. As discussed in the preceding chapter, much of meaning is grounded in speakers' understanding of the world; and in particular, metaphorical semantic relationships cannot readily be described as simply changing a single feature or even a group of features – what must instead be described is a mapping of one domain onto another. Further, even in describing simpler changes which look more like traditional feature addition or feature loss, analysts should be aware that it is easier to retrace the history of added semantic features (eliminating them from the proto-semantics) than to reconstruct lost parameters. And when a parameter is only relevant to the semantics of one single descendent language, that does not necessarily mean it was a late addition to the semantics of the word. Only a general theory of naturalness in semantic change will tell us which descendent-language senses of a proto-morpheme are likely to be conservative ones.

As mentioned in chapter 1, European semantic-field analyses have sometimes shown more attention to grounding meaning in the relevant physical and social domains than has American feature-based semantics. They have thus often been successful in realistically assessing the relevant parameters of meaning within a domain. But semantic-field analyses cannot explain why polysemy and semantic change frequently cross between fields – for example, why (as will be discussed in this chapter) *see* and *know* should be related concepts. Semantic polysemy relationships, and semantic changes, frequently involve such metaphorical mappings, which cannot be described as simple features or parameters at all. When a semantic change such as "white" coming to mean "candid" occurs, any

perceived sharing of parameters between whiteness and honesty is completely dependent on a broader understanding of moral qualities in terms of colors – an understanding which is neither objective nor readily expressible in terms of features.

What I am arguing is not, or not *yet*, that any specific proposed etymologies or reconstructed proto-senses of morphemes are wrong. My point is that the semantic side of the whole corpus of received etymological research is subject to question, because we have little or no idea of what constitutes a reasonable semantic reconstruction, and are only starting to be aware of what regularities may be generally observable in semantic change. There has been some excellent work in historical semantics, often by researchers whose thorough knowledge of the older Indo-European languages and good "feel" for word usage have enabled them to establish intuitively satisfying etymologies in cases where the descendent words would never have had a common denominator of feature. Since work on the older Indo-European languages inevitably entails work on poetic texts, there has also been fascinating elucidation of the shared and potentially reconstructible features of Indo-European poetic language, and even specific metaphors and formulae.[4] This work may, in my view, be more helpful to the reconstruction of a realistic Indo-European lexical semantics than comparison of isolated lexical meanings. But early research in Indo-European philology often paid little attention to realism in the proto-semantics, since the researchers in question were focusing on the detailed mapping of phonological and morphological relationships within the Indo-European language family. Without such work historical semantics would naturally be an impossible endeavor. But realism in semantic reconstruction has recently taken on increasing importance, as researchers (following Benveniste's brilliant lead) have attempted to use reconstructed word-meanings as a data-base for investigating the Indo-European proto-culture and its history. Given such use of proto-semantics, there is a sudden need for a realistic model of meaning-change; if we are arguing from reconstructed Indo-European phytonyms to some hypothesis about the location of the Indo-European homeland, it behooves us to know whether the meaning "tree" or "oak" or "strong, trustworthy" is the historically prior sense of the root *deru-* (see Friedrich 1979). We cannot assume that a proto-semantics based largely on the formal simplicity of supposed feature-changes (that is, a proto-semantics which is essentially a mnemonic for the groupings of the various descendent meanings) will necessarily also be a likely semantics for a real

language spoken by a real community, nor that it will be a likely source for the proposed changes.

Recent work in historical semantics has been particularly lively in the area of grammaticalization – linguists such as Fleischman (1982a, 1982b, 1983), Mithun (1980), and others have studied the routes by which words travel from lexical-content word status to grammatical morpheme status. Perhaps even more interestingly, Traugott (1974, 1982) has mapped the historical semantic development of whole classes of English words from the propositional domain (morphemes that constitute the content of what is said) to the textual domain (morphemes whose meanings set out the structure of the discourse), and thence to the expressive domain (morphemes whose meanings are the speaker's affective commentary on the content of the discourse).[5] Traugott's more recent work (1986, 1987, 1988, 1989) has reformulated the earlier framework in terms of development from less to more *situated* in the speaker's mental attitude. (For example, use of demonstratives may involve identifying objects in the actual physical setting; but when a demonstrative becomes a definite article, it takes on the function of marking an entity as presumed to be mentally accessible for the purposes of the speech interaction, regardless of physical presence.) Evolutionary directions in word history from lexical to grammatical and from less to more situated seem well established at this point, and often correlate well with earlier observations of the prevalence of change from concrete to abstract. Very recently, Traugott has given particularly interesting explanations of semantic change in terms of metonymic and pragmatic restructuring of meaning.[6] Bybee (1985) also examines the semantic developments (including abstraction) which accompany morphologization. Such research has laid the groundwork in crucial areas of historical semantics.

But in a more general way, what connects one meaning with another, and how does semantic change occur? Even given a concrete-to-abstract direction, how does one element in the concrete domain become associated with a specific abstract meaning, rather than with some other meaning? Or how do meanings shift within a domain? This chapter is an attempt to map out the systematic connections between meanings – the routes of semantic change – for the domain of English perception-verbs. The mappings I will be examining are examples of the sort of metaphorically structured, non-objective connections between senses which I have discussed above. My purpose is to increase our general understanding of both semantic relatedness and semantic change.[7]

2.2   The Mind-as-Body Metaphor

I will begin by offering several historical puzzles, all of which I intend to resolve in the course of this chapter.

1. Why should words for physical likeness come to mean probability? There is a plethora of examples. Eng. *like* and *likely* are of course instances of the same etymon; MIr. *samlaid* "likely" (cognate with Lat. *similitudo*) gives Mod.Ir. *amlaid* "likely";[8] Wel. *tebyg* means both "like" and "likely."

2. Why should "hear" come to mean "obey"? This I shall discuss in detail; the case I have primarily in mind is IE *k'leu-s-*, which gives Gk *klúo:* "hear," Eng. *listen*, Dan. *lystre* "obey," and Rus. *slušat'* "listen to"/*slušat's'a* "obey."

3. What connects physical holding (or manipulation) with intellectual understanding? This link is absolutely pervasive. Lat. *comprehendere* "seize" is the ancestor of Fr. *comprendre* "understand"; Gk *katalambáno:* "seize" (used metaphorically also to mean "understand") became Mod. Gk *katalambaino:* "understand"; cf. Eng. "*grasp* a concept", or "*catch onto* an idea", or Fr. *j'ai saisi* "I have seized", which carried precisely the ambiguity of Eng. *gotcha*.

4. Why should words meaning "path" come to mean "however"? This too is a common shift exemplified by English *anyway* and by It. *tuttavia* ("anyway," lit. "all road"), and possibly by cases such as Br. *forzh* "however, no matter," if the latter is cognate with Wel. *fordd* "path" and Eng. *ford*.

In order to solve these puzzles, I must first examine in some detail a semantic linkup which I shall call the "Mind-as-Body Metaphor." Kurath (1921) notes that Indo-European words for the emotions are very frequently derived from words referring to physical actions or sensations accompanying the relevant emotions, or to the bodily organs affected by those physical reactions. (For example, the heart's physical function of blood-pumping is strongly and noticeably affected by love, excitement, fear, and other strong emotions; therefore the heart comes to symbolize some of those strong emotions – such as courage or passion. Or, because physical brightness is conducive to cheerfulness, "bright" comes to mean

cheerful, while "dull" means the reverse.) This trend conforms to the previously mentioned generalization that change proceeds from concrete to abstract. Kurath is inclined to attribute this historical development of emotion words to the psychosomatic nature of the emotions: that is, to the inseparability of physical sensation from emotional reaction, or of emotional state from concomitant physical changes. He may well be right in assuming that such a link is at the root of our tendency to derive our vocabulary of the mind from our vocabulary of the body; but it is hard to see how such a link-up could be very directly present in many of the cases. Thus for example, psychological tests have shown that physical colors (e.g., of the walls of a room) do affect people's emotional state; it would seem that bright colors do indeed help promote "bright" moods. Likewise, emotional *tension* or feeling *low* can be linked to physical muscular states of tension or limpness which accompany the relevant mental states. But uses such as *bitter* anger and *sweet* personality seem relatively distinct from any direct physical taste-response of sweetness or bitterness. I would regard such uses of *bitter* and *sweet* as metaphorical: the anger is unpleasant to our emotions in a way analogous to that in which a bitter taste displeases our tastebuds.

Even in cases such as *bright*, where there is apparently some actual correlation between physical world and emotional state, there is not, of course, a necessary correlation. That is to say, it is perfectly possible to be depressed in a well-lit room with yellow walls. Here I would like to introduce an important theoretical distinction, namely that between a partial but commonplace correlation in experience and a full metaphorical mapping. Lakoff and Johnson (1980) examine the metaphor "More is Up." They note that *often*, in what are perhaps prototypical physical cases, there is an actual correlation between our perception of increasing quantity and our perception of upwards motion: for example, the surface of a liquid rises as more liquid is poured into the container, or a pile of objects gets higher as more objects are added to it. But, of course, in other cases (as in liquid poured out on a flat surface and allowed to spread laterally – or as in less concrete cases, where the very idea of quantity may be metaphorical: "more knowledge" or "more love") there may be no such correlation. But the existing correlation in the prototypical cases has *motivated* a more general metaphorical mapping, so that "More" is mapped onto "Up" whether or not there is any correlation observed. Thus we can say "The number of cat hairs on my black dress has *risen* since I got a white cat."

My point is that the Mind-as-Body Metaphor is very probably *motivated* by correlations between our external experience and our internal emotional and cognitive states, but the correlations alone will not explain the observed patterns of polysemy and semantic change. In order to explain the fact that the mappings are much fuller than the correlations, we need another, more general kind of connection between the two domains. We would also like to explain the fact that the mappings are *unidirectional*: bodily experience is a source of vocabulary for our psychological states, but not the other way around. The correlations are bidirectional and partial, but the mapping observed in semantic change and in synchronic metaphorical language is both unidirectional and more general than the correlations. Its unidirectionality alone would suggest the possibility that it is metaphorical in nature.

Further examples of this metaphorical extension of our physical vocabulary are numerous, and many of them are totally inexplicable in psychosomatic terms. For example, in English (and in the Indo-European family at large) our lexicon of logic, causation, and conversational structure is based on our more concrete sociophysical lexicon. The *must* of "You *must* be home by ten, or I'll tell Mother" describes a real-world force or necessity imposed by the utterance. But the same word *must* refers likewise to logical necessity, as in "John *must* be home; I see his coat" (see Sweetser 1982). Further, the abstract logical (epistemic) meaning of the English modals is historically later than their more concrete sociophysical ("root" or "deontic") usage (see Shepherd 1981, 1982; Traugott 1982, 1988). *May* meant physical ability before it came to mean social permission or logical possibility.

I can see no objective semantic feature linking sociophysical force or ability with logical certainty or possibility; neither can I see any psychosomatic link between the two senses of the English modal verbs. The only possible link between the epistemic and deontic domains is metaphorical: we view logical necessity, for example, as being the mental analogue of sociophysical force, while logical possibility is the mental (or epistemic) analogue of permission or ability in the real world. The continuing liveliness of this metaphor (which certainly is no longer a *consciously* figurative usage in the case of the modal verbs) can easily be seen in current expressions such as "a *strong* argument," "a *weak* premise," "a *forced* conclusion," etc.

It is not only modal verbs which show this tendency to multi-domain usage: causal conjunctions, speech-act verbs, and other lexical fields show

widespread semantic developments of the same type (see Sweetser 1982). The causality in "He loves me *because* I remind him of his first love" is basic sociophysical causality; but "He loves me, *because* he wouldn't have proofread my whole thesis if he didn't" does not express the same kind of causation. A paraphrase "I *conclude* that he loves me *because* I *know* that he wouldn't otherwise have proofread my thesis" shows us what the real causal relations are in the sentence so paraphrased. The point is that we use precisely the same repertory of causal conjunctions to indicate causation of one event by another, and "causation" of a conclusion by a premise.

Conversational causation may also be expressed using the same forms which mark causation in the sociophysical and epistemic worlds: in "What are you doing tonight? – *because* there's a good movie on," the causation is not between the content of the second and first clauses, but rather between the content of the second clause and the performance of the speech act expressed by the first clause. The understanding of force and causality in the speech-act world in terms of sociophysical force is visible elsewhere in the language as well: "What was the *force* of that statement?" The linguistic and philosophical concept of speech-act *force* is highly coherent (to say the least) with folk ways of referring to the same set of phenomena; we speak of linguistic acts as having the kind of causal effects which non-linguistic acts have, presumably largely because we in fact use speech acts to achieve many of the social goals that we would otherwise have to achieve by action.

Traugott's (1982 and elsewhere) observations concerning the movement from propositional to textual to expressive meanings give clear evidence for the same kind of development in many other domains; her propositional level corresponds fairly closely to my sociophysical level, and her textual level coincides at least partially with my epistemic level. There is, then, a general tendency to borrow concepts and vocabulary from the more accessible physical and social world to refer to the less accessible worlds of reasoning, emotion, and conversational structure.

So we are left with the following conclusions: (a) the link-up between our vocabularies of mind and body may have some psychosomatic roots, but it is essentially metaphorical in nature, and this equation of the physical self and the inner self is pervasive in English and in the Indo-European family at large (if indeed it is not a universal); (b) we would profit from a clearer understanding of how one particular unit of meaning on the sociophysical level becomes connected with a particular semantic

category at the abstract mental level, rather than with some other category. (Why does *ability* come to mean *possibility*, rather than *necessity*, for example? Or why does *heart* come to mean *courage* or *love*, rather than *fear*?) Given the general Mind-as-Body Metaphor as a background, in the following sections I will try to explicate the connections between the (earlier) concrete and (historically later) abstract meanings of perception verbs in English.

2.3 Sense-perception verbs in English and Indo-European

I shall now map out the historical routes into and out of the domain of physical perception in English, with a view to their detailed interpretation in the next section. What are the sources of English perception-verbs, and for what other domains is the perception lexicon itself a historical source?

2.3.1 Vision

1. The common semantic sources for vision verbs are:

(a) The physical nature of sight (light, the eyes, facial movement, etc.)

> Eng. *to eye* (from the noun *eye*)
> LGer. *oegen* (< *oog*) > Eng. *ogle*
> *ghei-* "yawn" > Eng. *gape, gawp*
> *ster-* "firm, stiff" > Eng. *stare*
> *leuk-* "light" > Eng. *light*, Lat. *lux*, Wel. *golug* "sight," and Gk *leuk-* "white."

(b) Metaphors of vision

> (i) *Vision ⇐ physical touching, manipulation.* This metaphor is discussed in Lakoff and Johnson (1980). Its probable basis is the channeling and focusing ability connected with our visual sense; vision, far more than the other senses, can pick out ("seize on") and attend to one stimulus amid a multitude of input stimuli. Examples:
>
>> be*hold*, *catch* sight of
>> per*ceive* (< Lat. *-cipio* "seize") (both general and visual meanings)
>> scrutinize (< Lat. *scrutari* "pick through trash")
>> examine (< Lat. *ex + agmen-* "pull out from a row")
>> discern (< Lat. *dis-cerno* "separate")
>> see (< *sek*-, which also gives Lat. *sequor* "follow")
>
> (ii) *Visual monitoring ⇔ control.* The basis for this metaphor is probably the fact that guarding or keeping control often involves visual monitoring of the controlled entity; and the limited domain of physical vision is further analogous to the domain of personal

influence or control. Thus *weg-* "be strong, be lively" gives Eng. *watch* as well as *wake*, and (via French and Latin) *surveillance* as well as *vigil*. Likewise *scope*, which in English has come to refer to the sphere of control ("That problem is beyond my scope") is from the root of Gk *skópos*, meaning "sight, aim" in the physical sense.

(c) Basic Indo-European vision roots: There is a set of basic Indo-European roots which seem to have referred to vision as far back as their history can be traced. Examples are:

> *spek'-* > Lat. *specere, -spicere* "look" > Eng. *inspect*
> *weid-* > Lat. *videre*, Gk *eidon* "see"; also Eng. *witness*
> *derk'-* > Gk *dérkomai* "see, look," Wel. *edrych* "look"
> (*ok*- "eye" – various verbs, possibly denominatives, such as Gk *ópsomai*, future of *horáo*: "see").
> *(s)wer-* "watch, guard" – Gk *horáo*: "see," *éphoros* "guardian, overseer" (also possibly cognate with OE *waru*, NE *be-ware*; hence also with the Germanic-derived *guard* and *regard*, come into English from Old French).

2. Target domains for vision verbs. Vision verbs commonly develop abstract senses of mental activity:

(a) *Physical sight ⇒ knowledge, intellection.* This metaphor has its basis in vision's primary status as a source of data; not only does English have expressions like "I saw it with my own eyes" to indicate certainty, but studies of evidentials in many languages show that direct visual data is considered to be the most certain kind of knowledge.[9] Examples:

> *weid-* "see":
> Gk *eidon* "see," perf. *oida* "know" (> Eng. *idea*)
> Eng. *wise, wit* (alongside the more physical *witness*)
> Lat. *video* "see"
> Ir. *fios* "knowledge"

(Note also that *sek*- is the ancestor of Hittite *sakk-/sekk-* "know," as well as of Eng. *see*)

(b) *Physical vision ⇒ mental "vision."* This metaphor is probably based on the strong connection between sight and knowledge, and also on the shared structural properties of the visual and intellectual domains – our ability to focus our mental and visual attentions, to monitor stimuli mentally and visually.

Ambiguous Germanic-derived cases which have either a physical or a mental sense are: *look down on, look up to, look forward to, look back on, overlook, look after.*

Cases which have now essentially only a mental meaning are: *oversee, hindsight, see to, foresee.*

In order to understand these examples, it is necessary to bring in other metaphors besides the understanding of mental "vision" as analogous to physical sight. Future is understood as forward, while past is backward (see Fillmore 1982); up is the direction of authority, while down symbolizes subjection (see Lakoff and Johnson 1980). Thus *hindsight* looks to the past, and *foresight* to the future; *overseeing* is done by an authority figure, and social inferiors may be *looked down on*. An example of the pervasiveness of this metaphor in the Indo-European family can be found in the case of the word *overseer*: English has borrowed the precisely parallel Latin and Greek compounds *supervisor* and *epi-skopos* (the adjective *episcopal* has retained its Greek root-form, although the noun *bishop* has been phonologically assimilated to English); all three of these compounds coexist in modern English usage.

From the Latin *spec-* and *vid-* roots, just as from the Germanic roots, we find that English has both physical and abstract descendents. Some words which have remained in the physical domain are *inspect, spectator, vista, view, survey, vision* (some of these have abstract uses as well). Cases which are purely in the mental domain are *suspect, respect, expect, retrospect, prospect, supervise, evident, provide, prudent (< pro-vid-ent-), envy (< in-vid-ia), revise, advise, interview, clairvoyance. Perceive, discern,* and *observe* all indicate intellectual as well as physical "vision," but in these cases it is possible that the original meanings (physical grasping, picking out, and being attentive to) may have come to mean mental attention or grasping at least as early as they came to mean vision. Our mental-focusing abilities are described by vocabulary drawn directly from the domain of physical manipulation, as well as by vocabulary from the domain of vision (see section 2.4).

2.3.2   Hearing

IE words for hearing often come from the physical domain. Thus, for example, Lat. *audire* goes back to an extension **aus-dh-* of the root **aus-* "ear". Various derivatives of the Indo-European root meaning "hear" or "listen," **k'leu-s-,* are preserved in descendents such as Gk *klúo:,* Mod.Ir. *cloisim,* Wel. *clywed* (all meaning "hear"), Eng. *listen,* and Rus. *slušat'* "listen."

The meanings derived from "hear" are, however, far more interesting than the semantic sources of hearing-verbs. Buck (1949) notes the

surprising fact that nominals derived from Indo-European verbs of hearing generally do not denote sound (the physical thing heard); rather, they almost invariably denote the content of heard speech. Words for physical sound have most commonly an onomatopoetic origin – for example, Eng. *crash, bang,* or *pop; sound* and its relatives from the *son-* root in Latin; or Gk *e:ché:/é:cho:.* Words coming from *hear*-roots mean "tale, report, fame, glory, news." Thus, although Cl.Gk *klúo:* still retains the meaning "hear," its nominal and adjectival derivates, and the related verb *kléo:,* have all taken on this new meaning: *kléos* (**k'léwos,* ~ Skt *śrávas*) "fame, glory," *klutós* "famous," *kléo:* "celebrate, make famous." The Latin cognate *cluere* has the meaning "be famous." Similarly, Gk *akoúo:,* also meaning "hear," has the derived nominal *akoé:* (Homeric *akoué:*), meaning "hearing, thing heard, report."

Verbs of hearing themselves often come to mean "listen, heed" – thus, we have Eng. *listen* cognate with Gk *klúo:* from a root meaning "hear," as mentioned earlier. From "heed" we have a further semantic shift to "obey" – Dan. *lystre* "obey" also descends from the **k'leu-s-*root, and Russian has *slušat's'a* "obey" alongside *slušat'* "listen."

An interesting feature of the hear–heed semantic change is that the opposite direction also seems to be possible: words meaning mental attention or understanding can come to mean physical hearing. Thus, Lat. *intendere* "stretch out, direct one's attention to," comes to mean "take heed of, understand" in later Romance languages – OFr. *entendere,* Sp. *entender,* and It. *intendere* all mean "understand." But in French the semantic development did not stop there, and *entendre* in Modern French has the primary meaning "hear" (ousting OFr. *ouïr,* the legitimate heir of Lat. *audire*). Something similar may be going on in the domain of vision: in at least one case, a verb seems to have shifted from the realm of intellection to a possibly (if not completely) physical visual meaning, namely *recognize,* which derives from the Latin root *gno-* "know." Thus, although the paths of semantic change which I am describing do seem to be primarily one-way (concrete → abstract, or physical → mental), none-theless some verbs may shift in the opposite direction along these same axes.

2.3.3   Smell, Taste, and Feel

In all Indo-European languages, the verb meaning "feel" in the sense of tactile sensation is the same as the verb indicating general sensory perception – Buck remarks on this general identity. It seems, furthermore,

to be the case that sight is the sense most regularly differentiated from general perception, followed by hearing.[10] Even hearing sometimes falls under the rubric of a more general verb, e.g. Wel. *clywed* "perceive, hear" or Lat. *sentire* "feel, hear." Smell and taste frequently come under general sense perception (cf. Fr. *sentir* "feel, smell").

When smell and taste are differentiated from general tactile sensation, the verbs indicating these senses often derive from specific physical sensations (a sweet smell, a bad taste) or from aspects of the physical act of perception. Thus Eng. *smell* has been tentatively linked by Pokorny (1959–1969) with *smoulder*, perhaps via a meaning of "vapor" or "steam." Eng. *reek* is cognate with Ger. *rauchen* "smoke." Br. *c'hwez* means either "breath" or "smell"; the derived verbs *c'hwesa* (objective) and *kaout c'hwez* (subjective; lit. "take/get a breath or smell") mean "smell." (Cognate are Wel. *chwyth* "breath" and Ir. *setim* "blow.") Lat. *fragrare* "to be fragrant" gives Fr. *flairer* "to smell out, like a dog at a scent." The basic Indo-European "smell" root seems probably to have been **od-*, as inherited in Lat. *odor, odefacere/olfacere*, and in Gk *ózo:* (substantive *odmé:*). But the Modern Greek verb *mirízo:* meaning "smell" derives rather from Classical *murízo:* "to anoint, to perfume."

Taste may possibly have had a basic Indo-European root **g'eus-*, whose Greek and Latin descendents (*geúomai, gustare*) mean "taste," while the Germanic and Celtic cognates mean "try" or "choose" (Goth. *kiusan* "try," OE *ceosan* "choose"), and the Indo-Iranian cognates mean "enjoy" (Skt *juṣ-*). The direction of semantic development is not, however, clear; the Indo-European root could have meant "try" rather than "taste." English *taste* comes from a Latin root meaning "touch," also giving us *tactile; taste* comes via French, which still preserves *tâter* "to touch or try." Other Indo-European words for taste come from good (or sweet) tastes: OE *swaecc* "taste" is cognate with Wel. *chwaeth* "taste" and *chweg* "sweet" (Br. *c'houek*). Gk *chumós* (objective) and *cheûsis* (subjective) come from the same root as *chéo:* "pour" – *chumós*, in fact, basically means "juice."

A particularly interesting case is Lat. *sapere*, meaning both "be wise, know" and "taste." The sense of taste is here evidently connected not merely with general experience or perception, but with *mental* experience as well. The French verb *savoir* (from *sapere*) has only the sense of "know," but the noun *saveur* (from the Latin noun *sapor*, alongside *sapere*) means "savor, taste."

In general, the target domains of smell and taste are not the intellectual

domain of *savoir*, however. The sense of smell has few abstract or mental connotations, although bad smell is used in English to indicate bad character or dislikeable mental characteristics ("he's a stinker," or "that idea stinks"), while the active verb *smell* may indicate detection of such characteristics ("I smell something fishy about this deal"). Taste, however, is a physical sense which seems universally to be linked to personal likes and dislikes in the mental world. Lat. *gustis* and Fr. *goût*, like Eng. *taste*, may indicate a "taste" in clothing or art as well as in food.

Finally, the sense of touch is not only linked with general sense perception, but is also closely tied to emotional "feeling." Thus, although there are specific words meaning "emotion" or "mental state" in many Indo-European languages, it is most commonly the case that a given language has at least one basic "emotional-feeling" word which comes from the domain of physical feeling. Thus, Lat. *sentire* indicates both physical and mental feeling, and Gk *pascho:* meant physical suffering before developing a sense of general (mental or physical) experience. Celtic and Germanic likewise show general homonymy in these two areas: Eng. *feel* (and its German cognates), Wel. *teimlo*, OIr. *cetbuid* and *mothugud*, are all both physical and mental. An interesting shift from one domain to the other is Gk *aisthe:ma* (from *aisthánomai* "perceive"), which went from a Classical Greek sense of "object of perception" (hence the English word *aesthetic*) to a Modern Greek meaning of "feeling, emotion."

2.4 The structure of our metaphors of perception

The next question, naturally, is what unifying pattern can be seen in the network of semantic changes described in the previous section. Further, are the link-ups between physical senses and mental states (or activities) motivated? Why is vision connected with intellection, rather than with obedience/heedfulness or with personal "taste"? Thus, I will next undertake an explication of the larger metaphorical structure which is the context of these individual metaphors and meaning shifts.

2.4.1 The objective and intellectual mental domain

The objective, intellectual side of our mental life seems to be regularly linked with the sense of vision, although other senses (as will be discussed below) occasionally take on intellectual meanings as well. There are major similarities in our general linguistic treatments of vision and intellection.

OBJECTIVE   *Sight* ──────▶ *Knowledge, mental vision*
+ INTELLECTUAL   ("I see," "a clear presentation,"
                                          "an opaque statement,"
                                          "a transparent ploy")

                         Control, monitoring

                 Physical manipulation, grasping
                      (grasping = controlling,
                      range of vision = domain of control)

                 Mental manipulation, control
                      (understanding = grasping)
                      (understood knowledge is under control)

INTERPERSONAL   *Hearing* ──────▶ *Internal* ─────────▶ *Obedience*
COMMUNICATION   (physical   *receptivity*   (Dan. *lystre*)
                        reception)   (heedfulness vs
                                          being *deaf* to a plea)

SUBJECTIVE + EMOTIONAL   FEEL ──────▶ EMOTION
                                 TASTE ──────▶ PERSONAL PREFERENCE
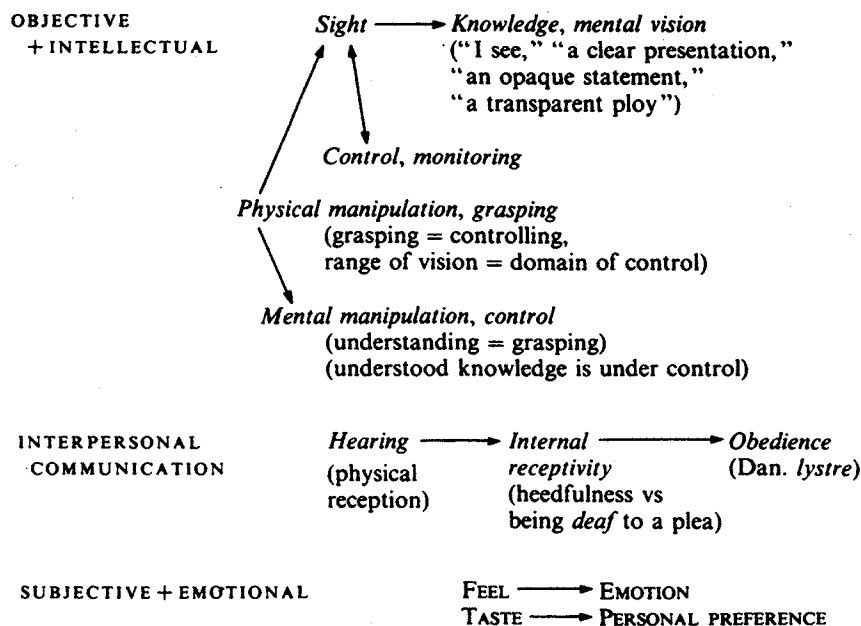
Diagram 1   The structure of our metaphors of perception

As shown in diagram 1, physical manipulation and touching is a source domain for words meaning both sight (visually picking out a stimulus) and mental data-manipulation (grasping a fact = understanding). Thus, a word such as *discern*, which comes from a root meaning "separate," now means both "catch sight of" and "mentally realize." Grasping and manipulation are evidence of control: which facts do we have under control, the facts we understand ("have a hold on," "have grasped") or those which we do not understand? Similarly, our visual picking out and monitoring of stimuli is evidence of control (our "scope" in English is our domain of control, whereas in Greek the word still belongs to the visual domain).

Thus, vision and intellection are viewed in parallel ways, partly (as I argued earlier) because of the focusing ability of our visual sense – the ability to pick out one stimulus at will from many is a salient characteristic of vision and of thought, but certainly not characteristic of any of the other physical senses except hearing. Even hearing is less consciously and readily focused than vision – I can literally move my eyes from one object to another, while it may require a good deal of effort to attend to one

auditory stimulus among many (e.g., to the one conversation in which we are participating, rather than to the five others in the room, which are socially considered as background noise).

But most of all, vision is connected with intellection because it is our primary source of objective data about the world. Child-language studies (e.g. E. Clark 1976) have shown that visual features are among the most marked in children's early discrimination of one category from another; and, as mentioned earlier, crosslinguistic studies of evidentials show that direct visual evidence is considered the strongest and most reliable source of data. This is reasonable, since vast numbers of objects in daily life do not give forth auditory stimuli, and it would be impossible for the child to constantly taste, smell, or touch every object to be encountered. As the child matures, social understanding of appropriate distance also develops; it may not merely be dangerous to touch or taste, it may be socially inappropriate to get that close. Vision gives us data from a distance. This ability to reach out is a significant parallel between vision and intellection, since the objective and intellectual domain is understood as being an area of personal *distance*, in contrast to the intimacy or closeness of the subjective and emotional domain (we may keep someone *at a distance* by keeping the conversation intellectual; and if we feel too *close* to someone, then maybe we can no longer be objective about that person).

Vision is also identical for different people – that is to say, two people who stand in the same place are generally understood to see the same thing. (We must take into account our *point of view*, which means that if you are NOT standing in the same place then you may not see the same thing – but note that this is assuming that without the effect of a different location, the perception would be identical.) Identity across people is a highly objective characteristic – a further reason why vision resembles our folk understanding of our intellectual processes as objective. It is particularly interesting to note the behavior of languages such as French or German, which divide knowledge into objective (factual knowledge "that" something is true, or "how-to" knowledge) versus personal/experiential knowledge (acquaintance with a person, for example). So far as I can tell, the kind of knowledge expressed by Fr. *connaître* or Ger. *kennen* is not the sort of thing that speakers can say "I see" about, while much of the knowledge describable by *savoir* or *wissen* falls into the "I see" domain.

The vision/intellection metaphor is thoroughly alive today and highly structured; in modern English, much of the detailed vocabulary of our

visual domain can be used to structure the description of our intellectual processes. Thus, just as a physical object may be opaque or transparent (and impedes vision or not, accordingly), likewise an argument or a proposition may be "(crystal)-clear," "opaque," "transparent," "muddy," or "murky" to our mental vision. We may "shed some light" on a problem which was particularly mysterious until that moment; and an intelligent idea or person is "bright," or even "brilliant," presumably because of a tendency to "illuminate" in this manner (for people who were previously "in the dark"). Someone who concentrates on one particular set of issues, to the exclusion of related (and/or more important) questions, is said to have "tunnel vision"; intellectual "breadth" of vision would be the opposite. *Clearsighted, sharp-eyed*, and *blind* all have applications to the facility of a person's mental observations as well as to physical perception.

"Vision" applies to the religious or spiritual as well as to the intellectual realm, though in a special sense, which is rather more restricted in modern usage than our visual metaphor for intellection. In the older Indo-European cultures, physical and spiritual "vision" were so strongly connected that physical blindness was considered to be a necessary concomitant of the highest level of internal (intellectual and spiritual) vision; the great prototypical mythical bards and prophets were blind, and ordinary bards often composed in darkness to remove the outer visual stimuli and allow themselves to focus on the inner vision. But in these cultures, it must be emphasized, the spiritual realm was not considered to be a purely subjective and personal domain at all – rather the reverse; it was objective and real, just like the world of daily life, but *hidden* from our everyday mortal sight, and hence only to be seen by those with appropriate inner vision. Nor was there a separation between the intellectual and the religious – bards filled the position of historians, and prophets were political advisors. Direct religious "vision" (or revelation) was considered not as a variable and subjective mode of knowledge, but as a factual revelation of another level of reality. Modern usage of words such as religious "vision" has become tinged with a coloring of personal hallucination, at least in the world of rationalists; but it is important to remember that spiritual vision started off as a generally accepted part of the intellectual world.

2.4.2   *The communicative and subjective internal self*

Hearing, it is true, shares some of vision's channeling characteristics, though not the voluntary on–off control which eye closure gives to vision, nor the channeling by physical movement of the sensory organ itself – auditory "channeling" is mainly a mental activity, while visual channeling is largely physical. Hearing is also, like vision, useful at a distance. But (as previously mentioned) not everything emits auditory stimuli; sight is a far more generally useful sense for data gathering. The function of hearing *par excellence* is, of course, linguistic communication; and since it is our major communicative pathway, it is also our major means of intellectual and emotional influence on each other. As linguistically capable beings, we have no need to constantly resort to physical pushes and pulls to influence other speakers of our language; we can do so in a far more sophisticated and effective manner via the vocal organs and the auditory sense-channel. Thus it is natural that physical auditory reception should be linked with heedfulness and internal "receptivity" ("not being *deaf* to someone's plea") and hence also to obedience (as seen in the **k'leu-s-* descendents which mean "obey," like Dan. *lystre*). Internal reception of ideas, in the sense of *understanding* what is heard, is certainly often connected with the vocabulary of physical hearing. Not only do we have modern English usages such as *I hear you* (meaning "I understand you," and in particular "I am trying to put myself in your emotional place"), but we have already noted the semantic shift in the opposite direction on the part of Fr. *entendre* (although *entendre* now means simply "hear," idiomatic usages such as the reflexive *s'entendre* in its meaning of "understand each other, get along with each other," together with other relics of the older meaning such as *malentendu* "misunderstanding" or *entendu* "heard" OR "understood/OK," persist as evidence of this shift). But readiness to internally receive and understand implies also a readiness to subject oneself to the influence of the speaker's content – and hence perhaps a readiness to further respond in the way desired (e.g., to obey if a command is involved).

That hearing and heedfulness are deeply linked in Indo-European tradition can be further confirmed by a glance at the *Iliad*. An analysis of the use of *klúo:* in book I of the *Iliad* shows that it is consistently used to mean "be receptive to, take heed of," and in fact (already in this early text) has primarily gone beyond its original physical meaning of "hear." I was unable to find a single instance referring simply to physical sound reception (the verb *aío:* "perceive or hear," is used in this sense).

Common usage of *klúo:* in the *Iliad* is well exemplified by Chryses' plea to Apollo (I,37) *klûthí meu Argurótox'* "Hear me, O Silver-bowed one". Chryses naturally does not mean simply physical hearing; one might even argue that (as seen elsewhere in the Homeric corpus) the gods are generally supposed to see and hear all sorts of distant things, without any special mortal appeals. Rather, Chryses means to ask for Apollo's favourable *reception* of his plea; for the god "not to be deaf" to his prayer. And in fact this entails Apollo not merely agreeing, but acting – hence "hear me" really means "*do* as I ask." Such a reading is confirmed by the closure of Chryses' prayer: *toû d'éklue Phoîbos Apóllo:n* ("And Phoibos Apollo heard him"), which is immediately followed by the statement that Apollo came down from Olympos and shot arrows of pestilence at the Greeks (to punish them as Chryses had asked him to). When, later in book I, Agamemnon returns Chryses' daughter in an attempt to save his army from the pestilence, Chryses again prays to Apollo, this time in favor of the Greeks: the opening sequence is identical to that of his previous prayer, as is the closing. In this prayer, however, is an even more interesting sequence. Chryses says to Apollo, "Even as you heard me before when I prayed (*e:mèn de:pot' emeû páros éklues euxaménoio*),...so now *fulfill* me this desire: ward the loathly pestilence from the Greeks." The equation between "*hearing*" and fulfilling a prayer is strikingly evident. A final example of equal interest occurs in the argument between Achilles and Agamemnon. Athene, seizing Achilles by the hair, holds him back from fighting Agamemnon and advises him to keep the combat verbal rather than physical. Achilles responds by stating that Athene and Hera have to be obeyed, and adds (I,218) *Hós ke theoîs epipeíthe:tai, mála t'ékluon autoû* ("Whoso *obeys* the gods, to him do they gladly *listen*"). He means, of course, that the gods *grant* the prayers of obedient mortals – there is an exchange wherein the gods will do your will if you have previously done theirs. He uses the verb *klúo:* "hear" to express favorable reception and granting of prayers.

The link between physical hearing and obeying or heeding – between physical and internal receptivity or reception – may well, in fact, be universal, rather than merely Indo-European. A partial examination of a Hebrew Old Testament concordance[11] alongside an English translation shows large numbers of instances where the basic Hebrew root meaning "hear" (s-m-ʕ) is used to mean "obey" or "understand" or "listen/heed," and in fact is often translated into English by one of these other English

words. Examples (instances of the relevant Hebrew verb are italicized in the translated text):

Jer. 22:21 I spoke to you...but you said "I will not *listen*."
            (God is here chastising humans for *disobedience*.)
Zech. 7:12 And they made their hearts like flint so that they would not *hear* the law and the words which the Lord of hosts had sent.
            (Note: they don't just stop their *ears* (as in 7:11), they harden their hearts against *internal* reception and obedience.)
Gen. 11:7   Let us confuse their language, so that they may not *understand* each other's speech.
            (Note: This is God speaking, in the Tower of Babel story. He is not intending to stop their hearing by affecting their ears, but rather their internal "hearing" – understanding – by confusing their language. But the Hebrew text has the verb "hear.")

It is probably the case, then, that hearing is universally connected with the internal as well as the external aspects of speech reception. Inasmuch as speech is the communication of information or of other matter for the intellect, hearing as well as sight is connected with intellectual processing. It is thus not surprising that "I see" should mean "I understand," but that Fr. *entendre* "hear" should also etymologically be connected with understanding. But hearing is connected with the specifically communicative aspects of understanding, rather than with intellection at large. (It would be a novelty for a verb meaning "hear" to develop a usage meaning "know" rather than "understand," whereas such a usage is common for verbs meaning "see.") In a larger context, hearing is also considered to represent the kind of internal receptiveness to the speaker's intentions which might subsequently lead to compliance with the speaker's requests – i.e., to heedfulness and obedience.

We have said that the sense of smell has fewer and less deep metaphorical connections with the mental domain than the other senses. Taste, however, is deeply linked with our internal self, and is used to represent our personal likes and dislikes or "tastes." And the vocabulary of touch and tactile sensation is generally used for emotional sensations of all types – we can be emotionally "wounded," "stroked," "touched (to the heart)," and so forth. Why should these physical senses carry *these* particular abstract meanings, rather than other ones?

As previously mentioned, distance is connected with objectivity and

intellect, closeness with subjectivity, intimacy, and emotion. Vision and hearing are distant senses, while taste and touch require actual physical contact with the thing sensed. (Of course sound waves and light waves must actually reach our eyes and ears for sensation to take place; but the object "giving off" the stimuli may be distant.) Taste is a sense which is in fact not only "close" (in that we actually ingest the sensed object) but proverbially subjective in its variability across people – "one man's meat is another man's poison," and *de gustibus non est disputandum*. Personal likes and dislikes in other domains – clothing, music, friends – are equally variable and equally subjective, and are thus well represented in terms of the vocabulary of physical taste.

Touch is intersubjectively variable as well; pleasure and pain responses differ hugely. Regarding tactile data input, we may remember the story of the blind men and the elephant as an embodiment of the crucial difference between the intimate, non-general, non-objective input of touch, and the more distant, objective, general data derived from vision. This story captures in a nutshell the reasons why our sense of touch is not connected with intellection, but with emotion. Further reasons are (as previously stated) the actual impossibility of using touch for general data-gathering, both because of possible danger in many cases and (more often) because of the social inappropriateness of such an intimacy as physical contact. But perhaps the most basic factor of all is that discussed by Kurath (1921): in particular for our sense of touch (and for the accompanying general physical senses such as pain perception or thermal and kinesthetic perception) there is not a simple and tidy way to divide physical perception from emotion. Physical pain of any serious nature is bound to make the subject unhappy emotionally, and physical pleasure or well-being certainly promotes a cheerful emotional state; the psyche likewise affects corporal sensation, to such an extent that physicians acknowledge their inability to keep psychic and somatic health rigorously divided. None of the other senses, limited as they are to perception of much more specific data than the agglomeration of physical perception which we connect with "feeling," has such a general correlation with our internal emotional state, and hence such a strong perceptual motivation for a general metaphorical mapping onto the semantics of the psyche.[12]

2.5   Conclusions

The vocabulary of physical perception thus shows systematic metaphorical connections with the vocabulary of internal self and internal sensations. These connections are not random correspondences, but highly motivated links between parallel or *analogous* areas of physical and internal sensation. Nor are the correspondences isolated; Lakoff and Johnson, who correctly link up individual parts of our physical and mental vocabularies (such as understanding = grasping, or knowing = seeing) in their analysis of metaphor, do not yet notice that these are parts of a larger system of the kind which they would refer to as a conceptual metaphor. (That is, this metaphor involves our conceptualizing one whole area of experience in terms of another.) The internal self is pervasively understood in terms of the bodily external self, and is hence described by means of vocabulary drawn (either synchronically or diachronically) from the physical domain. Some aspects of the instantiation of this metaphor may be fairly common crossculturally, if not universal – for example, the connection between vision and knowledge – while others (in particular, less general aspects such as the choice of the vital organ which is thought to be the seat of emotion) may vary a good deal between cultures. (Matisoff [1978] is a fascinating study of the culturally understood link-ups between physical and abstract vocabulary in the Tibeto-Burman family.)

It should be reiterated that our models of our internal world are not always consistent, and in particular that we have multiple, apparently inconsistent mappings of our physical selves onto our internal selves. Sometimes consistency emerges from such apparently inconsistent mappings. For example, it appears inconsistent to describe the acquisition of knowledge both as seeing and as grasping; but when we notice that seeing is itself talked about in the vocabulary of grasping and object manipulation, we can see that there is some deeper regularity. (It is still unclear, however, whether knowledge is talked about as vision, vision as grasping, and hence – transitively – knowledge as grasping; or whether knowledge and vision are independently treated as grasping.)[13]

Such large-scale conceptual metaphors are of the highest importance for synchronic and diachronic semantic analysis. Through a historical analysis of "routes" of semantic change, it is possible to elucidate synchronic semantic connections between lexical domains; similarly,

synchronic connections may help clarify reasons for shifts of meaning in past linguistic history.

Given our understanding of this particular metaphorical system and the paths of meaning-change mapped out by it, let us now return to the "puzzles" with which I began this chapter. The connections between hearing and obedience and between grasping and understanding have been discussed in some detail already. Now, given a mapping of the physical domain onto our mental domain, we can elucidate the other puzzles as well. The *way* in *anyway* and in Italian *tuttavia* historically comes from the physical domain. But logical structures and conversational structures are at least partly understood in terms of physical traveling and motion. An argument or a conversation follows or covers some particular path through the mental areas it traverses. Thus we say "That was off the track of the argument," "The professor guided his students through the maze of tax law," "They didn't let him get very far into the subject," or "Where were we?" *Anyway* presumably means "by any mental or conversational path we take, we will reach this conclusion."

The historical connection between the lexicon of physical similarity and that of probability or likelihood (the *like–likely* link-up) is a more complex case. We assess similarity or likeness not merely between objects or entities, but between whole situations. Not merely physical likeness is involved; likeness at a more abstract mental level is also referred to in terms of physical likeness. In fact, if you say to me "John and Mary are alike," I cannot tell without further data at what level you are comparing them. Further, our Pavlovian reflexes tell us that we can reason from similar situations to probable similar results. In earlier English usage, it was possible to say "He is *like* to die," meaning what we would now say as "He is *likely* to die." If a person's appearance and situation *resemble* those of a person about to die, then (so far as we can tell) that person is more *likely* to die than someone whose appearance and situation are different. Thus physical resemblance and probable future fate are interconnected phenomena, at least in our folk understanding. (Compare modern English usages such as "It *looks like* Joe will be going to New York" vs "It *looks like* it's stormy out right now.")

These are simply two more cases of apparently whimsical meaning-shifts which fit neatly into the larger systematic framework that I have laid out above, using English perception-verbs as my case in point. If we are willing to look at such large-scale, systematic historical connections between domains of meaning, it becomes evident that not all of semantic

change is as whimsical and perverse as has often been assumed. True, prediction of any individual change remains impossible and seems unlikely to become possible in the future. Phonological change and morphological change cannot be predicted on an individual basis either, so surely no one expects specific-case predictions for semantic or syntactic change. However, in many semantic domains it seems possible to determine what would be natural as opposed to unnatural directions of change, just as in phonology we know that voiced stops would be likely to devoice in final position or to become fricatives in intervocalic position, rather than the other way around.

Semantic fields and semantic changes are then possibly as systematically structured as is the phonological domain, although semantic structuring seems frequently impossible to describe in terms of objective features. If I know that one perception verb in a given language is connected with the domain of internal self (if, for example, I find that "see" frequently comes to mean "know" historically, or is used to mean "know" synchronically), then I am far less surprised to find that "hear" comes to refer to understanding or obedience in that language, or that "taste" is connected with personal likes and dislikes. In phonology, if I find that *b* and *d* are subject to final devoicing, I will expect to find that *g* is devoiced finally as well. And, just as in phonology I will expect *g* to devoice to *k* and *b* to *p* (rather than the other way around, *g* to *p* and *b* to *k*), in semantic change I will expect to find sight systematically linked with intellection and touch with emotion, rather than the other way around, or rather than sight with obedience and hearing with emotion. Internal structuring of, and correspondences between, semantic domains are equally regular – as discussed above, it is not an accident that a *clear* statement aids mental vision while an *opaque* one impedes it, or that a *bright* idea sheds mental *illumination*, rather than causing obfuscation of the issues.

There is coherent, regular structuring within the metaphorical system of interconnections between semantic domains. But until change directions are systematically examined in the area of meaning, it will be impossible to tell how irregular or how regular meaning-change really is; further, such investigation will be fruitless, unless done against the backdrop of our synchronic structuring of the domains in question. Such examination of semantic change has only recently begun to be carried out. For the domain of perception verbs, now that we have examined the system, we have some idea what semantic changes would be "regular" or "normal," and what changes would be abnormal. Phonological change, after all,

looked irregular until the relevant parameters were examined and isolated by the Neogrammarians; and it seems fair to suppose that the relevant parameters in semantics are far more complex (not being constrained by limiting factors as narrow as the physiology of speech) than those of phonology.[14] The fact is, then, that we need to continue investigating the *least* surprising etymologies we can find, like *see > know*; the boring semantic histories are really the most interesting ones for our current state of research, because they allow us a more transparent view of the general principles underlying them.

3   *Modality*[1]

3.1   Introduction

In the preceding chapter I have argued that a pervasive and coherently structured system of metaphors underlies our tendency to use vocabulary from the external (sociophysical) domain in speaking of the internal (emotional and psychological) domain. Historically, this metaphorical system has guided the course of numerous semantic changes; and synchronically, it is represented by numerous polysemous words and extended "abstract" uses of physical-world vocabulary. In this chapter I shall examine in detail one particular vocabulary domain which shows synchronic ambiguity between the external and internal worlds: modality.

The ambiguity of modal expressions between "root" (or deontic)[2] and epistemic senses has long been recognized. Linguists have characterized as *root* those meanings which denote real-world obligation, permission, or ability (as in example [1]); and as *epistemic* those which denote necessity, probability, or possibility in reasoning (as in [2]).

(1) John *must* be home by ten; Mother won't let him stay out any later.
(2) John *must* be home already; I see his coat.

This ambiguity is not peculiar to English; indeed, there is an evident crosslinguistic tendency for lexical items to be ambiguous between these two sets of senses. Many unrelated languages (Indo-European, Semitic, Philippine, Dravidian, Mayan, and Finno-Ugric, among others[3]) are alike in having some set of predicates which carry both the root and epistemic modal meanings, as English modal verbs do. Frequently this set of predicates is a relatively small, morphosyntactically distinct set, also as in English.[4] Such a crosslinguistic correlation encourages us to search for a broader motivation in the linking of these two apparently disparate semantic domains.

There is strong historical, sociolinguistic, and psycholinguistic evidence