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Foundations of Meaning: Primary Metaphors and Primary Scenes

by

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B.A. (University of Virginia) 1984
M.A. (University of California, Berkeley) 1992

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Foundations of meaning: primary metaphors and primary scenes

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Chapter 1. Introduction

1.1 Metaphor, meaning and mind

This dissertation focuses on an analysis of metaphorical language, including an account of how metaphors are motivated, and how they might be constrained. There are other important and more general questions, though, which form the context for the investigation presented here. In particular, how are aspects of our experience in the world related to aspects of language and conceptual structure? These are questions which linguists, psychologists, and philosophers have each addressed in their own ways, and which are of concern to anyone interested in the nature of language and the mind, and the processes that shape them. If the dissertation is successful, it contributes to the ongoing, cross-disciplinary effort to answer these fundamental questions.

In addition, the linguistic and conceptual phenomena discussed here have implications regarding even more basic questions—about the nature of consciousness and subjective experience. We will see when we examine the patterns in a range of data that the conceptual relationships which underlie metaphorical language appear to constitute a link between physical experience and the subjective self—a type of link, moreover, which is consistent with current views of the neural correlates of cognition. In short, the analysis of linguistic metaphor proves to be a powerful tool for exploring topics beyond figurative language: By pushing towards deeper analyses of metaphor, we ultimately discover an even deeper level of analysis at which relationships between language, mind, and experience become defined.

1.2 Patterns in metaphorical language

We begin our investigation by observing the linguistic fact that words associated with particular meanings are associated with similar metaphorical usages in languages around the

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world. Consider the following usages of words that refer to concepts like 'heavy,' 'support' and 'carry:'

Medieval Irish
Is tromm form for n-ingnas. 'Your absence is grievous [literally 'heavy'] to me'

trom re híoc 'difficult [literally 'heavy'] to pay for'

Russian
t'azholij 'heavy; difficult; grievous'

Ancient Greek
báros 'weight; oppression'

Armenian
krem 'carry; bear; suffer'

Turkish
agir 'heavy; serious; cumbersome; fatiguing; etc.'

Japanese
omoi 'heavy; grave; severe; difficult'

Swahili
zito 'heavy; difficult; severe'

Arabic
thaqiil 'heavy; cumbersome; oppressive; difficult'

As these examples reflect, people in speech communities widely separated by time and geography all associate words from one particular semantic field (relating to physical weight) with meanings from another (relating to personal, emotional experience). Similar

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patterns can be found in metaphors for many other concepts, such as intimacy, happiness, the future, and so forth.

We also find striking cross-linguistic patterns in the etymologies of words for particular meanings. Eve Sweetser (1990), for instance, has examined the widespread occurrence in Indo-European languages of words which mean 'know' or 'understand' but formerly referred to vision. (This pattern is also found in languages outside the Indo-European family.) In English, *see* can refer metaphorically to a mental event rather than a perceptual one, but the words *perspicacious* and *wit* are better illustrations of the kind of historical trend Sweetser discusses; both formerly referred to vision but have lost this sense in modern English. In various other languages, the most basic words for knowledge and understanding derive from older words for seeing—e.g., Irish *fios* 'knowledge' (from 'sight'). This same pattern of semantic change is observed in connection with different roots, in different languages, and in different historical periods.

Why should these patterns exist? Why should there be consistency between metaphorical usages in languages that have little or no connection with each other? An important point to note is that the pairs of meanings which a given word can refer to are not random. In English, *light* cannot mean 'difficult' or 'unpleasant' while *heavy* can. Likewise in other languages, there are pairs of meanings that do occur in association with particular words, and other meanings that never seem to be paired.[1] The pairings of literal and metaphorical meanings, in other words, are not arbitrary; not just any two concepts can be metaphorically associated. (Even though it often seems possible to create "arbitrary" metaphors by combining random pairs of concepts—e.g., *Life is a kiwi fruit*—we will see that these colorful metaphors are typically understood in terms of the more fundamental metaphors that occur more predictably.) It also seems very unlikely, given the robustness

[1] Any claims along these lines are based on suggestive rather than exhaustive data, of course. It is easy to find examples of some meaning pairs, and no amount of looking seems to turn up examples of other pairs which are logically possible.

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of these patterns that they are mere coincidences. Instead, they reflect some real relationship between the meanings that are expressed by the words. There are several kinds of relationship that can be, and have been, evoked as explanations for particular metaphors.

One theory that has been very popular in certain traditions is that pairs of meanings like 'heavy' and 'difficult,' which are often associated in linguistic metaphor, are related by similarity. Aristotle, in the *Poetics*, discusses (one species of) metaphor in terms of *analogy* or *proportion*:

> Analogy or proportion is when the second term is to the first as the fourth to the third. We may then use the fourth for the second, or the second for the fourth. ...For some of the terms of the proportion there is at times no word in existence; still the metaphor may be used. For instance, to scatter seed is called sowing: but the action of the sun in scattering his rays is nameless. Still this process bears to the sun the same relation as sowing to the seed. Hence the expression of the poet 'sowing the god-created light'. (Trans. S.H. Butcher)

Aristotle claims that "the action of the sun in scattering his rays" "bears to the sun the *same* relation as sowing to the seed" (emphasis added). Here and elsewhere, he suggests that the concepts which can be referred to by the same term share some key feature which is the basis for the metaphor. (He also implies that metaphor is a symmetrical phenomenon, where either term may be used in place of the other; this is a point we will return to shortly.)

A more modern example of the "Similarity hypothesis" is found in an article by psychologist Albert Katz (1989), who is guided by the theory that metaphor "achieves much of its power by highlighting a similarity in otherwise dissimilar concepts" (p. 487) He cites other psychological studies, such as MacCormac (1985) and Trick and Katz (1986) in support of this view.

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An entirely different hypothesis regarding the relationships between literal and metaphorical meanings—the one which I will adopt in this study—is that there is something about human experience and/or biology which gives rise to a cognitive association between the meanings. This view is central to the approach presented in *Metaphors We Live By* (*MWLB*—Lakoff and Johnson, 1980), a work that established many of the principles and conventions of what has subsequently been called *conceptual metaphor theory*. It holds that the concepts which are related to each other by metaphors often are not objectively "similar" at all, but are associated because of how people are constituted and how they interact with the world. For reasons that will be discussed more below, this type of explanation is much more satisfying than appeals to similarity. To put it simply, there is often no objective similarity to point to between concepts that are associated with one another by linguistic metaphor. What could be the objective similarity between happiness and brightness, for instance (cf. *sunny disposition*, *bright mood*, *radiant smile*)? If the answer is that "both are properties," then this is an insufficient basis for associating these two particular properties—as opposed to happiness and transparency, for instance. If the answer is that "both are pleasing," this illustrates the point that it is not inherent features of the concepts which relate them but our interactions with them. For other pairs of concepts it is hard to find a "similarity" even of this functional sort.

We will see in the course of this study, as we find analyses which account well for the linguistic data and consider plausible motivations for these patterns, that some of them seem almost certain to be found cross-linguistically, or even universally. If there are patterns of linguistic and conceptual correspondence that arise from the kinds of experiences discussed here, then metaphor is an inevitable—rather than merely an interesting, useful, or powerful—phenomenon of language and mind, and there are specific metaphors which are particularly likely to arise. This result—which raises the possibility of non-innate but universal patterns in conceptual structure—diverges radically from

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traditional accounts of metaphor, including those which treat metaphor as either verbal ornament or the unconstrained juxtaposition of concepts.

Furthermore, as we discover the appropriate tools for analyzing these fundamental metaphors, we will see that the cognitive structures which metaphorical language reflects are probably responsible for many aspects of subjective mental (i.e. phenomenological) experience. This is because they involve tight links between our sensori-motor experiences in the world and our subjective responses to those experiences. (This aspect of the dissertation therefore belongs to a tradition which includes scholars as diverse as Piaget and William James, who each discussed the relationship between bodily experience and subjective mental experience.) This is a sense in which fundamental metaphors of the kind I will be discussing may be important building blocks in the construction of the phenomenological self.

1.3 Conceptual metaphor theory

Before outlining the new tools and approaches that will be the substance of the dissertation, it will be useful to briefly review some of the starting points for the discussion—particularly, the premises of conceptual metaphor theory. Lakoff and Johnson (1980) examined a broad range of metaphorical expressions, found compelling evidence for patterns of various kinds, and suggested a way that such data should be analyzed. In this section I will sketch the theory's central claims and results, as well as the kinds of evidence which support it. I will also point out some unresolved questions concerning the theory, which have triggered the new analyses presented in this study.

Systematicity

The first type of evidence always cited as support for the conceptual view of metaphor involves the systematicity of the metaphorical transference of language and inferences between domains. (I will use Lakoff and Johnson's terms *source* and *target* to refer to the

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domain which provides the language and imagery and the domain which includes the actual topic being referred to, respectively.) This observation demonstrates that whatever linguistic metaphors are, they are not isolated lexical usages (as some scholars have suggested); they must at least be acknowledged as parts of broader networks of metaphorical transference. For instance, temperature is mapped onto interpersonal responsiveness in the usages of various words—e.g., *warm welcome*, *chilly reception*, *icy demeanor*, *cold shoulder*. (In these examples, temperature is the source domain and interpersonal responsiveness is the target domain.) Given that such data are not likely to be the result of coincidence, there is evidence for a systematic correspondence of some kind between these two semantic areas.

To take another example, virtually any term which conventionally refers to the domain of vision can be used to refer to the domain of intellection: *see*, *blind*, *obscure*, *eyes*, *light*, etc. There is a systematic *mapping* from one domain to the other (in English and other languages), not only in that the vocabulary of vision becomes the vocabulary of understanding, but also in that the relationships within the domain of vision are preserved in the domain of understanding when concepts are projected from one to the other. For example., being *blind* still refers to an inability to take in information, *blinkers* still refers to something which prevents you from taking in information, etc. This type of structural isomorphism has been referred to as the Invariance Principle (Turner 1991, Lakoff 1993). Related to observations about structural parallelism is the claim that *inferential structure* is preserved across metaphor mappings. For instance, the proposition that *if something blocks my eyes then I cannot see* is mirrored in the intellectual domain, where if I am a *blinkered philistine*, or have had *the wool pulled over my eyes*, this means that I am unable to perceive various truths about the world.

Furthermore, these systematic correspondences, which are often represented by hosts of conventional expressions (see the usages of *warm*, *cold*, etc. above) can be extended through novel usages, which are nonetheless readily interpreted by the same

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principles that motivate the conventional expressions. For instance, if I said that someone's personal warmth had to be measured in degrees Kelvin, rather than Fahrenheit, someone familiar with the Kelvin temperature scale would understand that I was speaking of a person I regarded as extremely unresponsive or unsympathetic. (This is the scale which is used for measuring temperatures close to *absolute zero*—the hypothetical point at which all motion ceases.) The mapping of a temperature scale onto interpersonal responsiveness is not limited to conventional usages which happened to become popular at some point in the history of the language, but is understood as a general principle, allowing us to extend the range of lexical items which instantiate the metaphor. In the same way, a sentence like *You'd need an electron microscope to find the point of this essay* is easily interpreted as meaning that the essay has very little content, even though we may never have heard *electron microscope* used in this way. The interpretability of novel usages like these is strong evidence for the claim that metaphor is not merely a verbal phenomenon, but a conceptual one. As Mark Turner (1995) reminds us, certain philosophers from Aristotle to I.A. Richards have acknowledged that metaphor has conceptual status, and is not merely a lexical or stylistic phenomenon. That is, such writers have observed that metaphor is a feature of our thoughts about the world, and not merely of the language we use to convey these thoughts.

While the essential point that linguistic metaphors are motivated by structured conceptual correspondences is well established, there is an important question raised by many of the accounts presented in the literature: **Why do some elements of domains get mapped, but not others?** As we will see in various case studies throughout the dissertation, naming the two domains which are linked by metaphor is often not enough to predict the nature of the mapping between them. For instance, the domains of eating and thinking are associated in metaphorical expressions such as *This article is hard to digest*, but not everything in each domain corresponds to something in the other; there is no conventional counterpart of the *mouth* in metaphors for thinking, for instance. These

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"gaps" give us important clues about the nature of the mappings—as we will see in the next chapter—and point to the importance of particular, subjective experiences in motivating metaphor.

Directionality

An important feature of metaphorical correspondences between concepts, and one which shows that metaphor is not simply a matter of "pointing out similarity," is that the relationship—e.g., between *cold* and *unsympathetic*—is not symmetrical. While terms from the domain of temperature are frequently applied to the domain of personal affect, reversing the process does not yield interpretable expressions. For instance, a hypothetical sentence like *The bench is aloof* is not easily understood as a statement about the temperature of the bench. This directionality, from source to target, is a typical feature of conceptual metaphors. When we are seated behind someone wearing a tall hat in a movie theater, for instance, we do not complain that we *can't understand the screen*, and we would not be understood if we did.

If conceptual metaphors consist of systematic *mappings* from source domain to target domain, then they cannot logically be based simply on a similarity between two concepts A and B. If they were, vocabulary (plus imagery, inferences, and so forth) should be transferable in either direction.

Despite the fact that directionality is a clear feature of most conceptual metaphors, though, there has been no satisfactory answer to the question, **Why are conceptual metaphors typically unidirectional and what factors determine the directionality?** Given the diversity of metaphorical expressions found in language, it is reasonable to ask whether there are any constraints at all on the phenomenon. In particular, can just any word, concept, or domain serve as a source for metaphor? As a target? The answer to this question appears to be No. For instance, it is difficult to imagine how Similarity could stand metaphorically for some other concept. Similarity is certainly a target

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concept for metaphor, though; one common metaphor is SIMILARITY IS PROXIMITY,[2] as in *This isn't the exact shade I'm looking for, but it's close.* There are many other examples of concepts which typically serve as either source or target for metaphors, but not both.

There are a number of features that have been proposed as typical characteristics of target concepts of metaphor (by people who believe that metaphor can be described as having features or constraints at all, that is). Psychologist Raymond Gibbs, for instance, has suggested that metaphorical target concepts are "difficult, complex, abstract, or less delineated" [than source concepts] (1994: 6), and this is not at all an atypical view among metaphor scholars. Others have suggested that metaphor is a way of understanding the unfamiliar in terms of the familiar. Justice is a fine example of a target concept which fits all these standard characterizations: it is complex, in the sense that it could refer to infinitely many different scenarios, each involving various important details and considerations; it is abstract in the sense that there is no concrete object or scene that characterizes the concept; it is relatively undelineated in that it could be interpreted in any number of different ways by different people (and there is therefore less intersubjective agreement about it—another proposed characterization of metaphor targets); and it is relatively unfamiliar, in that it is a concept which we make less use of than other, more basic concepts, such as Heat or Size.

As we will see in the next section, these characterizations, while appropriate as descriptions of some kinds of metaphorical patterns, do not capture the essence of the fundamental metaphors which are based directly on experience, and which shape much of our language and our conceptual system. Distinctions can be drawn between the source and target concepts of these metaphors, but the common view within conceptual metaphor theory—that target concepts are in some important sense less basic than source concepts—does not fit the facts. The characterizations of the source and target concepts of fundamental

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[2] When I refer to particular conceptual metaphors I will generally use Lakoff and Johnson's (1980) notation, in which metaphors are stated in the form "(Target) is (Source)," and printed in small capitals.

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metaphors are central to the dissertation, and are keys to understanding the way in which metaphor is a link between "objective" and "subjective" experience.

Metaphor as a mundane phenomenon

Although metaphor has often been given special treatment—as in the *Poetics*—as though it were an anomaly or an impressive imaginative achievement, the kinds of evidence discussed in *MWLB* and subsequent works shows that it is instead a very frequent, regular feature of language. For instance, we regularly refer to quantity as though it were vertical elevation (*Computer sales are on the rise*), social compulsion as though it were physical force (*He pushed me into it*), and so forth. We must either decide that these metaphorical meanings are alternate "literal" meanings for the words—e.g., *send* literally refers to causing someone's mood to change, as in *The news sent him into an uncontrollable rage*—or acknowledge that metaphorical usages are pervasive in language and conceptualization.

The fact that metaphor is so common and ubiquitous raises the questions, **What purpose does metaphor serve?** and **Why is it so common?** In *The Poetics of Mind: Figurative Thought, Language, and Understanding* (1994: 124-125), Gibbs outlines several traditional types of philosophical and psychological explanation for the existence of metaphor, all of which treat metaphor as essentially a communicative tool. These are the *inexpressibility*, *compactness*, and *vividness* hypotheses. The inexpressibility hypothesis holds that metaphor is used to express ideas that would be difficult or impossible to express in literal language. The compactness hypothesis highlights the fact that so much information can be conveyed in a single metaphorical image, compared with a literal description of all the qualities embodied in that image. The vividness hypothesis suggests that the communicative function of metaphor is to capture and transmit the subjective intensity of experience in a way that literal language often does not.

While there is evidence for the importance of all three of these factors in speakers' choice of metaphorical expressions over literal ones in given contexts, we will see that the

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kinds of factors that give rise to basic metaphorical conceptualizations do not depend on strategies of communication. Instead, these metaphors are natural, and perhaps inevitable, consequences of the interaction between our particular physical and cognitive make-up, and our experiences in the world. For this reason, the question of metaphor's "function"—if any—must be assessed at a much lower level of cognition than any of the three hypotheses above addresses (i.e. a level closer to basic functions like perception and further from sophisticated conceptual manipulation). And explanations at that level relate to the nature of consciousness as much as they do to the nature of communication.

Experiential motivation

One of the central principles of conceptual metaphor theory is that the metaphorical mappings which arise between concepts are motivated by aspects of bodily experience. We have already seen some evidence that certain pairings of concepts are much more or less likely than others. Lakoff & Johnson (and others) have argued that what determines the likelihood of a particular metaphorical correspondence is the nature of human experience. For instance, the metaphor KNOWING IS SEEING is presumably motivated by the fact that we gather so much information, so much of our knowledge of the world, via the visual channel. An arbitrary pairing like *KNOWING IS SQUEEZING is unlikely to arise, according to the theory, because there is no motivation in experience for associating the two concepts in this way. The commitment to placing metaphor within a more general understanding of our interaction with the world is central to conceptual metaphor theory, and such commitments characterize the more general field of cognitive linguistics.

The research in conceptual metaphor theory, however, has yet to seriously address the question, **Exactly how are metaphors motivated?** As we have seen, the insistence on experiential motivation is a key aspect of conceptual metaphor theory. Lakoff & Johnson (1980) go so far as to say that a metaphor cannot be understood unless there is an account of its motivation, and experiential motivations (or *groundings*) have been

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described for several metaphors. Yet there are many others mentioned in the literature which have not been accounted for in this way, and which are very hard to explain in terms of experiences which could motivate them directly. The metaphor LOVE IS A JOURNEY, for instance—illustrated by numerous examples like *Our relationship is running out of gas* and *We're at a crossroads in our marriage*—would not seem to be based on any particular experiential correlation between romantic relationships and journeys. Since there are reasons for ruling out apparent structural "similarity" as the motivation for the metaphor, we are left without a good explanation for the existence of the linguistic examples. Addressing the link between experience and conceptual mappings (and the resulting linguistic data)—over a wide range of cases—is a central concern of this dissertation; understanding this link will also allow us to draw conclusions between the link between experience and other aspects of language and conceptual structure.

A conceptual repertoire

We can point to many specific ways in which metaphor structures thought; several have been mentioned already in this section (e.g., UNDERSTANDING IS SEEING, DEGREE OF EMOTIONAL RESPONSIVENESS IS TEMPERATURE, DIFFICULTY IS HEAVINESS.) Particular patterns of metaphorical transfer—of vocabulary, entailment patterns, image-schematic structure, etc.—from one domain to another, recur time after time in different lexical guises, in many different languages, and in non-verbal expression as well. That is, conceptual metaphor is not just a *process* which allows us to create and understand certain linguistic examples; conceptual metaphors can be discussed as *entities*—established structures with long-term status in the minds of speakers, which transcend particular linguistic instantiations. An important part of the program of conceptual metaphor theory has been to discover and enumerate the metaphors which make up the "metaphor system" (of English speakers). This dissertation offers new accounts of how we arrive at the particular repertoire we find illustrated in linguistic data.

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A question about the structure of this repertoire, which has been addressed by other researchers, but which is cast in a new light here, is: **How exactly do different metaphors relate to and interact with each other?** Some metaphors involve much more detail and complexity than others. For instance, MORE IS UP (see Lakoff & Johnson) relates quantity to vertical elevation, as in *Beef sales are down this year compared to last.* Compare this with LOVE IS A JOURNEY, which involves numerous detailed images, such as lovers in a vehicle at a *crossroads*, or *spinning their wheels*, or enjoying *smooth sailing*. The metaphor literature discusses the mechanism of *inheritance*, whereby one metaphor shares and elaborates the structure of a more general one—as LOVE IS A JOURNEY inherits the more general LONG-TERM PURPOSEFUL ACTIVITIES ARE JOURNEYS (Lakoff 1993)—but there is still little in the current analyses of metaphor which could predict how metaphors can be elaborated, what metaphors are susceptible to being inherited, and so forth.

Furthermore, many metaphorical usages are equally valid when applied to different conceptual and experiential domains. For instance, the word *feed* may refer to intellectual events, as when a professor *spoon-feeds* her students, but may also refer to other concepts entirely, such as the way that local elections *feed* candidates into the larger political system. Is there a principled way to state the relationships between metaphors like these?

We will see in this dissertation that once we have found the appropriate analyses of the data, and the fundamental conceptual correspondences which underlie the data, many kinds of examples which have been treated as instances of distinct metaphors, because they refer to concepts in different experiential domains (see the *feed* examples above), should actually be analyzed as examples of single, fundamental mappings, which cross-cut particular domains of experience. We will also examine the ways in which distinct metaphors may interact with each other and with other cognitive mechanisms, to yield a wide range of conceptual and linguistic phenomena.

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Non-linguistic evidence for metaphor

If metaphor is a conceptual phenomenon rather than a specifically linguistic one, it stands to reason that it should be reflected in cognitive behaviors other than language. Various types of research have shown that it is.

An interesting kind of psychological evidence which demonstrates that figurative thinking is an important aspect of cognition is presented in Gentner and Gentner (1982). In this paper the authors describe a set of experiments designed to test the effect of using particular analogies to reason about physical processes. Subjects without a sophisticated understanding of electricity were presented with two different analogical models of an electric circuit (including capacitors and resistors). The subjects were then asked to predict various properties of the system. Subjects who had been taught about the system by means of a "flowing water" model were better able to understand certain properties of the system, while subjects who were familiar with a "teeming crowds" model had a better grasp of others. The significance of the finding is that it demonstrates empirically that reasoning can be based on the projection of information and structure from one conceptual domain to another.

Gibbs (1994: 164) has developed further evidence that metaphors are more than ways of using words, in experiments on people's visualizations of idioms. In a series of several studies, he has shown not only that there is significant agreement among individuals about the imagery referred to by such conventional expressions as *spill the beans*— e.g., the size of the container and the nature of the spill—but that inferences about the literal (or *source domain*) interpretations of these scenes are transferred to the metaphorical (or *target*) domain as well. For example, subjects state independently that when you *blow your stack*, "the expression of anger is unintentional and is done in an abrupt, violent manner."

There are other types of evidence for conceptual metaphor which do not involve the use or interpretation of language at all. For instance, gestures often reflect the same types of

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mappings that underlie linguistic expression. When a person points back over her shoulder when referring to the past (though not necessarily using any lexical items associated with a spatial conceptualization of time), she suggests that there is a cognitive correspondence of some kind between the past and the concept of 'back' or 'behind,' just as we find in lexicalized expressions in language after language (e.g., *after*, which is historically a word for 'behind'). McNeill (1992) has used the term *metaphorics* to refer to gestures which are metaphorically motivated. His examples include a gesture used by a mathematician during a conversation with a colleague about the technical concept of limits: while committing a speech error by mentioning "inverse limits" rather than the direct limits he had in mind, the speaker nonetheless made the hand gesture associated with direct limits (an abrupt motion and stopping of the hand, at the "end point"), showing that his gesture was in fact motivated by his conceptualization of the topic, and specifically *not* by the word he was uttering at the time.

Various writers have also observed that conceptual metaphors are often represented pictorially. In Fauconnier and Turner's accounts of blended spaces (e.g., Fauconnier and Turner 1994), they offer the example of a cartoon character who is represented with steam coming out of his ears—a visual representation of Lakoff and Kövecses' ANGER IS THE

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HEAT OF FLUID IN A CONTAINER.[3] In such a representation, language is clearly not a direct intermediary between the concepts of hot liquid and vapor on the one hand, and anger on the other. (There is no linguistic reference to the steam.) One could argue, of course, that the cartoon has simply taken a conventional linguistic expression, and represented it in visual form. There is no reason to believe, however, that the centuries (or millennia) of artists who have placed figures near each other to imply "close," intimate relationships, placed one figure above another to suggest dominance of the higher over the lower, made one figure larger than another to convey relative power or importance, and so forth, have simply been responding to a unidirectional flow of influence from language. It is both simpler and more intuitive to believe that whatever cognitive strategies and mechanisms underlie such imagery also underlie linguistic expressions based on metaphors like EMOTIONAL INTIMACY IS PHYSICAL CLOSENESS, CONTROL IS UP, and IMPORTANCE IS SIZE (see Lakoff et al, Master Metaphor List).

In his 1987 study, Johnson discusses a subtler type of visual "metaphor." He considers the notion of pictorial *balance*, observing that "in Kandinsky's *Accompanied Contrast*..., there is an exquisite balance in the work that can be made sense of only by interpreting 'weight,' 'force,' 'location,' and 'value' metaphorically, based on a schema whose structure specifies forces or weights distributed relative to some point or axis" (1987: 83). Here, Johnson is suggesting that visual images may serve as the source material, where the target is in the domain of physical masses and forces. Rather than representing both domains of a conceptual metaphor, as language often does — e.g., *she was boiling with anger* — carefully composed images stand figuratively, in themselves, for entities and configurations in non-physical domains. This relationship between target and source might best be seen as iconic, or it might be discussed by direct reference to our visual processing system, which infers mass, motion, and so forth from the perception of light and shadow. In any case, the example points out the fact that notions like balance can

[3] See Lakoff 1987.

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be cognitively associated with phenomena not subsumed in their literal sense, and that such associations may be observable in strictly non-linguistic settings.

A psychologist who has indirectly contributed to our understanding of conceptual metaphor by investigating the role of generalized schemas in concept acquisition is Jean Mandler. In her 1992 article, "How to build a baby II; conceptual primitives," she follows up on an argument made by Quinn and Eimas (1986). These authors had pointed out the lack of any explanation for how infants move from a stage at which they have only sensory categories/concepts to a stage at which their conceptual system includes all the abstractions understood by adults. Mandler proposes, based on results of her studies, that infants not only encode spatial-sensory information, but also "redescribe spatial structure in the form of image-schemas." That is, from an extremely early stage, infants are abstracting schematic information from concrete sensory input. Mandler calls this process *perceptual analysis*: "the process in which a given perceptual array is attentively analyzed, and a new kind of information is abstracted" (Mandler 1992: 589). Schemas Mandler refers to include *self-motion* (i.e., motion of an entity—or trajector—which does not appear to be caused by another trajector), *animate motion* (i.e., self-motion which does not follow the straight line which simple inertia, or external force, would produce), *links* of various sorts, *agency* (which largely amounts to being the causer of motion in another trajector), *containment*, *support*, etc. Mandler sees her "approach to preverbal conceptual representation" as an enterprise related to research into conceptual metaphor, because it concerns the link between sensory information and conceptual analyses at another level. Since she works with infants, her data is, of necessity, non-linguistic, and is based instead on cues about her subjects' focus of attention in various experimental conditions.[4]

What the various types of evidence above show is that there are recurring patterns in the transfer of words, imagery, reasoning, and so forth from certain domains to others.

[4] I.e., in standard experimental protocols, infants demonstrate that they categorize instances of self-motion, animate motion, containment, and so forth, together.

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The fact that their presence is reflected in non-linguistic contexts adds weight to the argument that metaphors can be fundamental aspects of cognition which give us clues about the general processes of conceptualization and reason.

How might the cognitive structures that constitute metaphor be related to other aspects of language and conceptualization? If metaphor is an important and pervasive conceptual phenomenon, and if it is motivated by aspects of bodily experience, then might the same factors which give rise to metaphor also shape language and thought in other ways? In Chapter 8 we will see several aspects of language other than metaphor where the kinds of experiences which we must point to as motivations for metaphor(e.g., *primary scenes*, discussed in the next section) are also implicated as sources of patterns in language acquisition and the organization of basic semantic domains.

1.4 A new approach to conceptual metaphor

Questions like those highlighted in the previous section can be addressed by a new approach to analyzing conceptual metaphor. The main ideas which underlie analyses presented in later chapters are best introduced in the context of a model which relates experiences to metaphors, via several intermediate stages. The model is diagrammed in figure 1. In this section I will discuss each component of the model, and I will expand on each over the course of the dissertation.

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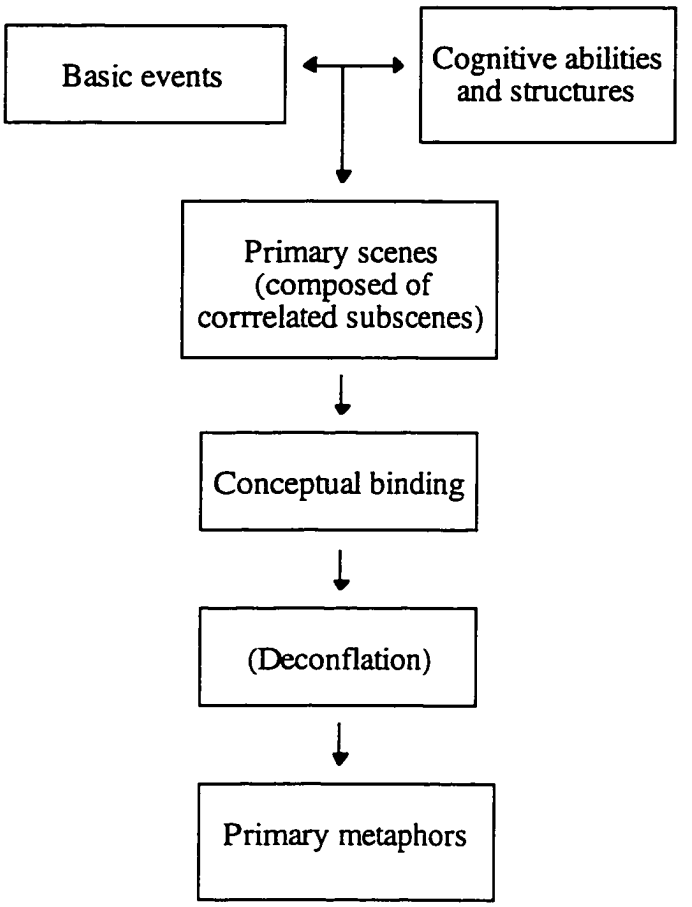

Figure 1—From basic events to primary metaphors

Basic events

There are certain types of events and scenes which recur on a regular basis in our experience. Here I am speaking of "things that happen"—particular interactions with the world, which unfold in particular times and places. Certain events of this sort occur over and over again in our experience, in various sorts of contexts. For instance, we often lift objects, we often see particular colors, we often bend our knees, we often perceive similarities between objects, we often move from one location to another, we often gain information through visual observation of a scene, and so forth. Each of these occurs many times in a typical day.

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Of the things that happen in our experience on such a regular basis, some are more salient and meaningful to us than others, because they relate in particular ways to our goals and desires. For instance, when we feel the heavy weight of an object this typically means that it is more difficult for us to lift it than if it were light; it may also mean that we experience discomfort when we lift or support it. When we see the color blue, on the other hand, this experience has no particular implications for our interactions with the world; all sorts of objects can be blue, and we may typically relate to blue objects in the same ways as we relate to green, red, or yellow objects (despite the subtle effects that colors may sometimes exert on our mood). The action of bending our knees has no special salience in our experience because we do it in all sorts of contexts for all sorts of reasons; bending our knees is a component of various purposeful actions, such as walking, sitting, or jumping, but it is not, in itself, a self-contained action with particular significance. Simple, real-time experiences which relate in particular ways to our goal-oriented interactions with the world have a special significance in the model presented here; I will refer to them as *basic events*.[5]

Patterns in perception and response

We are genetically endowed with particular capacities for perception and analysis of our surroundings. For instance, we recognize certain shapes and colors, we perceive size and mass, we perceive physical shapes as wholes and parts, we make judgments about temperature, we estimate distance, etc. (There have been various philosophical, psychological and neurological investigations of the exact parameters of these capacities, but it is self-evident that we have them.) We also have certain kinds of innate ways of responding to these perceptual experiences: We judge the relative similarity of objects we

[5] This term may call to mind Slobin's (1985) term prototypical events. As we will see in Chapter 6, Slobin's proposal is echoed in certain respects here, but there are also distinct differences between the two analyses, most evidently with respect to the granularity of the concepts.

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perceive, we feel pleasure or disgust in response to certain tastes or smells, we feel satisfied when we have had something to eat or satisfied in another sense when we reach a location that was our goal, and so forth. These responses can be thought of as characterizing what "matters" to us about particular events and experiences. A reason weight matters, for instance, is that it makes objects more or less difficult to lift and support. (It can also matter in other contexts, such as when it correlates with the value of a desired object—e.g., a larger vs. a smaller piece of food.)

It is only because of these particular cognitive tendencies and abilities that basic events like those mentioned above strike us as events of particular kinds. As many philosophers and other writers have pointed out, the events and processes which unfold in the world—even those in which we participate—are, in some objective sense, undifferentiated and uncategorized. For instance, it takes a conscious *experiencer* to appreciate that something I did just now with a stack of books and something I did two hours ago with a desk chair are both instances of lifting, or to group other events into a category like swallowing, or to judge that it is *cold* outside. This is particularly obvious in the case of perceptions, where the changing colors of a sunset, for instance, are not categorized by nature as *red*, *orange*, *yellow*, etc. We impose both the labels and the category boundaries on these sensory events. Notice also that there is an infinite amount of detail on which we might potentially focus our attention during any snapshot of real experience—the exact atmospheric conditions, the positions of all the objects in our surroundings, etc. It is thanks to our selective focus and our subjective experiences of basic events, in other words, that they constitute distinct and definable events at all. Later it will be necessary to discuss the particular kinds of cognitive structures which allow us to analyze the world around us in this way; these include structures like the *image-schema* (Johnson 1987, and referred to in the Mandler citation above), for example, which are means for recognizing patterns in our physical environment, such as Coldness or Contact-between-two-objects.

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Primary scenes and subscenes

Given the particular cognitive apparatus with which we are equipped and given the types of events which tend to occur in our experience, the cognitive product is the *subjective* experience of basic events. When an *experiencer*—i.e. a conscious person, as opposed to a robot, for instance—lifts an object, that experience is understood in particular ways, because of the cognitive abilities that help the person make sense of his environment. Among the dimensions of the experience to which the person might attend in this case are the relative weight of the object and the strain or discomfort involved in lifting the object if it is particularly heavy. This subjective (phenomenological) experience of a basic event—including both the perceptual aspect and our response to it—is what I will refer to as a *primary scene*.

The correlation between distinct dimensions of the experience is an essential feature of primary scenes. Consider the case where we are near to a person we are emotionally intimate with. In this situation we might (consciously or unconsciously) correlate the spatial proximity with the feeling of emotional connection, or we might associate the emotional experience with the bodily warmth that the proximity produces. These are distinct primary scenes, in that they are different ways of subjectively experiencing the same basic event (i.e. the same set of "objective" circumstances). The discrete, individual dimensions of the experiences—the experiences of intimacy, proximity , and warmth—are what I will call *subscenes*.[6] Other examples of the kinds of experiential dimensions (or subscenes) which may become tightly associated are the discomfort that goes along with touching something too cold or too hot; the similarity judgment we may make when we hear two musical tones, the compulsion to act which co-occurs with (but is distinguishable from) sensations like itching or hunger, and so forth.

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[6] The concepts of primary scenes and subscenes are discussed in Grady & Johnson (to appear).

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To summarize, *primary scenes* are minimal(temporally-delimited) episodes of subjective experience, characterized by tight correlations between physical circumstance and cognitive response. They are universal elements of human experience, defined by basic cognitive mechanisms and abilities, which relate in some salient sense to goal-oriented interaction with the world. The paired experiential dimensions of which they are composed are *subscenes*.

This characterization will be illustrated and elaborated in examples throughout the dissertation.

Conceptual binding

Since we experience primary scenes very frequently, and since they involve tight correlations between distinct aspects of phenomenological experience, it should not be surprising if these distinct dimensions become closely associated in our cognitive representations of the world as well. In fact, it would be surprising if they did not. Warmth and emotional intimacy, heaviness and strain, itching and compulsion to act—these are dimensions of experience which are likely, based on the considerations above, to be strongly associated in our minds, even below the level of conscious analysis. This is the sense in which I will refer to *binding* between concepts.

While the notion of binding does not depend on an account of neural structure, it is consistent with emerging findings about the physiology of cognitive processes; association links between concepts may arise from repeated simultaneous neural activation of those concepts. The cognitive structures which primary scenes give rise to may ultimately be analyzable on the neurophysiological level.

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Deconflation

If the association between concepts is tight enough, it is conceivable that we might blur the distinction between them, at least at some developmental stage. For instance, if a child regularly noticed the difficulty involved in lifting heavy objects, more so than other kinds of strain she experienced in her activities, she might come to equate difficulty with heaviness—i.e. the experience of lifting objects of a certain mass with the experience of strain and exertion—and might form a single concept subsuming both dimensions. If children were in this situation, one aspect of cognitive and conceptual development would presumably be the *deconflation* of the two distinguishable aspects of such experiences into distinct concepts. Christopher Johnson (1997) has argued that an account along these lines helps explain children's usages of *see* and certain other linguistic forms. In some cases, there may be a stage of deconflation which must occur before we can speak of distinct concepts which are bound in cognitive structure. (Even in these cases, though, it might be possible to argue on the neural level that the correlated activation patterns involve distinct physiological structures—e.g., one devoted to perceiving weight and another devoted to affective response. If so, then we could say that there is conflation at a relatively high level of cognitive processing—i.e. the level at which we consciously manipulate concepts—while still maintaining that there is a real distinction at some lower level in the processing stream.)

Primary metaphors, primary source and target concepts

Once distinct dimensions of experience are bound in our cognitive representations the stage has been set for the extension of this association to a broader correspondence between concepts. For instance, we can refer to *light* vs. *heavy* duties, since (for English speakers at least) the entire scale of weight is associated with the scale of difficulty or unpleasantness of performing a task. Likewise, degrees of warmth or proximity correspond to degrees of emotional response or connection; various positions with respect to a bounded region—

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e.g., *inside*, *outside*, *at the center*, *on the periphery*—correspond to status with respect to a group; and so forth..

In this dissertation, I will refer to many *primary metaphors*, each of which by definition involves a binding of this kind between distinct concepts (i.e. *primary source and target concepts*), arising from *primary scenes* like those above, and the correlations that characterize them. We will see, moreover, that analyses involving conceptual mappings of this kind are the ones which most effectively account for patterns in metaphoric language.

As I mentioned in the previous section, there are ways in which the source and target concepts of primary metaphors can be distinguished from one another; that is, there are principles which distinguish primary source and target concepts and account for the directionality of primary metaphors. While we will have to consider to broad range of examples (in Chapter 5) in order to see this point clearly, I will introduce the basic principles here. The source concepts for the primary metaphors mentioned so far all involve some kind of content which is tied to physical perception or sensation. The feeling of an itch; the perception of shape, weight, and distance; the detection of movement—all of these experiences involve the (apparently) direct perception of features of our bodies or our environments. In keeping with Damasio (1994) and others, I will use the term *image* to refer to mental representations of such experiences, which include content from any sense modality or bodily sensation. When we perceive brightness, heaviness, sweetness, nearness, and so forth, or experience hunger or pain, the cognitive representations of these experiences have what I will refer to as *image content*. Primary source concepts, then, are characterized by image content.

Primary target concepts such as Similarity, Happiness, and Achieving Purposes, on the other hand, lack image content. They are not direct perceptions of the world, but responses to—or, to use mathematical terminology, *operations* or *functions* over—our perceptions of the world.

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To see this distinction more clearly, and in order to clarify some additional terms that will play important roles in the dissertation, let's consider how some descriptive terms like the ones applied to Justice above relate to primary metaphors. Examples of primary metaphors (each of which will be discussed in later chapters) include the following:[7]

Source		**Target**	**Grounding**
HEAVINESS	→	DIFFICULTY	{Difficulty of lifting heavy objects}
HUNGER	→	DESIRE	{Correlation between physical sensation and focus on finding food}
ITCH	→	COMPULSION TO ACT	{Correlation between physical sensation and compulsion to scratch}
BRIGHTNESS	→	HAPPINESS	{Correlation between bright light and safety, warmth, etc.}
SEEING	→	KNOWING/ UNDERSTANDING	{Experiences where information is gathered through the visual channel}
WARMTH	→	AFFECTION	{Correlation between affection and body warmth (produced by proximity)}
PHYSICAL CONNECTION	→	CAUSAL RELATEDNESS	{The joint motion of objects which are physically connected}
PROXIMITY	→	SIMILARITY	{Natural co-location of similar objects; similar conditions in spatially contiguous locations; etc.}

(For a list of roughly a hundred primary metaphors, see the Appendix)

Abstractness / Concreteness: Are target concepts like Similarity, Happiness, Compulsion-to-act, and Difficulty—and the experiences which these concepts refer to—abstract in the same sense that Justice is? I argue that they are not, if by *abstract* concepts

[7] This list is presented in a format which I will use at times in order to indicate experiential motivation as well as the basic correspondences, and in order to allow notation for further elaborations of the basic metaphor. Note that even though the metaphors are represented as

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we mean ones which are the products of sophisticated reason and invention. Primary target concepts are not abstractions in the sense of having been created by clever thinkers. On the contrary, there are reasons for believing that they reflect the operation of extremely basic cognitive mechanisms—many of which we certainly share with "lower" animals. That is, just as the ability to recognize heat is a basic cognitive function, the ability to detect similarity between two stimuli is a basic cognitive function, which operates over input from any modality. The target concepts of primary metaphor are all of this sort—basic sorts of judgments and responses, which are, arguably just as "real," psychologically and neurologically, as the perceptions that they correlate with.[8]

On the other hand, target concepts are, as we have seen, lacking in sensory (i.e. image) content, and are in this sense less concrete than primary source concepts. If by *abstract* we mean something like 'less strongly associated with specific sensory experiences,' then the term does fit primary target concepts. We can therefore describe target concepts as abstract if we are careful not to extend the meaning to the one described above, which is quite tempting to do, given the slippery nature of the term. A better description would be that primary target concepts reflect very real, basic cognitive operations and structures which lack image content.

Complexity: Unlike Justice, primary target concepts, such as the ones above, are no more complex than primary source concepts. There is no reason to say, for instance, that the experience of strain or discomfort (i.e. Difficulty) is any more complex than the perception of relative weight. On the other hand, many conceptualizations of complex phenomena are made possible by metaphorical and analogical thinking (cf. the Gentner

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simple correspondences, they always involve at least a bit more complexity—e.g., a source concept like Erectness entails both an object and a position.

[8] Like other proposals in this dissertation regarding the nature of cognitive structures and phenomena, the descriptions here of primary source and target concepts may be interpreted as invitations to compare my findings, based on analyses of linguistic metaphor, with findings from other disciplines, such as psychology or neuroscience.

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study mentioned above), and for this reason, many scholars have claimed that this is a chief purpose and feature of metaphor. As we will see, however, these complex metaphorical images are the result of processes besides primary metaphor, many of which are ultimately grounded in primary metaphors.

Familiarity: Certainly, the experiences which form the basis for primary target concepts are every bit as familiar to us as those which are referred to by primary source concepts. Happiness, Affection, Causal Relatedness, Difficulty, and other target concepts of primary metaphor are daily elements of our experience. The reasons for the various claims that metaphor serves to make the unfamiliar more graspable stem from the same kinds of examples of complex imagery and analogical thinking referred to above. These phenomena are real and important, but are distinct from primary metaphor, and often dependent on it.

Subjectivity and intersubjectivity: The term *subjective* is often used to mean something like 'indeterminate' and/or 'the product of opinion.' I will use the term in a different, but still conventional sense—to refer to the internal, but "real" experience of a particular person. For instance, when I touch a hot object I may experience discomfort or even pain. The pain responsive is *subjective* in the sense that it is an aspect of my personal conscious experience, but it is not a matter open to debate. Physical measurements might even detect the characteristic brain activity patterns associated with pain of a particular sort. This sort of subjectivity—associated with the phenomenological self—is an important aspect of metaphors and their motivations, since metaphors are grounded in subjective experiences of specific types.

While primary metaphors, as cognitive mappings, are motivated by subjective experience, there may still be a contrast between the *intersubjective* availability of primary source and target concepts. Two people are likely to agree about the approximate weight of an object, for instance, while one might experience considerably more strain in trying to lift it. Furthermore, it is easy to refer to the weight of an object, and be perfectly understood by your interlocutor, while it may be harder to convey the exact sense of exertion or

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discomfort you experienced in holding the object up. In these senses, primary target concepts may be less intersubjectively available than primary source concepts. This fact has probably contributed to the sense that metaphor is essentially a communicative phenomenon, but it also relates to deeper issues, such as the relative ease of consciously manipulating concepts with image content as opposed to concepts without it; in an important way, the intersubjective may correlate with the conscious.

Basicness and cognitive/conceptual levels: As all the discussions in this section have shown, primary source concepts are no more *basic* than primary target concepts, and traditional accounts of metaphor are therefore not applicable to primary metaphorical conceptualizations. There is every reason to believe that target concepts are tied to experiences which are just as direct as those which underlie source concepts. An important point which will come up in the dissertation in connection with basicness is the notion of *levels* of cognitive processing. Cognitive scientists traditionally refer to processes such as direct visual or olfactory perception as *low-level* processes, and even within these there are levels of processing, such as the detection of edges, for instance, which precedes (neurally) the recognition of shape. In these terms, primary source and target concepts, in being experientially *basic*, represent not the lowest level of cognition, but a particular, privileged level, at which we have conscious access to the output of the processes. We will see in the course of analyzing the linguistic data that there are particular cognitive levels at which primary source and target concepts are most profitably defined, and that these levels are important aspects of the metaphors' function as mediators of conscious experience.

Generality / Specificity / Schematicity: In one sense, primary source and target concepts are extremely general; Brightness and Quantity, for instance, (the source and target concepts, respectively, of HAPPINESS IS BRIGHTNESS and QUANTITY IS VERTICAL ELEVATION) are phenomena which occur in all sorts of contexts, associated with all sorts of scenes and experiences. On the other hand, they are presumably experienced via very specific cognitive detectors, one visual (Brightness) and the other (Quantity) an operation

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over various kinds of stimulus. This apparent paradox could cause confusion in a discussion of primary metaphors, and it is important to be clear about what kinds of generality and specificity are being referred to.

A similar sort of confusion could arise around the term *schematic*. This word is often used (e.g., by Langacker—1987, etc.) to describe concepts or representations which are derived by removing detail from representations which are richer, or from a range of diverse representations which share something in common. (Or, to put it another way, by *abstracting* information from such representations. This is another sense of *abstract* which does not fit primary target concepts.) While primary source and target concepts are both lacking in detail of the kind that characterizes real-world scenes—and are therefore schematic in a certain descriptive sense—they are not secondary abstractions from other, more basic concepts. Instead, I argue that they are directly experienced themselves.

Both primary source and target concepts appear to be equally schematic and general, and these, therefore, are not useful criteria for distinguishing between the two or determining the directionality of metaphors.

1.5 Notes on methodology

In the previous section I outlined the principle claims which will be discussed in the rest of the dissertation. In this section I will discuss several methodological aspects of the investigation.

Data

Cognitive linguists since the publication of *MWLB* have collected a vast number of metaphorical examples and performed a vast number of analyses. The challenge at this point is not so much to discover new metaphorical data as to improve our understanding of how these examples arise, how they are structured and constrained, and how they are organized with respect to each other. While I will introduce many new examples of my

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own throughout the dissertation, I will also use a great deal of data that has already been collected, and refer to a great number of conceptual metaphors that have been named in previous studies. Many of these metaphors will be "decomposed" into more basic mappings (i.e. primary metaphors) and various refinements of other sorts will also be introduced. In a sense, much of the work here will constitute a "second pass" over data which has been collected previously, in order to extract deeper and more significant patterns from the same information. Of course many new examples will be required as well in order to clarify various issues.

As example words, phrases, and sentences are introduced and discussed, one of the key issues guiding the analyses will be the *interpretability* of these examples. That is, rather than restricting the data to conventional usages, we will consider many examples which sound novel, unconventional, or even "wrong" (i.e. non-idiomatic), but are very easily interpreted as having specific meanings. For instance, the sentence *Tomorrow is a large day in the history of this organization* sounds odd, because we would ordinarily use *big* instead of *large* to mean 'important' in this context. On the other hand, the sentence is easy to understand, especially by comparison with the same sentence in which we have substituted *wide* for *large*: *Tomorrow is a wide day in the history of this organization* (?). For another example, recall the discussion of *electron microscope* above; this compound is not conventionally associated with the concept of text analysis, but it is easily associated with a particular meaning in that context, in a way that another compound such as *five-iron* would not be.

The argument that linguistic metaphor reflects underlying conceptual mappings implies that words should be able to evoke metaphorical readings even if they are not conventionally associated with these readings. In this way, "odd" expressions can sometimes tell us even more about underlying mappings than conventional expressions. Does this approach mean that we are no longer concerned with lexical semantics, since we

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are dealing with meanings not conventionally associated with words? Not really—we are still considering the meanings which one word, as opposed to others, can convey.

The discussions of data will also refer often to *negative evidence*. That is, sentences which are quite difficult to interpret, or which do not evoke certain readings, will be used to illustrate features of mappings. The reference above to a *wide day*, for instance, shows that width is not associated with importance for English speakers whereas massiveness is. Examples like these will be marked with a question mark ("?") as opposed to the asterisk ("*") which is the conventional notation for ungrammatical sentences in linguistics texts. For instance:

? Tomorrow is a wide day in the history of this organization.

Some "non-idiomatic" usages, which are nonetheless interpretable because they reflect established conceptual mappings, will be marked with "~," to indicate their marginal status:

~ Tomorrow is a large day in the history of this organization.

One final note about the data is that I will consider evidence for a very broad range of mappings, rather than focusing on the details of a few (though the next two chapters do devote considerable attention to particular metaphors). While this approach limits the depth of some discussions, it is often the only practical way to discover important patterns over a range of mappings. I believe that the opportunity for gaining new insights into the phenomena justify this approach to the analyses.

Experiential basis

Besides considering the meanings which are and are not associated with particular linguistic expressions, I will also be examining the possible experiential bases for particular

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metaphors. The experiential motivations for metaphors can be seen as "sufficient conditions" for the existence of the metaphors. In many cases it will be possible to point out relationships between source and target concepts which constitute "necessary conditions"—e.g., both source and target are construable as properties. However, metaphors only arise between those pairs of domains and concepts which are linked in our experience.

Accounting for experiential motivations is not an exact science but there are still many important points which are safe to make, given certain general, shared understandings of the world. For instance, it should be uncontroversial to state, as Lakoff & Johnson (1980) do, that the metaphor MORE IS UP is associated with a recurring correlation in our experience between quantity (as of a liquid, or objects in a pile) and vertical elevation. Neither should it be controversial to point out that there is no particular correlation in experience which could account for a mapping between love relationships and journeys, and that this metaphor must therefore be accounted for in some other way. If statements about plausible motivations for particular metaphors sometimes seem either self-evident or unsubstantiated, I hope that the reader will at least agree that these are coherent stories which constitute strong hypotheses about the motivations for the data, and that the analyses are no more speculative than those employed in certain other types of linguistic theory-making.

Situating the research with respect to other disciplines

This dissertation is based on the analysis of linguistic metaphor, and relies primarily on the methodologies of linguistic analysis—i.e. the observation and analysis of the meanings conveyed by particular linguistic forms, constrained by the introduction of further examples and counter-examples, and so forth. Since the topics which are the focus of the investigation are of interest to so many fields, however—including philosophy of mind, cognitive and developmental psychology, and neuroscience, not to mention various

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subdisciplines within linguistics—I will be hard pressed to bring in all the relevant literature which could be cited on various points. While I will refer to a number of representative studies from these areas which are relevant to my analyses, I will also be relying on the hope that readers more expert in these areas than myself will bring their own knowledge to bear in evaluating my arguments and claims. Like any branch of cognitive science, cognitive linguistics takes as its subject matter material which is also amenable to investigation by other means. In particular, there are a number of points in the dissertation where linguistic evidence only offers suggestions about the cognitive mechanisms which underlie the data—in many of these cases, experimental psychology or neuroscience, for instance, might be able to pick up where speculations based on linguistic evidence leave off. I hope that interested readers will be inspired to apply their own expertise in such disciplines to the problems discussed and questions raised in the dissertation.

1.6 Overview of the dissertation

Following this introductory chapter I will present two case studies—in Chapters 2 and 3—which illustrate the role of primary metaphors (as discussed above) in predicting linguistic data, grounding richer metaphoric conceptualizations, and pointing the way towards plausible accounts of the experiential motivations for metaphor. These cases—involving the "decomposition" of the proposed conceptual metaphors THEORIES ARE BUILDINGS and IDEAS ARE FOOD—will establish that certain conceptual mappings, arising from recurring experience-types I have termed *primary scenes*, are responsible for patterns in linguistic data—patterns which are likely to be found in many languages around the world—and are also plausible links between objective and subjective aspects of experience. We will also examine the ways in which the fundamental conceptual correspondences which constitute primary metaphor can be fleshed out to yield more elaborate metaphorical images. Having established certain approaches to analysis in these chapters I will proceed (in Chapter 4) to additional cases, in order to generate enough examples of primary metaphors, primary

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scenes, and primary source and target concepts so that the patterns holding among them can be analyzed in subsequent portions of the dissertation.

The next chapter (5) offers the most substantial account of the ways in which metaphor appears to structure subjective experience. Here we will examine a range of primary source and target concepts, and the relations holding between them. The patterns in these examples will establish the roles of image-content and operation-content in primary metaphor, and show how metaphors at this level may play an important role in providing the substance and feel of mental experience. Chapter 6 then considers the central proposals of this dissertation in the context of other hypothesized units of meaning which have been proposed in the scholarly literature.

Chapter 7 is devoted to a further exploration of the kinds of metaphorical language and images which are not directly grounded in primary scenes, and Chapter 8 addresses the ways in which primary metaphors and the other central elements of the approach introduced here may relate to other aspects of (non-metaphorical) language. The concluding chapter (9) summarizes the basic findings of this study, and discusses how they might be further investigated by other means.

Among the important topics not addressed in this dissertation are the ways in which metaphors function in shaping culture, or are constrained by culture; how they function in creative language such as literature; and how they figure in the expert models used in the study of virtually all complex phenomena. Interesting and important research has been conducted and is being conducted in all these areas—witness, for instance, the session on the relationship between metaphor and culture at the 1997 International Cognitive Linguistics Conference, featuring papers by Cienki, Emanation, Gibbs, Lakoff, Sweetser, and Shore. I hope that by focusing on the phenomena at the "lower" end of the chain—those which underlie basic (sometimes universal) linguistic usages and lend structure to individual subjective experience—I will also be contributing indirectly to these efforts.

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Chapter 2. Primary metaphors: THEORIES ARE BUILDINGS Revisited[1]

As we saw in Chapter 1, the evidence that linguistic metaphor arises from conceptual mappings is compelling, but there are major questions to be answered about the nature of these mappings, what motivates them, and how they might be constrained. Linguistic examples have led researchers to the metaphors they have identified so far, and in this chapter we will see how a more detailed examination of the relevant linguistic data can lead us even further; the evidence we will consider shows that the notion of *primary metaphors* allows analyses which make better predictions about the linguistic examples and also conform better to one of the central themes of conceptual metaphor theory—the principle that metaphors are motivated by particular aspects of experience. By looking at the semantics of various metaphorical expressions, and also at "negative examples"—i.e. expressions which have no apparent meaning—we will find evidence for this new and important level of metaphor analysis. Ultimately, the primary metaphor framework promises to yield fresh insights into the nature of semantic and conceptual structure.

2.1 The "THEORIES ARE BUILDINGS" Metaphor

This chapter focuses on a conceptual metaphor which has been used as a standard example in a number of important recent works on the subject, starting with Lakoff and Johnson (1980). The example presented in that work concerned linguistic evidence that for English speakers there is a conceptual relationship of a specific and definable sort between buildings and theories. I will argue here for a different view of the data which have been cited in reference to "THEORIES ARE BUILDINGS," one which focuses on the more basic conceptualizations that license the metaphoric images associated with buildings.

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[1] An earlier version of this chapter will appear in *Cognitive Linguistics* as Joseph E. Grady, "THEORIES ARE BUILDINGS Revisited."

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Since systematic relationships—of the kinds discussed in the last chapter—have appeared to be a hallmark of conceptual metaphor, and since value has been placed on accounting for the data with generalizations that are as broad as possible, metaphor work has often tried to frame particular conceptual correspondences as parts of much larger sets of correspondences. THEORIES ARE BUILDINGS was an early instance of this trend, since it incorporated many (more specific) correspondences, and this treatment helped set the pattern for the analyses which have followed in the literature.

Here are the well-established correspondences which make up THEORIES ARE BUILDINGS as it has been understood:

(1)
a. Major premises, including facts and assumptions, are the *foundation* of the theory.
b. The major claims and arguments of a theory, along with their organization, make up its *framework.*
c. Facts are solid materials or supporting elements—as in the sentence *Your facts are not solid enough to support your hypothesis.*
d. Arguments are intermediary elements: they are *supported* by facts, they in turn *support* conclusions and claims.
e. Claims are the uppermost elements of structure — they are *supported* by facts and arguments.
f. The general logical structure is the *design*
g. A theoretician is an *architect*, *engineer*, or *builder*
h. The convincingness of the theory—its resistance to counter-argument or disproof— is the *strength* and *durability* of the physical structure
i. The continued existence of the theory as an accepted set of relevant claims and arguments is the duration of a physical structure; failure is understood as *collapse.*

Propositions which map from the domain of "buildings" onto that of theories include the following:

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- Strong buildings remain standing; weak, shaky or flimsy buildings are at risk of collapse.

(2) *Solid, strong* theories endure. *Weak, shaky, flimsy* theories do not.

- The whole is dependent on each of its parts: Solid and adequate materials, good design, and skillful construction are all needed to ensure the strength of a building. Poor quality in any of these areas may threaten the structure.
  (Sufficient and well-established facts, intelligent logical conception and compelling argumentation are all vital to the "strength" of a theory.)

(3) a. Your facts are *solid*, but your argumentation is *shaky*.
  b. All the arguments are *solid*, but they can't *stand up* without a factual *basis*.
  c. Some of the arguments are well *put together*, but in its overall *design*, this is a very *weak* theory.

- Buildings must rest on solid ground and foundations.
  (And therefore, theories must be based on *solid* facts and premises.)

(4) She's on very *solid ground* with her latest theoretical work.

- Buildings (and theories) can be destroyed in various ways, including deliberate attempts to demolish them and unanticipated disaster.

(5) a. That theory *caved in* under the weight of scrutiny.
  b. Their theory had wide currency until the discovery of the quark *shook it to its foundations*.

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Based on this sort of evidence, the claim has been that theories are spoken of as though they were buildings, and that the two concepts are closely associated in some aspect of cognition. The case appears to be made.

2.2 Problems with THEORIES ARE BUILDINGS

Despite the range of examples demonstrating a figurative association between the two domains, however, the general claim that theories can be conceptualized as buildings leads to some inaccurate predictions about data, and other more theoretical problems.

"Poverty" of the mapping

Consider the following examples, which are not readily interpretable:

(6) a. ?This theory has French windows.

b. ?The tenants of her theory are behind in their rent.

Windows, tenants, and rent are salient elements in the experiential domain of buildings, yet they lack any clear referents in the domain of theories. In fact, some of the most important parts of buildings from the point of view of people interacting with them do not participate in our conventional metaphorical understanding of theories—doors, windows, floors, the occupants themselves, and so forth.[2] Furthermore, the salient functions of buildings are

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[2] In stating which elements do and do not participate in the conventional mapping, I am relying on the intuitions of a number of native speakers, including myself, regarding which expressions are easily interpreted and seem "unmarked." There are other kinds of evidence which could ultimately be brought to bear on this question, but hopefully the reader will agree with the basic judgments. Later in the chapter I will discuss some expressions which fall outside the conventional mapping, but which are easily interpreted nonetheless.

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also not projected onto theories in the conventional mapping: shelter, locus of activity, and so forth. Only a very limited subset of our basic knowledge about buildings is called upon by this metaphor, and we may well wonder just how this subset is defined, or whether it is arbitrary.

Lack of experiential motivation

One way in which modern cognitive linguistic theory and the cognitive analysis of metaphor distinguish themselves from other theories of thought and language is by their insistence that our bodily structure and our experience play a critical role in shaping our conceptual system (see discussions of experiential basis for metaphor in Sweetser 89, Lakoff & Johnson, Lakoff 87, Turner 91, etc.). Consider the following statement from Lakoff and Johnson:

> We feel that no metaphor can ever be comprehended or even adequately represented independently of its experiential basis....(p. 19)

We saw in Chapter 1 that some metaphors, such as MORE IS UP are easily accounted for in terms of recurring correlations of the two concepts in our experience. What type of experience can we point to as a motivation for the association between the domain of theories and that of buildings? There is no relevant experiential correlation of these domains, as there is for quantity and height. Nor is there a type-token relationship between the two, such as the one which underlies metaphors like RISKS ARE GAMBLES (e.g., *It's a real gamble getting involved with a person like her*). From the point of view of metaphor theory itself, the lack of an experiential basis for mapping buildings onto theories is another reason to question the cognitive status of THEORIES ARE BUILDINGS.

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Lack of distinction from other metaphors

Another type of evidence which raises questions about the THEORIES ARE BUILDINGS metaphor is that the same terms which apply to theories seem to apply to various other target domains as well, and with very parallel meanings. Consider the following examples:

(7) a. the *architect* of Nazi Germany

b. Trust is the *foundation* of marriage.

c. The Federal Reserve is the *cornerstone* of the nation's banking system.

d. Recent land development has caused the near *collapse* of the Bay's ecosystem.

In (a) the *architect* is understood as the person who conceived the nature and organization of the Nazi state; in (b) the *foundation* refers to the element on which the continued existence of the rest of the relationship or institution depends; in (c) the *cornerstone* is again the most important element, and may moreover be understood as a discrete part of the organization; in (d) *collapse* refers to the failure of the system to function. These examples call into question the status of THEORIES ARE BUILDINGS as a distinct cognitive object, since they suggest that the metaphorical understandings which license expressions such as (3)-(5) above might also motivate those in (7), and that these correspondences are therefore not specific to the domain of theories. The implication, in fact, is that THEORIES ARE BUILDINGS is an instance of a far more general mapping between abstract structures and buildings, where "abstract" stands for social, political, financial, and other types of structures which are not primarily understood as physical objects.[3] Since finding

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[3] With apologies to semioticians, psychologists, and others who might rightly insist that *all* concepts are mediated by perception, cognition, culture, etc., and that it is therefore misleading to refer to some concepts as "abstract" and others as "concrete" or "physical," I will occasionally use these terms to distinguish between certain categories of concepts that appear to be distinguishable at least quantitatively, if not qualitatively. For instance, heat,

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generalizations at the appropriate level of specificity is a primary goal in any field of inquiry, it is troubling if current statements of metaphors fail to capture the shared features and structures which relate them.

Along similar lines, we can show that buildings are not the only physical structures which serve as source domains for theories. Textiles appear to be another such domain:

(8) a. They *tore* the theory to *shreds.*

b. She was able to *weave* the notion of attachment into her theory.

c. Although many of its specific claims were shown to be incorrect, the basic *fabric* of the theory remained intact.

There are also examples demonstrating metaphoric correspondences between theories and other structured objects, e.g., works of art:

(9) a. He spent a lifetime *crafting* his theory of memory.

b. Their theory is a *masterpiece* of logical construction.

Such examples suggest that we must see THEORIES ARE BUILDINGS as an instance of a more general capacity to conceptualize theories as physical structures, where *physical*

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plants, buildings, etc. are *more directly apprehensible to the senses* than emotions, ideas, ecosystems, etc. Furthermore, heat, plants, buildings etc. *serve cross-linguistically as source concepts* for metaphorical language about emotions, ideas, etc., but not vice versa. This cross-cultural unidirectionality is perhaps the most convincing evidence of an asymmetry between one set of concepts and the other which is not culturally determined or a historical accident. Instead, it is based either on something intrinsic in the concepts themselves, or else in the way (all) human beings perceive and interact with them. "Physical" and "abstract" will serve here as shorthand for these distinct bundles of properties.

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structures include buildings, textiles, artworks, and probably others. Some of these mappings will be examined below.

If there is a conventional conceptualization of theories as physical structures in general, and another one relating abstract structures to buildings, then the question arises whether we actually have one metaphor of which both of these are special cases, which could be called (ABSTRACT) ORGANIZATION IS PHYSICAL STRUCTURE. (From the point of view of current views of conceptual metaphor, this mapping might seem too general to be considered a metaphor per se; we will return to this point later in the chapter.)

In fact it is not at all difficult to generate examples illustrating a general correspondence between abstract structures and physical structures. For instance, we may refer to:

(10) a. the *fabric* of society

b. a *hub* of political life

c. a *lattice*/an *array* of procedures

It seems then that THEORIES ARE BUILDINGS does not exist in isolation, but rather as part of a system of related mappings, a *many-to-many* correspondence network, which also includes THEORIES ARE TEXTILES, SOCIETY IS A TEXTILE, SOCIETY IS A BUILDING, and so forth:

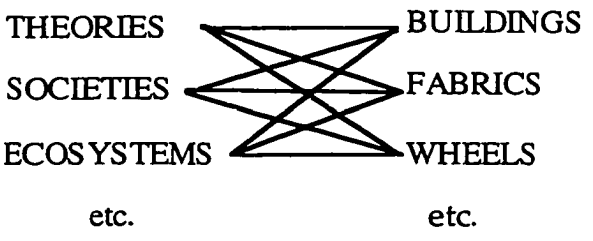

Figure 1. Complex abstract entities as physical structures

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Some of the links in such a network are stronger and more natural than others—e.g., modern Western society is less likely to be conceived as a wheel, since by its nature it lacks a single entity (i.e. a *hub* or *center*) on which all else depends. Nonetheless, there is a network of correspondences here where many different kinds of physical structure are associated with many different kinds of organization of other kinds.

2.3 Proposed analysis

There is a way to analyze the data in the preceding sections as the products of an interaction between independent processes of conceptualization. This approach involves the *decomposition* of THEORIES ARE BUILDINGS into more basic metaphoric structures.

Primary metaphors

Suppose that what has been called THEORIES ARE BUILDINGS has something like a derived, secondary status—i.e. it is a metaphor composed of distinct and independently motivated metaphorical correspondences, which could also occur outside of this particular combination.[4] A possible analysis along these lines would include the following:

I. ORGANIZATION IS PHYSICAL STRUCTURE

II. VIABILITY IS ERECTNESS

Still leaving aside the question of whether a correspondence as general as ORGANIZATION IS PHYSICAL STRUCTURE may count as a metaphor per se, it appears clear

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[4] The term "composite metaphor" was used by Lakoff and Turner (1989) to refer to complex metaphorical conceptualizations built up through a series of references in a poetic context. I am referring in this section to *conventional* combinations of mappings, which may underlie *individual* expressions. These are two distinct, though certainly related phenomena.

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that a metaphorical relation holds between a wide variety of abstract structures which serve as target domains and a (smaller) variety of physical structures which serve as source domains. The general mapping for the correspondence ORGANIZATION IS PHYSICAL STRUCTURE would be something like the following:

ORGANIZATION	PHYSICAL STRUCTURE
Complex abstract whole	Complex physical whole (object)
Discrete aspects of organized whole	Physical parts
Logical/causal relationships	Physical arrangement

This mapping takes into account our understanding of structure as 'the interrelation or arrangement of parts in a complex entity' (*American Heritage Dictionary*)—and of *a structure* as a complex physical entity composed of arranged parts. The *parts* of a theory must include the various claims and predictions made by the theory, the arguments used to support them, the facts which motivate or corroborate the theory, or those which it attempts to explain. These parts are arranged in certain logical relationships.

The mapping for the second proposed element of THEORIES ARE BUILDINGS is quite simple:

VIABILITY	ERECTNESS
Abstract object/ situation, etc.	Physical object
Functionality, etc.	Erectness/verticality

Viability here refers to continued function, or continued relevance in some context. For instance, an outdated theory may have *collapsed*, been *shot down*, etc.—meaning that it is no longer accepted or used — it is no longer a viable, functioning theory.

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It can be demonstrated that ORGANIZATION IS PHYSICAL STRUCTURE and VIABILITY IS ERECTNESS exist independently of one another. Since we have seen that theories, marriages etc. can be understood as textiles for instance — physical objects without a relevant vertical dimension — we have evidence of the possibility of conceptualizing abstract structures in terms of physical structure independent of erectness. In fact, since textiles are not vertical it follows that viability will *not* be understood as 'remaining erect or vertical'. We say instead that:

(11) a. The theory has completely *unraveled.*

b. Our marriage is in *tatters.*

VIABILITY IS ERECTNESS can also be shown to occur independently of a metaphor for structure; we may speak metaphorically of viability as 'remaining erect' even when complex internal structure is not relevant. For example:

(12) a. The speed record for the mile *still stands/ fell/* was *toppled.*

and, one of George Bush's favorite expressions during the Iraqi occupation of Kuwait,

b. This [situation] will not *stand.*

Here, the situation is presumably being conceptualized not as a complex arrangement of interrelated parts, but as a state which either obtains or does not. There is no evidence for the relevance of structure here—only a binary opposition between the persistence or non-persistence of the state.

Metaphors which have a direct experiential basis, and which motivate highly predictable sets of data (i.e. sets without "gaps") will be referred to here as *primary*

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metaphors. Many more complex metaphors are properly understood as compounds of these primary metaphors.

At this point we need to understand something more about the way in which ORGANIZATION IS PHYSICAL STRUCTURE and VIABILITY IS ERECTNESS might combine, and what it means to say that a particular metaphor is really a compound of others. The account offered here will be the simplest one which fits the present data; the relevant mechanisms will be developed further later in the dissertation.

The fundamental mechanism by which metaphors combine can be thought of as analogous to *unification*. In unification-based grammars, arrays of information are filled out via the combination of structures; each substructure contributes further specificity to the features of the final structure. For instance, a determiner (like *the*) may unify with an unspecified nominal structure (like *dog*) yielding a noun phrase with specific values for number and definiteness (e.g., *the dog*), bearing the semantic information associated with the original noun. In a similar way, two metaphors may combine to yield a metaphorical image which is more specific than either of the originals; in this case, the source concept is specified as an *erect* physical structure.

The statement of a metaphor resulting from the unification of component metaphors includes all the information from the component metaphors; in this sense, unification of metaphors is a *monotonic* process. At its simplest, the result of unification is simply the list of all correspondences and propositions from the component metaphors. For instance, the correspondences which result from the unification of VIABILITY IS ERECTNESS and ORGANIZATION IS PHYSICAL STRUCTURE must include:

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(13)	Complex abstract whole (object)	=	Complex physical whole (object)[5]
	Discrete aspects of organized whole	=	Physical parts
	Logical/causal relationships	=	Physical arrangement
	Functionality, etc.	=	Erectness/verticality

This list is the union of all the correspondences which need to be listed for the component metaphors independently.

In addition to the correspondences listed in (13), there is further information which is entailed by the unification of ORGANIZATION IS PHYSICAL STRUCTURE and VIABILITY IS ERECTNESS: It is part of our knowledge of all erect structured objects—but not of objects which lack internal structure, or which have no relevant vertical dimension—that there is an asymmetrical dependence of some parts on others, resulting from the asymmetrical effects of gravity: some parts must *support* others. This proposition is mapped onto the domain of theories, and is additionally captured in the following correspondence: THE ASYMMETRICAL DEPENDENCE OF SOME PARTS ON OTHERS IS PHYSICAL SUPPORT. Thus, a more complete statement of the mapping resulting from the unification of the two basic metaphors must also include this correspondence:

(14)	VIABLE, COMPLEX, ABSTRACT ENTITY	ERECT PHYSICAL OBJECT
	Complex abstract whole (object)	Complex physical whole (object)
	Elements of organized whole	Physical parts
	Logical/causal relationships	Physical arrangement
	Persistence	Erectness/verticality
	Asymmetrical dependence of some elements on others	Support

[5]For convenience, I will occasionally represent metaphorical correspondences as equations; in fact they are never symmetrical equations, since the relationships always have directional aspects.

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An expression like "the facts fail to *support* the claims" illustrates this last element of the mapping.

Finally, with regard to the unification of metaphors, note that it is not the case that just any metaphors can be combined via unification. As in unification-based grammars, there is a compatibility constraint on the unification process. If features conflict, then unification is barred. For instance, there is no way to unify TIME IS A MOVING OBJECT (e.g., *Christmas is approaching*) with TIME IS A LANDSCAPE OVER WHICH WE MOVE (e.g., *We are getting close to Christmas*). Moments in time cannot be simultaneously associated with moving and stationary objects in the source domain of physical space.

This constraint could be seen as a variant of Lakoff and Turner's "Invariance Principle" (see, e.g., Lakoff 1990, Turner 1991), which states—in slightly differing ways in the various versions—that image-schematic structure must be preserved in a cross-domain mapping. This principle, given an understanding of the concept of image-schematic structure, constrains the cognitive relations which can arise between different concepts and domains. In the account I present here, we also need to constrain the combination of independently arising metaphoric associations. As the time metaphor example illustrates, metaphors may not combine when the combination would result in clashes between the basic (image-schematic) structures of the two conceptualizations; a metaphorical moving object/ trajector cannot simultaneously be understood as a ground, with respect to the same motion event.

A better account of the data

Comparing the set of correspondences arrived at in (14) with the set for THEORIES ARE BUILDINGS (as in 1) we find that nearly all of the more specific mapping falls out from these general correspondences. Clearly, the notions of erectness, strength, and collapse are derivable from VIABLE ORGANIZATION IS ERECT PHYSICAL STRUCTURE. What is more

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interesting is that the hierarchical relationship between facts, arguments and claims falls out from the understanding that asymmetrical dependence is support; arguments, for instance, are not understood as any particular parts of a building, but since we construe arguments as dependent on facts and claims as dependent on arguments, we say metaphorically that arguments *support* claims, and are *supported* by facts. The vagueness of the source domain definitions for "fact," "argument," and "claim" are troubling given the old account of the metaphor: why should some elements of the domain have clear and specific physical counterparts while others do not? Given the reanalysis, there is a straightforward account of the facts. Facts, arguments, and claims are members of logical relationships, which are captured by the mapping. Actual parts of buildings are not referred to at all by a mapping at this level.

Another kind of vagueness in our initial statement of THEORIES ARE BUILDINGS is also explained with reference to the more general VIABLE ORGANIZATION IS ERECT PHYSICAL STRUCTURE: If we look closely at the source domain terms found in the earlier mapping, we find that they are not specific to buildings. *Foundation, framework, collapse*, etc. are all defined relative to *any* type of erect physical structure, and even *architects* design structures other than buildings. Dictionary definitions (e.g., those in the *AHD*) for these terms do not even mention *buildings*, except in the case of *architect*, which is defined as "one who designs...buildings *or other large structures*" (italics added). An analysis which accounts for the vagueness of the correspondences comprised by THEORIES ARE BUILDINGS has achieved something non-trivial, since this vagueness appears to violate the notion of conceptual metaphors as mappings which lend structure, familiarity, and concreteness to target domains. This result alone might justify the reanalysis.

Decompositional analysis of THEORIES ARE BUILDINGS also explains why certain experientially salient elements of buildings are not mapped onto theories, the problem referred to above as the *poverty* of the mapping. First, note that the observation we are trying to account for is a significant one, since metaphor theory should predict that it is

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those features of buildings which are most important in our experience which will serve as source concepts for metaphors. Yet, as we saw earlier, many of the elements of buildings which are most central to our experience fail to map onto theories, including walls and floors, occupants, functions of buildings, etc. The "failure" of some elements of the source domains to be mapped onto the target domain in this case is explained by the limits of the two basic mappings involved. Walls and so forth do not figure in THEORIES ARE ERECT PHYSICAL STRUCTURES because they are not related to structure or to remaining erect. The metaphorical sense of *architect* is licensed by the mapping since the architect bears a direct (causal) relationship to the structure.

Current theory has no specific account of which elements of a source domain should fall outside a particular metaphor. The only mechanism which exists for blocking the mapping of source domain elements is *target domain override*, which would not apply in this case. Target domain override refers to cases where mapping of knowledge or structure from the source domain would lead to clear contradictions of our basic knowledge of the target domain—e.g., when we *give* someone an idea, we don't cease to *have* it ourselves. This aspect of physical giving is not mapped onto the target domain of ideas and cognition. In the present case, it is hard to see how reference to windows, tenants, etc. would contradict any understandings about the domain of theories. Rather, they are simply irrelevant to those understandings (except in special elaborated conceptualizations, discussed later). The decomposition analysis, by contrast, makes it very clear which elements should be mapped and which should not. Note that *door*, *window*, *floor*, *occupant*, etc. make no more sense when applied to banking systems, vowel systems, and marriages than when applied to theories.

Plausible grounding

The problem of a lack of experiential basis for THEORIES ARE BUILDINGS is also addressed by the decompositional analysis, since both ORGANIZATION IS PHYSICAL STRUCTURE and

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VIABILITY IS ERECTNESS seem to be well-motivated by experience. ORGANIZATION IS PHYSICAL STRUCTURE can be seen as a result of a correlation in experience between interacting with complex objects—i.e. parts and wholes—and forming mental representations of logical/causal relationships holding in those objects.[6]

VIABILITY IS ERECTNESS is also motivated by a salient correlation in experience. This metaphor is plausibly accounted for by the many experiences we have with objects and structures that stand when they are functioning normally, and which may fall down when they are no longer in their normal state (e.g., trees, poles, buildings, etc., not to mention human beings).

Furthermore, asymmetrical dependence relations are observed everywhere in the form of objects which rest on or are supported by other objects, and whose position therefore depends on the supporting objects. Metaphorical expressions arising from this association are common in contexts where structure is not relevant: *We all need someone to lean on.* These correlations can be understood as directly experienced, unlike the correlation between theories and buildings.

Related metaphors

Having reanalyzed the "THEORIES ARE BUILDINGS" metaphor as a composite of two more basic mappings, we are now in a position to describe the relationship between this metaphor—which could more accurately be referred to as VIABLE ORGANIZATION IS ERECT PHYSICAL STRUCTURE—and other metaphors. Other mappings between abstract domains and structured physical domains—the members of the "network" discussed above which also includes THEORIES ARE FABRICS, SOCIETY IS A FABRIC, SOCIETY IS A BUILDING, etc.—all share the ORGANIZATION IS PHYSICAL STRUCTURE conceptualization, which

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[6] It may even be the case that the same neural structures are activated when we interact with the complexities of physical structures and the complexities of logical organization. If so, it

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probably underlies a great number of conventional metaphors. The mappings which have buildings ("erect physical structures") as their source domain are all quite parallel; that is, *collapse*, *support*, *buttress*, and various other terms/concepts map in the same way from the source domain to the target domain in all these cases, though there may be some minor differences which could meaningfully be considered instances of "target domain override"—e.g., it is difficult to interpret ?*the architect of the local ecosystem*, since there is no-one in the target domain who might correspond to the architect.

Those mappings which have source domains other than buildings, however, differ from THEORIES ARE BUILDINGS (I will continue to use this shorthand name for the sake of convenience) in important ways which must be accounted for. Some of these differences concern the nature of the relationship between the parts of the structure. As we have seen, vertical structure implies the asymmetrical dependence of some parts on others (as a result of the asymmetrical effects of gravity). The introduction of these concepts into compounds with erect physical structures as the source domain allows for particular characterizations of the relations holding between relevant parts. Clearly, verticality is not a relevant aspect of fabrics, however, and therefore notions of collapse, support, foundation, etc. will not enter into those mappings involving the source domain of fabrics. Rather, a feature of fabric which maps onto societies, theories, and so forth is the tight, multidirectional *interdependence* of the many parts which make up its structure. To say that a society is *unraveling* is to say that the many parts of which it is composed (people and subgroups) are no longer organized in the same way or to the same degree. These changing relations are more difficult to describe using the SOCIETY IS A BUILDING compound, since erect physical structures do not embody the same principles of symmetrical interdependence. We might say then that certain expressions are motivated by a unification of ORGANIZATION IS PHYSICAL STRUCTURE and SYMMETRICAL INTERDEPENDENCE IS INTERWEAVING.

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should eventually be possible to demonstrate this empirically.

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Note, by the way, that fabrics per se are probably no more essential to this mapping than buildings are to the mapping involving erectness. Salient features and functions of fabrics do not enter into the mapping: color, weight, material, use, etc. Rather, fabrics are simply prototypical examples of physical objects structured in this manner; presumably, other cultures might refer to other objects—such as reed mats, for example—in parallel mappings. Furthermore, there is no direct experiential correlation between theories or societies and fabrics. Instead, the plausible correlation is between the cognitive experiences of interacting with interconnected causal structures and interconnected physical structures respectively.

The mapping for a compound metaphor underlying an expression like "the fabric of society" would look like the following:

INTERDEPENDENT ORGANIZATION	INTERWOVEN PHYSICAL OBJECT
Complex abstract whole (object)	Complex physical whole (object)
Discrete aspects of organized whole	Physical parts
Logical/causal relationships	Physical arrangement
Dependence of whole on symmetrical relations between aspects	Interwoven structure's use of all parts for mutual physical support

There are also other types of physical structures which may serve as source domains for abstract structures, and particular properties which such mappings entail, in the way that erect structures entail relationships of asymmetrical dependence of some parts on others, and interwoven structures entail the mutual, multi-dependence of parts. For instance, there is evidence that circular structures (e.g., wheels) may serve as source domains, and that they entail a special relationship between one part and each of the other parts of the structure—e.g., *Dallas is the* hub *of the American Airlines route system.*

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Potential objections to the proposal

One objection to the decomposition analysis might have it that the earlier references to the metaphor as THEORIES ARE BUILDINGS were simply a convenient way of naming the same phenomena that are described explicitly here. The answer to this objection is that complex domains have continually been referred to as though they, and not the more basic domains which structured them, were the source of the terms and concepts which were mapped by metaphorical processes. Consider this excerpt from *More Than Cool Reason*, in which Lakoff and Turner point out that the existence of pairs like MACHINES ARE PEOPLE and PEOPLE ARE MACHINES does not contradict the principle that metaphors are asymmetrical mappings:

> Of course, two different metaphors might share two domains but differ in which is source and which is target, and also differ in what gets mapped onto what. We can have cases like PEOPLE ARE MACHINES [e.g., *My mental wheels aren't turning today*]... and also the different metaphor MACHINES ARE PEOPLE [e.g., *My computer hates me*] ...But these are two different metaphors, because the mappings go in opposite directions, *and different things get mapped* [emphasis in the original] (p. 132)

In this passage and the discussion which follows it, it is clear that the complex domain of people, and that of machines, are themselves the sources for the respective metaphors. The statement that the two metaphors "share two domains" suggests that the source domain for one metaphor is the same as the target for the other, and vice versa. In other words, although only certain elements of each domain are mapped, it is nevertheless the domains in their broad sense which serve as source and target for the two metaphors. We cannot deduce which elements of the respective domains ought to participate in the mapping; instead those elements must simply be stipulated and listed, based on the data.

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Furthermore, there is no mention of the possibility that specific lower level metaphors might account for the particular data which are observed. Can the difference between the *MTCR* account and the account offered here be reduced to issues of terminology? No—such important issues as accuracy of data prediction and clarity in stating the relationships among metaphors distinguish the two accounts.

An additional question which this discussion may provoke is the following: why was the metaphor first analyzed as THEORIES ARE BUILDINGS? If so many key terms from the domain of buildings have no meaning when applied to theories, and if we can establish that expressions like *His theory collapsed under its own weight* are derivable from much more schematic mappings, then we might well ask why the metaphor has until now been understood as THEORIES ARE BUILDINGS, and why it is so easy to associate theories with literal buildings, once we try to form metaphorical images corresponding to theories. The theory of *prototypes* offers a possible answer to this question. In our culture the prototypical standing physical structure is likely to be a building, rather than, say, a telephone pole, or an electric tower. When we form an image of an erect structure, it will probably be a building, and for expressive purposes we may elaborate on this image. (The possibilities for elaboration are discussed in section 4 below, and in Chapter 7.) For this reason many of the more specific and evocative terms used to refer to theories may be expected to come from the specific domain of buildings. The expressions *to buttress a theory*, and *a baroque theory* illustrate this phenomenon.

When a term is used as an instantiation of a more schematic concept in a mapping, and requires no additional underlying conceptual structure to explain its metaphorical semantics, I will refer to this usage as a *free specification* of the concept in the mapping.[7]

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[7]I am describing here something very similar to what Lakoff & Johnson (1980) called *special cases*; I introduce the term *free specification* in order to highlight the conceptual simplicity of this sort of elaboration in comparison with other sorts, including unification

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The notion of a *cornerstone*, for instance, is a free specification of the notion of an important element in a standing structure; no additional metaphorical analysis is needed to account for the meaning of this term when it is applied to theories, social groups, and so forth. Presumably, this more specific image is easily activated by the mention, or thought, of the schematic concept which it instantiates.

It is an empirical question whether other (non-western) cultures have metaphors along the lines of LOGICAL STRUCTURES ARE ERECT PHYSICAL STRUCTURES, and if so, what kind of erect physical structures serve as prototypical sources—free specifications—of the metaphors in those cultures. Just as reed mats may be prototypical interwoven objects in other cultures, there may be structures other than what we would regard as "buildings" that serve as sources for metaphorical thought and language about non-physical entities such as families and tribes in those cultures.

2.4 Extensions of the conventional mapping

Any account of THEORIES ARE BUILDINGS must reflect the fact that like other metaphors (or compounds) this one can apparently be extended to encompass new concepts and elements which do not appear to be part of the conventional range of the metaphor. Extensions of this sort are well illustrated in a passage from the *New York Times Book Review*:[8]

(15) The *house* of psychoanalysis has many *mansions*, but some of Freud's followers, almost from the day they first began to gather around him, have not wanted to *live in the main house* and have *built their own annexes and outbuildings*. The *additions*

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with other mappings, and *conceptual blending* (discussed in Chapter 7). It is *free* in the sense that incurs no great cognitive processing "costs" (cf. Fauconnier, 1994, on "semantic freeloading").

[8] From *The New York Times Book Review*, Nov. 6, 1994, p. 11; review of *On Flirtation*, Adam Phillips, by Janet Malcolm.

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— the revisionist schools of psychoanalysis — have been of varying *solidity and durability*. Some were so *rickety* (the *summer house* school of Alfred Adler, say) that they almost immediately *collapsed*, while others (the *stone chapel* school of Carl Jung) were more *solid* and have endured. In all cases, conditions *within the main house* were felt to be too *austere*.

...something in [Freudian literature] doesn't sit well with [Adam Phillips, a revisionist]. Something has caused him to *pack up his things and leave the Freud house*.

As we meet [Phillips] in this collection of essays, lectures and book reviews...he is a man in transit. He has *left*, but he hasn't yet *built himself a new house*.
[All italics added.]

Clearly the analysis of THEORIES ARE BUILDINGS presented so far in this paper is inadequate to account for the language and conceptual structure found in these excerpts, yet it is equally clear that these examples are readily interpretable. The possibility of extending metaphors in just such a way was discussed briefly in *MWLB*. Expressions similar to those in (15) were referred to as *instances of the unused part of the literal* [i.e. commonplace] *metaphor* (Lakoff & Johnson 1980: 53). Such expressions were said to "fall outside the domain of normal literal language and [to be] part of what is usually called 'figurative' or 'imaginative' language.'" Such examples were, however, treated as instances of the same metaphors as the more conventional examples.

In *MWLB* the extent, and the content, of the "unused portion" of a given metaphor—i.e., the elements of the source domain which fail to map onto the target domain—were treated as arbitrary; there was no way of predicting in advance what those unused elements might be, if any. Additionally, the meaning of "unused" remained vague

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since examples were given which showed that elements which are not conventionally mapped may be mapped in the context of "imaginative" language, and that resulting examples may be quite comprehensible. It would seem, then, that "unused" meant unconventional in a statistical sense only—i.e. less conventional, less well-entrenched.

The analysis presented here, however, differs substantially from this early account. The "unused portion of THEORIES ARE BUILDINGS" is not in fact part of the metaphor we have been considering, which does not refer to buildings per se at all. Instead, the source material for these extensions of the conventional compound includes elements of the domain of buildings which fall outside the scope of the compound metaphor, but which may be mapped onto aspects of theories via primary metaphors other than VIABILITY IS ERECTNESS and ORGANIZATION IS PHYSICAL STRUCTURE. As noted earlier, the gaps in the data for the THEORIES ARE BUILDINGS metaphor are predictable consequences of the primary mappings, which make no reference to actual buildings. The status of innovative expressions which elaborate "unused" elements of complex metaphors, and of novel extensions of those metaphors, is neither arbitrary nor statistically defined. Such expressions are accounted for in a principled manner, by reference to the particular component metaphors which make up each compound—in this case, VIABILITY IS ERECTNESS and STRUCTURE IS PHYSICAL STRUCTURE, plus others which are required to motivate novel expressions such as those in (15).

Until now we have been assuming that the bounds of the conventional metaphor (or compound) — i.e., the dividing line between the conventional examples and correspondences and those which should be considered extensions of the metaphor — are clearly drawn. For instance, *buttress* falls within the set of words/concepts forming part of the conventional system while *window* does not. There are several kinds of evidence which could help us establish this crucial distinction, without which there would be less linguistic basis for decomposition of complex metaphors into more fundamental units. One point to keep in mind is that we cannot rely on a simple statistical word count to determine

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conventionality. If a word such as *pillar* refers to (a specification of) a concept which is included in the conventional mapping —e.g., 'support' — then it should be considered part of the data for the conventional metaphor, even though its occurrence is rare—metaphors are ultimately based on concepts, not words. Nonetheless, statistical counts based on representative corpora should provide a good starting point for finding a core set of source domain terms which occur in references to theories. The intuition of native speakers should also provide valuable, if inconclusive, evidence for the core of the conventional metaphor, since virtually all educated speakers are likely to agree, for example, that *the foundation of the theory* is a more central instance of the metaphor in question than is *peeping through the windows of a theory.* Additionally, there is the possibility of conducting experiments using the techniques of psychological testing, to determine which elements of the domain of buildings are (most strongly) associated with theories and other logical structures. Finally, it should be noted that the notion of conventionality of compounds is itself merely a statistical one, and not essential to the analysis presented here. The conceptual relationship between metaphors is a principled one, but the question of which compounds are most common is an empirical question independent of these principled relations.

It will be helpful to take a specific look at some of the additional analysis needed to account for metaphoric references to such concepts as *summer house*, *stone chapel*, *mansion*, etc., which occur in the passage above:

home

There are a number of references in the excerpts which rest on the concept of a dwelling place—e.g., "caused him to pack up his things and leave the Freud house." Home is a source domain for a wide variety of concepts having little to do with dwelling or even physical location. Sentences such as the following illustrate an extended sense of home—roughly, 'place where ones activities are based':

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(16) a. Parker [an editor] recently found a new *home* at Random House.

b. Houston [a basketball team] will play at *home* this Thursday.

Whether this extension should be considered metaphorical is not an essential question for our analysis. Some would refer to such a development as "generalization," implying that a metaphorical analysis is not needed in cases of extension where some constraints on reference still apply—e.g., 'location of central importance'—while others are dropped—e.g., 'dwelling place.'[9] A further extension of the concept of 'home' can surely be described as metaphorical, since it no longer refers to the spatial domain at all. This extension is found in sentences such as:

(17) Hockett has stayed close to home in his recent recordings, returning to the Romantic style in which he established his reputation.

Home here refers not to any physical location but to a style of music. This extension of the source concept of 'dwelling place' is quite similar to the one which underlies expressions in the Malcolm review, such as *pack up his things and leave the Freud house.* In both cases, the "dwelling place" is actually a set of conditions which combine to characterize a mode of cognitive activity. The metaphorical usage in (17) seems closely related to the conceptualization of states of being as physical locations[10] but draws no connection

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[9] See, for instance, Bybee's discussions of the semantic changes leading to the process of grammaticalization (e.g., Bybee et al 1994).

[10] The "STATES ARE LOCATIONS" metaphor is discussed in Lakoff's "Contemporary Theory" paper (1993), among other places, and is implicit in other discussions, including various work on the semantic basis of grammaticalization (e.g., Heine et al, 1991), and writings concerning the localist hypothesis (Anderson, 1971). For more on this metaphor,

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between "home" and a house or other structure. It is independent of the conceptualization of logical organization as physical structure, but can be felicitously combined with it.

To summarize, the analysis which best reflects the relationship between expressions in the Malcolm review and those in (16) and (17) is that in the Malcolm review a nonce compound metaphor has been formed which combines THEORIES ARE BUILDINGS and some compound involving STATES ARE LOCATIONS and a metaphorical extension of 'dwelling place' (the details of which will not be considered further here):

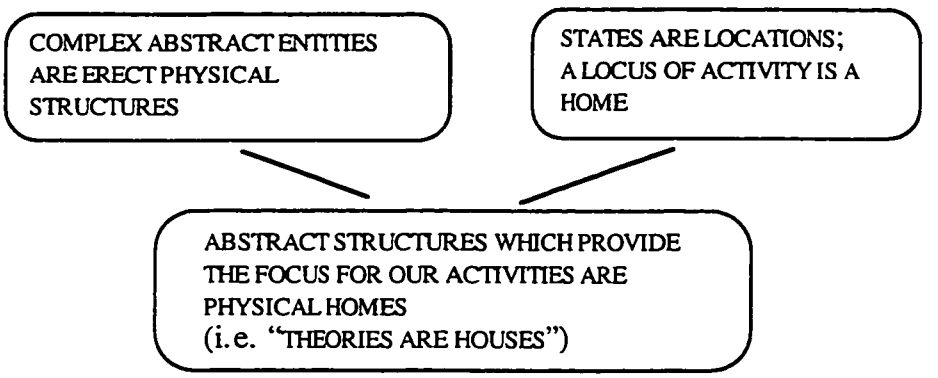

Figure 2. The motivation for "theory as house"

The purpose of this discussion is to emphasize the fact that expressions such as those in the Malcolm review should not be taken as evidence that THEORIES ARE BUILDINGS is a thorough, productive, and direct conceptualization of theories as literal buildings. Instead, a decompositional approach shows that "innovative" usages of the sort found in (15) are most profitably understood as combinations of independent but compatible metaphors which each add detail and specificity to the compound which they make up.

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see Chapter 4.

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summer

"Summer house" seems primarily to be a reference to structural properties of typical summer houses—e.g., *rickety*—and therefore does not require the importation of further metaphors, but is instead a *metonymic* reference to a type of structure associated with certain qualities of durability.[11]

stone chapel

Like summer houses, stone chapels are characterized by certain structural features—e.g., they are *solid*—and the mention of stone chapels here is a metonymic reference to an aspect of buildings which does form part of the core, conventional metaphor, as it has been defined above. Another important point is that, like summer houses, stone chapels also evoke other associations which should certainly not be called parts of the THEORIES ARE BUILDINGS metaphor proper: they may be metonymically associated with somberness, seriousness of purpose, and so forth. (To explain such references further would require giving an account of the particular psychological theories under discussion.)

austerity

Given that in the conventional mapping there is no reference to the interior of a theory, and therefore no reference to any qualities of an interior, austerity is certainly not a conventional aspect of the metaphor. What might such a concept mean when applied to theories? The author is suggesting that many of Freud's followers came to prefer theories which allowed for views of psychological motivation which were less harsh and less constrained than those available within the Freudian paradigm. To show that such a metaphorical correspondence is independent of the THEORIES ARE BUILDINGS compound, we need only

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[11]For more on the distinction between metaphor and metonymy, see Lakoff & Johnson (1980), Fauconnier (1984), etc.

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be convinced that "austere music," "austere language" and "austere life" are motivated by the same sort of conceptual association. I.e., severity of constraints (or its corollary, lack of extraneous, pleasure-giving elements) is understood as physical austerity. If so, then the mention of "austere conditions" within the "Freudian house" is motivated by an extended sense of "austere"—perhaps metaphorical—which is independent from the THEORIES ARE BUILDINGS compound, but can be unified with it.

In sum, the writer of this review has woven a variety of compatible metaphorical expressions into a text which refers repeatedly to the same experiential domain—houses—and which therefore strikes the reader as both coherent and elegant. To say that all these expressions are instances of a single metaphor, however, would be to ignore much of the structure of that metaphor (actually an elaborate nonce complex, or even a string of such complexes), and to discount the relationships between the individual expressions and other metaphors quite independent of the domains of theories and buildings. Each innovative metaphorical reference could be represented as a compound combining THEORIES ARE BUILDINGS with another figurative association.

The decomposition approach proposed in this dissertation meaningfully characterizes the relationships holding between the various relevant metaphors in (15) and predicts the possibility of many more such compounds. For instance, there could be meaningful expressions referring to the "windows" of theories, licensed by the combination of the core compound with metaphors linking understanding with vision. An example from *MWLB*, "Gothic theories covered with gargoyles," cited as an "instance of the unused part" of the conventional metaphor, can now be understood as a compound of what could be called "basic THEORIES ARE BUILDINGS" and a compatible metaphor for logical complexity as visual complexity, using the experiential domain of buildings as a special case. Such innovations are constrained only by the limits of compatibility.

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A notation for complex metaphorical structures: Binding tables

In this section I will introduce a type of notation (which I call a *binding table*) that allows me to represent some of the ways in which primary metaphors can be combined and elaborated, to yield the kinds of specific imagery we have seen in a number of examples in this chapter.

The following figure represents the primary metaphor VIABILITY IS ERECTNESS. It shows the source concept and target concept, plus the grounding for the metaphor. (It does not represent the details of each metaphor, such as the fact that *erectness* entails both an entity and its position.) This is the simplest version of a binding table, since it represents only one, directly-grounded metaphorical conceptualization.

Source		Target	Grounding
ERECTNESS	→	VIABILITY	{Experiences with objects (including our own bodies) where erectness correlates with functionality, health}

Binding Table #1. Primary metaphor (VIABILITY IS ERECTNESS)

The next figure is in the same format and represents the primary metaphor ORGANIZATION IS PHYSICAL STRUCTURE.

Source		Target	Grounding
PHYSICAL STRUCTURE	→	ORGANIZATION	{Manipulation of complex objects, correlated with formation of mental representation of logical relationships among parts}

Binding Table #2. Primary metaphor (ORGANIZATION IS PHYSICAL STRUCTURE)

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Binding Table #3 represents the image which results from the combination of VIABILITY IS ERECTNESS and ORGANIZATION IS PHYSICAL STRUCTURE. The two metaphors *elaborate* one another, and the box represents the fact that they combine to yield a single, coherent source concept and a single, coherent target concept, which are bound in a way that preserves the primary correspondences. Note that the elaboration structure as a whole is not grounded, but the individual correspondences are.

This diagram also includes (in parentheses) the representation of an emergent feature of the elaborated mapping: sturdiness is a parameter which is relevant to any standing structure, and it maps onto the capacity for an abstract structure (such as a theory) to endure.

Source		Target	Grounding
ERECTNESS	→	VIABILITY	{Experiences with objects (including our own bodies) where erectness correlates with functionality, health}
PHYSICAL STRUCTURE	→	ORGANIZATION	{Manipulation of complex objects, correlated with formation of mental representation of logical relationships among parts}
(STURDINESS)	→	(CAPACITY TO ENDURE)	{(emergent)}

Binding Table #3. Elaboration of primary metaphors

(VIABLE COMPLEX ENTITY IS ERECT PHYSICAL STRUCTURE)

The next figure represents the *instantiation* of the complex source image referred to in Binding Table #3. Here the image of a complex, erect physical structure has been specified as a *building*. (Presumably, the simultaneous activation of the concepts of erectness and complex physical structure prime the more specific conceptualization of a building.)

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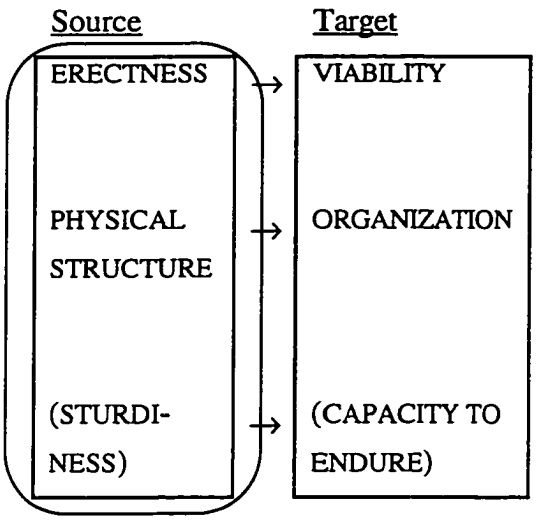
The rounded box is intended to suggest that the highly schematic image of an erect physical structure has been somewhat "fleshed out" in this instantiation. (Note that this representation is *not* a sort of Venn diagram, where the inner box might represent a more specific subset of a larger category represented by the outer box.)



Grounding
{Experiences with objects (including our own bodies) where erectness correlates with functionality, health}
{Manipulation of complex objects, correlated with formation of mental representation of logical relationships among parts}
{(emergent)}

Binding Table #4. Instantiation of a complex metaphor

(A VIABLE COMPLEX ENTITY IS A BUILDING)

This same structure, by the way, would account for metaphorical references to societies or ecosystems as buildings, as well as theories.

Binding Table #5 represents the metonymic extension of the building frame to allow reference to *summer* (for example). Summer—or more specifically, 'association with summertime'—is not a grounded element of the source image, and it therefore has no specific counterpart onto which it maps in the domain of theories. Since there is a metonymic link between summertime use and structural features of buildings, though, the reference to summer can evoke aspects of the building frame. (This type of conceptual

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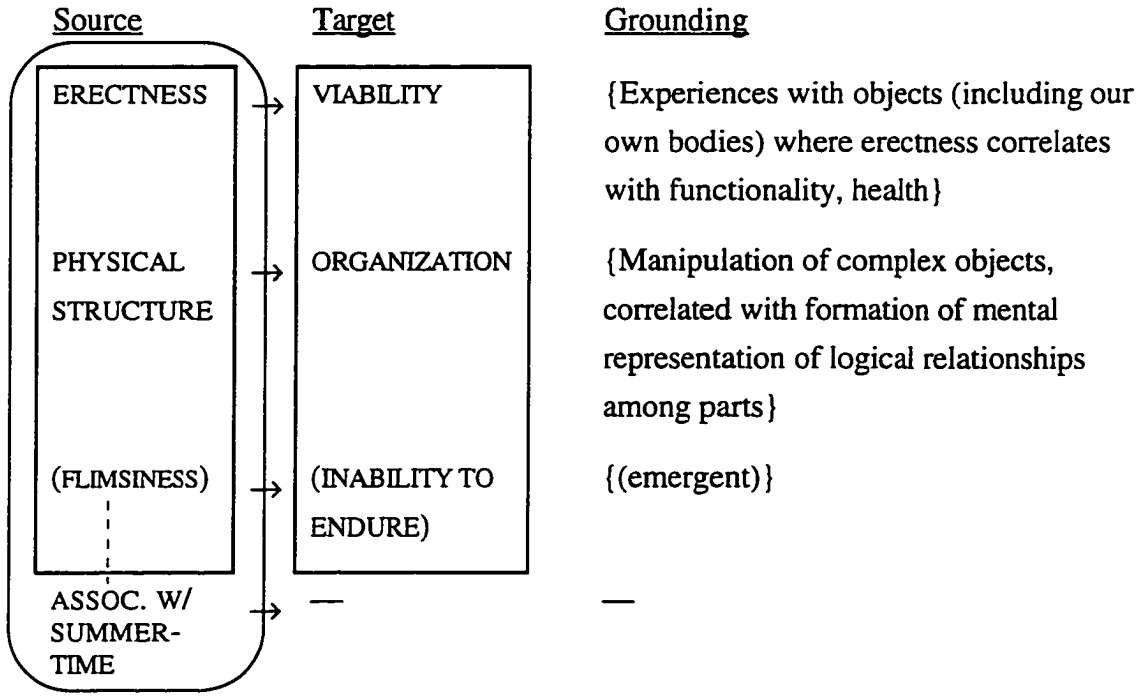
elaboration is an example of what Fauconnier and Turner (e.g., 1994) refer to as *blending*. This framework will be discussed in Chapter 7.)



Binding Table #5. Instantiation of a complex metaphor plus an additional ungrounded frame element

As these figures reflect, the basic metaphors, which are motivated by direct experience, are ultimately the basis for rich images and figurative language. Such images can become even more elaborate than the ones discussed here—indefinitely elaborate, in fact—since there is no limit on the capacity of the mind to form connections and generate complexity. On the other hand, all these feats of creativity are ultimately based on the fundamental correspondences at the heart of the mapping.

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2.5 Further theoretical issues

This section introduces some of the implications of the decomposition analysis presented in the chapter. These issues will be taken up in greater detail in subsequent chapters.

Limits on generality

The question might arise whether the two mappings presented here as components of THEORIES ARE BUILDINGS are themselves decomposable into more basic metaphors. The answer appears to be *no*. Each relies on a minimal set of elements, properties and relations to form a self-contained frame. In the case of VIABILITY IS ERECTNESS, it is clear that the mapping could not be coherent without reference to both the object and its position. It is an important feature of primary metaphors such as VIABILITY IS ERECTNESS that they self-contained in this respect, and not decomposable into smaller, more local mappings.

The fact that these mappings are not decomposable illustrates an important point about the decomposition approach. The goal is not to find metaphors which are at the logical extreme of generality. Rather, the goal is to find metaphors which are well substantiated by linguistic evidence, and to show how they are grounded in experience, and how they are related. To take an example, the metaphor which associates continuing functionality with verticality might, in principle, be a special case of a more general metaphor such as (hypothetical) PERSISTING IS REMAINING IN A POSITION/POSTURE. Note, though, that references to physical positions other than standing — e.g., sitting and reclining — do not lead to interpretable sentences about continuing viability. (?*The situation at work is still seated.*) This is for the reason that there is a motivated association between functionality and erectness, but not between functionality and other positions. In short, the list of all logically possible metaphoric associations is very different from the set of conventional metaphors which actually arise. It is the latter set which is of interest to the cognitive linguist.

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Inheritance

The decomposition account gives us a very clear and specific way of discussing metaphoric "inheritance." In current theory, a metaphor inherits another metaphor if the first includes all (or nearly all) the structure of the second, plus some additional structure—e.g., LONG-TERM PURPOSEFUL ACTIVITIES ARE JOURNEYS inherits ACTION IS BODILY MOTION (see Chapter 4). In the terms established here, the former is a compound of which the latter is a component (and, as it happens, a primary metaphor). Note, though, that the inheritance mechanism does not accomplish the same things as a decomposition analysis—for instance, it does not help to predict which elements of a complex domain like buildings will map onto theories and which will not.

The nature of "domains"

Like VIABILITY IS ERECTNESS, ORGANIZATION IS PHYSICAL STRUCTURE is self-contained and non-decomposable, but its status as a primary metaphor, and even as a metaphor per se, is debatable, given current theory. This is because "organization" and "physical structure" may not be specific enough to count as experiential domains. Within the tradition of metaphor theory, domains have been thought of as particular categories of human experience and perception, such as activities — traveling, preparing and eating meals, etc. — and physical properties such as temperature and size (UNEMOTIONAL IS COLD, IMPORTANT IS BIG, etc.).

As we will see in the next chapter, however, the theory of primary metaphors entails that the role of experiential domains like traveling and building construction is very different from what it has been in other accounts of metaphor. Many primary metaphors cannot be said to arise from experiences in some one particular domain. For instance, if there is a basic mapping between acquiring desired objects and achieving goals, as a wealth of data indicates, such an association could arise in any number of situations, from fishing

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to reaching for a favorite toy. The discussions of *primary scenes* in the next chapter will recast the place of domains in conceptual metaphor theory.

Relationship to other aspects of language

If metaphor is based on fundamental and recurring elements of experience, then this makes metaphor more akin to other aspects of language than previous analyses would suggest. Grammatical structure tends to express schematic characterizations of reality, whereas lexical material fills in finer and richer detail[12], and there is evidence indicating that grammar, at least the grammar of verbal constructions, arises in part in order to express the structure of basic, recurring scenes[13]. While metaphor itself may be strongly tied to the lexical end of the meaning spectrum, the kinds of schematic understandings of experience implicated in primary metaphor analyses may relate closely to the kinds of cognitive phenomena which structure grammatical meaning. Some possible relationships between metaphor and other aspects of language are explored in Chapter 8.[14]

2.6 Conclusion

What are the advantages of decomposing a complex metaphor into its component parts? We have already seen several, and we will have the opportunity in later chapters to explore these in more detail. The decomposition analysis allows us to explain or predict which elements of a complex source domain should be mapped onto the target domain and which should not, in a principled and specific way. By accounting for "gaps," primary metaphor

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[12] See Talmy (1987), for example, for an enlightening study of the nature of grammatical vs. lexical meaning.

[13] See Slobin (1985 and others).

[14]Note that there have been studies which have used metaphor to account for grammatical phenomena (e.g., Goldberg, 1995). For instance, a metaphorical understanding of resultant states as final locations may be the basis for the grammar of English resultatives

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analysis offers a more accurate, less arbitrary account of linguistic data. The framework also allows for the filling in of these gaps in more specific metaphorical images. For instance, there is no counterpart for windows per se in the target domain of theories, yet once the notion of an erect physical structure has been (freely) specified as a building, an image has been evoked which includes windows, and metaphors which relate more directly to windows—e.g., KNOWING IS SEEING—will be able to unify with the building metaphor in a natural way.

An additional advantage of the theory of primary metaphors concerns the ease of stating metaphorical mappings. For any given expression, the correspondence which must be invoked may be a basic, or primitive one, rather than the entire list of correspondences which occur in a complex metaphor like THEORIES ARE BUILDINGS or LIFE IS A JOURNEY. This sort of technical simplification is sought in any formal system. As an example, consider the correspondence OBLIGATIONS ARE BURDENS. This is the metaphor which licenses such expressions as *tax burden* and *our responsibilities weigh heavily on us.* Although these expressions have been seen as instances of an extremely broad metaphor referred to as the EVENT STRUCTURE METAPHOR, an alternative analysis would treat OBLIGATIONS ARE BURDENS as a primitive which need not occur in combination with metaphors for action, but may occur independently, and in different combinations. In this way the account of the phrase *tax burden* is made considerably more efficient. In the present case, an example like "this situation will not stand" can be accounted for by reference to VIABILITY IS ERECTNESS, rather than by invoking any more complex metaphor which might include this primary mapping.

Furthermore, this analysis provides a clear and efficient way of stating the relationships between complex metaphors which clearly share some elements and differ in others. For instance, we need not consider THEORIES ARE ERECT PHYSICAL OBJECTS and

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like *He wiped the counter clean* (cf. *He pushed the tray away*).

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THEORIES ARE TEXTILES to be unrelated metaphors which require unique and distinct accounts. Rather, they share (i.e. they both *inherit*) the ORGANIZATION IS PHYSICAL STRUCTURE mapping; this is a simple, accurate, and formalizable statement of their relationship. The two compounds differ in definable ways with respect to their elaborations of the basic 'structure' mapping.

An even more important advantage of the decompositional analysis—and one that is the foundation for much of the dissertation—is that it shifts focus onto those metaphors which arise directly from experience. The concern with experiential motivation is central to current cognitive linguistics. Principled motivation from the facts of human experience distinguishes this area of study from those which treat the relationship between symbols and their referents as essentially arbitrary. If it cannot be explained how there is a correlation in experience between theories and buildings—and it does not seem likely that a plausible correlation of this type could be found—then the cognitive association of these two domains is troublesome from the perspective of the cognitive linguist. By showing that these domains are actually related via two cognitive links which do arise from experiential correlations we save an important generalization, and we refocus attention on the grounding of language, which is of interest to cognitive science in general. Additionally, as I have mentioned, this focus on grounding makes metaphor more commensurate with other elements of linguistic structure.

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Chapter 3. Primary Scenes: IDEAS ARE FOOD Revisited

What kinds of experiences could give rise to primary metaphors? In the last chapter we saw that some metaphor analyses are easier than others to account for in terms of experiential motivation. A natural question to ask once we have begun to focus more on the experiential motivations for metaphor is, What is the nature of these experiences? When we identify mappings that fit the data and have some plausible basis in experience, what kinds of experiential groundings are implied by these accounts?

Previous studies of conceptual metaphor have given a central role to relationships between *experiential domains*; when a pair of domains is coaligned in experience (or when they share structural features, on some accounts), this association leads to the formation of metaphorical mappings between the two. Domains which have been cited as sources or targets for conceptual metaphor have ranged from the simple concepts of quantity and vertical elevation (e.g., MORE IS UP) to combat, in all its complexity (e.g., ARGUMENT IS WAR). Gibbs (1994: 321-322) refers to the domains of *athletes* and *food* in his discussion of the term *creampuff*. Turner and Fauconnier (1994: 1) refer to domains as "vast organization[s] of knowledge, such as our knowledge of *journey* or *dreaming* or *education*" and to metaphors as "(partial) mapping[s] of the basic structure of one conceptual domain (the source) onto another (the target)."

Focusing on data which has previously been analyzed as evidence for a general mapping between the domains of ideas and food (Lakoff & Johnson 1980, Lakoff & Johnson to appear, and others), this chapter reconsiders the centrality of such domains in defining metaphorical mappings. Building on the discussion of *primary metaphors* in the last chapter, I will show that rather than referring to such "vast organizations of knowledge" as these, we can account for the linguistic evidence more convincingly by considering much narrower mappings between concepts.

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Furthermore, this reassessment of the role and nature of conceptual domains will lead us to conclusions about the nature of the experiences which give rise to conceptual metaphors. In this chapter I introduce the notions of *primary scene* and *subscene*—recurring aspects of subjective experience—and argue that these constructs help account for patterns of metaphoric conceptualization; the same evidence which demonstrates the existence of primary metaphors also leads us to new insights about these units of experience which figure saliently in conceptual structure.

3.1 IDEAS ARE FOOD: The "rich mapping account"

In Chapter 2, we reexamined the "THEORIES ARE BUILDINGS" metaphor which had been proposed in *Metaphors We Live By* and referred to in other important works on conceptual metaphor since then. In this chapter, we take a look at another complex metaphor proposed by Lakoff and Johnson—IDEAS ARE FOOD.[1] This hypothesized metaphor consists of a systematic metaphorical correspondence which maps the domain of ideas onto the domain of food, and like THEORIES ARE BUILDINGS it has subsequently been cited in other works on conceptual metaphor. Evidence for IDEAS ARE FOOD includes the following linguistic examples, taken from Lakoff & Johnson (1980, and To appear):

(1) a. What he said left a bad *taste in my mouth.*

b. All this paper has in it are a few *raw* facts, *half-baked* ideas, and *warmed-over* theories.

c. There are too many facts here for me to *digest* them all.

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[1]Lakoff and Johnson have revised their account of this metaphor somewhat in recent work (Lakoff & Johnson, to appear); some of the references here to an especially broad mapping between the domains apply to the earlier version. They are nonetheless useful for illustrating the general distinctions between local mappings and the more extensive ones proposed by many scholars in the field.

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d. I just can't *swallow* that claim.

e. That argument *smells fishy.*

f. Let me *stew* over that for a while.

g. Now there's a theory you can really *sink your teeth into.*

h. We need to let that idea *percolate* for a while.

i. That's *food* for thought.

j. He's a *voracious* reader.

k. We don't need to *spoon-feed* our students.

l. He *devoured* the book.

m. Let's let that idea *simmer on the back burner* for a while.

n. This is the *meaty* part of the paper.

o. Let that idea *jell* for a while.

p. That idea has been *fermenting* for years.

q. An idea that cannot be immediately comprehended is one you have to *chew on* for a while.

As these examples make clear, the "rich mapping account" suggests that the highly elaborated domain of food, eating, cooking, and so forth is systematically mapped onto the equally rich, though less concrete, domain of ideas, contemplation, and communication. In this case—as in the Turner and Fauconnier passage—the domains are major, complex aspects of human life, about which we have tremendous amounts of knowledge of many sorts.

3.2 Problems with the rich mapping account

When we examine the data carefully, however, we find that they do not suggest a neat alignment between these two aspects of life after all. Although activities related to food provide a fertile source of terms and concepts which can be extended to mental and

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communicative processes (and to various other abstract concepts as well), the two domains are not systematically related by a single mapping.

Inconsistency among submappings

A nice example of the lack of systematicity in the mapping between the two domains, provided by Eve Sweetser (p.c.), is the fact that we must often *digest* what someone says before we know whether we can *swallow* it—i.e. accept it. In the domain of food, of course, *digest* refers to a process that takes place (primarily) after swallowing. This fact suggests that the motivation for the metaphorical usage of *swallow* is not exactly the same as the motivation for *digest*.

The phrase *food for thought* itself seems to reflect a metaphorical image which is inconsistent with the one reflected in other data above. For instance, this expression seems to have little to do with the conceptualizations behind the metaphorical senses of *spoon-feed*, *swallow*, and *digest*:

(2) a. ? She *spoon-fed* us the *food for thought*.

b. ? I couldn't *swallow* all the *food for thought*.

c. ? It took all day to *digest* the *food for thought*.

These examples are not readily interpretable, and they have the "flavor" of mixed metaphor; they are jarring because they evoke distinct and incompatible images. We will look at these particular images more closely in a moment.

Another violation of self-consistency within the rich mapping account concerns the metaphorical meanings of *stewing* and *simmering*. These words refer to very similar concepts in the source domain of cooking, but have very different meanings when used metaphorically, as in examples (1f) and (1m) above. In its metaphorical usage, *stewing* refers to a process of evaluating an idea (accompanied by emotional agitation, which we

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will return to shortly), whereas *simmering*, *percolating*, and several other similar expressions appear to be about the process of developing an idea prior to sharing it with others. *Simmer* is also more suggestive of a slow process than *stew* is; when we suggest letting an idea "*simmer* on the back burner," we are not referring in any way to emotion, but only to a period of prolonged, low-intensity consideration (or even total neglect). Even more importantly, we describe a person as *stewing*, but an idea as *simmering* or *percolating*, as in the examples in (1). If stewing and simmering (and perhaps percolating) are all similar food preparation processes—involving maintaining fluids at relatively low heat—then it is troubling that within a single mapping they should refer to very different aspects of cognitive activity.

If we try to save the elaborate mapping by arguing that *stew*, *simmer* and *percolate* all have the same very general metaphorical meaning—involving a low-intensity mental process of any sort, and that it is strictly a matter of linguistic convention which terms have come to be associated with which types of mental activity, we are sacrificing considerable systematicity and predictive power in our account, since one source concept is being mapped in very different ways onto the target domain:

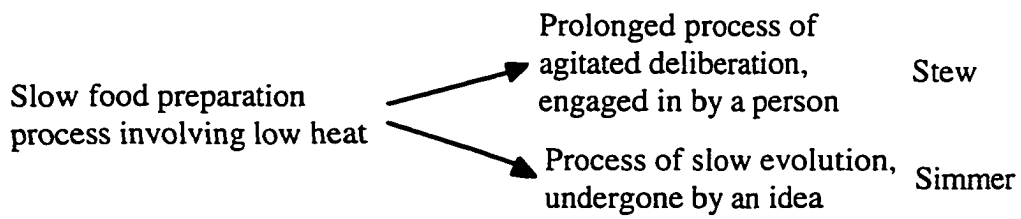

Figure 1—*Stew* vs. *Simmer*

If we try to save the elaborate mapping by eliminating troublesome terms like *stew*— on the grounds that they must be part of some other, different mappings after all—we eventually eliminate the fleshed-out mapping we are trying to save, and arrive at something like the

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account I will propose below, which involves independent smaller mappings between the two domains, rather than one rich one.

Target concepts other than intellection

Another important point about the types of examples mentioned above is that the expressions do not seem to be consistently about ideas and intellection per se. As I pointed out earlier, metaphorical *stewing* has an emotional component as well—this may even be the primary significance of the word—and is motivated at least as much by the correspondence between emotions and the heat of fluid in containers (see Lakoff (1987), Case Study 2) as by a correspondence between the food domain and the intellectual one. The metaphorical process of *swallowing* does not apply only to intellectual ideas, but to almost anything that we accept reluctantly. For instance, if we know someone who has been demoted at work, we might say "That must have been hard to swallow." (Even if this usage strikes us as unconventional, we have no trouble understanding the intended meaning—i.e., we are able to identify the correspondence immediately.) The phrase *food for thought*, which fits poorly with other expressions in our list, as we have seen, seems to reflect a much more general correspondence between feeding and other domains. Anything which is understood as an object without which a particular process cannot take place can be metaphorically conceptualized as food. For instance, linguists speak of phonological rules which *feed* other rules—i.e., yield the forms which are in turn the input for other rules:

(3) German schwa-loss *fed* final devoicing.

And soldiers referred to as *cannon fodder* are in a sense material for the process of military destruction. In the same manner, *food for thought* is the input, or "fuel," which provokes or stimulates the thought process. (This expression, including diverse interpretations of it,

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will be given further attention below.) *Food for thought* and other expressions listed in (1) above arise from mappings which are much more general than "IDEAS ARE FOOD."

"Gaps" in the mapping

As in other case studies presented in this dissertation, we can get a lot of clues about which aspects of the two domains in question are mapped onto one another by finding ways in which the domains do not line up—in other words, by finding gaps in the mapping between food and ideas. When we picture the types of familiar experience that involve cooking, food, eating and feeding, certain basic and experientially salient aspects of those experiences come to mind. Among these are the utensils we use, the type of meal (breakfast vs. lunch vs. dinner), the setting (typically a place with table, chairs, etc.), the act of putting food into the mouth, the type of food (e.g., bread vs. tapioca pudding vs. asparagus), ingredients (e.g., eggs, salt[2]) the sensation of being full, and so forth. As it happens, none of these elements of the food experience plays a conventional role in our metaphorical understanding of ideas and thinking, even though it is hard to imagine a food-related experience without evoking most of them. If the elaborate account of the data is called into question by the fact that many of its elements seem to be parts of other, more general mappings, as we saw above, its credibility is reduced further still by the fact that many of the most salient elements of the experience of eating—even the mouth itself—fail to map onto the domain of thinking:

(4) a. ? I can't get that idea into my *mouth.*

b. ? I needed a *fork* to get through his latest essay.

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[2]Some types of ingredients are metaphorically mappable onto ideas, but not for the reasons suggested by the elaborate mapping account. See the discussion of flavor below.

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Of course we can construct interpretations for these sentences, but the relevant point here is that the interpretations would require some creativity and the evocation of additional metaphors, because we have no conventional way of extending the concepts of *mouth* or *fork* to the cognitive domain.

Lack of experiential basis

As in the THEORIES ARE BUILDINGS case, the lack of a plausible experiential basis for associating the domains of food and thought gives us another indication that there may be a different analysis that accounts better for the relevant set of metaphorical expressions. Food and ideas inhabit such distinct aspects of our lives that there is no context in which they are typically brought together in our experience, such that we would be likely to form a conventional metaphorical correspondence between the two.

3.3 Local metaphors and their experiential bases

All in all, the evidence considered in the last section suggests that there are a number of distinct mappings which underlie the expressions in (1) above. If every metaphorical mapping must have a motivation, then distinct mappings imply distinct motivations for these mappings as well, and these motivations appear to involve particular aspects of the experience of eating, rather than the whole domain in all its richness. Looking at a number of these more specific cases will sharpen our understanding of what the elements on either side of the metaphorical "equal sign" may look like, and of what the experiences associated with these conceptualizations must be.

Swallow

The metaphorical meaning of *swallow* is one which has a strong motivation in experience. As I mentioned above, swallowing maps not just onto the act of accepting a proposition in an intellectual sense, but also onto other situations where acceptance, e.g., of a situation, is

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at issue. In this latter sense, accepting consists roughly of deciding not to resist a situation. (This same mental process—the decision not to resist, the shifting of one's mind-set to accommodate a new circumstance—may also accompany the act of taking an object that is offered to us. This type of scene is the basis for a different metaphor for "acceptance"—illustrated in the expression *I can't take it*—as well as for the etymology of *accept*, which derives from Latin roots related to physical transfer.)

In the recent history of English, *swallow* was used more readily than it is today to refer to the acceptance of unpleasant situations, even where there was no implication that an idea per se that was being weighed. Consider the following examples, taken from the OED:

(5) a. I took my four pills last night, and they lay an hour in my throat.. I suppose I could *swallow* four affronts as easily. [1710. Swift, in *Jrnl. Stella*, Nov. 2]

b. And how many disgraces and indignities he *swallowed*, to bring his own ends about. [1623. J. Chamberlain in *Crt. & Times Jns. I* (1848) II, 442]

c. The representatives of this nation.. are ready to *swallow* this proposition by acclamation. [1789. Gouv. Morris in Sparks, *Lif. & Writ.* (1832) I, 325]

d. People take you with all your faults, if you are rich; but they won't *swallow* your family into the bargain. [1853. Lytton *My novel*, IV, xiv]

Such usages are no longer current, but it is still easy to understand what is meant in each case, and this is as reliable a test for the availability of a mapping as lexical conventionality is. (Recall the discussion of *electron microscope* in chapter 1.) The expression *bitter pill (to swallow)* provides more contemporary evidence that swallowing stands metaphorically for accepting in a broad sense (i.e., not just intellectual acceptance of a proposition), since this phrase can be used, for example, when something bad happens to us, not just when an unpleasant idea is presented to us for evaluation. (The fact that typical metaphorical usages of *swallow* have a negative flavor will be addressed in a moment.) Other expressions also

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point to a conceptualization of accepting as swallowing, even outside the realm of intellectual idea exchange:

(6) We weren't happy about the equipment changes, but they were forced *down our throats* by the purchasing department.

In this example, the image of being forced to swallow something corresponds to the necessity of accepting a situation, not to acceptance and belief relative to a proposition.

The motivation for the conceptualization of accepting as swallowing is in certain respects very straightforward and natural. A prototypical, deliberate act of swallowing something—typically food—entails an absence of resistance. (And even in the very atypical case where something is actually "forced down our throats"—the ultimate muscular act might still be largely voluntary). When we swallow a piece of food, or a pill, etc., we have made a decision to accept the object into our bodies. This is surely one of the first and most basic experiences we have of choosing whether to resist something that is available to us. Swallowing is a perfect metaphorical source concept because it is concrete, vivid, and commonly experienced. The mapping between swallowing and accepting is natural because the two acts—one physical and one mental (intellectual, emotional, or both)—co-occur so regularly and predictably.

Why does *swallowing* typically refer to the acceptance of unpleasant truths or situations? This may seem surprising, given that we are usually happy to eat food, for instance. Yet it is difficult to understand sentences that refer to metaphorically swallowing something which gives us pleasure:

(7) ? I *swallowed* the pay raise gladly.

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Two possible lines of explanation suggest themselves, both of which relate to the markedness of some situations compared with others. It may be the case that we are typically unconscious of swallowing except in cases when there is some question about whether we will do it, or in cases where it is difficult for some reason. Most of the time, swallowing is an automatic component of eating, and therefore is not correlated with any other concepts or experiences in particular; in these instances it may not even count as an experience, in the phenomenological sense. Furthermore, swallowing itself seems to be an act which does not bring us physical pleasure, but can bring us displeasure and discomfort. We also have little reason to mention swallowing except in remarkable cases—when we have swallowed something through great effort, for instance. When we highlight the act of swallowing, in our thoughts or our communication, this may in some sense be a red flag.

The second type of explanation for *swallow's* one-sided semantics relates to the target concept for the metaphor; the target notion of mental acceptance refers to undesirable circumstances. Assuming that there is a basic mental experience consisting of deciding not to resist a potentially unpleasant situation, then swallowing may be a source concept which is mapped onto this experience because of those situations where there *is* a question of resisting swallowing (although there are many others where we swallow automatically, or even eagerly). In other words, the fact that there may be a salient correlation in experience between swallowing (per se) and deciding-not-to-resist does not necessarily imply that there is a salient correlation between swallowing and enjoying a pleasant turn of events. Other experiences, such as savoring the flavor of food, may serve better as source concepts for taking pleasure in events and circumstances.

(If this latter reason partially accounts for the negative connotations of *swallow*, it may also help explain why *take* is associated metaphorically with enduring unpleasant circumstances. We clearly enjoy acquiring objects in all sorts of contexts, yet *to take it*, and other expressions with *take*, typically refer to unpleasant situations, just as *swallow* does.)

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To distinguish between the very limited scope of the experience types which motivate ACCEPTING IS SWALLOWING from the much broader and richer scenario of food-related activities in general, I will refer to the former as *primary scenes.*[3] A primary scene is a cognitive representation of a recurring experience type which involves a tight correlation between particular aspects of the experience. Such representations highlight specific dimensions of experiences rather than the infinite list of others which could be focused on during any particular real-time episode. For instance, when we are eating, there are limitless details about the experience that could be the focus of our attention—the flavor of the food, details of our body position, the air temperature around us, and so forth. One distinguishable part of this larger scene is the act of swallowing. In many of the cases where we are aware of swallowing, and therefore can be said to experience it, the physical act is accompanied by and tightly correlated with a cognitive act—a low-level decision—and this act forms another distinguishable aspect of the experience. I will refer to these distinguishable aspects of the primary scene as *subscenes.*

Since the act of swallowing and the act of mentally accepting are so closely linked in our experience, this pairing of subscenes constitutes a plausible motivation for the metaphor ACCEPTING IS SWALLOWING. Equipped with these notions, and the notion of a primary metaphor, we can assess other major metaphorical correspondences implied by the examples in (1) and suggest new analyses of them which do not involve an elaborate mapping between the domains of food and ideas, but between more local components of experience which have something to do with food in one case and something to do with mental activity in the other.

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[3]See also Grady & Johnson, 1997.

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Taste / Smell

When we smell or taste something we sometimes have an immediate, automatic response of pleasure or disgust, depending on what the thing is. These physiological responses reflect some of the most basic "programming" in our brains, which helps us to choose between foods that are likely to be good for us and those that are not. The perception of good or bad smells or tastes count as subscenes because they are minimally distinguishable aspects of larger experiences—e.g., consuming a meal, walking through a bus station, etc. Even though any particular food (or whatever else) we taste is usually composed of many different elements, each of which has a distinct flavor, the subjective experience of liking or disliking the overall taste is just as real to us as the perception of any more specific details—e.g., that a dish contains too much garlic (if such a situation is imaginable). In fact the evaluative judgment often precedes the more specific analysis.[4]

Because the experience of tasting or smelling something we like or dislike occurs so frequently, and is obviously so basic to our experience (and because it takes place nearly instantaneously, a point we will return to in the next section) it is a scene which is a likely candidate as a basis for conceptual metaphor. As we saw in examples (1a) and (1e) above, "bad taste" and a "fishy" smell stand metaphorically for unappealing qualities in ideas. In fact, though, this metaphor does not apply just to ideas—intellectual objects which we are appraising rationally—but to any and all sorts of stimulus. For example:

(8) a. This situation/chair/music *stinks*.

b. Life is *sweet*.

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[4]See Fazio et al (1986) on immediate evaluative responses to stimuli.

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In fact, tastes and smells may be among the most natural source concepts for good and bad, because they are among the simplest and most prototypical examples of stimuli that we have evaluative reactions to.

One way of describing the experiential basis for a metaphor like APPEALING IS TASTY (or APPEALING IS NICE-SMELLING , UNAPPEALING IS BAD-SMELLING, etc.) would therefore be to say that the conscious affective experience of liking or disliking—i.e. the awareness that we are predisposed favorably or unfavorably towards the stimulus—is the mental dimension which prototypically accompanies the sensory experience of pleasure or disgust. There is evidence showing that physiological responses of pleasure and pain are a neurological component of emotional and intellectual responses[5], so that evaluations of all types (not just of ideas) are somehow related with sensory and bodily responses to stimuli on the most basic level.

Notice that these associations between evaluative judgments and taste/smell are not motivated by any elaborate understanding of the food domain—in fact, they almost certainly precede the development of complex knowledge of the domain—and that whether an idea leaves a *bad taste* in your mouth or not is irrelevant to how easy or difficult it is to *digest*, etc.

Appetite

Example (1j) above makes use of the conventional phrase *voracious reader*. (Of course there are also *omnivorous* readers; they will be discussed in the section on *digest* below.) Although the lexical item *voracious* is used so commonly in the context of reading, it may also describe intense need or compulsion of other kinds:

(9) a voracious observer and participator in all things (OED, Carlisle, *Sterling*, I.iv)

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[5]See, e.g., Damasio's (1994) discussion of "somatic markers."

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Even more clearly, other words and phrases referring to hunger apply metaphorically to needs and wants of all kinds:

(10) a. The Eagles won this game because they were *hungrier* for a victory.

b. It's obvious that she's *starved* for affection.

As these examples illustrate, the sensation of hunger stands very generally for desire. Like the metaphors involving taste and smell, DESIRE IS HUNGER seems to derive from a very basic, recurring pairing of a physiological experience with a mental/emotional one. In this case, the physiological experience of hunger is associated with the mental/emotional experience of wanting.

"Food for thought"

As we saw above, *food for thought* does not seem to reflect a conceptualization which is particularly compatible with others that are part of the elaborate version of the IDEAS ARE FOOD mapping. Instead it illustrates a much more general correspondence between food and the input which makes a process possible.[6] In addition to the linguistics example above, we could construct examples from all sorts of domains:

(11) a. Almost daily something is reported which feeds this Catholic hope in England... [Brown corpus ..]

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[6]There is another possible interpretation of the phrase *food for thought*, in which the target concept concerns the need to process, or *digest*, the input. In this section I am addressing the interpretation I find most natural. In the next section I will treat the metaphorical

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b. The commercial propagandist ... gets along well with the amateur, from whom he feeds ... [Brown corpus ..]

c. Disaster is the favorite food of the media.

In these examples, encouraging news reports allow British Catholics to continue the process (or state) of hope, the amateur propagandist's output makes the commercial propagandist's work possible, and disastrous events give the media material for their broadcasts and so forth.

It is not at all hard to imagine a connection in experience between food and the input to a process. We all know that living creatures must eat to stay alive, and we all associate the consumption of food with continued health and strength.

A related metaphor which probably contributes to the motivation for Input-as-Food is the conceptualization of all active processes as the activity of living things: ACTIVITY IS LIFE. All of our experiences with active living things, including other people, would reinforce such an association.[7] Every time we perceive the motion or actions of a living thing, this mapping between animacy and activity is likely to be strengthened. (See Cherry, 1992, for more on the conceptual structure of animacy.) Given this metaphor, "inputs" to processes conceived as animate activity could naturally be understood as food.

We need to explain, in this case, how what are essentially preconditions for processes—e.g., the existence of news reports which *feed* Catholic hopes—are cast as inputs. On this point we can consider the very general understanding of external preconditions as objects which we need. Consider examples like the following:

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understanding of *digestion*.

[7]Jean Mandler's (1992) finding that infants categorize certain vehicles as living things because they appear to move under their own power provides one type of evidence for this clear connection between the concepts of activity and life.

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(12) a. I'm not *getting* the support I need *from* downtown.

b. They're not *giving* me the necessary authority to get the job done.

c. Children who *receive* adequate encouragement at home are more successful in school.

Like scenes involving hunger and desire, scenes involving a feeling of need plus a focus on some particular physical object are recurrent and salient in our experience. We also have many experiences with other entities (besides ourselves) that need physical inputs in order to function: machines that need fuel, fires that need wood, etc. These experiences too would reinforce a correspondence between need—as an affective state or a condition of logical dependence—and focus on a particular external object. And food would be a particularly good example of this type of external object.

In this discussion of the motivations for the phrase *food for thought*, we have seen that a number of different construals are necessary to motivate it fully. One could speculate that this is not the kind of expression which a young child would be likely to generate or easily interpret without prior experience of it, which is another potential test for primary metaphor. Instead, this expression arises from a number of metaphorical understandings, each of which is based directly on simple aspects of experience—i.e. primary scenes. Thanks to these mappings, as long as thought is construed as a process—which is natural enough given that it involves expenditure of effort and brings about changes in the mental state—information which is material for that process can be conceptualized as physical input, including food.

Digest

Since we have ruled out the possibility of an over-arching correspondence between the domains of food and ideas, we need to find distinct motivations for each conceptualization

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that seems to link the two domains.[8] Another such correspondence, which does not seem to be based directly on a recurring type of scene, is the one underlying metaphorical usages of *digest*. Clearly there is no direct correlation in experience between digesting food and analyzing information. Not only is there no experience which involves an overlap between these two processes, it is questionable whether the digestion of food can even be called an experience, since it is a process which takes place involuntarily and for the most part unconsciously. It is certainly clear then that a metaphorical correspondence between mental analysis or assimilation and the digestion of food cannot be a primary metaphor in the sense discussed in previous chapters: the concepts paired in primary metaphors are aspects of direct, phenomenological experience, and we have no direct conscious access to the process of digestion.

Instead, unlike SWALLOWING IS ACCEPTING, which is a primary metaphor based on a recurrent correlation between two dimensions of experience, the metaphor at work here seems to be based on a perceived similarity between the processes of analysis and physiological digestion—rather like the parallels we may consciously construct between theories and buildings. But why should the processes seem similar to us? Here are some aspects of the "similarity" which must be explained: information "is like" a material; learning information "is like" taking food into our bodies; assimilating information "is like" absorbing nutrients into our bodies through the digestive process, etc. It should be clear that positing these so-called similarities as the basis for the metaphor is begging the question in several significant ways: How and why is information akin to a material? In what respect is learning information comparable to taking food into our bodies? and so forth. Addressing these questions will require a somewhat longer discussion than the ones

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[8]And note that even if we did accept the elaborate mapping account, we would like to find motivations for the ways the particular elements of the domains line up with one another.

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for *taste*, *voracious*, etc., because the lexical semantics of metaphorical *digest* are more complex.

We can begin by noting that there are two important components in dictionary definitions of literal *digest*—e.g., "to convert (food) into simpler chemical compounds that can be absorbed and assimilated by the body" (*AHD*, 521). These two components—decomposition and assimilation—are both relevant to metaphorical *digest* as well. When we consider a typical example, this term seems to refer to both understanding and learning. Example (1c) from above is reprinted here as example (13):

(13) There are too many facts here for me to *digest* them all.

Because it must refer to a process of analysis, *digest* is certainly not a simple synonym of *learn* or *memorize*:

(14) ? I've been trying to *digest* this limerick all week.

This sentence is difficult to interpret because we think of learning a song as an act of memorization rather than analysis; this analysis component must apparently be part of the sense of metaphorical *digest*.

Notice, by the way, that *digest* can refer to analysis and assimilation of non-verbal information:

(15) a. This photo contains so much information about the battle that I haven't begun to *digest* it all.

b. She was trying to figure out how they did those dance steps, but there was too much going on to *digest* all at once.

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As further evidence that *digesting* is not merely memorizing, consider another example:

(16) What she said at the meeting was too much for me to *digest* at the time; I had to go home and think about it for a while.

In the context where the speaker of the sentence has not taken notes or otherwise recorded what was said at the meeting, this example clearly does not involve memorization: the speaker must have memorized at least the essentials of what was said in order to go home and give it careful consideration.

On the other hand, *digest* is not a simple synonym of *understand*:

(17) I couldn't understand/? *digest* what he said because it was in Farsi, and I don't speak Farsi.

Digest cannot be substituted for *understand* here. There is no opportunity for *digesting* what has been said in this context, apparently because the word presupposes that we have taken in information, and refers to a process of mental analysis which acts on that information. In the sentence above, the hearer has taken in no real information to analyze—just unparsable sounds—so the sentence *digest* only makes sense as a sort of "frame shifting" negation, along the lines of *I can't introduce you to my sister because I don't have a sister.*

These examples suggest the following meaning for (at least one important sense of) metaphorical *digest*: to analyze information in such a way that we do not merely commit what we have heard or seen to memory—i.e. remember having heard or seen it—but so that it becomes part of our mental representation of the world—i.e. it enters our semantic

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memory rather than just our episodic memory. The parallels here to the decomposition of food and assimilation of nutrients are straightforward, but we still have not demonstrated that these parallels are reflected in correlations between direct experiences.

There are several distinct conceptualizations which each contribute to the apparent similarity of alimentary digestion and metaphorical digesting. As usual, once we find the more basic metaphors that appear to link two rich and specific domains, these metaphors turn out to relate to many concepts outside those particular domains.

Consider the following example:

(18) We broke the essay down to its key arguments.

Here a complex mental construct—an essay comprising a number of arguments—is understood as a physical object made of different parts, some of which are more important than others. Analyzing the essay is conceptualized as converting it into simpler parts (as we saw in the definition of alimentary *digest*) through a *breaking* process—one which has nothing to do with food. The metaphorical understanding of the essay here is related to the ORGANIZATION IS PHYSICAL STRUCTURE examples in Chapter 2. The logical structure of the essay is understood as the physical structure of an object, in this case with respect to manipulation and deconstruction of the object. *Digest* makes sense with respect to cognitive material partly because we conceptualize complex (mental) inputs as complex physical structures. One way of understanding concrete objects better is by taking them apart.[9] The primary scenes which motivate ANALYZING IS TAKING APART involve interaction with structured objects and forming mental representations of their distinct parts.

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[9]Interestingly, the essay does not *collapse* or *fail* when it is *broken down*; this is because the mapping here relates to part-whole structure with respect to manipulation, and not to the viability of structured objects. This sort of observation about inferences which are and are

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The decomposition component is central to another sense of *digest*, illustrated in the following example (from the Brown corpus):

(19) During its flowering in the sixth to the eighth centuries, Mahayana offered a supernatural package to the Chinese which bears no resemblance to the highly digested philosophical Zen morsels offered to the modern Western reader. Mahayana had gods, and magic, a pantheon, heavens and hells...

Digest in this passage refers to a reduction of complex material into much simpler material—in this case a reduction which is judged in a negative way. This usage does not seem (directly) motivated by a food metaphor, since the people doing the digesting—writers about Zen—do not seem to be the people taking the information in—Western readers. Yet it certainly shares elements of the meaning *digest* has in the examples above. In both cases there is a mental process of analysis, aimed at yielding the essential material from a more complex input.

Historically, this sense is not derived from the food-related usage, but may instead be the source of it. (See the *OED*.) Latin *digere*, for instance, did not refer to the digestion of food, but to a more general sense of division into parts (e.g., the division of a river into separate channels). From this sense one development led to the meaning 'physiological digestion of food,' and another led to 'sorting and organizing' (e.g., of texts), inevitably implying an editing and selection process whereby the most important material is retained. Historical senses of words are not necessarily relevant to the way those words are understood by contemporary speakers; some speakers of present day English may associate *Reader's Digest* with a food metaphor. However, this information can sometimes shed light on the synchronic variety of the word's semantics.

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not mapped is further evidence for the distinctions among basic mappings.

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Another important metaphor for analyzing complex information and assimilating the results involves *extracting* meaning from the input:

(20) a. I couldn't *extract* any useful information from this article.

b. A first step in assessing a philosophical position is to *unpack* its premises.

Other sentences with *get out of, figure out, pull out*, etc. would show the same thing: that deriving meaning or information from a complex stimulus can be conceptualized as *extracting* the information from the stimulus. This extraction metaphor is independent from the one just discussed, since structured objects are not necessarily understood as having interiors or contents, and it forms another part of the motivation for metaphorical *digest*. Why are containment and extraction relevant to gaining information from a complex stimulus? In a later discussion of metaphors for communication (in Chapter 4) we will examine this question in more depth. Among the basic metaphors which help account for the mapping between information and contents are PERCEPTIBLE IS OUTSIDE (e.g., *That sweater brings out the blue in your eyes*); ACHIEVING PURPOSES IS ACQUIRING DESIRED OBJECTS (e.g., *They got what they wanted from the negotiations*); and CONSTITUENTS ARE CONTENTS (e.g., *There are usually twenty-eight days in February*), each of which is well motivated by a tight correlations in experience, and together they motivate the understanding of desired information as something which is *contained* within linguistic forms and other perceptual cues in our environment.

We have now seen several reasons why analyzing complex information can be conceived of as taking apart an object to extract its contents, but we still need to address the question of how the process of mentally assimilating that information can be understood as absorption, the second component of digestion. Presumably the same motivations would also account for expressions like *to wrap one's mind around an idea, to get one's head around an idea*, or *to internalize an idea*. This topic too will be taken up in greater detail in

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the discussion of the "Conduit Metaphor" for communication, but here are several of the key motivations: First, we regard our mental faculties as being essential aspects of ourselves, and therefore located within our bodies. That is, we associate essential properties with the notion of internal location, which motivates expressions like *I didn't think he had it in him* and *It's inner beauty that counts*. If knowledge and beliefs are essential elements of our characters, then they are conceived as entities inside us that help make us who we are. Secondly, the fact that thoughts are private in important ways, and cannot be perceived externally also motivates the image of thought processes going on *inside* us (and information *coming in*) as though we were containers or bounded spaces. A third motivation for casting information as something which physically enters us is that much information literally come to us in the form of perceptual signals from external sources. All of these basic facts about perception and experience are relevant to motivating the figurative understanding that we take in, or *absorb* information when we learn it. Note, by the way, that this LEARNING IS ABSORPTION metaphor does not evoke the specific source domain of food. (Examples like *He is a real sponge when it comes to marine biology* illustrate this point.)

It would be possible to go on at considerably greater length with discussions of how the individual expressions cited at the beginning of this chapter are motivated—*raw/half-baked*; *meat*, *sink your teeth into*; *chew on*; etc. The point should be clear by now, however, that in order to best and most plausibly account for the linguistic data, we must refer to basic, locally-defined experience-types rather than to a rich domain which links cooking, feeding, and eating. We will now move on to a review of the nature of subscenes and how they differ from other proposed ways of dividing up experience and meaning.

3.4 Conclusion—"Primary experiences"

The issues raised in this chapter relate to a recurring question that has been asked by linguists, philosophers, psychologists, and others concerned with conceptual and linguistic

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structure: What is the nature of the relationship between our experiences and the structure of our language? With respect to metaphor, it appears that an adequate account of the linguistic data leads to the conclusion that certain kinds of associations in experience are responsible for patterns in lexical usage. These are tight correlations between fundamental dimensions of experience—the kinds of dimensions which are bundled in primary scenes.

In order to account for the fact that metaphoric usages of *swallow* have little in common with usages of *tasty*, as demonstrated by examples like (21), we must acknowledge that the conceptual mappings which underlie these usages are distinct, and that the motivations for them are distinct as well.

(21) a. What a *delicious* concerto!

b. Vidalga's new designs *stink* / are *revolting*.

c. ? The concerto was so *delicious* I swallowed it whole.

d. ? I can't *swallow* Vidalga's new designs.

SWALLOWING IS ACCEPTING is motivated by a primary scene in which a physical act (i.e. swallowing) is associated with a decision (not to resist the object in the mouth), and APPEALING IS TASTY is motivated by a scene in which a sensory experience is associated with an affective one. These are separate aspects of the eating frame which give rise to distinct metaphorical conceptualizations.

The search for plausible experiential bases need not have led us to such elementary types of experiences. If our goal was simply to find plausible motivations in experience for metaphorical mappings, then there was no a priori reason to believe that those motivating experiences would be at any particular level of richness or complexity. However, the evidence of expressions which are and are not readily interpreted points to patterns in these experiences, and tells us that they have certain characteristics.

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So far we have determined that they are simple aspects or dimensions of subjective experience, not confined to any particular rich domain, but cross-cutting these domains. For instance, the type of scene which motivates the mapping between processes and the activity of living things could occur in any number of contexts—any setting in which we encounter people or animals. Contrary to previous accounts, such as the one mentioned in the passage from Turner & Fauconnier at the beginning of this chapter, conceptual metaphors do not seem to be mappings, even partial mappings, between vast domains of knowledge, but between the most fundamental components of experience.

All of the experiences that motivate the metaphors discussed in this chapter have a temporal dimension, and it is hard to conceive of what "experience" could mean in the absence of a temporal dimension. Primary scenes are dynamic, not in the sense that they necessarily involve change, but in that they are (cognitive representations of) experiences which "happen"—i.e. unfold through time.

On the other hand, all the primary scenes we have seen—deliberately swallowing an object, experiencing hunger and a desire for food, tasting a piece of food and finding it appealing, etc.—can be experienced within a time span that is no more than a "moment" from the subjective point of view. These are not complex activities or events which take minutes, hours, or longer to unfold.

Furthermore, these are experiences which recur on a regular, even a constant basis. Primary metaphors do not seem to be based on individual moments in our lives or on spontaneous connections between concepts, but on everyday experiences which bring these concepts together in a consistent way.

The characterization of primary scenes will continue in the next two chapters, as we look at additional metaphors and examine the kinds of concepts embodied in them, which serve as source and target for primary mappings.

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Chapter 4. More primary metaphors and case studies

In the previous two chapters we have seen evidence for a number of basic patterns in our metaphorical understanding of the world. These patterns are *primary metaphors* such as VIABILITY IS ERECTNESS, ORGANIZATION IS PHYSICAL STRUCTURE, ACCEPTING IS SWALLOWING, and DESIRE IS HUNGER, each of which licenses conventional linguistic expressions and usages, and other linguistic examples which are easily interpreted even though we may never have heard them before. Each of these primary metaphors is in turn associated with a *primary scene*—a kind of experience each of us has every day, in which distinct dimensions of conscious experience (*subscenes*) come together in tightly coherent ways. In this chapter we will continue to build a list of primary metaphors, by looking at more linguistic data. Some of these are metaphors which have figured in earlier works—without being identified with the particular characteristics of primary metaphors—and others will be found through the decomposition of metaphorical complexes, analogous to the decomposition of "THEORIES ARE BUILDINGS" in Chapter 2. The primary metaphors identified in this chapter will then provide additional material for discussion and analysis in later chapters, thereby leading us further towards an understanding of the foundations of metaphor, and of the relationships between metaphorical conceptualization and other aspects of language.

4.1 The "Event Structure Metaphor"

In a 1993 paper on "The Contemporary Theory of Metaphor," Lakoff presents evidence for a variety of metaphorical correspondences between concepts in the domains of spatial motion and location on one hand, and events and actions on the other. This set of correspondences, which is characterized as "a rich and complex metaphor whose parts interact in complex ways" (Lakoff 1993: 204), may be better understood as a (partially

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integrated) collection of metaphors, some of which are independently motivated, and some of which are even in direct conflict with one another, as the article points out.

PURPOSES ARE DESTINATIONS

Among the important correspondences in this set is one which associates purposes with physical destinations. In Johnson's (1987) discussion of the motivation for this metaphor, which he calls PURPOSES ARE PHYSICAL GOALS, he points out "a basic correlation in our experience, which gives rise to the metaphor":

> Consider the common goal of getting to a particular location. From the time we can first crawl, we regularly have as an intention getting to some particular place, whether for its own sake, or as a subgoal that makes possible some other activity at that place. There may well be no intention satisfied more often than physical motion to a particular desired location. In such cases, we have a *purpose*—being in that location—that is satisfied by moving our bodies from a starting point A, through an intermediate sequence of spatial locations, to the end point B. (Johnson 1987: 115)

The correlation Johnson points to here—between the fundamental and distinct experiential notions of satisfying an intention and moving through space from one location to another—is the sort that characterizes primary metaphors. This metaphor also motivates linguistic expressions in a very predictable way:

(1) a. She's having trouble *reaching* her goals on this project.
b. They let nothing *stand in the way* of their *progress*.

Expressions which identify purposes with spatial goals are readily understood, even when they do not sound entirely idiomatic:

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(2) a. She has finally *arrived at her goal* of sanding the table.

b. He *blocked* me from talking to her by making sure the line was busy.

The (successful) references to obstacles in (1b) and (2b) reflect a metaphorical understanding which follows inevitably from the conceptualization of purposes as destinations; obstacles to achieving our purposes are cast as obstacles to reaching our physical goals.

ACTION IS BODILY MOTION

Another mapping which relates the domain of physical movement to the domain of action in general is ACTION IS BODILY MOTION. Consider the following sentences which refer to constraints on action:

(3) a. She never *makes a move* without consulting her horoscope.

b. He's really *straightjacketed* in that job—his boss gives him no *latitude* whatsoever.

These examples are clearly based on a mapping between motion and action, but they do not evoke the frame of paths and destinations. If we try to combine images like the one in (3) with images of translational motion towards destinations, we risk producing examples which feel like mixed metaphor, because they involve different conceptualizations of action:

(4) I couldn't *reach my goals* because I was *straightjacketed* by company rules.

The incongruity in examples like (4) reflects the fact that there are two independent, and independently motivated mappings which underlie examples like (1) and others like (3).

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The mapping which accounts for (3) would not be associated with the kind of scene described by Johnson, but by different sorts of scenes, also recurring throughout our daily experiences, where our intentions involve motion of a more general sort, such as lifting our arm to drink from a cup, or shifting our position in order to be more comfortable. Tight clothing, cramped surroundings, and other people's positions in relation to ours are a few of the things which can hamper our mobility. In general, anything which limits our freedom of motion—and not just our motion towards particular locations—is likely to be experienced as a frustrating constraint on our ability to act on our intentions.

DIFFICULTIES ARE BURDENS

When we are required by circumstances to support heavy physical burdens—such as when we lift furniture or hold lots of groceries, or pick up children who are nearly too big to be lifted—we may experience discomfort and a sense that we are expending a great deal of energy. This recurring correlation is a plausible basis for a certain kind of mapping between the domain of affect and the domain of physical activity:

(5) a. I feel totally *weighed down* by the situation with my father.

b. The tax *burden* on people in their bracket has grown considerably.

(5a) illustrates a very direct conceptualization of difficult and unpleasant situations as physical burdens, and (5b) reflects a construal of the obligation to pay large sums of money to the government as a trying circumstance. As with other primary mappings, we can generate examples which do not sound like conventional usages, but which nonetheless are easily understood, and easily recognized as instances of a familiar pattern of conceptualization, e.g.:

(6) I can hardly *support the weight* of this stress.

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Note that this metaphor is independent of mappings which relate motion to action. Neither (5a) nor (5b) refers to motion, and the kinds of experiences which could give rise to this mapping do not necessarily involve an element of movement. On the other hand, this metaphor is compatible with metaphors such as PURPOSES ARE DESTINATIONS, and so we can produce and understand examples like the following, which is motivated by a unification of the two:

(7) The *burden* of emotional instability has kept her from *getting very far* in life.

CIRCUMSTANCES ARE SURROUNDINGS

The physical surroundings in which we find ourselves determine the kinds of experiences we have in obvious ways—if I am in a hot place I may be less comfortable than if I am in a cool place; if it is bright where I am, then I can see objects around me and navigate more easily; and so forth. This sort of tight correlation leads to a metaphorical association between situations and places[1]:

(8) a. He's *in* a tough *spot.*

b. I'd love to *get out of* this situation if possible.

c. Through lots of hard work, Lisa has *gotten herself into* an enviable *position.*

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[1]In discussing this mapping, I am assuming that the notion of PLACE, at least in the context of the place where a subject is located, is a basic and natural element of our construal of the world around us. That is, we always feel that we are in "a place," despite the fact that it is often hard to draw objectively motivated boundaries around a particular "place."

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Example (8c) illustrates a unification of the CIRCUMSTANCES ARE SURROUNDINGS mapping and a motion mapping, such as PURPOSES ARE DESTINATIONS.

STATES ARE LOCATIONS

This mapping, which has been referred to often in the conceptual metaphor literature, might be a slightly different consequence of the same scenes which motivate CIRCUMSTANCES ARE SURROUNDINGS. If I am in a very hot place, for example, I will find myself in a state of discomfort. More generally, it may be the case that we form metaphorical associations between certain sensations and the perception of being in particular places—i.e. the correlation in our experience between the places and the states leads to binding between the concepts.

While the correlation between location and subjective state may be a salient one—and may provide a very plausible motivation for the mapping between situations and surroundings—there is less motivation for associating the locations of objects (as opposed to conscious subjects) with their states. After all, it is not commonplace in our experience for objects to change to new states just because they have moved to a new location; in fact we are equipped with cognitive mechanisms that allow us to disregard the *apparent* changes in size, shape, brightness, etc. that result when objects move within our field of vision. Therefore it is worth pointing out that there are several additional mappings which reinforce the understanding of states as locations, which may explain why this seems to be such a pervasive and well-entrenched pattern of conceptualization. The first of these is CHANGE IS MOTION. There are numerous examples, discussed by Lakoff and others, showing that change is metaphorically conceptualized as motion.[2] Here are a few:

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[2]There have also been numerous scholarly discussions, dating back to the ancient Greeks, about the exact nature of the relationship between change and motion, and whether they can even be distinguished. For my purposes I will take as a given that we have ways of detecting change of spatial position which are different from our means of detecting change

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(9) a. Things have *gone from* bad *to* worse lately.

b. They've been trying to *get* the road *into* better condition all weekend.

c. The apples hadn't seemed to get any riper all week, but there was finally some *movement* today.

The metaphorical association between change and motion could arise from the fact that the motion of objects in our surroundings is a prototypical case of change in our environment[3]. When we detect spatial motion—e.g., by visual means—we are also conscious of the fact that our environment has changed in a more general sense. If we are in a sense programmed to be alert to changes in the scene around us, then spatial motion is certainly one of the most important triggers for this sense. A metaphorical correspondence between states and locations would arise as a corollary of the mapping between change and motion, since motion, by definition, involves locations, in the same way that change involves states.

Notice that this derivation for STATES ARE LOCATIONS would imply that permanent "states"—i.e. essential properties—should be harder to conceptualize as locations, since our understanding of these properties does not involve change. This prediction is supported by the awkwardness of certain examples, which can be so great that it is difficult to get the intended reading:

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of other kinds—e.g., change of temperature—and that I am therefore justified in treating change and motion as distinct concepts, even if they share some feature in common. There is a slightly fuller discussion of this topic in Chapter 5.

[3]Langacker (1987) suggests that there is a concept of motion which is abstract enough to include all instances of change, and that many abstract senses of words like *go*, *come*, *move*, *from*, *to*, etc. are therefore not metaphorical. This issue is taken up again in the next

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(10) a. ? These cliffs are *in/at* a state of verticality.

b. ? My dog is in a state of mammalhood.

Sentences like these seem paradoxically to imply the possibility of imminent change, and are difficult to interpret as statements about essential properties of objects (or "permanent states/conditions"), even though we have no difficulty using *in* and *at* to describe permanent location:

(11) a. Santa Fe is in New Mexico.

b. His house is at the corner of Pine and Decker.

Likewise, the sentence "He's in bad health" refers to temporary health problems, even though the concept of permanent, consistent ill health is perfectly coherent to us. (Cf. "He is sickly/ not a well man.") The bottom line seems to be that when we use a locative to describe a state, we evoke an image in which the object has *moved into* the state, or might *move out of* it—in other words, we are invoking a notion of location which is dependent on the idea of (change as) motion.

The conceptual association between location and temporary state which motivates these English data has also been a factor numerous times in the evolution of other Indo-European languages. For instance, the Proto-Indo-European root **sta* 'stand' has evolved in Irish into a verb, *tá*, which is used to predicate spatial location and temporary states. A similar progression has led to the Spanish verb *estar* (also from *sta), and the ways in which its usage is different from the usage of *ser*. *Estar* is used to indicate locations and temporary states, such as fatigue or happiness, while *ser* is used to indicate inherent properties and identity.

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chapter.

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The association of STATES ARE LOCATIONS with temporary qualities is further reinforced by a mapping between locations (or regions) and intervals of time. That is, since temporary states are by definition correlated with periods of time, and since bounded time periods can be understood as bounded spatial areas—as in "We're *getting into* the tourist season"—there is an additional motivation for conceptualizing temporary states as regions which entities move into and, ultimately, out of. Metaphors for time are discussed further in section 4.3 below.

ATTRIBUTES ARE POSSESSIONS

Lakoff (1993) states that "the general phenomenon in which metaphors come in location-object pairs is referred to as 'duality'" (1993: 206). A particular case of duality discussed in that paper involves the two "branches" of the Event Structure Metaphor: One branch is based on mappings involving motion and locations (which, as we have just seen, can be analyzed as a set of independently motivated mappings), and the other is based on mappings involving objects, possession and transfer. While the notion of metaphoric "duals," and their relationship to the cognitive phenomenon of figure-ground reversal, should be fertile topics for future research, I will treat the conceptualizations involved as distinct and independently-motivated mappings in the Primary Metaphor framework. They are, by definition, based on distinct subjective experiences of the world.

Here are several examples which illustrate the metaphorical association between attributes and possessions:

(12) a. She *has* a sunny personality.

b. This place has *lost* a lot of its charm.

c. The new mustache *gave* him an older appearance.

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Even odd-sounding expressions which frame attributes as possessions can be interpreted without much difficulty:

(13) a. ~ She is the proud *owner* of a sunny personality.

b. ~ She came into the room *toting* her sunny personality *with* her.

c. ~ The new mustache *handed* him an older appearance.

In numerous papers on the concept of possession, linguists have described a variety of senses and distinctions. One account, offered by Langacker (1993), assigns to the various types of possession a single abstract schema in which one object (the *trajector*) is cognitively dependent on, and located with respect to another (the *landmark*). This treatment of possession is broad enough to include parts of inanimate objects, for instance, or objects located in the vicinity of other (typically larger) objects, as in (14):

(14) a. Their house *has* a new coat of paint.

b. The new building *has* trees around it on all sides.

c. Our dog *has* only three legs.

On Langacker's account these are literal instances of the (very abstract) notion of possession. An alternative treatment of the notion of possession is the argument that examples like those in (14) are metaphorical—that they are figurative extensions of more prototypical senses involving a person's control over a physical object. A number of important and influential works have discussed the notion of possession and the kinds of asymmetrical relationships which are encoded by linguistic markers of possession, such as English *have*, *of* and the possessive suffix *-s*. (See Kay & Zimmer [1976] for example.) I will not try here to define precisely where the line between metaphorical and literal possession lies. But there does seem to be a metaphorical component to expressions such

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as those in (12), and even more clearly, those in (13), which are strange but not hard to understand. An appearance or a type of personality is certainly not the kind of object that can be possessed in the prototypical sense of the word, but it is easy to use the language of possession to talk about these sorts of attributes, and easy to understand the images suggested by such language, even when it is far from conventional.

How could a primary metaphor like ATTRIBUTES ARE POSSESSIONS be motivated? One answer is that the visual and other perceptual cues we associate with prototypical possession are correlated in our cognitive system with the judgment that two phenomena are closely (and asymmetrically) associated. That is, prototypical Possession involves both a relationship similar to the Object-Attribute relationship—a tight association between two phenomena, one of which is conceptually dependent on the other (cf. van Hoek's (1992) and Langacker's (1993) discussion of *reference points*)—and a physical relationship, defined by perceptual cues such as proximity, joint motion, etc. To the extent that the perceived physical relationship and the inferred logical relationship are distinct (e.g., because we understand them using different neurological structures) one can be said to form a source image for the other via conceptual metaphor.

A related possibility is that ATTRIBUTES ARE POSSESSIONS arises from a recurring experience of forming gestalt impressions of people which includes the other objects closely associated with them. For instance, if as a child I see a person holding a toy and my feelings about the toy color my perception of the person as a whole, or if as an adult I see a man holding a hammer and categorize him as a "Man-with-Hammer," forming expectations about the person and his behavior, these experiences might support a cognitive binding between my notions of what possessions are and what attributes are.

ACHIEVING A PURPOSE IS ACQUIRING A DESIRED OBJECT

The final mapping of this section is motivated straightforwardly by scenes as typical and salient as the ones described by Johnson in relation to the metaphor he calls PURPOSES ARE

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PHYSICAL GOALS. Just as reaching a certain location is a common objective, met over and over again throughout any typical day, acquiring objects is also a repeating theme in our daily activities—we look for a pencil, pick up a cup of coffee, get the newspaper, find our car keys, and so forth. The correlation between the subjective dimension—i.e. the sense of having accomplished an objective—and the more objective, physical dimension of these experiences gives rise to this very common and well-established metaphoric mapping, illustrated by examples such as the following:

(15) a. He finally managed to *get* a smile out of her.

b. She *landed* four huge accounts this year.

This mapping is not particularly associated with a mapping like ATTRIBUTES ARE POSSESSIONS, even though both may refer to source images in which we "get" objects—e.g., "I *got* a headache" and "I *got* a promotion." The mappings are distinct because they refer to different target concepts, and are based on different types of experiential motivation, like the other mappings considered in this section, all of which relate physical and/or spatial notions to concepts from other domains.

4.2 "LIFE IS A JOURNEY"

Next we consider another metaphorical complex: LIFE IS A journey. The metaphorical mapping between life and journeys, one which is often used and often referred to explicitly in popular writing, is ultimately based on some much more basic, local mappings, several of which we examined in the last section. As we saw in Chapter 2, metaphorical "inheritance" (as discussed in Lakoff 1993, for instance) can be interpreted in the Primary Metaphor framework as the relationship between a complex metaphor and the more basic metaphors of which it is composed. It is easy to see evidence of such inherited mappings as PURPOSES ARE DESTINATIONS and CIRCUMSTANCES ARE SURROUNDINGS, as well as

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some basic time metaphors (which will be discussed in the next section), in LIFE-AS-JOURNEY expressions:

(16) a. She hasn't *gone as far* in life as her parents had hoped.

b. His life has taken a good *course*.

c. I *go where my path* leads me.

d. As I've *traveled through* life, I've made a lot of friends *along the way*.

There are some examples, however, which require us to bring in additional, independent metaphors, in order to account for the images and entailments. Metaphors relating to the source domain of vertical elevation, for example, often unify with metaphors whose source domain is motion through space. The expressions "social climber" and "rise through the ranks," for instance, are based on a mapping between status and elevation, which may be motivated by similar experiences to those that motivate the metaphor "CONTROL IS UP" (see Lakoff & Johnson 1980: 15)—i.e. correlations between having

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control, or being dominant, and being in a higher position.[4] Although expressions like "social climber" cast life events as spatial motion, they appear to be independent of the image of a journey, since they refer to vertical motion alone. When we combine the journey mapping with the conceptualization of status as elevation, we can get sentences like:

(17) I *reached* a *plateau* in my career some years *back.*

Another combination of a traveling metaphor with a verticality metaphor motivates the phrase "over the hill," which suggests that a person is still traveling (along the "road of life"), but that the person has passed his or her "peak." The metaphorical significance of elevation in this mapping—roughly, health and effectiveness—is probably an extension of the more basic mapping between health or strength and a raised or standing position. (See Lakoff & Johnson 1980: 15, where they discuss "HEALTH AND LIFE ARE UP.") This mapping—related to VIABILITY IS ERECTNESS, which we saw in Chapter 2—is also extended to inanimate objects, as in statements about mechanical or electronic systems being "up" or "down."

In the previous section on the Event Structure, we did not see any examples relating to choices between paths, but there are many such examples, and they are common in LIFE-AS-JOURNEY imagery:

(18) a. I'm at a *crossroads* in my life.

b. He has changed his *direction* in life, and taken a more spiritual *path.*

c. She's had trouble choosing a *direction* for her life.

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[4] See Sweetser (1995) for more on STATUS IS UP, and its coalignment with other metaphors.

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The correlation between path options and decision-making is clear enough, and is a natural extension of the mapping between purposeful action and self-propelled translational motion. On the other hand, there are cases in which direction and ultimate purpose are not necessarily correlated. In our nearly infinite experiences of motion through space, we constantly negotiate obstacles of every sort, choosing which way to go around furniture, trees, animals, other people, and so forth. It may not be the case that our ultimate destination is particularly relevant in those situations. If not, then we might consider ALTERNATIVES ARE DIFFERENT AVAILABLE PATHS to be a primary metaphor in its own right.

This section has hardly touched on the vast range of colorful expressions which relate aspects of life to elements of the journey domain. Many such expressions refer to details of journeys which seem to have no direct correlates in the mappings—e.g.,

(19) My life isn't going anywhere—I'm just *spinning my wheels*.

It seems unlikely that we could find elements of the target domain which map onto the wheels, terrain, vehicle, and other details which are needed in order to understand the rich source image implied here: What precisely would the wheels in this sentence correspond to in the domain of life achievements? Instead, the example seems to refer only to the expenditure of effort, and the failure to achieve purposes. In Chapter 7 we will consider the ways in which metaphorical images like these might arise, using mechanisms beyond the unification of primary metaphors.

4.3 Metaphors for Time

Besides "LIFE IS A JOURNEY," some of the most often-noted metaphoric patterns are the ones which relate time to space. Typical examples would include the following:

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(20) a. We're *getting close to* the start of the school year.

b. She is *past* her prime.

c. The holiday season *passed* quickly this year.

d. My favorite part of the piece is *coming up*.

The two alternative models which account for examples such as (19a and b) as opposed to (19c and d) have been referred to as the Moving-ego mapping and the Moving-time mapping, respectively. (Some of the many works which have treated these distinct models of time are Clark, 1973; Fleischman, 1982 and 1983; Sweetser, 1988; Moore, 1995; Lakoff, 1993; and Lakoff & Johnson, To appear) In the Moving-ego mapping, moments and intervals in time are understood as landmarks and regions which we approach, reach, and pass by. We face forward towards the future, and the past is behind us. In the Moving-time mapping, it is the moments and intervals in time which are moving; later times follow behind earlier times; they approach us and ultimately go past.

Should these mappings be considered primary metaphors? I will continue to refer to them as "basic" mappings—since they are basic in comparison with richer complexes they may participate in—but in fact this question raises subtle and challenging problems, which are beyond the scope of this dissertation to treat in a satisfying manner. It is worth taking brief stock of several of these issues, however.

In favor of the idea that Moving-ego and Moving-time are primary metaphors, there is the fact that the mappings are very predictive, in the sense that they do not generate data "gaps," or examples which are incomprehensible; we can readily understand novel, even odd examples:

(21) a. ~ Christmas is *traveling in our direction.*

b. ~ We have *traversed a considerable distance towards* the big day.

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In contrast, it is not difficult to construct incomprehensible sentences which cast temporal relations as spatial relations of other kinds, reminding us that the ways in which the two domains are related by metaphor are not unconstrained, and that the particular mappings under discussion here do have a special status:

(22) a. ? Christmas is *falling*.

b. ? We are just *south* of Christmas.

It is always worth reinforcing the important point that for every correspondence that is entrenched in our conceptual and linguistic systems there are innumerable arbitrary conceptual pairings that have no established cognitive status; linguistic evidence is a key tool for identifying which are the meaningful mappings.

Another factor suggesting that Moving-ego and Moving-time are primary metaphors is that there is an experiential correlation on which to base the mappings. Our experience of motion is clearly correlated with our experience of time—it is difficult even to conceive of motion that takes place without the passage of time. This fact holds for both our own motion and the motion of objects in our environment, as the existence of the two models suggests.

Furthermore, the mappings do not involve rich or specific imagery which would suggest that they were the products of metaphor unification. This fact matches the intuition that time is a simple, if abstract, concept rather than one which is constructed from more basic elements of understanding.

On the other hand, there are arguments which suggest that Moving-time and Moving-ego are not primary metaphors. First, it is very hard to define the target concept of these metaphors. What exactly is the experiential correlate of motion which becomes associated with it in the mappings? Referring to it as the "experience of time passing" is

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begging the question. If we could find a way to define the experience of time we could get around this objection.

Some neuroscientists have recently suggested that our sense of time depends on a regular electro-chemical pulse in the brain, which serves as a background against which other events are measured (Lakoff & Johnson, to appear). But since we cannot directly detect this pulse, it can't count as the kind of dimension of conscious experience which we have been dealing with in other metaphors. Such a pulse would, however, be part of our mechanism for distinguishing the present moment from the one that preceded it—i.e. for distinguishing "now" from "then." If we can distinguish between the experiential present and the experiential past—i.e. a representation of the immediate past stored in memory—then the act of comparing might be the lowest level at which we can be said to consciously "experience" the passage of time. Even if nothing in our environment has changed, the difference between our exact mental state now versus the one we experienced a moment ago (and which is now stored in short-term memory) might be enough of a cue for us to feel we have experienced the passage of a moment of time. It might be the experience of time at this very local level which is correlated with the detection of motion in the metaphors. In other words, the experience of detecting motion is correlated with the low-level detection of differences between subjective "moments." (Note that even though the detection of motion obviously depends in some sense on the notion of time—as in Langacker's (1987) formal representations of Motion—this does not imply that the detection of Motion is not basic and primary at the level of conscious experience, or that the two concepts are not cognitively distinct. Presumably we can be aware of motion without attending to the passage of time, and vice versa.)

Another potential argument against considering Moving-ego and Moving-time to be primary metaphors is that that some of the correspondences which make up the two models may be independently motivated. For instance, it is reasonable to speculate that we associate the temporal present with the physical situation in which we find ourselves,

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including the environment that surrounds us. This correlation would provide a plausible motivation for a subjective time metaphor like "NOW IS HERE," even in the absence of any understanding of time as motion.[5] The idea that the future is ahead of us (rather than behind, above, or below, for instance) could be motivated by this same correlation between our physical surroundings and the present moment: As we move through the physical world, typically in a forward direction, we encounter new objects and settings which then become our "here and now." That is, in the metaphors for time which involve a subject relative to which time is oriented, as opposed to less specifically oriented image of time "passing," our motion to new locations is associated with our experience of succeeding moments. In this sense, the metaphorical association between knowing and seeing also becomes relevant, since when we see the space in front of us we may anticipate being in a new location and experiencing a new "present moment." For people in other language communities a different combination of metaphorical images is conventional: Though they still conceive of the passage of time as physical motion, they speak of the future as behind us and the past as in front, because we can "see" (i.e. remember) the past, but not the future.

Having done no more than mention a few of the complexities of time metaphors, I will nonetheless treat TIME IS (MOTION ALONG) A PATH and TIME IS THE MOTION OF OBJECTS, as well as HERE IS NOW, as primary metaphors, and hope that future research will further clarify the exact relationships holding among these concepts.

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[5]Moore (1995) has argued that some aspects of the time models—in particular, Moving-time expressions like "The moment has arrived"—may be motivated by the recurring experience-type in which a new object arrives in our vicinity; in these cases there is a salient correlation between a change from one world-state (past) to another (present), which correlates with a motion event. This account would be coherent with the NOW IS HERE argument I have presented.

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4.4 The "Conduit Metaphor"[6]

Grady (in press) reexamines the evidence for the "Conduit Metaphor"—as presented first by Reddy (1979) and later by Lakoff & Johnson (1980)—and shows that there are actually a number of independent mappings which motivate the examples. Reddy's examples include the following:

(23) a. It is very difficult to *put* this concept *into* words.
b. Harry always *fills* his paragraphs with meaning.
c. His words *carry* little in the way of recognizable meaning.
d. The passage *conveys* a feeling of excitement.
e. John says he cannot *find* your idea anywhere *in* the passage.
f. I have to struggle to *get* any meaning at all *out of* the sentence.
g. You know very well that I *gave* you that idea.
h. Your real feelings are finally *getting through to* me.
i. The man's thought is *buried in* these terribly dense and difficult paragraphs.

Lakoff & Johnson's statement of the mapping underlying these examples includes the following correspondences:

(24) a. IDEAS/MEANINGS ARE OBJECTS
b. LINGUISTIC EXPRESSIONS ARE CONTAINERS
c. COMMUNICATION IS SENDING

Because of problems analogous to those discussed in Chapter 2 with respect to "THEORIES ARE BUILDINGS," this account does not seem to describe a basic, coherent mapping with direct experiential motivation. For instance, if the metaphor were really based

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[6]Parts of this section will appear, in an earlier form, in Grady (In press).

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on a scenario of sending objects in packages, we would expect there to be conventional metaphoric counterparts of *couriers*, and we might expect there to be conventional meanings for terms like *box*, *envelope*, *parcel*, *freight*, and *delivery*. We might also expect that we could meaningfully refer to such basic elements of the scenario as *opening* the package. Furthermore, the experiential basis for such a mapping is questionable, since the vast majority of our communication is not by means of shipped packages. (A search for examples parallel to those in (22) in cultures that have no parcel-shipping traditions could potentially supply further empirical evidence that such examples are not ultimately derived from this particular, rich scenario.) Based on these considerations, plus the need to account for parallels between the relationship between "conduit metaphor" examples and ones which are not related to linguistic communication, we can account for the data better by invoking several more basic mappings:

CONSTITUENTS ARE CONTENTS

Examples like the following point to a conceptualization of constituent elements—of physical or abstract objects—as contents:

(25) a. There is both cotton and polyester *in* that shirt.
b. This drink is *loaded* with vitamins.
c. The class is *full* of bright students.
d. Our agenda is *packed* with events.
e. There are seven days *in* a week.

This mapping would account for examples such as the following, which concern linguistic communication, but not sending:

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(26) a. She has *packed* this paper with dense paragraphs *full* of learned collocations.

b. Your premise *contains* a number of interesting points.

There are several related experiential bases for a metaphor like CONSTITUENTS ARE CONTENTS. One motivation has to do with basic perceptual factors: when we look at (or feel) a physical object that has distinct parts—differentiated by shape, color, mobility, etc.—these parts all fall within a spatial boundary which defines the limits of the object. In other words, the parts appear to be contained within the space occupied by the object as a whole. (See figure 1a below.)

Additionally, we observe that when constituents are added to a greater whole—e.g., cooking ingredients, pieces of a toy, thread that is woven into a textile, etc.—these items literally move into the space occupied by the object that is being created. Even though an end product such as a meal is not literally a container, the constituents being added end up *inside* the meal, in some literal sense. This situation is represented schematically in figure 1b.

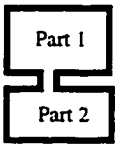

Figure 1a—The limits of a complex whole as a spatial boundary

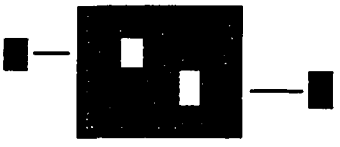

Figure 1b—Constituents added to a complex whole

In order for these experiences to license the metaphor CONSTITUENTS ARE CONTENTS, we must also make the leap from physical constituents, as in (24a and b), to abstract

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constituents. This leap is motivated by the mapping between abstract organization and physical structure, which we considered in Chapter 2.

Given a metaphoric association between constituents and the contents of containers, words can be *inserted* into sentences, and ideas can be *loaded* into propositions, simply by virtue of the fact that they are constituents of those structures. The relative quantity of constituents in the structure is interpreted as the quantity of contents within a container—hence, *packed*, *crammed*, *empty*, etc. Notice also the parallel with this example referring to a non-linguistic target concept:

(27) Bach manages to *squeeze* many notes into a coherent musical phrase.

ACHIEVING A PURPOSE IS ACQUIRING A DESIRED OBJECT

Example (23f) above, repeated here as example (28), suggests that readers/listeners metaphorically remove (or attempt to remove) the ideas from a text as they read or hear it.

(28) I have to struggle to *get* any meaning at all *out of* the sentence.

This conceptualization is not accounted for by the CONSTITUENTS ARE CONTENTS metaphor discussed in the previous section, since parts are not conceived of as independent objects that can be removed from whole structures, leaving them intact. Consider the awkwardness of the following examples, which reflect the fact that parts of linguistic forms are not construed as contents to be extracted:

(29) a. ? I was able to *get* a lot of words *out of* the sentence.

b. ? I *removed* the paragraphs from the essay, leaving it *empty*.

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Instead, the mapping ACHIEVING A PURPOSE IS ACQUIRING A DESIRED OBJECT, discussed in section 4.1 (e.g., *to get a smile out of someone*), accounts for the extraction image in (28) by principles much more general than the conduit metaphor, and without reference to communication in particular. In such examples, arriving at an interpretation is equated with *getting* an object. Containers per se play no role in ACHIEVING A PURPOSE IS ACQUIRING A DESIRED OBJECT, but containment metaphors may unify with this mapping, yielding images in which we extract desired objects from containers.

INFORMATION IS CONTENTS

We saw above that constituents of a whole may be understood as contents of that whole. For instance, individual ideas are contained within larger propositions and, on the level of form, words are contained in sentences. This mapping, however, does not explain an important asymmetry between form and meaning: Meaning is commonly understood to reside within forms, but not vice versa. If both meaning and form are "constituents" of a linguistic utterance, for instance, what accounts for the asymmetry?

Our explanation for this phenomenon should also be able to account for examples like the following:

(30) a. The detective couldn't *get* much information *out of* the partial shoe print.
b. Tree rings *contain* the story of the region.
c. It was years before the fossils *yielded* any valuable information.

These sentences are based on the conceptualization of information as content, though they do not concern linguistic communication. One very salient motivation for this pattern relates to the metaphor BECOMING PERCEPTIBLE IS EMERGING: There are numerous linguistic examples which reflect a metaphoric association between perceptibility and location outside a container. The motivation for such a metaphor could not be more natural, of course, since

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perceptibility—including visibility, but also accessibility to other modalities—is literally correlated with location out in the open in so many cases. This is the motivation for examples such as:

(31) a. That sweater *brings out* the blue in your eyes.

b. Salt *brings out* the natural flavor of meat.

Since there is a strong literal association between perception and knowledge[7], this sort of mapping supports the framing of linguistic meaning as the content held within linguistic forms—the emergence of these contents corresponds to our successful interpretation of the forms. In sum, linguistic meaning is framed as something which can emerge from its container (linguistic form), become perceptible, and thus become known. The following examples are taken from Reddy:

(32) a. Closer reading *reveals* altogether uncharacteristic feelings *in* the story.

b. It's as if he wrote the sentences in such a way as to *seal up* the meaning in them.

c. John's analysis really *lays bare* the ideas in the chapter.

TRANSMISSION OF ENERGY IS TRANSFER (OF OBJECTS)

As we have seen, many conduit metaphor examples relate to the location of meaning within linguistic forms, to our ability to find and extract meaning, and so forth, but not to transfer. The concepts of transfer and containment seem to be independent in the data. For this reason, we need a separate account for those examples which refer explicitly to transfer,

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[7]Of course, metaphors such as UNDERSTANDING IS SEEING are based on this sort of

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implying that meaning is a physical object that can be passed from one person to another. E.g.:

(33) Your concepts *come across* beautifully.

One of the bases for this conceptualization is surely the fact that there is literal physical (though not necessarily direct) transfer involved in any communicative act: readers read actual books and papers which have come into their possession from some ultimate source; listeners interpret acoustic signals which arrive at their ears; Internet users have access to electric signals traveling through phone lines, and so forth. Meaning is metaphorically transferred as physical signals, notations, etc. are physically transferred.

Brugman (1995) has noted that Conduit Metaphor examples like (33) are related to a much more general mapping between results of actions, and transferred objects. Example (34a), for instance, refers to a sort of communication, but not to linguistic communication, and (34b) does not refer in any way to ideas or communication, but still frames an action as a metaphorical transfer.

(34) a. This action should *send* the appropriate message *to* the Serbs.

b. He *gave me* a vicious kick.

Brugman refers to the target concept in such expressions as "transmission of energy,"[8] and suggests that the general mapping between transmission of energy and physical transfer

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association, as well.

[8]This type of transfer could also be discussed in terms of "fictive motion," "subjective motion," etc. following Talmy (1996) and Langacker (1987), respectively. Our conception of physical motion in these cases would, on those accounts, arise from a *mental* event in which we imagine motion between two figures in a scene. I will not review the arguments

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may help motivate (some) "Conduit Metaphor" examples. (See also discussions of "Causal Accounting"—e.g., Lakoff et al.)

THOUGHTS ARE POSSESSIONS / LEARNING IS ACQUIRING

There is plenty of linguistic evidence demonstrating that mental objects (i.e. thoughts, etc.) can be metaphorically possessed:

(35) a. This paper has *given* me new insights into equi.

b. I *have* a much better understanding of tax law now than I did before I took this course.

c. She had *acquired* an intimate knowledge of the terrain, which now helped her to travel quickly.

These and similar examples may be motivated by the correlation between physically possessing an object and having access to it in other senses—i.e. our capacity to examine, manipulate, and use an object in our possession. If thoughts are construed as objects which we may examine, manipulate, and make use of, then they are metaphoric objects which we may "possess," "acquire," and so forth.

The mappings discussed in this section are independent of one another, with respect to both their experiential bases and the particular linguistic expressions they license. Furthermore, nearly all of them apply to target domains much broader than linguistic communication. Since many of these mappings are mutually compatible, however, and since they all *may* apply to the target domain of linguistic communication, they form a

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here regarding whether such conceptualizations should properly be called "metaphor," but I

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relatively rich picture of this domain when taken together. The various conceptualizations are not based on one unified scenario involving the transfer of containers from one person to another. This is why there are "gaps" in the metaphor if it is viewed as a single mapping from one domain to another. It is actually a collection of structures, each of which maps a different aspect of basic physical experience onto some aspect of the communicative process.

4.5 The "Area Metaphor"

Consider the following phrases, all attested:

(36) the *domain* of history, the *domain* of physics, studies in the *area* of finance, a job in the health-care *area*, several *fields* of endeavor, the *field* of comparative literature, the *realm* of constitutional law, the *realm* of science, the animal *world*, the *world* of imagination, the *world* of sports, the *world* of geology, the quicksilver *world* of retailing, the *territory* of historical research, the *province* of politics, a topic falling within the *province* of ancient history

While there are subtle differences in the ways the terms *domain*, *area*, *realm*, and so forth are used, the fundamental commonalty underlying each of these phrases is a conceptualization involving the source domain of spatial regions; I will refer to this conceptualization as the "Area Metaphor."

As with Time metaphors, though, it proves difficult to characterize the target domain of this mapping. Below are a number of dictionary definitions for the terms as they are used metaphorically (from the *American Heritage Dictionary*, Houghton Mifflin, 3rd edition). We might expect dictionary definitions to give us good clues about the target concept which these words refer to:

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feel that there is a useful way of delineating metaphor which could include such cases.

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(37)

area	a division of experience, activity, or knowledge; a field
domain	a sphere of activity, concern, or function; a field
field	an area of human activity or interest
province	a comprehensive area of knowledge, activity, or interest
realm	a field, sphere, or province
sphere	the extent of a person's knowledge, interests, or social position...; domain
territory	a sphere of action or interest; a province
universe	the sphere or realm in which something exists or takes place

The usefulness of these definitions is rather limited, unfortunately, since nearly all of them refer crucially to each other. (The definition of *area* refers to a "division" of experience, etc., which, though vague, at least gets away from the spatial region metaphor.) In this way, the definitions suggest that the underlying conceptual metaphor is so well-established that it is difficult, at least within the confines of a dictionary for a general audience, to refer to the target in a non-metaphorical way. The target concept in the Area Metaphor, then, seems to be a very basic concept which nonetheless is hard for us to define. This in itself is not surprising—concepts are often hard to define. But for this concept there also appears to be no common non-metaphorical term. Importantly, this situation conflicts strongly with the view (held by many experts in various fields) that literal expression is basic, while metaphorical language is an embellishment of some sort, unnecessary for direct communication.

The Area Metaphor also underlies various specialized terminology, such as "mental spaces" (Fauconnier 1994), "domains" (Langacker 1987), and numerous other technical labels; since this type of metaphorical usage is so readily understood, scholars typically offer no justification for using the terms in these ways.

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The Area Metaphor seems to relate to other basic metaphors, which map similarity and association onto physical proximity. For instance, things perceived as similar are "near" each other, while things that are different from each other are further apart:[9]

(38) a. Her hair is very *near* to his in color.

b. That's *far from* a perfect circle.

c. Not even *close*!

Also, objects which we construe as associated in some way—e.g., as members of the same frame, or by causal connection—are said to be linked or tied together:

(39) a. He did that report *in connection with* his Foundation work.

b. The performance of the dollar is *tied* to international trade developments.

c. Phonology and morphology are *closely linked* in this system of analysis.

Additionally, categories are perceived as regions:

(40) a. Tomatoes technically fall *within* the fruit category.

b. His later work stretched the *boundaries* of the novel.

c. I wouldn't put him *in* the friend category, exactly.

All of these metaphors—SIMILARITY IS PROXIMITY, ASSOCIATION IS CONNECTION, and CATEGORIES ARE REGIONS—seem relevant, since they cast objects related in non-physical ways as members of spatial or physical relations. A "domain" contains many entities which

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[9] See also Sweetser (1987) for a discussion of the metaphor DISTINGUISHING IS DIVIDING.

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are similar to or related to each other, and which are therefore conceived as being near and/or connected to each other.

Each of these mappings also has a plausible motivation in experience: Similar objects are often near to each other in our environment—e.g., blades of grass cluster together in a lawn, rocks cluster together on the ground, clouds cluster together in the sky, and so forth. Perhaps as importantly, it is easier to make comparisons and perceive similarity when objects are closer together. Furthermore, visual backgrounds and other context features which may affect our perception of an object are likely to be more similar for two objects near each other than for two which are separated by a greater distance.

ASSOCIATION IS CONNECTION would appear to arise naturally from primary scenes in which we affect objects that we are touching—or are affected by them—and also from primary scenes involving observation of such relationships in our environment, such as the joint motion of the parts of a vehicle, or the way a cup of water shakes when we bump the table. Equally clearly, objects that are associated by membership in a frame or scene—such as waiters and plates, within the restaurant frame—are often to be found in the same local region of space.

Categories based on shared features—e.g., Birds—may be conceptualized as regions because of the tendency for like objects to cluster together (as mentioned above), such as books on a shelf or birds in a flock.

The Area Metaphor, though, does not refer to individual entities or pairs of entities (as in similarity relationships or association relationships), or to sets of entities (as in categories) but to unquantifiable complexes of entities and relations. For instance, the "world of romance" does not consist of a set of discrete entities; it includes an infinite number of possible entities, relationships, and scenarios, each of which bears some relation to particular human emotions. Examples like those in (36) suggest that such complexes are viewed not as sets of objects, however large, but as continuous spaces.

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In this way, the Area metaphor also relates to a mapping referred to earlier in the chapter, in connection with time and event structure: CIRCUMSTANCES ARE SURROUNDINGS. Here the source image consists of an entire environment, presumably because the complexes of entities and relations which make up our "surroundings" and our "circumstances" are too rich, extensive, and all-encompassing to be perceived as discrete entities. Instead, the hypothesis goes, we integrate the various, distinct elements of perceptual experience into a conception of a continuous space. The infinite details of my office, for instance, are integrated into what I perceive as a single "place." By the Area metaphor—really, a combination of the more basic metaphors I have discussed in this section—when we attend to a complex of related ideas, we evoke the perceptual experience of a continuous space, an environment, a world, rather than a set of discrete objects.

One benefit of examining the very elusive Area Metaphor is that it reminds us that certain figurative conceptualizations are so deeply entrenched in our thought processes that they do not seem to be tools for expressing novel ideas or for making our language vivid, as many previous writers on the topic of metaphor have suggested. In this case, the metaphoric language seems instead to reflect a metaphorical projection of spatial concepts which is so fundamental that it challenges literal analysis.

4.6 Conclusion

In this chapter we have explored additional metaphors and case studies based on the principles established earlier in the dissertation. (For a list of approximately a hundred (probable) primary metaphors, plus linguistic examples and suggestions as to experiential motivation, see the Appendix.) The findings in this chapter both confirm that the principles used to reanalyze "THEORIES ARE BUILDINGS" and "IDEAS ARE FOOD" have wider relevance, and give us the material for further analysis of the kinds of conceptual relationships that characterize primary metaphor. Having collected a number of examples

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we are in a position to observe the patterns among primary source and target concepts, and in the pairings of these concepts. This analysis will be the subject of the next chapter.

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Chapter 5. Primary source and target concepts:

Over the last several chapters we have accumulated a list of metaphoric mappings which have special properties: They seem to accurately predict linguistic expressions which are and are not readily understood; they promise to explain the relationships between other metaphors—typically, more specific and complex—which are related to each other; and they have plausible bases in our everyday experience. In this chapter we will examine the kinds of concepts which participate in these mappings, and the kinds of experiences which give rise to them. As the examples will demonstrate, the kinds of concepts linked in primary metaphors are not arbitrary; they are narrowly constrained both in scale and content. Primary metaphors link particular kinds of concepts together, and do so in a way that may have important implications for the nature of subjective mental experience.

As many writers on metaphor have noticed, source concepts tend to have more sensory content than target concepts. That is, even primary metaphors—which seem different in other ways from categories of metaphor that have been described before—conform to a pattern in which images stand for ideas that are less directly connected to our senses. Importantly, though, these images contain a minimal amount of detail. In fact, primary source concepts might offer the best guides yet towards a definition of the somewhat elusive term "image schema."

A more surprising finding is that target concepts of primary metaphor do not fit traditional descriptions of the ideas that we convey using figurative language. While they may have little image content, they are not sophisticated, abstract notions like Justice—which might only be comprehensible by association with scales and other more down-to-earth concepts—or mundane topics like Weather which we want to enliven with colorful language. Instead, primary target concepts refer to the very most fundamental aspects of our cognitive machinery, such as feelings like desire and anger and the ability to make basic judgments about such phenomena as quantity and similarity. This pattern suggests a new

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view of metaphors, in which they map not from lower-level to higher-level concepts, but between very fundamental concepts of different sorts.

Making these particular mappings especially worthy of investigation is that they show that that goals, actions, and interactions are inseparable from the notion of primary metaphor. The set of concepts linked by these mappings is anything but an arbitrary list of elements which happen to be associated with each other, and even the experiences which motivate the associations are experiences with a particular sort of significance. We will see that fundamental human needs, responses, and interactions are the foundation of metaphorical mappings. The concepts that are linked by primary metaphor are ones that relate in meaningful ways to our goals and our actions in the world. These findings lend additional detail and substance to the general understanding of cognition as a tool well adapted to helping us survive in the physical world: Our loftiest intellectual constructs are ultimately based on our most basic responses to our immediate environment.[1]

A final, more speculative interpretation of the patterns discussed in this chapter involves the function of metaphor. At the primary level metaphor cannot be understood as a tool for making the unfamiliar accessible, nor for adding richness and color to our language, nor for framing complex ideas in terms of simpler ones. None of these hypothetical functions fits the facts of primary metaphors. We will see that primary target concepts are neither unfamiliar nor complex but instead the product of fundamental cognitive operations—so basic in fact that we may not have direct conscious access to them, though they inform and motivate our actions. Given this pattern, another possible function of (primary) metaphor suggests itself: Metaphors link the basic "backstage" operations of cognition with the kind of sensory images (in any modality) that we are most able to maintain and manipulate in our consciousness. In this sense, primary metaphors

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[1] On a similar theme, see Damasio's (1994) discussions of the importance of basic bodily responses—pleasure and displeasure—in guiding the processes of reason and decision-making.

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may be responsible for much of the substance of subjective mental experience. Consciousness might be partly defined as the flow of mental images associated with otherwise inaccessible operations at lower levels of cognition.

5.1 Source and target concepts as elements of dynamic scenes

Before enumerating a number of properties of primary source and target concepts, it is important to emphasize that these concepts are not objects or properties taken in isolation. The basis for primary metaphors always lies in the actions and processes which make the source and target concepts relevant to us, even though the mappings can often be stated in terms of entities or properties, rather than dynamic experiences, or "scenes." For instance, Heaviness is a source concept which figures in several primary metaphors, such as metaphors for Significance and Difficulty. These mappings, though, can only be understood and accounted for in terms of our interactions with heavy objects. The motivations for the metaphors relate to our experience of heaviness, rather than to the physical property per se understood as an objective physical measurement. In the same way, all the source and target concepts discussed in this chapter are taken to be aspects of events, processes, or ongoing states which involve human participants.

Here are some primary metaphors encountered in Chapter 3:

ACCEPTING IS SWALLOWING

ANALYZING COMPLEX INFORMATION IS TAKING APART A PHYSICAL STRUCTURE

LEARNING IS RECEIVING (or, BECOMING AWARE OF INFORMATION IS RECEIVING PHYSICAL OBJECTS)

INACCESSIBLE IS INSIDE

ESSENTIAL ASPECTS ARE INTERNAL FEATURES

DESIRE IS HUNGER

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APPEALING IS TASTY

COMPLEX PHYSICAL MOTION IS THE ACTIVITY OF AN ANIMATE FORM

The first three of these correspondences are framed as scenes: they self-evidently involve actions or events, in which various entities, properties and relations play integral roles. In each case, the source concept is a basic sort of recurring physical activity which prototypically co-occurs with a particular mental process, the target concept.

The next several metaphors, though, seem to relate pairs of things or qualities, rather than scenes with a temporal dimension. If the language and logic of these metaphors are considered carefully, however, they too reflect scenes which unfold in time, rather than static concepts abstracted away from temporal experience. For instance, the correspondence between Inaccessibility and Location-inside-a-container (which underlies expressions like *bring out the flavor*) must be based on scenes with a temporal dimension: from a hypothetical snapshot of a moment when an object is invisible and inaccessible because it is enclosed within a container, how could we have any knowledge that the object is there? Such a scenario is only coherent in a larger temporal context, where we have some way of knowing, or some reason for suspecting that the object is in the container. Furthermore, if concealment is the issue, then it is more than containment as a spatial relationship which serves as the source concept in the mapping. The motivating experience-type would involve our desire to see or have access to the object. For all these reasons, a metaphor with a label like INACCESSIBLE IS INSIDE should be understood as reflecting a dynamic experience-type, rather than a mere correspondence between static properties (cf. Lindner's, 1981, discussion of various distinct aspects of the concept of containment).

In a similar way, a metaphor like ESSENTIAL ASPECTS ARE INTERNAL FEATURES involves concepts which are experienced dynamically. For example, when we eat a piece of fruit we may notice that the material that gives the fruit its familiar flavor and texture is found inside the skin, and that the skin can be dirty, damaged, etc. without affecting the

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quality of the fruit. When we interact with animals we may quickly realize that the teeth that make them dangerous to us are inside their mouths. Anyone who has had a stomachache or cracked an egg has had direct experience with the fact that important parts are often found on the inside rather than the outside of things. It is these scenarios which motivate the metaphor, rather than an atemporal, geometric understanding of interiors vs. exteriors.

The mapping between desire and hunger obviously arises from scenes in which we experience the physical sensation of hunger and the simultaneous desire for the food we know will satisfy us. The property of hunger is meaningless except as an element of such a scene. APPEALING IS TASTY is also self-evidently based on experiences which take place in real time — episodes in which we are struck by a pleasant flavor and decide that we like the food or drink in question. The metaphoric association between complex motion and living things is likewise based on scenes with a temporal dimension, since the concept of motion is incoherent if divorced from the notion of time. In each of these cases, the correspondence is based not on some kind of feature-based understanding of the concepts in question — i.e., an understanding which would define the concepts separately from the experience of a human participant — but on the real, temporally-bound experience of a person.

In the discussions of primary source and target concepts in the next two sections, primary scenes will not always be foregrounded, but it is always these dimensions of temporal experience which give significance to the concepts in question, and defining the nature of the source and target concepts that figure in primary metaphors will refine our picture of the kinds of scenes which motivate these important patterns of conceptualization.

5.2 Primary source concepts

Having been introduced to the idea that primary metaphors are special sorts of conceptualization, which motivate metaphorical language in particular ways it would be reasonable to ask, Are there any principles which distinguish the source and target concepts

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of primary metaphor from concepts which do not show up in these contexts? Or are the lists of concepts, and the experiences which motivate them, arbitrary? Is it a matter of historical accident, for example, which concepts end up serving as the source concepts for primary metaphor?

In fact, the list of primary source concepts we have seen so far is anything but arbitrary. There are a number of important features of these concepts, each of which will be explored in this section:

- Primary source concepts have "image content"—they are related to bodily sensation and perception (in any modality).
- This image content is at a particular, "schematic" level of specificity.
- Primary source concepts refer to "simple" experiences rather than complexes of more basic scenes and concepts. Like the primary scenes in which they figure, these are experiences which take no more than a "moment" to unfold.
- These experiences relate in predictable ways to our goals and goal-oriented actions.
- They are "self-contained" enough to be distinct, salient components of goal-oriented scenes.
- Primary source concepts must (plausibly) refer to universal elements of human experience.
- Primary source concepts are relational. They do not include *things*, such as dogs or trees.

Together, these descriptions characterize a very particular set of cognitive representations. In the remainder of the section, I explain more about each of these attributes of primary source concepts.

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Image content

One generalization that holds over all primary source concepts—but not primary target concepts, as we will see—is that they have image content. Each of these concepts is in some way defined by sensations or sensory input. Consider the following list of primary source concepts, and the target concepts with which they are conventionally paired:

Itch (Compulsion to act)

Hunger (Desire)

Warmth (Empathy)

Large (Important)

Near (Similar)

Attached to (Causally associated with)

Erect (Viable/functional)

Visible (Known)

Wrestle (Struggle against adversity)

Grasp (Understand)

Swallow (Accept)

All these concepts which serve as sources in primary metaphors are directly related to our sensory experience (or, at least, to sensations). In this very general sense, they all have what I will refer to as *image content*, following uses of the term *image* by Damasio (1994), Turner (1991), and others. Images, in this sense, can relate to any modality—not just vision. Damasio offers the following characterization of two varieties of *images*:

> If you look out the window at the autumn landscape, or listen to the music playing in the background, or run your fingers over a smooth metal surface, or read these words,

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line after line down this page, you are perceiving, and thereby forming images of varied sensory modalities. The images so formed are called *perceptual images*.

But you may stop attending to that landscape or music or surface or text, distract yourself from it, and turn your thoughts elsewhere. Perhaps you are now thinking of your Aunt Maggie, or the Eiffel Tower, or the voice of Placido Domingo, or of what I just said about images. Any of those thoughts is also constituted by images, regardless of whether they are made up mostly of shapes, colors, movements, tones, or spoken or unspoken words. Those images, which occur as you conjure up a remembrance of things past, are known as *recalled images*, so as to distinguish them from the perceptual variety. (Damasio 1994: 96-97)

We feel itches and hunger directly with our bodies; we detect that objects are large or near by seeing or feeling them (or even based on auditory cues); etc. Each of these concepts, in other words, is based in our physical experience.

By contrast, the associated target concepts, listed in parentheses, do not have obvious physical referents, either in properties of the physical world or in sensations we experience. Similarity, for instance, is a relationship which may hold between images—such as colors—but it does not in itself have any particular image content. While this observation might lead one to describe target concepts as "abstract," we will see later in the chapter that this is a misleading characterization of the category.

Schematicity

While the set of primary source concepts listed above all relate more directly than target concepts do to our physical and sensory experience—i.e. to the formation of images—they are not as specific as the kinds of images listed in the passage from Damasio. For instance, largeness is not the same kind of rich, specific image as a particular person's voice, or a

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particular musical passage. Instead, it is a schematic element of various images.[2] While largeness is a property which we judge with our senses, it is only one dimension of any particular image—say, a particular view of a mountain, which we judge as large because of cues such as the percentage of our visual field which it fills.

In the same way, the concept of an itch does not in itself specify an image. At the least, we would have to specify a part of the body in order to define a particular experience—e.g., the recalled image of an itching sensation on my arm. Yet if we specify the concept to this degree, we have an image which is not the source concept for a primary metaphor. Linguistic examples illustrate the difficulty with adding specific detail to the image:

(1) a. ? I'm *itching* on my arm to go to the concert.

b. ? I am tormented with an *itch on my leg* for things remote.

c. ? I have an *itching rash* to go to the concert.

Contrast these with the more natural and interpretable sentences in (2):

(2) a. I'm *itching* to go to the concert.

b. I am tormented with an everlasting *itch* for things remote. (Melville, from *AHD*)

Examples (1a) and (b) would be hard to interpret unless we had some special reason for mentioning the arm and leg; these would not be natural (or even understandable) ways of communicating about a general feeling of desire or compulsion. Example (1c) specifies the itching scenario in a different way, with results that are no more felicitous.

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[2]My description here, of *images* which are *schematic* may suggest that I am talking about *image schemas* (Johnson 1987, etc.). Later in the chapter, the relationship of primary source and target concepts to image schemas will be discussed explicitly.

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Since it was pointed out in Chapter 2 that metaphoric source concepts can be "freely specified"—e.g., the schematic concept of helping an erect structure to stand becomes *buttressing*—we need a way to distinguish between specification which alters the nature of a mapping and specification which produces an immediately recognized instance of the source concept. At this point, all I can offer is that in cases like (1)a-c , there appears to be imagery added which is not obviously and most saliently associated with the underlying source concept. The mention of arms, legs, or rashes apparently introduces more distinct, unrelated conceptual information to the source image of itching than the specification of a *buttress* introduces to the image of supporting a structure. This issue needs further clarification. Notice, though, that if we suggested that the underlying mapping involved buttresses, we would be losing the generalization that any sort of support, shoring up, etc. stands equally well for the same target notion. That is, we should state the source concept in this metaphor no more specifically than "Support of an erect structure."

We have just seen that in certain cases adding too much specificity to an image makes it unsuitable as a primary source concept. It is also the case that concepts which are too general cannot serve as primary source concepts. For instance, if the source concept of Itching is replaced with one which is more general, such as Discomfort or Irritation, the target concept of Compulsion-to-act is not evoked:

(3) ? I'm tormented with an everlasting *discomfort/irritation* for things remote.

Likewise, we cannot get more general than the source image of erectness, and still evoke the notion of functionality and viability. References to concepts as general as staying in position are not mapped in the same way.

These cases illustrate the fact that there is a particular level of specificity which characterizes primary metaphors, and that concepts which are either more specific or more general may fail to participate in the same sorts of linguistically productive mappings. A

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general principle which appears to help define the appropriate level of specificity for these concepts is one which we will return to several times in this chapter: Primary source concepts are related to our goals and purposeful behaviors. Given that itches anywhere on the body, caused by any sort of condition (including rashes) give rise to the same type of intention and behavior—scratching—the most logical pairing of closely correlated concepts is between the itching sensation, wherever and for what reason it occurs, and the compulsion to act. We might even speculate that the level of specificity at which source concepts are defined is related to neural structure—e.g., itching sensations on all parts of the body may involve similar neurological response patterns, and the familiar scratching motion we instinctively engage in may involve similar motor patterns no matter which body part we are scratching.

Experiential simplicity

Another important constraint on primary source concepts is that they may not be too complex. For instance, driving a car and constructing a building are activities which are not source concepts for primary metaphor. This appears to be for two straightforward reasons. The first is that they are too specific. Driving a car, for instance, can be a metaphoric source image, as in *He wants things to move forward quickly but I'm trying to put on the brakes.* But in these cases, it is always a specification of a more general concept which is the source for the underlying primary metaphor—e.g., CHANGE IS MOTION, ACTIVITY IS MOTION, or COMPULSION IS A COMPELLING FORCE. The particular activity of driving a car involves many details which do not figure in the conventional mappings, and this can be demonstrated by the use of examples which are difficult to interpret, as we saw in the last chapter—e.g., ? *My marriage needs new headlights.*

A second reason why driving a car and constructing a building do not serve as primary source images is that if they are considered carefully, they involve numerous particular actions, each of which might more plausibly be a primary source concept. For

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instance, driving a car entails being aware of one's surroundings, moving forward along a trajectory, judging speed, gripping (the steering wheel), moving levers, being in a seated position, and so forth. When we examine the list of primary metaphors from earlier chapters, they do not involve this kind of complex activity, composed of many distinct conscious acts and processes. Instead, they involve source images which consist of individual acts, processes, and experiences. Even the source image of fighting, as in the metaphorical conceptualization of problems as opponents, can be experienced as an almost undifferentiated process of pushing and writhing against something, as opposed to a specific sequence of tactical maneuvers. We all experience this sort of physical struggle as children, for instance, when we resist being picked up, held, and so forth.

Of course, even acts like taking a step are highly complex, when examined from the perspective of physics or neurology. At the subjective, phenomenological level, though, which appears to be the level at which source and target concepts are defined, Itching, Hunger, Warmth, Struggle, (the perception of) Nearness, etc. may constitute simple units or gestalts of physical-perceptual experience.

Correlation with goal-oriented action

Even some concepts which apparently fit the descriptions above of simple units of experience, and which appear to be at a level of generality on a par with source concepts like Heaviness and Swallowing do not always show up in primary mappings. Color, for instance, is an experientially simple property of objects, like weight, yet does not play a clear role in primary metaphors. There is no systematic mapping from the domain of color to any other domain, and even those color terms which have conventional figurative meanings do not seem to derive their meanings from conceptual metaphor. Blue, for example, is a basic category in important ways, including its status in the physiology of vision, yet it does not seem to be a source concept for primary conceptual metaphor. Although *blue* stands idiomatically for sadness, there are significant differences between

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this association and the ones which are clear examples of conceptual metaphor. Most compellingly, words for "bluish" colors do not have any of the same metaphorical associations as the word *blue* does. Such terms as *teal*, *sapphire*, *cobalt*, *navy*, *aqua*, *turquoise*, and *violet* are not readily interpretable as expressions of sadness, or as predictable variants of metaphorical "blueness:"

(4) ? When she left me I felt *cobalt/teal* for months.

These words could come to have such meanings, of course, but such developments would clearly be by way of plays on the word *blue* rather than principled extensions of the color concept itself. The musical title "Mood Indigo" (by Duke Ellington) is a clever and effective allusion to blueness, but does not have a predictable referent in the emotional domain based on the frequency of indigo light as compared with blue light, for instance. If "SAD IS BLUE" were a primary metaphor then other colors in the spectrum closest to blue should be conventionally related to target concepts in the emotional domain as well, and these relationships should be predictable based on some properties of blueness vs. "sapphireness," "naviness," etc. But no such ordered mapping exists.

A reason why this concept is not conventionally paired with another in a primary metaphor is that blueness by itself has no strong consequences for our interactions with objects. Blueness may be psychologically associated with a low state of emotional energy, but this association is probably too weak and subtle to be the basis for a true conceptual mapping; we do not consistently feel sad when we see the color blue. Heaviness, by contrast, is tightly correlated with the experience of ease or difficulty in achieving our purposes. In fact, while heaviness is integral to scenes involving lifting and supporting physical objects, blueness is not correlated with activity of any particular kind. Furthermore, the perception of blueness probably does not figure in any primary scene, since it is not tightly correlated with any particular types of event or activity (cf. erectness,

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where the physical position of people and objects may have various sorts of consequences for our interactions with them, or brightness, which correlates with our ability to see, and therefore with safety, etc.).

To take another case, consider the contrast between the concepts Lick and Swallow. These concepts are equivalent with respect to simplicity and generality, and seem equally basic in our experience. Yet Swallow figures in at least one primary mapping—ACCEPTING IS SWALLOWING, discussed in Chapter 3—while Lick does not. Licking is a basic and purposive physical action, like lifting or grasping, but one which does not have conventional conceptual metaphoric associations. Idiomatic meanings of *lick*, such as 'to beat an opponent', are not based on principled conceptual mappings, and are not associated with the act of running one's tongue over an object. Example (5) is not a valid statement about triumph, for instance:

(5) ? Our team *ran its tongue over* theirs.

A reason why licking is not a primary source concept may be that the muscular action itself is not what is most relevant to the achievement of goals, in those types of scenes where licking occurs. Reasons for licking may include tasting, moistening, and sanitizing wounds. Each of these—Taste, Moisture, Healing—might be the basis for a primary source image, but the muscular action of licking, as fundamental as it is, is not the foundation for other conceptualizations.[3]

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[3] There are also *image metaphors* based on licking, such as "the waves licked the rocks" (*AHD*), but these are distinct from conceptual metaphors. As Lakoff & Turner have pointed out (1989: 89-90), metaphors based on shared image structure have distinct properties from conceptual mappings. This point will be discussed further in Chapter 7.

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Self-containment

Consider the act of grasping an object—a source image which stands metaphorically for controlling or understanding:

(6) a. I've got a firm grip on the situation.

b. She has a solid grasp of microcellular biology.

The act of grasping actually requires the execution of a number of independent motor programs, each of which can be performed and attended to in isolation—i.e., we can bend our fingers individually. Does this mean that grasping should be too complex a concept to serve as a source image for primary metaphor? It does not, because of another pattern which characterizes these concepts, closely associated with the factor we have just been examining—i.e. the requirement that primary source concepts must be tightly correlated with goal-related scenes. These concepts must also be *self-contained*, in the sense of being routines complete enough to be associated with the accomplishment of goals. We might bend an individual finger for any number of reasons, in the course of fulfilling any number of purposes, such as beckoning someone towards us, trying to retrieve a penny from a jar, and so forth. If bending a finger does not serve as a primary source concept, however, this would seem to be because it is not an action which is saliently and recurrently associated with a particular type of goal. Grasping, on the other hand, is one of our most basic tools for controlling, moving, and maintaining possession of objects. It is a self-contained routine—an experiential gestalt (cf. Searle, 1980, 1983)—with respect to recurring goal-oriented scenes.

(Plausible) Universality

If we were trying to guess at which kinds of basic concepts might serve as source images for primary metaphor, we might imagine that *basic-level* objects (Brown 1958, Rosch

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1978, Lakoff 1987, etc.), such as dogs and trees, would figure in these conceptualizations. Basic-level objects are ones which are at a privileged level of specificity in conceptual categories. *Dog*, for instance, is a basic-level category in contrast with *mammal*, which is super-ordinate, and *Chihuahua*, which is subordinate. Basic-level objects typically have short names, learned early in first language acquisition; are at the highest level of generality which can be associated with consistent images and motor programs (compare *dog* with *mammal* in these regards); and are the categories about which people can quickly supply the most information in experimental conditions—i.e. they appear to constitute an important level of conceptual organization. Yet they are not source concepts for primary metaphor.

The Dog category is a typical case. Like *blue*, *dog* has conventional, idiomatic associations: in at least one contemporary dialect a *dog* is a sexually promiscuous male. The word also stands for unattractive people (especially women), and poorly regarded examples of other categories—e.g., *That movie was a real* dog. Also like *blue*, however, *dog* is not the basis of a mapping which preserves inferences and structure across domains. Idiomatic expressions involving the word refer to only a very tiny subset of the features of dogs — e.g., the fact that they may be persistent in following a trail (*to dog*, *doggedly*), or the fact that some breeds have ears which bend or flop at the tips (*dog-eared*). And words for animals closely related to dogs do not have the same meanings in the context of the idioms, e.g.:

(7) ? He *dingoed/foxed* me around for several days.

Why is it that this basic concept should not serve as the basis for primary metaphor? One reason is that dogs are not closely correlated with any scene in particular which relates to our goals and purposes. Dogs are involved in all sorts of activities and scenarios we experience, rather than any one particular type of recurring action or process. This point is

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especially clear when we remember that the scenes in question must be experientially simple, and cannot include complex activities like hunting.

A second reason may relate to the fact that the presence of dogs is not an inherent or universal aspect of human experience. That is, we must learn to recognize dogs. Whereas grasping, lifting, swallowing, and seeing are basic aspects of human physical experience, dogs are not aspects of human experience per se, despite their popularity in so many cultures and for so many millennia. They are external objects which we easily learn to recognize, name, and interact with, and which form part of our cultural heritage, but not our evolutionary heritage. This may be a reason why they are not part of the foundation of our conceptual structure.

For the same reasons that Dog is not a primary source concept for metaphor, neither is Tree. Trees play various sorts of roles in various types of scenes, and are not inherent elements of human experience, despite the ubiquitousness of trees in so many environments where humans live. Trees are the source for metaphors such as *family tree* and *tree diagram*, but these are image metaphors, based not on conceptual mappings involving entailments and inferences and logical relationships, but on visual similarities. They may also figure incidentally in mappings based on other concepts—which underlie such expressions such as *to tree a suspect*, or *to bear fruit*—but do not in themselves provide the material for primary metaphorical projection.

Relational concepts vs. "things"

The notion of universality, discussed above, might be considered a by-product of the other factors we have considered in this section, particularly simplicity. Properties such as heaviness and largeness, and actions such as holding, following and examining cross-cut categories of objects, even basic-level objects like dogs and trees. They are categories of experience which can be expected to be shared in all human cultures. And in fact all the source concepts in primary metaphors we have seen refer to properties of, relations

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between, or actions involving objects, rather than objects themselves. Heaviness, darkness and tastiness; nearness, attachment, and containment; swallowing, lifting, and leading; all of these are relational concepts rather than nominal ones. This final generalization about primary source concepts is probably a clear reflection of the fact that metaphorical associations arise from our actions and interactions, and are not mere logical pairings between elements of a world parsed into objects, properties, and relations.

The principles outlined in this section, though difficult to formalize, give a fairly clear picture of primary source concepts and rule out a wide variety of candidates which might seem basic in some sense. For instance, making toast is a culture-bound activity which must be learned, and it is also a complex activity involving a number of more basic scenes which may in fact be primary, such as inserting an object into a container (toast into a toaster). Climbing stairs (as opposed to ascending by other means) is also culture-bound and learned, in the sense that human beings in other places and eras do not automatically have experience with or knowledge of stairs. Throwing a rock is a simple and perhaps universal experience, but it is too specific to count as a primary scene because it is essentially the same motor routine as throwing a baseball or an apple. Acoustic timbre is not the domain for primary source concepts, since it is not correlated with particular consequences in our interactions—except to the extent that it is metonymically associated with other properties like size, or with particular sounds we recognize, which may have metaphoric associations of their own, like the human voice. A simple property like roundness is not a primary source concept even though it forms part of our understanding of many more complex concepts, such as Ball or Wheel. Primary source concepts are a class of universal, experientially basic properties, relations, actions, and processes, which have particular significance in our interactions with the world. In the next section we will consider the target concepts with which they are conventionally paired.

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5.3 Primary target concepts

Like primary source concepts, the target concepts of primary metaphor have a particular set of characteristics which define them. In this section I outline these characteristics and contrast them with earlier views of the concepts that figure as metaphorical targets. The key features of primary target concepts which will be treated in this section are the following:

- They lack image content—or are, at least, less tied to image content than corresponding source concepts are.
- They refer to basic units or parameters of cognitive function, at or just below levels to which we have direct conscious access.

Like primary source concepts, of course, these concepts also relate to our goals and goal-oriented actions—they are elements of the same experiences which give primary source concepts their significance. Target concepts like Similarity, Difficulty, Causal Relatedness and so forth figure importantly in the judgments and decisions that guide our actions from moment to moment.

Lack of image content

If we consider the following list of primary target concepts, along with source concepts with which they are conventionally paired, we can see that the target concepts lack the kind of perceptual basis which characterizes the source concepts:

Similarity (Nearness)

Importance (Size)

Existence (Presence "here")

Quantity (Vertical elevation)

Constituency (Containment)

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Cause (Compelling force)

Change (Motion)

Good/appealing (Tasty)

Desire (Hunger)

Change, for instance, can be detected in any number of realms, including non-physical ones (e.g., a change in the emotional tone of a conversation), whereas the detection of physical motion is based on physical perception. Desire is an affective state while Hunger is a physical sensation. Quantity is a parameter in any realm, while Vertical elevation is a physical variable, perceived by the senses.

It may be the case that primary source concepts are closely related to image-schemas as a class. They are characterized by image content of a very schematic sort. Target concepts, on the other hand—such as Similarity and others listed above—lack these direct ties to sensory experience. These concepts appear to be at a level of cognitive processing which is either lower than or at least distinct from that of the image-schema. Concepts such as Quantity, Degree, Change, Persistence and Similarity might in fact be important as means by which we organize image-schemas and relate them to one another.

Standard view of "abstract" target concepts

Discussions of conceptual metaphor have typically referred to the "abstractness" of the concepts and domains which form the targets for conceptual mappings. As we have just seen, we might refer to primary target concepts as "abstract" if by this we mean that they are less concrete, less tied to perception and sensation than primary source concepts. However, such discussions have often gone further, suggesting that target concepts are abstract in the sense of being higher-order intellectual constructs, less directly experienced than source concepts. Given such an understanding, target concepts would presumably be the products of relatively sophisticated powers of invention or analysis, might for this

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reason be inaccessible to children, and so forth. Raymond Gibbs articulates this view in his (1994) discussion of the metaphorical sentence *I'm starved for your affection*:

> Conceptual metaphors arise when we try to understand difficult, complex, abstract, or less delineated concepts, such as love, in terms of familiar ideas, such as different kinds of nutrients. (1994: 6)[4]

Seana Coulson, who challenges other aspects of the prevailing views of metaphor in a paper on the "Menendez Brothers Virus," states the following:

> Analogical or metaphoric mapping is chiefly done to structure a less well-understood target domain by importing schemas from a better-understood source domain. (Coulson 1996: 75)

Johnson suggests a similar view in his discussion of "our cultural understanding" of arguments and theories (1987: 106), and his metaphoric analysis of legal and moral "balance" (1987: 90). Arguments, theories, legal and moral balance are sophisticated, abstract entities which typify the kinds of objects conceptual metaphor is supposed, according to this view, to help us understand and communicate about. As we have seen, however, primary metaphor—the kind that is directly motivated and most clearly structures our language and conceptualizations—is more often concerned with target concepts much less rich and more local than these.

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[4]Note that in the chapter on Ideas-as-Food we saw that there is a very basic, local, and directly motivated mapping between desire and hunger.

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Target concepts at a low level of cognitive processing

Based on the primary metaphors that have been identified so far it seems that target concepts for metaphors at this level are not abstract in the sense described above—instead they appear to be among the most basic components of experience. Rather than higher level constructs, the target concepts in primary mappings seem to correspond to something like the *lowest* consciously accessible level of cognitive processing. The faculties which recognize similarity, relatedness, part-whole relations, etc. are surely foundations of our cognitive architecture.

Consider again the following primary target concepts. These concepts seem to be anything but "unfamiliar," "difficult," or "complex." (Some apparent exceptions will be discussed below.)

Similarity (Nearness)
Importance (Size)
Existence (Presence "here")
Quantity (Vertical elevation)
Constituency (Containment)
Cause (Compelling force)
Change (Motion)
Good/appealing (Tasty)
Desire (Hunger)

Most or all of these concepts are aspects of our experience at the most direct and immediate level. For instance, Similarity is a relation which we perceive immediately and effortlessly in many cases, and which plays a role in all our categorizations. When we recognize a dog, for example, it is because of features which make it similar to other dogs we have seen. Furthermore, it seems unlikely that we learn how to recognize similarity;

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instead the ability to do so would seem to be an innate feature of our cognitive apparatus, without which various behaviors, linguistic and otherwise, would be impossible. Decisions about whether objects in our environment are Important, i.e. deserving of attention, can also be made unconsciously, automatically, in an instant, based on various sorts of factors including their size, how much they resemble other objects with which we have had meaningful interactions, etc. Making good choices about what in our environment to pay attention to is of course a basic survival skill, and one we share with other animals. The Existence of an object is also a (subjective) fact we register immediately and without conscious reflection. Clearly, we also judge Quantity—at least to very rough degrees—quickly and directly. (There is experimental evidence that pre-verbal children appreciate number and keep track of quantity, at least when the numbers are small enough—e.g., Lecuyer & Poirier, 1994.) There are even reasons to think of Causation as a concept which we can appreciate in a direct way (see below).

Linguistic arguments for the cognitive basicness of some concepts

Beyond the intuition that most or all of the target concepts above must be basic to our cognitive representations of the world we can also bring several types of argument to bear, including linguistic ones. In his introductory volume on Cognitive Grammar, Langacker (1987) proposes a variety of fundamental cognitive abilities and structures which he claims are necessary to account for linguistic data. He also argues that these abilities are relevant to cognitive activity in general. To the extent that these basic cognitive functions correlate with target concepts for primary metaphor, linguistic arguments regarding their status also support generalizations about the status of primary target concepts.

One such feature of cognition treated by Langacker is *constituency*, an organizational principle which all analysts agree plays an important role in linguistic structure. In his introduction to this topic Langacker writes:

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> Hierarchy is fundamental to human cognition. Cognitive processing involves multiple levels of organization, such that elements at one level combine to form a complex structure that functions as a unitary entity at the next higher level, and so on. (1987: 310)

That is, hierarchical structure, and by extension the constituency relation, are essential to structures of all types within the grammar of a language, and are also fundamental aspects of cognition more generally.

Constituency is one of the important elements in nearly any theory of language. Some of the typical arguments for its importance in syntax, for instance, include constraints on the positions where certain types of words and phrases can appear within sentences. The ungrammaticality of (8b)—vs. the grammaticality of (8c)—is a consequence of constituent structure; only certain types of words and phrases, occupying certain slots within a sentence, can be "moved" to the front of the sentence as topics.

(8) a. [I] [would never eat] [sautéed snails].
b. *[Would never eat] [I] [sautéed snails].
c. [Sautéed snails] [I] [would never eat].

What makes these facts relevant for our purposes is that constituency is also a target concept for primary metaphor. The following sentences profile abstract constituency relations, and are examples of the CONSTITUENTS ARE CONTENTS mapping discussed in the last chapter:

(9) a. Wednesday *rests snugly in* the middle of the week.
b. C has usurped G's *slot* in the older Greek alphabet.
c. I've never liked orange; in fact I'd like to *yank it right out of* the spectrum.

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The usages of *in* in (9) exemplify the framing of constituents as contents of physical containers (plus additional details of metaphoric conceptualization, involving force, comfort, ownership, etc.). Constituency, in the sense intended here, has the features that Langacker associates with hierarchical structure and constituency: elements that make up a structured whole are subsumed within our conceptualization—or at least one of our available conceptualizations—of that whole. In this case then a basic feature of cognitive and linguistic structure proves also to be the target concept for primary conceptual metaphor. The contention of this section is that other such target concepts can be characterized similarly.

Primary target concepts as patterns of activation

Another way of supporting the premise that the ability to detect relations like constituency and similarity is basic to cognitive architecture would be to construct connectionist networks capable of identifying and representing these features. While the relationship between such models and actual brain function remains mostly speculative, there have been some findings to show that connectionist models can make accurate predictions about semantic patterns in natural language—e.g., see Regier 1995. In the case of constituency, the relevant neural detector would identify entrenched, self-contained subpatterns of activation within larger patterns. For instance, an activation pattern representing a week as a sequence of a Sunday, a Monday, and so forth would presumably have as constituents active representations of the individual days as well—the "constituency detector" would register the presence of these relations. (This is roughly the intuition behind Langacker's model as well, and I only distinguish it as another type of potential evidence because Langacker's analysis does not make explicit use of connectionist models.)

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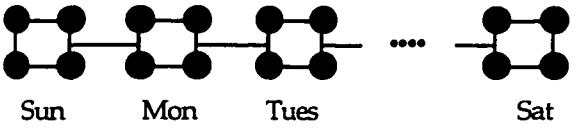

Figure 1. Schematic representation of activation pattern for a week conceived as a sequence of days

In Figure 1 the diagram as a whole represents an activation pattern associated with the week, while the four-node clusters represent activation associated with individual days. The "constituency detector" would presumably operate by recognizing that both the substructures and the whole are entrenched as stable patterns.

For another example of a primary target concept which appears to be a basic feature of cognitive function, consider the metaphor SIMILARITY IS PROXIMITY, illustrated in the following sentence, taken from Langacker (1987: 117), though used here to illustrate an entirely different point:

(10) That paint is *close to* the blue we want for the dining room.

Langacker cites this example in contrast with the next one to illustrate the selectional differences between *near* and *close*, with respect to the domains in which they may predicate relations:

(11) ~ That paint is *near* the blue we want for the dining room.

On Langacker's account, (11) shows that *near* may not felicitously refer to proximity within non-spatial domains (i.e. similarity).

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While it is true that (11) sounds somewhat less natural than (10), it is equally telling for our purposes that (11) is perfectly interpretable on the same reading as (10). (No speaker I asked had any trouble interpreting (11) as a statement about similarity.) This is because the conceptual mapping between Proximity and Similarity licenses such an interpretation even when it is not reinforced by lexical choices.

It is easy to imagine that a connectionist model could be (or has been) built to detect and calculate similarity, based on shared elements or partial overlap between patterns of activation. Once again, the possibility of constructing such a model would lend weight of at least a suggestive sort to the position that the detection of similarity is a basic cognitive function.

Indirect experimental evidence for the basicness of certain cognitive abilities

The fact that the ability to detect similarity is taken as a given in various experimental methodologies is another sort of indirect evidence for the basicness of this cognitive skill. Consider the experimental methodologies in which the duration of babies' eye gaze is used as an indicator of whether the babies are perceiving similarity or difference—babies look longer at an object which is different from one they have just seen than at one that it is the same as the previous object. Experimenters here are assuming that babies can recognize similarity, and are working to further specify what features babies focus on in computing similarity.

There is indirect experimental evidence of a similar sort to suggest that causation is a basic, directly experienced relation. Although it proves extremely difficult to produce a satisfying definition of causation, and accounting for this concept has been an ongoing project for philosophers, we have operational ways of inferring simple causal relationships, and we make such judgments effortlessly in all sorts of cases, based on simple facts about what we perceive. For instance, when they see an object in motion collide with a second object which then falls over, children do not need a conscious theory

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of causation to conclude from what they have seen that Object 1 *caused* Object 2 to fall. It is probably the automatic nature of such inferences that has made the problem of how to "properly" analyze causation so interesting.

The ability to appreciate causation has been observed in infants in the course of various studies. Infants expect certain acts—e.g., the manipulation of objects within their field of vision—to lead to specific results, such as a change in the position or shape of an object, or a change in quantity (e.g., see Oakes & Cohen, 1990). Causation has been the focus of some such studies, but in other cases investigators have been concerned with issues such as infants' ability to attend to number or force dynamics, and have taken their ability to associate actions with consequences as a given. At this level then a concept of "proto-causation" may consist simply of the association of an event with a state of affairs which we assume will follow—the basis of the *post hoc ergo propter hoc* "fallacy."

Potential neurological evidence

In theory it may also be possible to identify basic categories of information that enter our consciousness by examining the neural architecture of the brain—though there is no short-term hope of examining conceptual structure in this way. The fact that there is, for instance, a neural mechanism (or *somatic marker*, in Damasio's (1994) terminology) which associates unpleasant "gut" sensations with certain types of stimulus, and another which associates pleasant sensations with other stimulus, suggests that the target concepts GOOD and BAD may have some physiological basis. They may refer in some sense to very specific types of sensations, rather than merely being vague terms whose meanings vary freely from person to person and according to the domains in which they are applied.

Evidence from animal behavior/psychology

While I will offer no particulars here, researchers have demonstrated by experimental means that the ability to detect such basic relations as similarity and so forth are part of the

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cognitive repertoire of other species (e.g., see Lashley & Wade, 1946). This finding adds further support to the contention that target concepts of primary metaphor relate to fundamental cognitive structures and operations.

5.4 The relationship between source and target concepts

In this section we reconsider the relationship between source and target concepts for primary metaphor, which clearly is not captured by the quotes from Gibbs and Coulson earlier in the chapter.

Shared schematic structure

The first and most obvious point to reiterate about how source and target concepts relate to each other is that they are tightly correlated within primary scenes. These scenes are the reasons why they come to be associated in entrenched cognitive structures. Difficulty and Heaviness are correlated in lifting scenes, and so forth.

For source and target concepts to be cognitively bound, and for them to be so tightly correlated and aligned in experience, they must share schematic structure on some level. I have already argued that primary target concepts do not have image-schematic structure per se, so image-schemas are not the basis for this binding. There have been quite a few works on metaphor which have argued that image-schematic structure is of central relevance to metaphoric mappings (e.g. Brugman 1990, Turner 1991, Lakoff 1993, Cienki in press). At the level of the primary metaphor it is clear though, based on the observations of this chapter, that target concepts cannot be characterized as having image-schematic structure. Given that target concepts do not have image-schematic structure per se, any claims that metaphoric mappings are constrained by image-schematic structure of the target concept would obviously have to be rephrased. I propose that if the term *image-schema* is reserved for those schemas which do have image content, then we need another term for

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the type of "super-schematic" structure shared by source and target concepts of primary metaphor.

This type of shared structure is illustrated by the metaphor QUANTITY IS VERTICAL ELEVATION (AKA MORE IS UP). As Lakoff has pointed out (1980), these concepts are not associated in a metaphorical mapping because of any objective "similarity;" there is very little that the two concepts share in common. An aspect they do share, though, is that each is a "scalar" concept, in that there are amounts and degrees involved which can be described as scales[5]. This extremely schematic similarity is by no means enough to motivate the mapping. After all, there is an infinite number of such scalar concepts which do not conventionally map onto quantity. Among these would be darkness, lovability, closeness to a geographical landmark (such as the Continental Divide), etc. None of these serves as a source image for the target concept of Quantity, but vertical elevation does. We might think of scalarity as the "necessary condition," making the two concepts commensurate, and the correlation in experience between quantity and elevation as the "sufficient condition," which promotes this particular pairing. In the same way, properties (such as sharpness) map onto other properties (such as intelligence), actions (such as balancing) map onto other actions (such as considering alternatives), and so forth.[6]

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[5] I will not try to offer a definition of *scalarity* here, but I do assume that there is some (non-metaphorical) mechanism by which we judge that certain things are "greener," "sweeter," "louder" etc. than other things. It is this cross-modal mechanism which is the basis for the notion of scalarity I am referring to in this section.

[6]The differences between properties, processes, entities and so forth are largely matters of construal—as pointed out by Langacker (1987) and others—but I will not treat that level of conceptualization here. What I intend by my claim is that two concepts must both be construed as properties (or whatever) for them to be paired in a metaphoric mapping.

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Degrees of subjectivity/inter-subjectivity

Earlier sections in this chapter have already mentioned notable differences between source and target concepts of primary metaphor. One of these is that the former have image content; they are closely associated with particular aspects of sensory experience. A corollary of the fact that target concepts lack image content is that they are more *subjective* than source concepts, in the sense that they are more strongly tied to internal states. For instance, importance is more subjective than size, essentialness is more subjective than spatial centrality, the experience of one moment passing to the next is more subjective than the spatial motion of an object, appeal is more subjective than flavor, the sense of frustration and exertion which accompanies difficulty in achieving goals is more subjective than physical circumstances such as the presence of an obstacle in a path, or a human opponent, and so forth. Source concepts correlate more specifically with sensory input from the physical world, while target concepts relate to various sorts of responses to this input—judgments and analyses, of individual stimuli and of the relationships among them. They have in many cases the character of *functions* over external stimulus—e.g., the "calculation" that an object is appealing, or that an object has a particular part-whole structure.

Note that subjective experiences (and the concepts based on them) are not necessarily abstractions. The sense that something is important, for example, is subjective in the sense that it arises within our interior world, but if it consists of heightened alertness and focus associated with the object of attention, and if these states can be traced to particular physiological structures, there is no reason for considering the concept of importance to be "abstract." To take another example, the awareness that we are conscious (as opposed to unconscious) is perhaps the quintessential subjective experience, and yet we do not consider this awareness to be merely an intellectual construct or abstraction—it is a real and direct experience, however difficult it might be to define or to correlate with particulars of physiology.

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Even if target concepts such as consciousness, similarity, understanding, attraction, change, good vs. bad, etc. are directly associated with particular physiological states and responses, they may still *seem* to us to be abstractions. If we are somehow more predisposed to focus on external stimuli and on mental images—i.e. mental representations of stimuli—than on internal operations, then focusing on the target concepts of primary metaphor may require more deliberate effort. That is, it may be in the nature of our cognitive system that it manipulates images—in any modality and at any level of complexity—more easily than the sorts of concepts which serve as targets for primary metaphor. These concepts are organizing principles of those images, and may typically be backgrounded in the course of cognitive activity. For instance, it may be easier for us to think of the idea of similarity by calling a particular image to mind of similar objects standing next to one another—*even if* we have a cognitive mechanism dedicated to detecting similarity per se.

How are these more subjective concepts related to the relatively external—or "peripherally connected" to use Langacker's terminology—concepts with which they are associated in metaphoric mappings? These relationships appear to be implicational in many cases. For instance, when we experience the physical sensation of hunger, this implies that we will also experience the desire to eat—i.e., anticipation associated with an image of food and eating. It may be that one way of bringing a target concept to consciousness—our own or an interlocutor's—is by calling to mind an image which implies this concept, as a certain image of cutting implies that we will gain information about the object which is cut (viz. ANALYZING IS CUTTING). While the target concept is not abstract in the sense of being an ungrounded, higher-order conceptual construct, it may be difficult to manipulate in isolation.

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Relative familiarity of source and target

Some mappings which have been cited in the literature on conceptual metaphor have a feature which is peculiar given the common view of how source and target concepts are supposed to be related. Namely, the target concept in certain metaphors is one with which we have much more direct experience than we have with the source concept. Consider, for instance, the conceptualization of argument as physical struggle illustrated by examples such as the following:

(12) a. We *fought* all morning over where to plant the marigolds.

b. I stubbornly *defended* my position against his *vicious attacks*.

We certainly have verbal disagreements more often than we engage in physical fighting. Other illustrations of this curious phenomenon include RISKS ARE GAMBLES (e.g., "This investment is a real *crapshoot*"); the "Conduit Metaphor" complex, which maps scenarios involving sending objects in packages onto linguistic communication (e.g., "He *packs* a lot of subtle ideas *into* his prose"); and, a particularly clear instance, LOVE IS A MAGICAL FORCE (e.g., She *cast a spell* on me), where the source concept is one with which we have no actual experience at all.

These cases only seem paradoxical if we believe that source concepts are more experientially basic than target concepts. If we acknowledge that target concepts are just as "basic" and "familiar" as source concepts, the paradox vanishes—as long as we can reanalyze the data in terms of primary metaphors and compositions of them.

As an example, consider the metaphor ARGUMENT IS COMBAT (or STRUGGLE). Data like (12) can be accounted for in terms of more basic mappings, such as DAMAGE IS PHYSICAL HARM (in which case an attempt to compromise, i.e. discredit, a belief is an "attack"), DISTRESS IS PHYSICAL INJURY (if the *vicious attack* is emotionally hurtful), and DIFFICULTIES ARE OPPONENTS. The second of these would be motivated by a primary

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scene associating the physical pain caused by injury with the accompanying emotional distress. Such a mapping would also underlie examples like the following:

(13) a. Losing my best friend really *hurt.*

b. She broke up with him first in *self-defense.*

With regard to the third mapping, DIFFICULTIES ARE OPPONENTS, not only verbal disagreements and arguments, but any kind of action or process where we have trouble achieving our goals can be conceptualized as a fight:

(14) a. I've been *fighting* a flu all week.

b. Are you still *wrestling* with those math problems?

In an argument our goal is to convince someone of a proposition, or persuade them to action, or at least to justify our own views. What makes the goal difficult to achieve is another person's predisposition not to agree with us. In the cases in (14) there are other sorts of obstacles—to remaining healthy and solving math problems, respectively. The primary mapping which underlies all these conceptualizations is DIFFICULTIES ARE OPPONENTS. Such a mapping might be directly motivated by the experience of frustration and exertion when we physically struggle with another person, an primary scene all of us have experienced as babies, if not more recently.

On a more speculative note, it is likely that our genetic heritage inclines us to use bodily force to deal with frustrating circumstances, even if we are too civilized to act on this instinct, or in cases where it logically can't be of help—people have certainly been known to punch walls and pound tables without any rational basis for doing so. There may be a very direct physiological link between frustration and the mechanisms of violence. The "metaphor" may in some sense be innate, and not particularly dependent on specific

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experiences. We do not need to have been in actual fights to understand the basic physical processes involved.

In mappings like DIFFICULTIES ARE OPPONENTS, DISTRESS IS PHYSICAL INJURY, and DAMAGE IS PHYSICAL HARM the target concepts are elemental components of our everyday experience and the source concepts are more specific ones with which we have fewer direct experiences. By now we can see that this is a normal state of affairs for primary metaphor.

Relative complexity of source and target

Despite some suggestions to the contrary in the literature, we typically cannot characterize source concepts as simpler images which help us understand more complex ideas. Since source concepts of primary metaphors have image content while target concepts have little or none, this in itself suggests that source concepts are "richer" in some sense. Whether or not the presence of image content constitutes a relevant sort of richness or complexity, however, it is certainly not fair to say that target concepts like Desire, Similarity, or Quantity are more complex than the corresponding source concepts Hunger, Proximity and Vertical Elevation.

This pattern is illustrated especially clearly in certain types of discourse, including sports reporting, where simple physical events are often described in metaphorical terms. The following examples are taken from televised commentary on a golf tournament[7]:

(15) a. He really *put* a lot of spin *on* that ball. [i.e. caused the ball to spin a lot with that stroke]

b. That ball had a good pace *on* it. [i.e. the ball was moving quickly]

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[7]NBC's broadcast of the U.S. Open, June 15, 1997.

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In these examples, it is not the case that the target concepts are more complex, difficult, or abstract than the source concepts. They are instead simple physical concepts which are based directly on our visual (or other) perception of objects and motion. In (a) the target concept is rotation, which is being metaphorically cast as an independent mass located with respect to the ball. In (b) the target concept is speed, which is cast as a possession, or again an independent entity located with respect to the ball.

In each case a feature of the ball's motion is referred to as though it were a distinguishable object or mass, rather than an integral aspect of a single motion event. In the last chapter we saw that contingent features and visible features can be conceptualized as entities located on surfaces of the wholes which they characterize. A mapping such as CONTINGENT FEATURES ARE OBJECTS ON THE SURFACE would motivate sentences like those in (15), given that rotation and speed can be seen as secondary features of translational motion events. Further evidence for such a mapping would include the following:

(16) a. He has finally *put* the finishing touches *on* his speech.
b. This table has a fine shine *on* it.

The point here is that a source scene involving two entities is, by a reasonable if simple-minded criterion, more complex than a target scene involving one entity.

The next set of examples illustrate a more complex mapping within the golf text:

(17) a. I'd love to see it *scare* the hole. [i.e. go near the hole]
b. Do you want to play it safe on this side of the green or *challenge* that pin? [i.e. try to get the ball near the flag stick, which marks the hole's location]
c. And you've got bunkers *protecting* the green from the right side. [i.e. sand traps near the putting green, functioning as hazards]

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Here the target concepts relate to spatial motion and position, but the figurative language is also motivated by the difficulty of achieving objectives on the golf course. In each case a part of the course—the hole, the flag stick which marks the hole, and the putting green which surrounds the hole, respectively—is referred to as though it were an opponent, probably based on the DIFFICULTIES ARE OPPONENTS mapping which we saw earlier. The exact ways in which the spatial and intentional elements interact here is not crucial for our purposes; the important point illustrated by these examples, like those in (15), is that relatively simple and immediate concepts (distance, spatial position, and the difficulty associated with hitting the ball to the desired location) are conceptualized in terms which are more complex—e.g., physical settings are construed as having emotions and objectives.

Clearly we need a new account of the relationship between source and target concepts to explain cases like these; the spatial events and configurations referred to in (15) and (17) are about as "delineated" as any referent can be (cf. the Gibbs passage quoted in the previous section[8]).

Unidirectionality revisited

The observations in this chapter raise two important and closely related questions: Why do we have conventional metaphoric conceptualizations of our most fundamental cognitive abilities? And, What is the basis for the unidirectionality of primary metaphor, given that these mappings are not after all tools for understanding difficult, abstract topics based on simpler ones? I will not be able to offer satisfactory answers to these questions here—they are certainly beyond the reach of linguistic investigation. I will, however, briefly suggest several lines of thought which might ultimately prove relevant.

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[8] In referring repeatedly to the Gibbs passage I don't mean to imply that it is especially misleading. On the contrary, it is an especially clear statement of what has been a very common view among metaphor researchers.

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First we must confirm that primary metaphors are in fact unidirectional mappings. The characterization of conceptual metaphor we have arrived at in the last few chapters is so different from the one outlined in the introduction that we can't take this point for granted. In the following examples, the (b) examples reverse the conventional directionality of the mappings:

CATEGORIES ARE REGIONS

(18) a. Bats fall *within* the category of mammals.

b. ? He's *a member of/included in* the apartment right now.

(intended reading: he is in the apartment)

IMPORTANT IS LARGE

(19) a. Here's the *big* question I wanted to ask you.

b. ? I can't move this *important/central/essential* sofa by myself.

(intended reading: this large sofa)

MORE IS UP (AKA QUANTITY IS VERTICAL ELEVATION)

(20) a. Car-jackings are *down* this year.

b. ? Hawks fly *more/greater/to a greater degree* than robins.

(intended reading: hawks fly higher than robins)

EMOTIONAL EXPRESSIVENESS IS WARMTH

(21) a. His expression radiated warmth.

b. ? The car was *demonstrative/emotional/passionate* after sitting in the sun all day.

(intended reading: the car was hot)

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As these examples make clear, unidirectionality is very characteristic of primary mappings, even though these mappings do not in other ways fit the common descriptions of conceptual metaphor.

On the other hand, we must also consider what it is that is mapped from source to target. Certainly vocabulary is mapped in this direction and not the other, as examples (18)-(21) make clear. It has frequently been claimed that inferences are also mapped from source onto target concepts. The following citation is from *More Than Cool Reason*:

> When we understand that life is a journey we structure life in terms of a journey, and map onto the domain of life the inferential structure associated with journeys. But we do not map onto the domain of journeys the inferential structure associated with the domain of life. For example, we do not understand thereby that journeys have waking and sleeping parts, as lives do. We do not infer that, just as we can lead only one life, so a traveler can take only one journey. We map one way only, from the source domain of journey onto the target domain of life. (Lakoff & Turner, 1989: 132)

While it is true that we do not infer that travelers can take only one journey, it is equally true that we do not infer that people can lead many lives, or that people can return to previous "locations" along their life "path," or that some people are travelers and some are not.

There is a large amount of evidence showing that people think analogically and project inferences from one domain to another (Gentner & Gentner 1982, Lakoff 1987, etc.), but it is not clear that metaphors at the primary level are equivalent to analogies. In Chapter 7 I will discuss some other kinds of metaphorical image, which are elaborated by processes distinct from primary metaphor, and it seems to be the case with these conceptualizations that we might be interested in and capable of drawing conclusions about the target domain based on our knowledge of the source. For other mappings, though,

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including primary metaphors, it is an open question to what extent inferences are projected from source to target. The analogy cases and "blending" cases rely on a degree of conscious reflection which is by definition absent in the formation of conventional primary mappings.

5.5 Conclusion—Image, response and consciousness

Primary metaphors, which can be identified on the basis of several types of evidence—primarily linguistic—appear not to fit a typical characterization of conceptual metaphors as tools for constructing, grasping, and communicating about difficult, abstract concepts. Instead the target concepts of these mappings refer to experiences which appear, based again on several types of observations, to be fundamental aspects of cognitive function. They represent our basic sorts of cognitive responses to what we perceive in the world. The source concepts, on the other hand, are equally basic, but in a different way. They have image content of a sort that target concepts lack. While the "purpose" of such mappings cannot be determined by linguistic evidence, there are two plausible points that bear mentioning here.

First, it seems likely that metaphorical associations between source and target concepts are inevitable, and that there is therefore no need to seek a communicative or conceptual advantage which we gain by associating some concepts with others. Given what is known about priming, and what little is known about the neurological correlates of conceptual structure, it seems impossible for there *not* to be significant interactions between concepts that are tightly correlated within recurrent experience-types. Metaphor, on this account, would be a fundamental and necessary by-product of the interaction between cognitive structure and experience in the world.

If we are to account for the directionality of metaphor, though, then we do need to offer a reason why sources are sources and targets are targets. On this point, it seems likely

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that metaphors help bring backgrounded cognitive operations and experiences to consciousness by associating them with sensory images. A wealth of research on the role of images in thought suggests that we are naturally better equipped to manipulate concepts and propositions that have image content than ones that lack it. It is difficult to call to mind the notion of similarity without also calling to mind instances of similarity, and in particular, cases where similarity is detected by means of perception. If we have no direct conscious access to the cognitive mechanisms which judge Quantity, Similarity, etc. then calling up images associated with these functions may be best way we have of focusing conscious attention on them, and the succession of such images may be an important feature distinguishing consciousness from lower levels of cognitive operation.

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Chapter 6. The theoretical context: units of meaning

In this chapter we will consider how primary scenes, primary metaphors, and the types of concepts which participate in them fit into a broader theoretical picture. For a number of years, scholars from various disciplines have been concerned with identifying the ways in which experience is represented cognitively, as the background for language, problem-solving, memory, and other cognitive functions. The *domains* of conceptual metaphor, for example, are one type of unit which has been used for parsing the world of experience into discrete divisions with apparent relevance to conceptual and linguistic structure. This chapter outlines the relationships between the apparatus developed in the dissertation and other proposed ways of structuring experience types and cognitive representations of them. The primary scene in particular is intended to complement the set of existing proposals. The following comparisons will further clarify the conceived nature of primary scenes—and primary source and target concepts—as opposed to these other constructs, and show that there is more commonality with some than with others.

6.1 Domains of conceptual metaphor

The idea of the domain—as the term has been used in conceptual metaphor literature—is intuitively graspable, especially if we focus on the gap or disparity between two domains that are clearly different. It is easy, for instance, to think of food and ideas as concepts grounded in two different domains of experience. A sentence like "Your proposal is half-baked" seems clearly metaphorical: a concept from the domain of food is being mapped onto the domain of ideas, providing the vocabulary and the inferential information that allows us to express a judgment about the proposal.

No one has yet offered, however, a clear definition of what a conceptual metaphor domain can and cannot look like. As we have seen, the domains which have appeared as sources and targets in proposed conceptual metaphors have ranged from the simplest and

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most schematic (e.g., vertical elevation) to the richest and most vivid (e.g., the domain encompassing food, cooking, and eating). What is shown by the evidence we have been considering is that the correspondences which constitute foundational metaphorical mappings are not based on perceived isomorphisms between broad domains of experience, but between much narrower, more local, temporally bound elements of experience. The act of swallowing, the act of grasping, the perception of heaviness, the awareness of motion, the act of manipulating a structured object and its parts—all these basic experience types, or primary scenes, crosscut "domains" of life such as cooking, traveling, and so forth.

A few typical scenes related to food preparation will illustrate this relationship: Cooking often involves lifting heavy objects (such as pots filled with water), moving from place to place (e.g., from counter to table to stove), and assessing quantities (e.g., measuring ingredients). It involves considerations of temperature, by definition, and often involves visual inspection of various properties as well—e.g, color. Each of these activities, taken as an instance of a more general category (of lifting, moving towards a goal, reacting to heat, etc.) is the basis for conceptual metaphors, none of which bears any crucial relationship to a food "domain." These same activities are aspects of traveling, constructing buildings, farming, and other higher order divisions of experience.

Based on details of linguistic data and the mappings they imply, it is not parallels between such complex domains which directly motivate conceptual metaphors, but correlations between experiences at a much more local level. While the broad domain can serve as a useful tool for identifying linguistic expressions which are metaphorical rather than literal, we need different tools to allow for finer-grained analyses of metaphors and their experiential correlates. We can say that the acts of swallowing and intellectually accepting belong to two different domains of experience as a way of pointing out that "he swallowed all their claims" is metaphorical, but we are still left with the task of explaining exactly which concepts participate in basic metaphorical mappings and which do not, which concepts correspond to each other, and why. Primary scenes (like image-schemas and

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certain other proposed entities discussed later in this section) are at a more appropriate level of description for this type of analysis.

As theoretical objects, primary scenes are more narrowly constrained than domains, if only because they must consist of relatively simple structures which are not further decomposable into other such structures, whereas domains may be quite broad. Though it may not be possible at present to offer a formal or quantitative definition of primary scenes[1], they can be described in a way that clearly excludes large classes of candidates, as we saw in the last chapter. Certain scenes and concepts, such as driving a car, are constructed from a number of different types of information and experience, each of which could count as a primary scene. There are many, many such primary scenes which structure our experience of complex domains such as cooking and eating, journeys, war, and buildings.

6.2 "Generic-level metaphor"

Lakoff and Turner (1989) refer to "generic-level metaphors," such as EVENTS ARE ACTIONS (pp. 80-82). These metaphors differ from "basic-level metaphors," such as A LIFETIME IS A DAY — which are the norm in Lakoff and Turner's view — in that their source and target domains do not refer to specific domains of experience, such as the daytime/night-time cycle, but rather to more general types of schemas, such as events, and actions performed by agents. This generic level is more general than the "superordinate level" which Lakoff and Turner discuss. Their superordinate level refers, for example, to vehicles, rather than cars; the category of vehicles is far removed from the generic level of events and actions.

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[1]This is a question which neuroscientists may be able to answer at some point, if something like a list is discovered of the most basic experiences humans are able to consciously attend to.

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It is clear, from an examination of the role of primary metaphors in motivating linguistic forms, and the role of basic experience-types in motivating these metaphors, that many (or most) of the mappings that play a fundamental role in our cognition map concepts at a relatively generic level. That is, ORGANIZATION IS PHYSICAL STRUCTURE (see Chapter 2) and so forth are metaphors which map one very general category of experience onto another. "Basic-level metaphors" such as THEORIES ARE BUILDINGS, ROMANTIC RELATIONSHIPS ARE VEHICLES, etc. are derived from combinations of these primary, highly schematic metaphors, and can be understood as instantiations of them.

Lakoff and Turner make two particular claims about the ways in which generic-level metaphors are generic (p. 81) : First, "they do not have fixed source and target domains." As we have seen, this description fits primary metaphors, if *domain* is understood to refer to richly elaborated aspects of life, involving various settings, activities, and so forth. Rather than mapping experiential domains like hunting, traveling, and waging war onto one another, metaphors with direct motivation refer to basic chunks of human experience, such as swallowing, lifting, experiencing a compulsion to act, and making simple evaluative judgments. These are dimensions of experience which have very minimal structure and detail — e.g., a phenomenological account of the compulsion to scratch an itch would not involve much additional structure beyond the sensation and the instinct to move the hand (or other instrument) into position to execute the scratching motion. These narrowly defined scenes cross-cut all sorts of richly defined domains and contexts, rather than being confined to very specific sorts of scenarios, such as gambling games or mealtimes. Therefore, they do not have fixed source and target domains in that sense.

L&T's second claim about generic-level metaphors is that they "do not have fixed lists of entities specified in the mapping." In fact, for L&T, the mapping for a generic-level metaphor "consists not in a list of fixed correspondences but rather in higher-order constraints on what is an appropriate mapping and what is not" (p. 80). Primary metaphors, by contrast, *do* specify corresponding entities, properties, relations and so on.

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As a consequence of primary scenes which co-occur in regular and salient ways, correspondences arise between certain concepts and others — e.g., swallowing and mentally accepting. Such correspondences involve mappings with particular structure: the swallower is mapped onto the person who accepts a situation or proposition, and so forth.

Based on L & T's discussion of generic-level metaphor, it does not seem that primary metaphors such as ACCEPTING IS SWALLOWING could count as generic-level. However, I certainly share, in very general terms, L&T's view that conceptualizations more schematic than IDEAS ARE FOOD etc. are relevant to an adequate account of metaphor.

6.3 Image-schemas[2]

Lakoff, Johnson, and other metaphor researchers have all referred to relevant levels of experience and cognitive organization other than the domain. The notion of an image-schema, in particular, is in much the same spirit as analysis in terms of primary scenes and primary metaphors. Specifically, certain accounts of image-schemas place them very near to *primary source concepts*, in the present framework. Because of its centrality in cognitive linguistic research and its close affinity to certain aspects of primary scenes, the image-schema receives fairly extensive treatment here.

Accounts of image-schemas

Like primary scenes, image-schemas are conceived as fundamental units which play an important role in structuring meaning and concepts. Johnson, who coined the term *image-schema*, characterizes them as "pattern[s] in some particular experience" (1987, p 33) and says that "*image-schemata are not rich, concrete images or mental pictures* [emphasis Johnson's]..." but rather, "structures that organize our mental representations at a level

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[2]Two plurals of *schema—schemas* and *schemata*—have appeared in the literature, and I intend no semantic distinction whatsoever when I use the former rather than the latter.

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more general and abstract than that at which we form particular mental images" (p. 24). Johnson regards image-schemas as schematic representations of entities, situations, configurations, and so forth, that we encounter repeatedly in the world. His "partial list of schemata" (p.126) includes the following:

CONTAINER	BALANCE	COMPULSION
BLOCKAGE	COUNTERFORCE	RESTRAINT REMOVAL
ENABLEMENT	ATTRACTION	MASS-COUNT
PATH	LINK	CENTER-PERIPHERY
CYCLE	NEAR-FAR	SCALE
PART-WHOLE	MERGING	SPLITTING
FULL-EMPTY	MATCHING	SUPERIMPOSITION
ITERATION	CONTACT	PROCESS
SURFACE	OBJECT	COLLECTION

Notice, by the way, that many of these are multi-modal schemas—e.g., we have both visual and tactile models of containers, which must work together during our interactions with containers.

Turner (1991) also discusses image-schemas extensively, reaffirming Johnson's claim that they can include information from any sense modality. On Turner's account, they seem to be schematic representations of any element of our experience. Some of Turner's (1991: 176-177) examples of concepts for which we have "skeletal representations" (i.e., image-schematic representations) include a scream; a small circle and a large circle; two circles of the same size; a circle with a marked point at its center; a cup; a plate; a particular phoneme; a flat surface; verticality; forward motion; a path from source to goal; containers; contact; up-down orientation; front-back orientation; center-periphery opposition; a pinch; rising motion; dipping motion, expansion; vertical lines ordered by relative size, beginning

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with the smallest and proceeding on to the largest, in a row (p. 177); and (somewhat less explicitly) the scent of pine.

Image-schemas and metaphor mappings

Research on conceptual metaphor has been the chief engine driving the development of the notion of image-schemas, and researchers have agreed that image-schemas play an important role in metaphor mappings. Johnson, for instance, introduces the notion of image-schema as a central element in his theory of metaphor. On his account, metaphor mappings are based on and constrained by image-schematic structure. The PURPOSES-AS-PHYSICAL GOALS mapping, for instance, is based on the PATH schema, which includes our knowledge about starting points, motion along trajectories, arrival at destinations, and so forth.[3]

A number of researchers (notably, Lakoff 1990) have followed up on Johnson's argument that image-schematic structure constrains metaphoric mappings. Turner (1991) states this constraint as follows: "In metaphoric mapping, for those components of the source and target domains determined to be involved in the mapping, do not violate the image-schematic structure of the target, and import as much generic-level structure from the source as is consistent with that preservation" (p. 274). Lakoff's version (called the "Invariance Principle") attaches greater weight to the image-schematic structure of the source domain: "Metaphorical mappings preserve the cognitive topology (that is, the image-schema structure) of the source domain, in a way consistent with the inherent structure of the target domain" (1993). These formulations are typical of researchers' views on the

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[3]Johnson also claims that STATES ARE LOCATIONS is a basic motivation for PURPOSES ARE PHYSICAL GOALS; I disagree with this aspect of his analysis, and have argued that the correlation between the motion event and the intentional "event" within a primary scene

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importance of image-schematic structure, even if the details vary somewhat in the individual accounts (e.g., those of Brugman 1990, Rudzka-Ostyn 1993, Krzeszowski 1993, Cienki 1997, etc.)

Extensive vs. local structure

An important point of distinction between image-schemas and the constructs proposed in this dissertation is that there seems to be a consensus in published accounts of image-schemas that they can include quite a bit of structure, beyond that which could inhere within a single primary scene or primary metaphor. Two passages from the literature illustrate this point. Brugman (1990) interprets Johnson's (1987) discussion of image-schemas to mean that an image-schema "need not be associated with any particular sense experience, and its subject matter need not be concrete. Any recurrent pattern of experience is describable in terms of image-schemata, including for instance the kinds of recurrent event types which are called "frames" or "scenes" in the linguistics and AI literature" (p. 260). On the reading that frames and scenes are describable in terms of *individual* image-schemas, this account would imply that image-schemas can include considerable complexity. For instance, a frame for making purchases could include many different primary scenes—arriving at destinations, asking questions, giving and receiving objects by hand, etc.

Turner's (1991) discussion of the PATH schema implies the same possibility:

> Consider LIFE IS A JOURNEY. There is a path in the source domain, and it is mapped onto the target. That path in the source has image-schematic structure. But much of this image-schematic structure is simply not mapped onto the target. For

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such as arriving at a destination is sufficient to account for the metaphor. STATES ARE LOCATIONS is a distinct mapping, with distinct motivations. (See Chapter 4.)

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example, it is part of the image-schematic structure of the path to be fixed, to be independent of our traversal of it. Traversing the path neither creates nor destroys it. Consequently, we can meet a fork in the path, choose one fork, take a step, change our mind, step back, and take the other fork. Metaphorically, meeting a fork corresponds to coming upon alternatives. But the fixity of the fork does not map onto the fixity of the alternatives. Many of our decisions are irrevocable. Shall we boil this egg or eat it raw? Shall we marry Tom or Harry? In these cases, the rejected alternative disappears the moment we engage in the chosen alternative. If we boil the egg, we cannot then eat it raw, and if we eat it raw, we cannot then decide to boil it. Metaphorically, one of the forks is destroyed the moment we step down the other. [...] In the source, there is preservation [of both alternatives], which is image-schematic structure. In the target, there is destruction, which is image-schematic structure. To map the source preservation onto the target destruction would be to violate the image-schematic structure of the target, and so we do not map that part of the image-schematic of the source" (p. 274).

This passage makes clear that Turner's conception of image-schemas (like other researchers') allows for structure which may be quite extensive. In particular, the image-schematic structure of paths apparently includes information not only about direction, motion, source and goal, but also about what happens when travelers encounter forks, and presumably other details. In fact one could argue that Turner's path schema must subsume other, simpler schemas, such as Johnson's SPLITTING schema perhaps. Turner implies that it is this entire image-schematic structure which is to be compared with the image-schematic structure of actions and alternatives when we compute which elements are mapped from one to the other. As we have seen in previous chapters, this degree of structure is not characteristic of primary metaphors, primary scenes, or primary source or target concepts. Instead, a different account of the "fork in the road" case—in terms of primary scenes and

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primary metaphors—would hold that it is simply the act of choosing between alternative actions which is mapped, that there is therefore no question of potential "violations" of source or target structure, and that it is only the very local features of a certain category of experiences (i.e. choosing which direction to move in) which motivate the mapping. The experience of choosing between alternate paths is distinct from the experience of retracing our steps (just as the experience of swallowing is distinct from the experience of chewing), and these distinct scenes motivate distinct mappings.

Consider the following expressions:

(1) a. In order to figure out where we had *gone* wrong in the procedure, we had to *retrace our steps* and re-examine each intermediate result.

b. It's really been *two steps forward and one step back* lately.

c. When you're done, *go back* to the beginning and start all over.

What these expressions illustrate is that even "within" the Event Structure Metaphor[4] there are contradictory mappings from the domain of spatial motion to the domain of purposeful activity. In one case backwards motion (plus visual inspection) is associated with examining a previous course of action. In another it is associated with "setbacks"—events which have been detrimental to the achievement of the relevant purpose. In yet another it is associated with returning to the initial state from which an action sequence can be commenced. The inferential structure which is mapped from the source domain of paths and travel is different in each case, and we could construct accounts of how each is motivated separately, by different correlations in our experience between spatial motion and more abstract processes. Once again, we see that instead of mapping whole domains onto

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[4] As I indicated in Chapter 4, I regard the "Event Structure Metaphor" as a collection of independently motivated local mappings.

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each other—or projecting the extensive path schema suggested by Turner—these conceptual metaphors involve much more local structure, motivated by particular moments in our experience. Johnson's account of the motivation for PURPOSES ARE PHYSICAL GOALS, discussed above, is a neat example of this phenomenon.

Of course there is a well-developed and well-attested conventional association between the rich domain of traveling and the rich domain of life choices, but the *gaps* in this association can be explained as indications of what the motivating scenes and primary correspondences are and are not like, rather than as evidence of partially blocked mapping. This richer complex of associations—illustrated by expressions like *the road less traveled*—can be accounted for in terms of the unification of primary metaphors, and some additional mechanisms (to be discussed in Chapter 7).

Based on the issue of extensive vs. local structure, it is clear that image-schemas as they have been discussed in recent accounts are not equatable with primary scenes, metaphors, source or target concepts.

Primary scenes and image-schemas: level of abstractness

Another difference between accounts of image-schemas and the account I offer of primary scenes and metaphors is that image-schemas can be more abstract. For instance, the Container schema, on Johnson's (1987) account, is a representation relevant to our understanding of our bodies, our beds, the rooms we occupy, and so forth. While it seems possible that we do have a schematic mental representation of containment relationships which is abstract enough to include all these cases—a relationship which Langacker (1987) for instance claims constitutes the semantic pole of the English preposition *in*—nonetheless the types of experiences from which such a relationship would be abstracted are too different to be considered instances of the same experience type. For instance, crossing a threshold into a space such as a room is quite a different experience from retrieving a possession from a container like a box—they share no salient perceptual or motor events in

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common. These could not count as instances of the same primary scene, and they motivate different sets of metaphorical expressions:

(2) a. I *entered* the relationship with some reservations.

b. I managed to *extract* some meaning from his nearly vacuous prose.

These metaphorical examples appear to share little in the way of experiential motivation, and each highlights different aspects of containment. The first relates to experiences where we enter spaces that have particular features and particular boundaries while the second relates to experiences in which we interact with containers and their contents. Observe these two different metaphorical senses of the word *emerge*, which reflect different mappings:

(3) a. I *emerged* from that relationship with few of my illusions intact.

b. Very little meaning *emerged* from that essay, even on closer reading.

In (a) the target concept relates to the passage of time and a change in the status of a social relationship. In (b), the target relates to accessibility to a human experiencer. Containment, as many researchers have observed, is a rather extended concept, and it relates to a wide variety of primary scenes, which in turn give rise to distinct metaphors.

As we found when we considered the extensiveness of image-schemas, the issue of abstractness distinguishes current accounts of image-schemas from the major elements of the framework proposed in this dissertation.

Image-schemas and primary target concepts

With regard to the claim that metaphorical mappings are constrained by image-schematic structure, a crucial question is whether target concepts necessarily have image-schematic structure at all. On any understanding of metaphor, target concepts must have some content

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which is distinct from source concepts. It is questionable, however, whether this content must have image-schematic structure—whether, for instance, we are justified in speaking of the *image-schematic* structure of concepts like desire or similarity. As we saw in the previous chapter, target concepts lack image content—i.e. direct connection to sensory experience—which is characteristic of source concepts. Whereas source notions like containment (of one form or another), endpoints, center-periphery, contact, weight, and so forth have some content which is perceived via the senses, the target concepts of primary metaphors we have examined do not. Therefore, if image-schemas are to be understood as schematic images, primary target concepts lack a key criterion.

It has been suggested by several researchers that certain target concepts or domains may have little or no image-schematic structure which could constrain metaphorical mappings. For instance, Turner (1991) mentions time as an example of a target domain without inherent schematic structure (p. 61). This suggestion is consistent with the sketch of primary mappings related to time offered in Chapter 4: there is nothing about the notion of Change, for instance, that relates to any particular sensory experience—the change may even be a change in mental state only. Other possible subjective cues related to time are similarly lacking in image content: part of our understanding of the notion of Past may be the awareness that a given image is not the product of real, current sensory experience, (what Damasio calls a *perceptual image*, 1994: 96) but is recalled from memory (what Damasio calls a *recalled image*, 1994: 97). If it is possible to be subjectively aware whether we are experiencing a perceptual image or a recalled image, then this could form part of our basic foundation for understanding Pastness, and time more generally. Here, as in more seriously developed theories of time—such as the electro-chemical pulse theory mentioned in Chapter 4—the experience which we refer to as the passage of time is distinct from any particular sensory experience, though it may be correlated in salient ways with such experiences.

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As I suggested in Chapter 5, the best way to characterize the relationship between image-schemas and primary target concepts may be that the target concepts have no image-schematic structure per se, and instead represent something like operations over concepts which do have image-schematic structure. We like certain flavors, judge certain colors to be similar, note that one spatial configuration follows or causes another, feel oppressed by certain physical tasks, are satisfied when we arrive at intended locations, and so forth. The operations themselves—distinct, recurrent sorts of basic, mental event—have no content in the form of particular images.

Image-schemas and primary source concepts

The relationship between image-schemas and primary source concepts may be closer, though. As we saw in Chapter 5, primary source concepts do have image content, but image content of a schematic sort. Heaviness, for instance, is a schematic concept in contrast to particular images of heavy objects, such as a sofa we have recently had to lift. Does this mean that primary source concepts are image-schemas? As we have seen, image-schemas have been described in a way which would allow them more extensive structure and more abstract content than primary source concepts have. These factors would require us to change and restrict our notion of *image-schema* if we wanted to equate this class with the primary source concepts proposed here. Furthermore, image-schemas (as they have been described by Turner and others) can include representations of concepts which are highly dependent on culture, geography, and history. While it seems uncontroversial, for instance, that we have a cognitive representation of the category of pine scent, and further, that this representation may be basic and skeletal in some sense—i.e. not decomposable into simpler, self-contained representations—such a representation is nonetheless a poor candidate to serve as a primary source concept, for reasons outlined in the last chapter. Pine scent is not a phenomenon which humans everywhere encounter. Rather, like dogs and trees, this is a category which we are equipped to learn very easily but that we have no

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evident evolutionary reason to recognize. Furthermore, pine scent and pine trees can figure in any number of different ways in scenes involving goal-oriented activity—as shelter, building material, food source, etc. Predictably, given that this category doesn't meet the general criteria defining primary source concepts (i.e. the concepts which define primary scenes), it is not the basis for any conventional metaphorical conceptualizations, though it is quite a common and even in some sense, a basic concept.

Even if image-schemas were redefined so as to be more constrained and less abstract, we would still not be able to say that "image-schemas are primary source concepts." This is because not all schematic images serve as source concepts for primary metaphor, even if they are universal and motivated by direct, local experience. We saw in Chapter 5, for instance, that perceptually basic colors (e.g., green) are not source concepts for systematic conceptual mappings. For this reason, it might ultimately be possible to say that all primary source concepts are image-schemas (given an adjustment to our understanding of the image-schema), but the reverse would still not be true.

6.4 Basic-level categories

Basic-level categories are categories at a privileged level of taxonomic specificity, which are learned early, and around which a great deal of our knowledge in a given semantic field is organized (Brown 1958; Rosch 1978; Lakoff 1987; etc.). Apple, for instance, is a basic-level category in the food domain. By contrast, Fruit is a superordinate category and Golden Delicious is a subordinate category. Research has shown that there a number of linguistic and non-linguistic features which cluster around categories like Apple; these include shortness of category name, age at which the term is learned, the existence of a characteristic image and characteristic motor programs associated with the category, the amount of information subjects can quickly produce about the category in experimental conditions, and so forth.

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As we saw in the last chapter, *things*—at whatever level of specificity—are not typical source concepts for primary metaphor. Even basic-level categories like Apple, Dog and Tree are not paired with other concepts in primary mappings, probably because they can participate in so many different types of scenes, and because the ability to recognize them is not part of our fundamental perceptual and cognitive repertoire. Basic-level objects are frequent source concepts for *image metaphors*, on the other hand (see Chapter 8). This pattern is presumably a product of the strong sensory, motor, and force dynamic images associated by definition with objects at this level of specificity.

Although most research on basic-level categories has focused on categories of objects, there have also been mentions of basic-level actions and properties in the literature — e.g.:

> We have basic-level concepts not only for objects but for actions and properties as well. Actions like *running*, *walking*, *eating*, *drinking*, etc. are basic-level, whereas *moving* and *ingesting* are superordinate, while kinds of walking and drinking, say, *ambling* and *slurping*, are subordinate. Similarly, *tall*, *short*, *hard*, *soft*, *heavy*, *light*, *hot*, *cold*, etc. are basic-level properties, as are the basic neurophysiologically determined colors: *black*, *white*, *red*, *green*, *blue*, and *yellow*. (Lakoff 1987, pp. 270-271)

We have seen that colors are not concepts which serve as sources for conceptual metaphor, apparently because they are not tightly correlated with particular types of dynamic scenes. On the other hand, the other properties listed in this passage would by my definition be primary source concepts, since they correlate with particular, recurring experience types of a basic sort, and since these experiences are associated in significant ways with our goal-oriented interactions with the world. We have already seen the significance of heaviness, for instance, as it relates to scenes where lifting is an integral

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part. Properties are obviously not entirely commensurate with objects in a way that would allow all the same tests to be applied to categories of both types, but many of the properties in this short list fit many of the criteria for basic-level object categories. For instance, *heavy* is a short word which children certainly learn relatively early, and which has a characteristic set of physical sensations—if not visual images and motor routines—associated with it. To this extent, basic-level properties, if they can be well-established, may line up fairly well with primary source concepts.

It is less clear that the actions referred to in the passage are primary source concepts—e.g., *walk* and *run*, two distinct actions, are not source concepts for distinct primary mappings. Both are instantiations of a primary source concept involving self-propelled motion. The relationship between primary metaphor and "basic-level actions" will have to be established through further research on both topics.

6.5 Emergent categories

Eve Clark's work on categories which appear in children's linguistic structure despite the absence (or near-absence) of marking for those categories in the ambient language (i.e. the speech of the adults around them) provides strong evidence for the pre-linguistic status of certain concepts. These concepts include basic shapes, such as round, flat, and long; the degree of control an agent has in a given situation; and inherent vs. temporary status of properties (e.g., inherently crumbly as opposed to momentarily covered with crumbs). The evidence Clark cites includes cases of over-extension, as when all round objects are referred to as balls, and also cases where the child makes a distinction other than one made by adults, as when the child uses *me/my* for self-reference when she is in a particularly agentive role—e.g., "My blowed [= I blew] the candles out"—but *I* when she has less control over the situation being predicated—e.g., "I like Anna." What both types of cases show is that the child is encoding a concept which has no such conventional marker in adult English. Whether these concepts are innate, or are acquired by some process which

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precedes language acquisition, children appear to have mastery of them very early, and independently of linguistic input from adult speakers.

Emergent categories will be treated in Chapter 8, as part of a larger discussion of the possible relevance of primary scenes to first language acquisition. The few examples that have been proposed by Clark suggest that some emergent categories may correspond to target concepts of conceptual metaphor, since both can refer to basic conceptual divisions which a child might apply to the world. The distinction between inherent and temporary properties, for instance, appears to be one which is reflected both in the targets of primary metaphors and in children's derivational morphology.

6.6 Prototypical events

Yet another proposal to compare against the primary metaphor framework is Slobin's (1985, p. 1173f) discussion of "prototypical events," schematized scenes — such as object manipulation or object transfer—of which children have a pre-linguistic understanding which is either innate or learned very early. The idea of prototypical events is prefigured by Clark's (1978) discussion of basic and schematic verbs such as *go*, *put*, *make*, *do*, and *get*, which she argues correspond to basic grammatical meanings across languages; and is taken up by Goldberg (1995), who discusses them as a possible basis for the semantics of verbal constructions. On Slobin's 1985 account, these prototypical events are universal, and they account for similarities in grammatical structure among unrelated languages because it is onto these cognitive representations that children gradually map the grammatical forms they hear in adult speech. Slobin has more recently (1997) offered a somewhat different notion of prototypical events, however, because of evidence that there is such a wide variety and disparity of grammatical categories among languages that the earlier characterization may have been at the wrong level of granularity.

Although Slobin's discussion of this topic has been brief, its central insight (for which he shares credit with Talmy, Pinker, and others) is very compatible with the idea of

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primary scenes—particular types of experience, defined at a very schematic level, recur repeatedly and saliently in a variety of contexts, and our attention to these experiences ultimately informs linguistic structure. Primary scenes are a far broader category than prototypical events, since the latter are conceived as only the very limited set which are relevant to grammatical constructions. Furthermore, primary scenes are more particular than the prototypical events which have been described. "Object manipulation," for instance, one of the proposed prototypcial events, could presumably include breaking objects, assembling them, throwing them, etc. Despite these differences, though, it seems that the two proposals are in the same general spirit.

Since the range of primary scenes is much greater than the range of prototypical events, it may prove that primary scenes provide a way of accounting for cross-linguistic variation—of the type which necessitates refinement of the earlier prototypical events proposal—by describing event types at a somewhat finer resolution. For instance, it may be that some languages group all object manipulation scenes together in one grammatical category, while others have finer grained categories reflecting more detail about the nature of the manipulation.

6.7 Schematic concepts and conceptual archetypes

In various works (e.g., Langacker 1987, 1990, 1991), Langacker has developed a theory of Cognitive Grammar which includes several concepts relevant to the analyses here. Two of the most germane are *schematization* and *conceptual archetypes*. He argues that since there is in principle no limit to our cognitive ability to abstract schemas from more particular concepts, schemas at any level of abstractness are viable semantic referents for linguistic forms. While I agree wholeheartedly on this point, it leads Langacker to certain conclusions which appear to be inconsistent with my claims here. A clear example is found in the following passages from Langacker's discussion of extensionality and "abstract motion" (1987: 169-170):

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> Let us assume, then, that some instances of spatial metaphor pivot on a perceived similarity between the standard *A* (a spatial notion) and the target *B*, where *B* is an independent conception that is not spatial in the narrowest sense of the term... This type of analysis presupposes a generalized notion of extensionality ... that is not specifically tied to our conception of physical space. It is a property of many domains, both basic and abstract, though the spatial domain stands out among them for its prototypicality and cognitive salience. By making this distinction between extensionality in general and physical space in particular, we can characterize "motion" in abstract terms applicable to any extensional domain...

One potential point of difference depends on the intended reading of the term *similarity*. In the primary metaphor framework (and on other accounts of conceptual metaphor as well), similarity between source and target concepts is not the basis of mappings, and is not necessarily present at all, in the sense that is usually intended. Instead, source and target concepts are *correlated* in some set of recurrent experiences. They must share structure on the most schematic possible level of construal—e.g., both are construable as entities—but in many cases this is the only *similarity* between source and target.

Granted that in the case of Change (target) and Motion (source), this sort of extremely schematic point of contact may be what is meant by the word *similarity*, there is still a distinction between this account and the one I propose; this distinction also depends on an interpretation of terminology. If the target concept is change—i.e. the evolution of an entity or relation from one state to another—then the notion of *abstract motion* is either a metaphoric label for the concept of continuous change, or it reflects a projection of some aspect of spatial motion onto a range of phenomena which do not involve space or motion. When Langacker uses such terms as *abstract region* and *abstract motion* he is inviting the interpretation that these phenomena are in some sense variants on our understandings of the

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corresponding spatial notions. Even if we do not form an image of a well-defined motion event when we hear and interpret an expression like *the milk went sour*, there may still be some more subtle projection of our understandings of space and motion onto this instance of abstract motion through abstract region. The extent to which the concept of spatial motivation is activated by such an expression probably cannot be determined with linguistic evidence alone; it is unclear, though, that there are basic concepts at work here other than change and spatial motion, one of which is cast in terms of the other.

The notion of *conceptual archetypes* is introduced in order to account for certain prototypical conceptualizations of basic categories. The *billiard-ball model* (Langacker 1991: 13), for instance, is described as a conceptual archetype which holds that the world is composed of discrete objects moving through space and causing effects on one another via the transfer of energy. The billiard-ball model, on Langacker's account, is responsible for the cross-linguistic centrality of nouns and verbs—they pick out objects and actions, respectively, in this pervasive construal of the world. Clearly, this sort of model is not equatable with any given primary scene or primary source or target concept—since it encompasses an enormous range of possible interactions between objects, for instance—but it is similar in its emphasis on schematic events as important aspects of construal. Primary scenes and subscenes, however, are much more particular dimensions of experience, as we have seen. While some of these, such as the experience of grasping an object, may nearly fit the notion of an archetype, it seems that others, such as having an itch, probably could not.

6.8 Semantic atoms, primitives

Proposals regarding semantic primitives (e.g., Wierzbicka's, 1972, and Katz and Fodor's, 1963) have included far fewer than the potential lists of primary scenes and primary metaphors. These lists have also not included specific reference to all the particular types of experiences which constitute primary scenes or subscenes—e.g., swallowing—and which

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might be considered "atoms" of subjective experience. However, there is an element of similarity between my proposals here and some of those which have related to decomposing meaning into its most basic elements. For instance, Miller and Johnson-Laird (1976) offered a "list of properties and relations that people can pay attention to and make judgments of," referring to these as "perceptual predicates." Many of these properties and relations, such as "*x* supports *y*" and "*x* is straight," are very similar to primary source concepts, in that they are basic and minimal dimensions of the world as we perceive it. These are the sorts of perceptual concepts which are correlated with aspects of mental experience in primary scenes. Others of Miller and Johnson-Laird's perceptual predicates do not seem relevant to the present study, however—e.g., "*x* is a subjective quality" is probably too schematic to count as a recurring and distinct dimension of experience or perception. (This may in fact be closer to a primary target concept—a basic judgment about our perceptions.) Another of M & J-L's examples, "*x* is a cube," does not seem to be associated with other experiences in a way that could make it a building block (so to speak) of our conceptual system (even if Miller and Johnson-Laird are correct when they imply that this is a judgment we make automatically). The concept of a Right Angle might plausibly serve as a source image for dependability, regularity of behavior, and so forth, based on the perceptual and functional properties of right angles in our experience, but there is no apparent reason why cubes in particular should have a special significance.

Certainly, the proposals outlined in this dissertation are very unlike any which try to decompose meaning into the smallest possible *logical* units, since such proposals may ignore the experiential basis of concepts. For instance, it is unlikely that people can attend to the fact that something is "an object" in the absence of any more particular kinds of experiences of that object or interactions with it. Therefore, a hypothetical predicate like "*x* is an object," or a semantic decomposition using an abstracted "object" feature would not be consistent with analysis in terms of primary scenes.

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6.9 Semantic frames

Another concept which has played an important role in theories of meaning is the *semantic frame* (Fillmore, 1982), which is a close cousin of gestalts, scripts, schemas, and other constructs within the field of psychology (e.g., Schank & Abelson 1977). Like domains, frames appear to be almost entirely unconstrained with respect to their level of schematicity. Among the frames that have been proposed in the literature are restaurant dining and the social conventions regarding marriage. As we have seen, primary scenes and primary source and target concepts are delimited much more narrowly, and a concept such as Marriage could not correspond with any of these, let alone societal expectations about marriage age and so forth. These concepts simply encode too much information and too many experience types at too many levels of specificity. Even the simplest and most prototypical notion of (Western) marriage, for instance, entails moments of physical proximity and emotional intimacy—which are correlated in one sort of primary scene—*plus* various legal and cultural understandings about commitment, the future of the relationship, family structure, and so forth. More generally, it is unclear whether any primary scenes are rich enough to count as frames or any frames are minimal enough to count as primary scenes. Frames are typically presented as collections of related knowledge and experiences, whereas primary scenes are on a much more local scale, and may crosscut many such collections. If semantic frames can include such limited knowledge structures as "lifting a heavy object," then it may be that primary scenes are a special case of semantic frames.

6.10 Mental spaces

Like the conceptual domains of metaphor and like semantic frames, *mental spaces* (Fauconnier 1994, etc.) are a construct which has proved extremely useful in accounting for the construals and understandings which underlie linguistic expressions. The insight that speakers shift their perspective effortlessly between different mental settings as they

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construct and interpret language helps clarify not only the status of statements about fictional situations—"Can a statement about a character in a novel ever be considered literally true?"—but also much more general patterns in language, such as the ways in which pronouns and conditional statements refer.

Also like metaphor domains and semantic frames, mental spaces are allowed to include a very rich amount of information. For instance, a mental space could consist of a "picture space" defined by a painting of a garden party hanging above one's grandmother's sofa. In this space various people are in various poses, eating various foods, and so forth. This exceeds the degree of information and detail allowed in primary scenes or primary source or target concepts.

An interesting question is whether the two concepts that are linked in a primary metaphor are located in distinct mental spaces. Is it the case, for instance, that when I use an expression like *things have gone from bad to worse* I am entertaining two distinct on-line perspectives on the world, in one of which there are situations evolving through time and in the other of which there are entities moving through space? This is certainly a plausible way of describing the simultaneous "activation" of the source and target concepts of metaphor. It seems, though, that this sort of model is most useful for describing metaphor cases where a greater degree of content and structure are imported from the source space than in this case, where no details of a landscape or manner of motion, for instance, are likely to be evoked. Cases where there is more integration of detail from two distinct conceptualizations are treated in the next chapter, in a discussion of Fauconnier and Turner's *blended spaces*.

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Chapter 7. Non-primary metaphor

Although nearly all the discussion in previous chapters has focused on the nature of primary metaphors, the actual metaphorical language we produce and encounter is often not analyzable in terms of primary metaphors and fundamental conceptual correspondences. We saw examples of non-primary metaphor in the second chapter, when we looked at data which combined metaphorical conceptualizations into a single image with no direct motivation in experience. For instance, there is no plausible direct basis for thinking of theories as buildings per se, and even less apparent motivation for thinking of particular aspects of theories as *gargoyles*. Instead, such figurative expressions seem to reflect more complex acts of linguistic and conceptual manipulation, such as the blending of more than one primary metaphor into a composite mapping which is not directly grounded.

Primary metaphor is, from one perspective, merely a special case—though a foundational one—of the varied phenomenon of figurative thought and language. Considering other sorts of cases will both clarify the distinctive qualities of primary metaphor, and suggest how it fits into a broader view of cognition and language. In this chapter we will explore various ways in which linguistic expressions and conceptualizations which appear to be metaphorical can arise without having their basis in particular experiences. Accounts of these cases will make use of such notions as unification, metonymy, mental spaces (Fauconnier 1985, etc.) and conceptual blending (Fauconnier and Turner 1994, Turner and Fauconnier 1994, etc.). My aim is not to offer a comprehensive analysis of every sort of figurative language and conceptualization, but to suggest how primary metaphors might interact with or be distinct from some other cognitive, conceptual, and linguistic phenomena.

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7.1 Compositional conceptual metaphors

In their examination of a broad range of issues relating to conceptual metaphor, Lakoff and Turner (1989) referred to the fact that "basic metaphors [may] combine in a given passage to yield a new complex metaphor" (p. 47). The example under discussion was a passage from Shakespeare's *Troilus and Cressida*, in which time is framed as a monster with "a wallet at his back" in which he collects good deeds as "alms for Oblivion." As we saw in Chapter 2's discussions of *buttress*, primary metaphors may combine to yield new metaphorical images—not only over the course of a literary passage, but as the underlying conceptualization which motivates a single metaphorical expression. In this section, I continue the discussion of this "unification" of metaphors.

When we speak of *buttressing* a theory or refer to acting morally as *taking the high road*, we are combining independent metaphoric conceptualizations into a unified image with no direct motivation in experience: our experiences of moral action are not strongly connected to our experiences with choosing paths over different elevations, and our experiences with buttresses (if any) are very independent from our experiences (if any) of trying to make theories stronger. As we saw in Chapter 2, the language suggesting that a theory can be *buttressed* reflects two distinct underlying images: an image of logical organization as the relationship between physical parts, and an image of functionality as erectness[1]. These metaphors are independently motivated, by distinct primary scenes, and they license independent sets of linguistic data. Since they are compatible with one another, however, they may be combined, or unified, into a single mapping which refers both to physical part-whole structure and to erectness. An emergent feature of the more elaborate

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[1]Since source concepts typically have more sensory content than target concepts, I will sometimes use the term *image* to refer to source concepts, especially those which are the result of composition or other processes which add detail. I have in mind no particular technical sense of the term *image*.

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mapping which this unification yields is that certain parts are in asymmetrical relationships with each other: some parts are *supported* by others.

The following binding table represents the unified compositional mapping between complex, abstract entities and erect physical structures:

Source		Target	Grounding
ERECTNESS	→	VIABILITY	{Experiences with objects (including our own bodies) where erectness correlates with functionality, health}
PHYSICAL STRUCTURE	→	ORGANIZATION	{Manipulation of complex objects, correlated with formation of mental representation of logical relationships among parts}

Figure 1. A VIABLE COMPLEX ENTITY IS AN ERECT PHYSICAL STRUCTURE

Let's consider several more examples of composed metaphorical images, which will help clarify the notion of the unification of primary metaphors.

Relationships as vehicles

Consider the following expression, similar to ones discussed in previous works on conceptual metaphor, such as Lakoff (1993).

(1) We're spinning our wheels in this relationship.

This example reflects a framing of a love relationship as a vehicle in which the lovers are (ideally) traveling forward through life, pursuing common goals, and so forth. As we have

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seen in many other cases of rich metaphorical imagery, this conceptualization does not seem to be motivated by a particular primary scene: there is no special, salient association in our experience between romantic relationships and car travel. Instead, the image is motivated indirectly by several distinct metaphorical mappings. As we saw in Chapter 4, the conceptualization of long-term purposeful activities as journeys is based on a number of independently motivated associations between motion events and processes of other kinds. These more basic mappings include PURPOSES ARE DESTINATIONS, ACTION IS SELF-PROPELLED MOTION, each of which is motivated by a primary scene (i.e. a set of particular experiences which instantiate a basic experience type), and CIRCUMSTANCES ARE SURROUNDINGS, which probably arises from a variety of such scenes. Since a love relationship—like a career, or a major project of any sort—can be construed as a long-term purposeful activity, this metaphor licenses references to *journeys*, *terrain*, *roads*, *crossroads* and so forth in the context of romance.

The complex mapping between long-term, purposeful activities and journeys provides only part of the motivation for the conceptualization of relationships as vehicles, however. In fact we might argue that the vehicle itself is not conventionally mapped onto the domain of romance, and that an expression like *spinning our wheels*—which implies that a car is part of the metaphorical image—is actually just a special case, a cost-free instantiation (of the kind discussed in Chapter 2) of the idea of frustrated motion. Notice that it is just as acceptable to say "I'm spinning my wheels on this project," in a context where there is no relationship implied, romantic or otherwise, and no obvious target domain entity which could correspond to the car. In this context the image of spinning ones wheels seems merely to correspond to a situation in which energy is expended in vain.

Is there more evidence to suggest that a romantic relationship is actually conceived of as a vehicle? With a little imagination we can interpret sentences like the following:

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(2) a. Our marriage is a roomy luxury car rolling smoothly down life's highway.

b. Me, I'm trapped in a 2-door relationship.

These sentences seem to reflect a mapping between the size of the vehicle and the relative degrees of freedom and emotional comfort experienced by the speakers. This correspondence does not fall out from the other correspondences which make up the LOVE IS A JOURNEY complex, though, where the freedom of the couple might correspond to choices about paths; for instance, the image of *crossroads* in this context refers to an opportunity for the couple to choose a course for their future. To explain the conceptualizations illustrated in (2) we need to import additional metaphorical structure, as we did with some examples relating particular aspects of theories and buildings in Chapter 2.

In this case, what is needed is an account of the conceptualization of Relationships as Bounded Spaces. This metaphor explains why people *enter into* relationships of various kinds, including marriages; why they can be *trapped in* them, and want to *get out of* them; why a relationship can be a *haven*, a *safe place*, or a *jail cell.* Since there is no direct basis for associating relationships and bounded spaces, we must look for more basic correspondences which could give rise to the image. Some relevant mappings might include INTIMACY IS PROXIMITY, ASSOCIATION IS CONNECTION (see Chapter 4), and CONSTRAINTS ON ACTION ARE PHYSICAL BOUNDARIES (a corollary of ACTION IS SELF-PROPELLED MOTION). These mappings are relevant to any association between people where the actions of one have effects on the other, and where actions are in some ways constrained by the relationship—e.g., a person in a marriage is typically not at liberty to move to a new home or start a new romantic relationship.

Notice that none of these conceptualizations or expressions has to do with travel or vehicles. They are motivated in ways that are quite independent from the motivations for LOVE IS A JOURNEY. Yet since the image they underlie—the image of two people together

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in an enclosed space—is consistent with the travel scenario, a composed metaphor is possible which frames the relationship as the vehicle in which the lovers are traveling.

The following figures represent, respectively, the composition which underlies LONG-TERM ACTIVITIES ARE JOURNEYS (or LIFE IS A JOURNEY), the composition which underlies RELATIONSHIPS ARE BOUNDED SPACES, the larger composition of these two mappings into LONG-TERM RELATIONSHIPS ARE VEHICLES, and the more specific instantiation involving cars in particular, which licenses meaningful reference to "spinning one's wheels." (Note that other primary metaphors may contribute as well to the motivation for the complex images below, but the chief ones are listed here.)

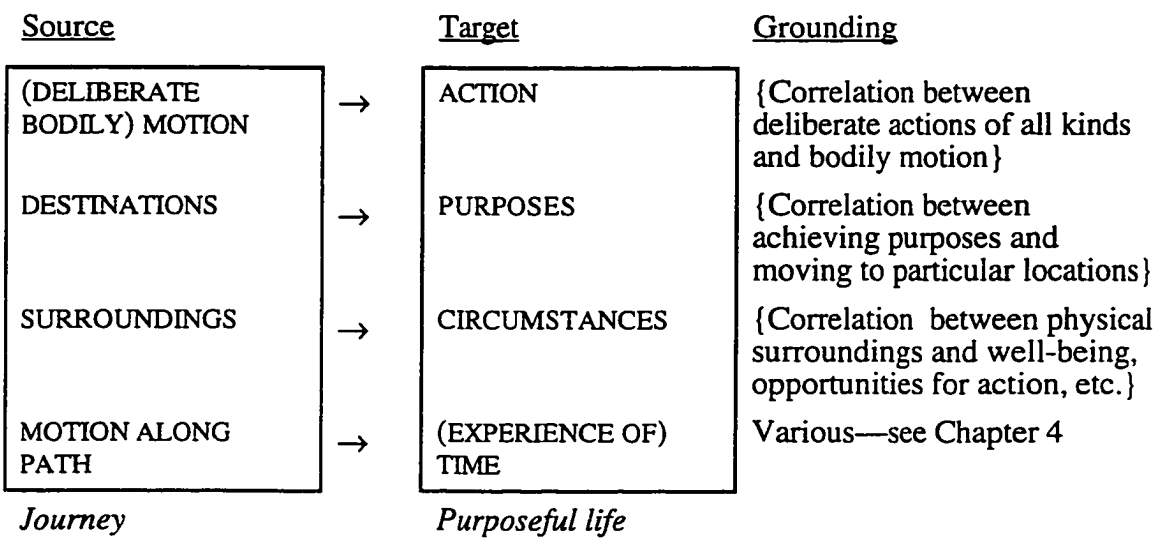

Figure 2a. Composition of LIFE IS A JOURNEY

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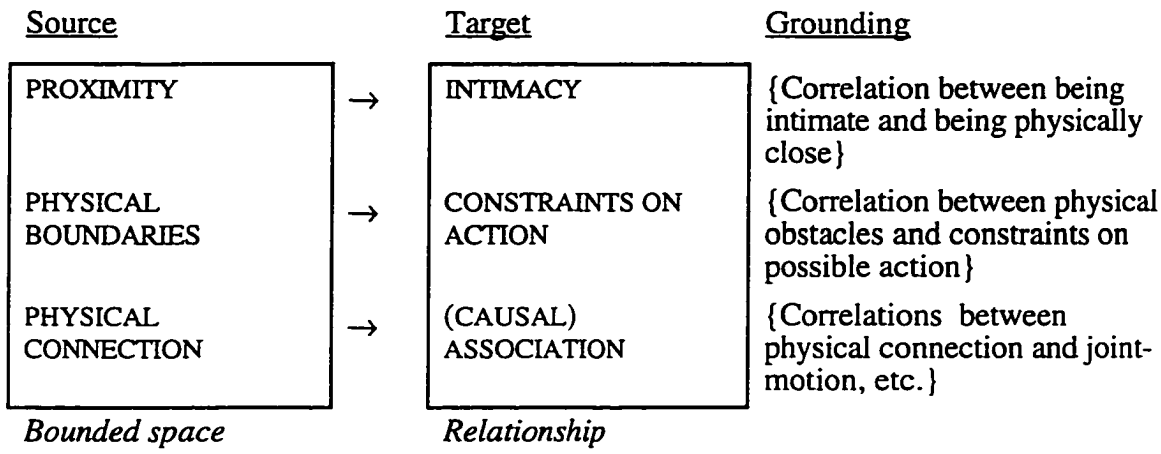

Figure 2b. Composition of RELATIONSHIPS ARE BOUNDED SPACES

Once the compositions in figures 2a and 2b are unified, as represented in 2c (next page), the "bounded space" is specified as a vehicle in order to be compatible with the Journey frame—the vehicle is a bounded space in which we travel along paths, etc.

In figure 2d (following page) the rounded box represents the "fleshed out" source image of car travel—as opposed to the more schematic and more directly motivated notion of Journey-by-Vehicle. The source image of "spinning one's wheels" (highlighted) is not motivated directly but is motivated indirectly in two ways: It instantiates the notion of Inability-to-move-forward—which is mapped onto Inability-to-achieve-goals, etc. by a corollary metaphor to LONG-TERM PURPOSEFUL ACTIVITIES ARE JOURNEYS—and is also a metonymic extension of the car image, in turn an instantiation of Vehicle, and ultimately, of Bounded-space. These indirect motivations for the wheel-spinning image are represented by dashed lines. Wheels per se, by the way, do not appear in the mapping at all.

The diagram also reflects the fact that "spinning one's wheels" is an image which does not depend on a relationship conceived as a vehicle—as illustrated in sentences like "I'm spinning my wheels on this project." In a context where there is independent

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motivation for the image of a vehicle, the relevance of "spinning one's wheels" is reinforced.

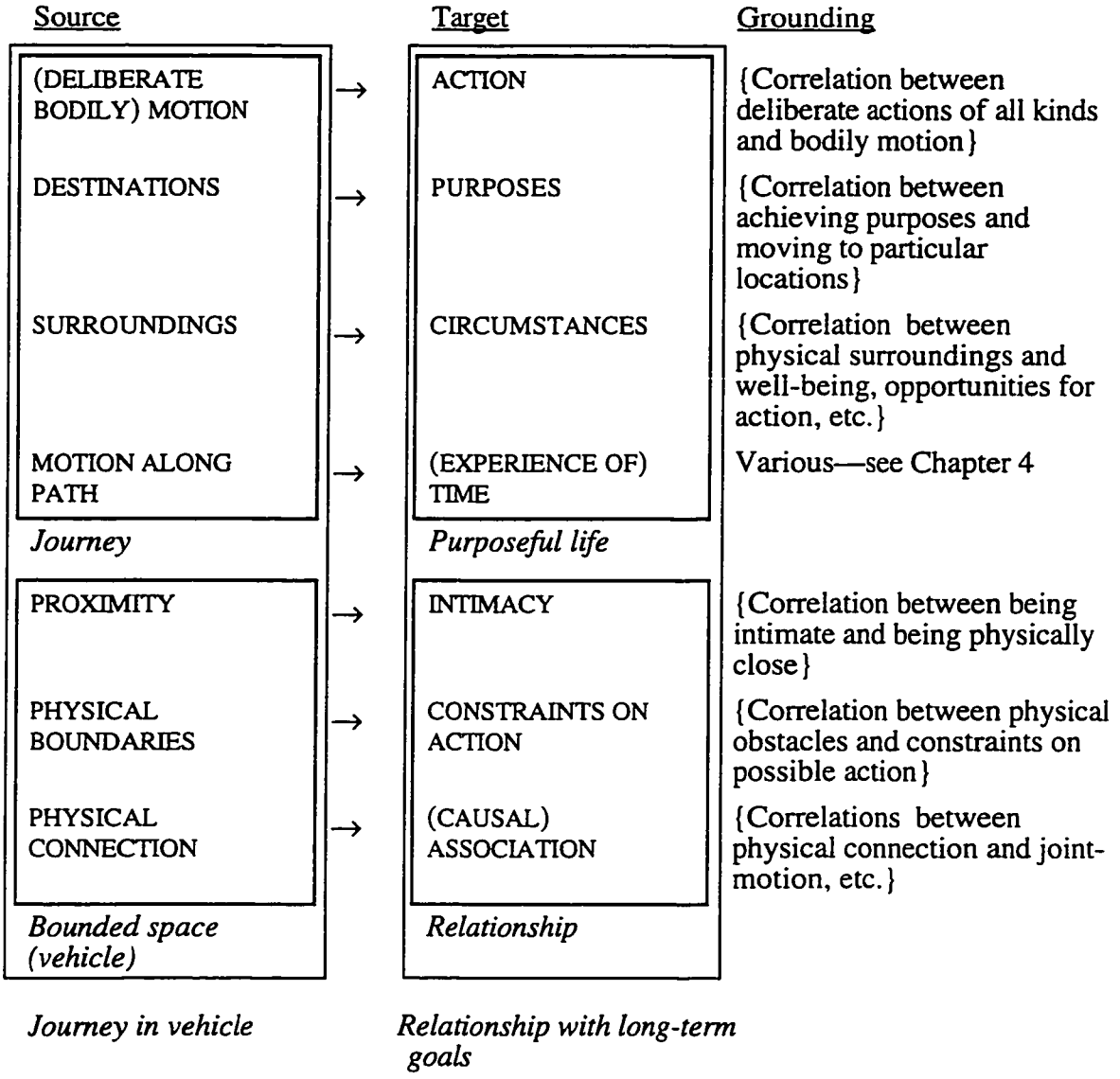

Figure 2c. Composition of RELATIONSHIPS ARE VEHICLES
(i.e. BOUNDED SPACES IN WHICH WE TRAVEL)

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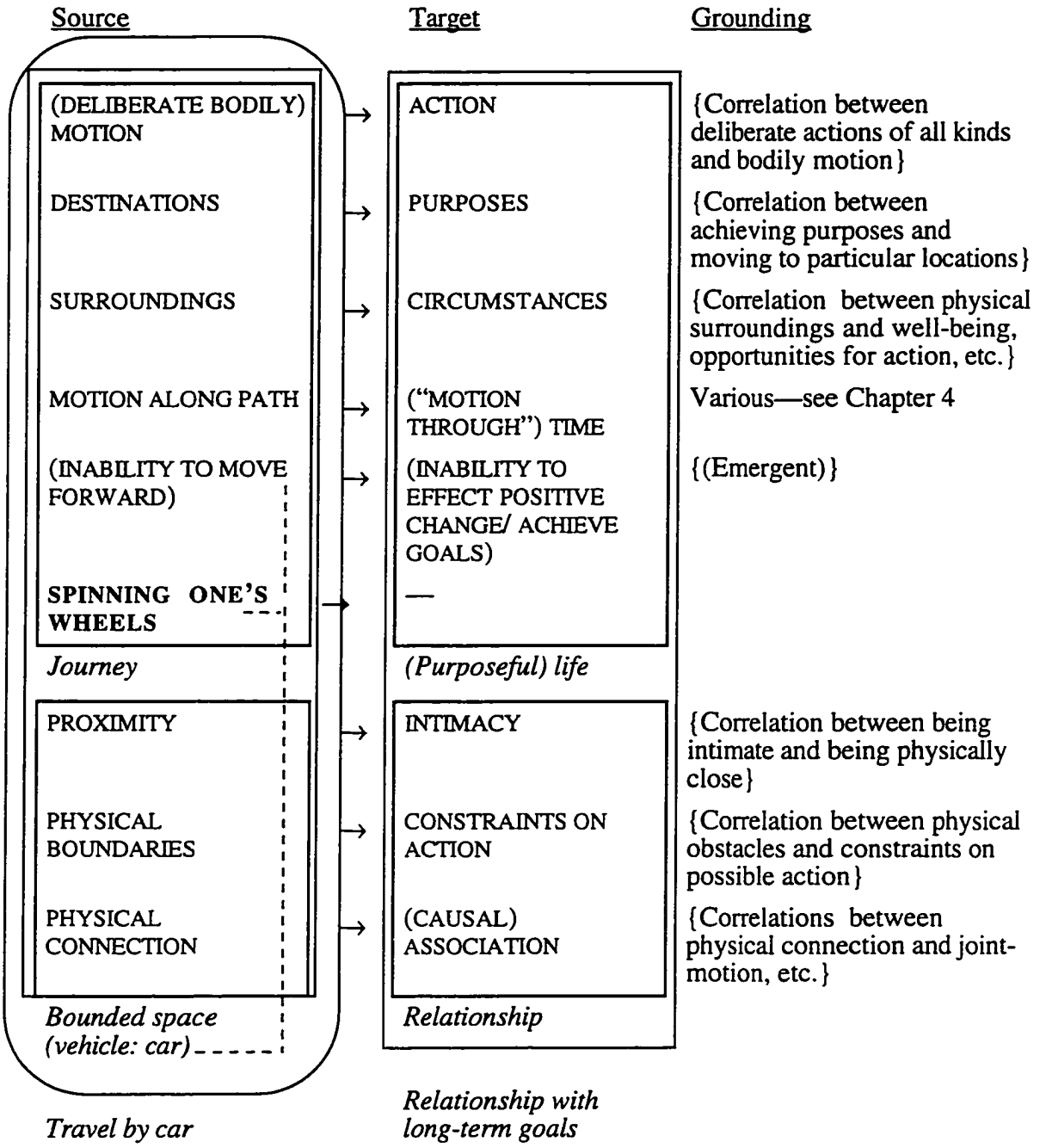

Figure 2d. Further elaboration: "Spinning one's wheels" as an image for Inability to effect positive change/achieve goals within a relationship

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Complex ideas as objects passing over ones head

The next case we will consider is illustrated in the following example:

(3) His lecture went right over my head.

Like the other metaphorical expressions and images considered in this section, this one is not motivated by particular experiences, or by any obvious direct analogy between the source and target concepts—in this case, the notion of a lecture which is impossible to understand because it assumes knowledge or abilities beyond those of the listener (target), and an object flying over and past the listener's head (source). In Chapter 3 we examined some primary mappings which are parts of the so-called "Conduit Metaphor." Via one of these mappings, the transmission of information, as in a lecture, is framed as object transfer. This mapping accounts for some aspects of the metaphorical image in the phrase *went over my head*: it licenses the reference to an (unsuccessful) transfer from one person to another. There is no aspect of the Conduit Metaphor complex, however, which can account for the fact that the object goes *over our heads*. Why doesn't the lecture go behind us or go wide of us to one side or the other?

One possibility would be that this aspect of the image is arbitrary, a convention of language unrelated to any particulars of a conceptual mapping. But there is another explanation available which captures the connection between this phrase and other linguistic expressions. First, note that I can say that a topic is *over my head*, without referring to transfer at all. Next, consider the phrases *higher education*, *higher mathematics*, and *dumbing down*. In each of these cases, as in "over my head," sophistication and complexity (and corresponding difficulty) are referred to as though they corresponded to vertical height—INTELLECTUAL SOPHISTICATION IS HEIGHT. When we combine this image with the image of communication as transfer, we see the motivation for the

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conceptualization of a lecture, or any other kind of sophisticated communication, *going over one's head.*

The correspondence between intellectual sophistication and height is motivated independently from the correspondence between communication and transfer. This image may result from associations we have with our heads as opposed to other parts of our bodies, discussed in various works including *MWLB*. Rationality is "higher" than "base" emotion or instinct. The particular reference to *head* in the expression suggests that the conceptualization of the head as the site of intellectual activity contributes directly to the metaphorical image. There may also be other motivating factors, such as our experience with structures which must be complex in order to stand tall. For instance, an individual board, stone, or playing card may lie flat on the ground, but complex structures composed of these pieces may achieve impressive height. That is, there is a correlation, and even a causal connection, between the complexity of a structure and its height in such cases.

Since there is no conflict between the image of communication as transfer—or unsuccessful communication as unsuccessful transfer—and the image of sophistication as height, the two conceptualizations may unify into a single, composed mapping: LINGUISTIC COMMUNICATION WHICH IS TOO SOPHISTICATED TO UNDERSTAND IS AN OBJECT WHICH PASSES OVER ONES HEAD.

News as wildfire

Next we will consider another metaphorical reference to communication:

(4) The news spread like wildfire.

Although it is the word *wildfire* which may be the most obvious cue that this expression is metaphorical, the notion of spreading here is also understood metaphorically. The expression means, in part, that a larger and larger population became aware of the news.

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This population is not necessarily dispersed over a wider and wider geographic area, however. For example, it may be the population of a small town, where the geographic area encompassing those who know the news is not getting any larger (though the network may be getting "denser"). Furthermore, the reference to spreading is metaphoric on the grounds that there is nothing physically moving around the town—except the sound waves, printed pages, and electrical patterns which convey information, but presumably these are always traveling around the town without being thought of as *spreading like wildfire*. The process that the expression refers to literally involves changes in mental states of people in a growing population, not the "spreading" of some physical entity.

Instead the reference to spreading is licensed by a metaphorical conceptualization of sets (or populations) as regions in space. Such a mapping is well motivated by the numerous experiences we have in which there is a correlation between a set of entities and a spatial region which they occupy—e.g., a set of papers lying on a desk or a set of engine parts assembled beneath the hood of a car. Despite the frequent correlation between location and set membership, however, these two concepts are distinct. For some sets, in fact—including all abstract sets—spatial location may be entirely irrelevant. The set of all green-eyed people, for example, is not defined or understood relative to the location of its members. Yet in our most basic experiences we do see objects grouped together as sets in particular bounded areas. Setting aside for the moment the question of how this correlation is perceived—whether by some automatic pattern-seeking structure in our perceptual system[2] or by some other mechanism—we can confidently assert that the correlation is salient, and that it leads to a metaphorical association between sets and regions[3]. There are

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[2]Such mechanisms are, of course, important parts of recent models of perception. A group of dots, for instance, will be perceived as a region with a boundary, or possibly even an object with edges at the boundary. (See the work of gestalt psychologists.)

[3]This mapping is probably also of the type referred to as "image-schema transfer" by

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many linguistic examples derived from such a mapping—e.g., "Republican voters are choosing from a very *narrow field* in this year's primaries." It is thanks to the SETS ARE BOUNDED REGIONS mapping that the group of candidates can be thought of as a occupying an area with particular dimensions, and that the set of people who learn some exciting news is conceptualized as an expanding region.

The reference to wildfire in this expression requires additional explanation, to the extent that it communicates something other than simple speed. If it referred to no more than a fast "spread" of news to an ever larger group of people (as it may for some speakers), then wildfire might simply be a special case, a free specification, of something that literally does spread quickly. In fact, speed is often figuratively associated with heat—as in *The car blazed down the highway*—presumably because of the literal correlation between fast motion and either combustion or friction-induced heat. If this lexical item also adds a suggestion of excitement to the expression, however, then we need to invoke a metaphor like EMOTIONAL INTENSITY IS HEAT, based (at least partly) on the bodily sensation of heat when we are agitated. (See the discussion of Anger in Lakoff 1987.)

When these metaphors are unified the source image of something spreading to a wider area is specified as fire, corresponding to a state of agitation experienced by an ever larger set of people. The same composed mapping explains why "The measles spread like wildfire" sounds more natural than "The information about the zip code changes spread like wildfire," unless the zip code changes are improbably controversial.

Brugman (1988), Lakoff (1987) and others. It is an open question whether image-schema transfers should count as metaphors per se, but there are certainly linguistic expressions which seem to be metaphorical and which use the language of spatial regions to refer to sets. Thus, even if conceptualizing a set of physical objects as a region is not metaphorical—as in "a walk *in the trees*"—conceptualizing an abstract set as a region certainly is.

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Compositional metaphors and "impossible source images"

An interesting fact about the process of metaphorical combination, or unification, which I propose is that it does not preclude the possibility of fantastic, unrealistic source images. For instance, the expressions *glass ceiling* and *iron curtain* have conventional meanings based, I would argue, on basic metaphorical conceptualizations, yet the images evoked by the expressions do not correspond to objects we have experience with in real life. The *glass ceiling* refers to discrimination which often prevents female and minority employees from achieving the highest levels within an organizational hierarchy, such as the presidency of a large corporation. Several very conventional metaphors underlie this expression: STATUS IS VERTICAL ELEVATION (a.k.a. STATUS IS UP), KNOWING IS SEEING, and PURPOSES ARE DESTINATIONS. STATUS IS VERTICAL ELEVATION is probably, itself, based on some more directly motivated mapping, such as the one between elevation and control—being above someone makes it easier to physically control them, because gravity works in the higher person's favor. We see evidence of the STATUS mapping in numerous linguistic examples, such as "He has risen to the top of his organization." This mapping accounts for the reference to *ceiling* in the expression: the ceiling constitutes a barrier to further progress up the organizational hierarchy. Notice, by the way, that in actual buildings we ascend by means of stairs, elevators and so forth, and do not experience ceilings as barriers. This discrepancy between the expression and our experience is a reminder that the source concept here is not buildings per se, but the more general notions of vertical position and motion.

KNOWING IS SEEING motivates the usage of *glass* in the expression. There are two relevant entailments of this reference: people below the metaphorical ceiling can see but not reach the higher level, and the barrier is somehow subtle enough that it is difficult to examine directly—i.e. it is "invisible." Note here that both of the relevant entailments relate to the visual properties of glass and not, for instance, to its fragility, underscoring again the

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fact that specific physical objects and scenes are not the underlying source concepts in basic metaphorical mappings.

If we combine the images of a barrier which prevents upward motion and an invisible surface through which we can see, we arrive at an image of something like a plane of glass above us. The image is specified further by the metonymic relationship between organizations and buildings, so that the plane becomes a ceiling, and the location above the ceiling is another floor of the organization-as-building. Even though many organizations in which such discrimination occurs may be housed in one-story buildings; even though we do not typically experience ceilings as barriers to motion; even though a glass ceiling through which you could see the people above would also have to function as a floor, and could not realistically support the weight of people and furniture, the image makes immediate sense to us because of the conventional metaphors (and metonymy) that underlie it.

I have taken the time to discuss this example because it illustrates the important point that source concepts and images for conceptual metaphor need not be familiar or even realistic. This finding may seem counter-intuitive if we are used to thinking of metaphor as a tool for conceptualizing the unfamiliar in terms of the familiar or the abstract in terms of the concrete. As we saw in Chapter 5, these understandings of metaphor do not fit the phenomenon of primary metaphor; nonetheless, primary metaphors are based on real correlations between elements of our actual experience. If compatible primary metaphors may unify, though, then we find that the unifications can yield source concepts which are not grounded directly in our experience.

"Impossible source images" and directionality

Another reason to point out that unrealistic source concepts are perfectly acceptable within the framework of primary and composite metaphors, is that such source images have been taken as violations of the source-target directionality of conceptual metaphor. Rohrer

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(1997), for instance, has suggested that if a source image does not represent a possible real-world object then it must be the results of projection from the target concept to the source concept—an apparent violation of the unidirectionality of conceptual metaphor. One of Rohrer's examples is Daniel Dennett's (1995) metaphor for "Darwin's dangerous idea," namely Darwin's theory of evolution. Dennett likens the theory to a universal acid, which cannot be held within any container: the explanatory principles of evolution should be able to account for nearly every phenomenon in the natural world, including the existence of evolution itself, and the idea has therefore transcended and escaped its original subject matter, the development and differentiation of species. Rohrer argues that since no universal acid exists, Dennett's metaphor does not fit the usual characterizations of conceptual metaphor, which hold that we understand target concepts in terms of source concepts: how can we be conceptualizing a target concept in terms of something which we have never encountered and could never encounter?

As we have seen in the *glass ceiling* case, however, unrealistic source images/concepts can arise via exactly the same processes that give rise to more conventional source images, through the unification of more basic mappings, which are directly grounded. Let's quickly review the common metaphors which underlie the acid image: If, as we saw in Chapter 4, complexes of associated entities and phenomena can be conceived of as spaces, then biological speciation can be conceptualized as such a space. This space, if it is conceived as a distinct space, must have boundaries which distinguish it from other regions of (metaphorical) space. If a target concept such as the theory of evolution is an entity which transcends category and other logical boundaries, and therefore is not restricted to one metaphorical space, then it can be understood as spreading into other spaces.

The boundaries of a space (or *realm*, *sphere*, *domain*, etc.) can be conceived of as the walls of a container. Consider the following (hypothetical) examples:

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(5) a. The Greens are attempting to break down the barriers between political and environmental consciousness.

b. Recent theoretical advances have erased the distinction between chemical and physical processes; the walls between these disciplines have come down for good.

If the distinction between the realm of biological speciation and other topics is breached in the context of the theory of evolution, but is still a valid distinction in other respects, then there is an opening in the boundary between these spaces, but the "wall" remains. And it falls out from this image that any process which challenges the distinctions between abstract realms—in this case, explanation in evolutionary terms—can be framed as something which creates holes in the walls, e.g. acid.

How can we account for the "universal acid" image when no such substance exists? It might seem to be a simple projection of the notion of universality from the target domain, where evolution is seen as an explanation that applies to all phenomena. This projection—from target to source—is where some might argue that directionality is being violated. But note that *all* the details of the source image can be described as "projections" from the target domain. The fact that the fluid in the container is an acid rather than something more benign, for instance, is a projection of the target notion of category boundaries and what happens when they are invalidated. The very notion of a container is a projection of the target notion of a "self-contained" complex of entities and relations. There is, in fact, nothing about the universal acid image which involves directionality that is atypical of conceptual metaphor; all elements of the image reflect understandings of the target concept.

For a clearer understanding of this important point let's briefly recapitulate some aspects of directionality in metaphorical mappings: In their discussion of "The Interaction Theory" of metaphor, Lakoff and Turner (1989) point out the following argument against

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the position that metaphor is based on a bi-directional comparison of source and target concepts:

> If this were true, then our language should go both ways as well. We should speak of journeys conventionally in the language of life, perhaps calling embarkations "births" and departures "deaths." When someone takes a trip, one would expect to be able to say something like "He was born," and mean, conventionally, "He started his trip." Since metaphorical mapping is always partial, we would not necessarily expect all of these, but we would expect some. (132)

In the present framework we have rejected the idea of partial mappings in favor of analyses in terms of primary metaphors and combinations of them. Nonetheless, this excerpt neatly expresses a very important point in favor of directionality in metaphorical mappings: the language of one domain is used in reference to the other, but not vice versa. Furthermore, since we have held from the beginning, based on several types of evidence, that metaphoric language reflects underlying conceptualizations, we may conclude that the directionality observation is equally true of the imagery that underlies the linguistic expressions. We may conceive of a person traveling a road that represents the stages of life, but we are unlikely to conceive of a person dying as a way of imagining that person reaching a destination.

In the "universal acid" case, both the language and the imagery come from the source domain of acids and their chemical properties, even if the image is only an extrapolation from actual phenomena in that domain. There is nothing anomalous about the directionality at these levels, and so the only issue remaining is how we arrived at this particular source image. On this point, I reiterate that source concepts are always "determined" by target concepts, in a certain sense; there is limited set of source concepts conventionally related to a given target concept. For instance, if I am speaking of a situation in which people can (metaphorically) get only so close to achieving a career objective,

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because of some relatively imperceptible impediment to advancement, I am tightly constrained in the sorts of source imagery I can use—the *glass ceiling* image happens to be an excellent fit. The source language and imagery are in some sense selected by the target concept[4], and the features of the metaphor arise by the same processes as "normal" metaphors whose source concepts are more mundane than glass ceilings. In light of these considerations it is hard to see how the universal acid metaphor might violate the directionality of conceptual metaphor. The source image is a natural product of the target concept being entertained, in exactly the same way that all source images are constrained by the target concepts with which they are associated. All that is required is that compatible metaphorical mappings be allowed to unify.

Compositional metaphors and "compatibility" (or coherence*)*

What does it mean to say that metaphors are "compatible"? I certainly do not mean that the combination of the mappings will yield a source concept or image with which we have direct experience. Compatibility does not depend on the familiarity or naturalness of the resulting image. I see it as a much weaker constraint, which simply ensures that no self-contradictory mappings arise—for instance, that a given concept is not simultaneously equated with two contradictory images or entailments[5]. An example of a combination ruled out by this constraint would be a unification of the metaphors CONTINUING TO PERFORM AN ACTION IS CONTINUING TO MOVE ALONG THE SAME PATH and CONTINUING TO PERFORM AN ACTION IS REMAINING IN ONE LOCATION. Taub (To appear) has shown that

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[4]Of course, in a neural model where associated concepts are related by activation chains, target concepts might also be "selected" by source concepts. For instance, activation of the concept of height might prime the concept of quantity. It is an empirical question whether any such activation networks exist in the brain, and what they might look like.

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these two metaphors provide the basis for two auxiliary verbs in Uighur. Grady et al. (1996) have pointed out that these two mappings cannot be reconciled in a single, over-arching Event Structure Metaphor, since they map the same target concept onto clashing source concepts and involve conflicting entailments. Combinations which yield improbable but interpretable combinations of features, on the other hand, are not treated as incompatible in the present framework; glass ceilings, iron curtains, and universal acids are all fine source concepts, arrived at by metaphorical unification.

In the next section we will consider some metaphorical images that cannot be analyzed as primary metaphors or compositional unifications of them.

7.2 Simple non-primary metaphors

The "similarity theory" of metaphor

As we have seen, primary metaphors and the more complex metaphors based on them ultimately arise from correlations between concepts, and between aspects of experience. Besides correlation, however, there is a second logical candidate for a type of relationship between concepts which could motivate conceptual metaphor—one which has been cited in various traditions as the principle basis for metaphor—and this is the similarity relationship. For centuries, various scholars who have treated the phenomenon of metaphor—including Aristotle, in the *Poetics*—have argued or implied that metaphors are basically expressions of the similarity of two concepts. For instance, when a brave person is referred to as a lion or a beautiful person is referred to as a work of art, these metaphors are said to be based on the observed similarity between the members of the respective pairs. Recent researchers in the cognitive linguistic tradition have argued compellingly against this position, which Lakoff & Turner refer to as the "similarity theory" of metaphor (1989:

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[5] For a discussion of images involving entailments which appear self-contradictory, see the

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198). Simply put, there is often no literal similarity to point to between concepts which are associated by metaphor. For instance, it is difficult to see how a metaphor like HAPPY IS UP (Lakoff & Johnson, 1980), as in "She is in *high* spirits," could be based on a similarity between mood and vertical elevation. Nor is coldness "similar" to unemotionalness, though these properties are related by conventional metaphor. Instead, concepts like temperature and emotional interaction are correlated in our experience, and this correlation, rather than objective similarity is the basis for the metaphorical association between the two. In short, the similarity theory fails for a number of important cases.

"Achilles is a lion"

While it would be comforting to be able to trace all metaphors back to primary scenes, however, it turns out to be difficult to do so. When we consider an example like "Achilles is a lion," a classic example cited in support of the "similarity theory," it is not explainable in terms of correlations within primary scenes. Since many of us who might use and understand such an expression have no personal experience with lions it is implausible to argue that the figurative association between a brave person and a lion is based on recurring experiences, or that the few experiences a modern Western person might have with lions could constitute primary scenes.

Furthermore, it would be difficult to name any concepts that are correlated here, in a way that could give rise to the metaphor. Is bravery correlated with "lionhood"? If so, what does the concept of lionhood consist of? Presumably, it includes all the information in our shared "schema" for lions (see Lakoff & Turner, 89: 195), including their appearance, the fact that they live in prides, the fact that they sleep much of the day, and so forth. None of these facts, however, is relevant to the metaphorical lionization of Achilles (or any other

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section below on "blending."

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courageous person). For this reason, not to mention the fact that courageousness is part of the lionhood schema itself, it is awkward to speak of a correlation between courage and lionhood which could be the motivation for the metaphor BRAVE PEOPLE ARE LIONS. Nor is courage correlated with any of the particulars in the schema for lions.

To see even more clearly that correlation is not a direct motivation for this metaphor, let's review the kinds of correlation which form the basis for metaphors like MORE IS UP and PURPOSES ARE DESTINATIONS. In each of these cases, two quite distinct concepts are cognitively linked because they are tightly correlated in certain recurring types of experience. Vertical elevation varies directly with quantity in many situations, though our means of judging these two parameters are very different. We often experience a sense of gratification as a consequence of arriving at a particular spatial location, but our means of determining location and our emotional capacity for feeling gratification are distinct, too, of course. Notice, by the way, that there are many times when we move through space to a new location but do not feel this same sense. For instance, if I take a walk for exercise I do not necessarily feel I have achieved a goal by arriving at any of the various points along the way. Even more clearly, on some occasions I might accidentally move to the wrong location, or I might be pushed to a place I had no intention of going. In these cases, the distinction between arriving at a spatial location and achieving a purpose is plain.

None of the various ways of phrasing the conceptual correspondence underlying "Achilles is a lion" reveals two distinct concepts which are correlated in some type of experience. (Consider "Brave people are lions," "Acting courageously is acting like a lion," "Courage is the instinctive fearlessness of a lion," etc.)

Directionality

An additional observation which should be taken into account, noted by Lakoff & Turner (1989: 196), is that "the human character trait of courage is [...] metaphorically mapped

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onto the conventional schema for lion to create our commonplace schema of a lion." In other words, the courage of a lion is itself a metaphorical projection from a human character trait onto an aspect of the lion's instinctive behavior. Note that the existence of such a projection is puzzling, given that all researchers have taken conceptual metaphors to be unidirectional phenomena, which map the language, imagery, and inferential structure from one concept (or domain) onto another, but not vice versa. Aloofness does not stand metaphorically for physical coldness, for instance. The mapping of courage onto lions and then back onto people is an apparent exception.

There are cases where the same two domains appear to serve as both sources and targets for each other—e.g., MACHINES and PEOPLE. (See Lakoff & Turner 1989: 132.) For instance, we may say that a machine is *stubborn* and we may say that a person is *rusty* or that we are *running out of gas* (i.e. growing tired). In pairs like these, though, the conceptual material that is mapped in one direction is never the same as the material that is mapped in the other direction. When we conceptualize machines as people we bestow human personalities on them, whereas when people are cast as machines they are described in terms of the physical operation of machines. The two metaphors involve distinct mappings, and not just reversed directionality. Lakoff and Turner propose that when people are called *lions*, the "rigidity and quintessential nature" (1989: 198) of the lion's instinct to act in a certain way is mapped onto the people; Achilles is framed as instinctively and quintessentially courageous. The anthropomorphization of lions as brave people, on the other hand, involves the attribution of intension and personality to the lions. In this way, they claim, there truly is a difference in the quality that is mapped from people onto lions and the quality that is mapped from lions onto people. On this account, the directionality of conceptual metaphor is not violated.

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The "resemblance hypothesis"

Questions of directionalty aside, we still have not explained why *anything at all* is mapped in either direction between people and lions.[6] Why do we project human bravery onto aspects of lions' instinctive behavior, and vice versa? I propose that the simplest explanation is that we do perceive something in common between the behavior of certain lions and the behavior of courageous people (or some influential person once did, and created a stereotypic image of leonine behavior which still shapes our naive schemas of lions). Lions and courageous people both (appear to) confront dangerous opponents without fear. Let me make it as clear as possible that I am not advocating the "similarity theory" which Lakoff & Turner (as well as Lakoff & Johnson and others) have successfully discredited. My proposal does not imply that there is any literal similarity whatsoever between brave people and lions. It is helpful, though, to recognize that the metaphorical association between them—involving projection in whichever direction—is most likely based on the *perception* of common aspects in their behavior. I will call this proposition the "resemblance hypothesis," in order to distinguish it from the "similarity theory," and to highlight the role of our perceptions, as opposed to facts about the world.

There is some precedent within conceptual metaphor theory for allowing that there can be a sort of metaphorical association based on (the perception of) shared features. Lakoff and Turner (1989) described the phenomenon of *image metaphors*, offering as an example the mapping of a woman's waist onto an hourglass, made possible "by virtue of their common shape" (p. 90). In Lakoff and Turner's view, this kind of metaphor has a

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[6] Lakoff & Turner's discussion of the "GREAT CHAIN METAPHOR" (1989: 170ff) offers an intriguing explanation for the fact "Achilles is a lion" is interpreted as a statement about personality and behavior, rather than color and size, for instance. It does not, however, explain why the association between people and lions would arise in the first place, which is the question I am considering here.

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special status, since conceptual structure and inferences are not mapped from one domain to another. Instead the source and target of the metaphor share some feature in a single perceptual domain, such as color or shape. Since features of lions other than their alleged courage are not projected onto brave people—e.g., there is nothing about a brave person which corresponds to the lion's tawny coat, or to its habit of sleeping most of the day—we might say that here too there is a very limited correspondence, which we might even hesitate to call a mapping. "Achilles is a lion" is obviously not an image metaphor, since it makes no claims about Achilles' physical form, but it may reflect a type of conceptualization which has a very limited structure, in the same way that image metaphors do.

As we have seen, the correlation metaphors considered in previous sections do not involve shared features but only co-occurrence. For instance, achieving an objective and arriving at a location do not share a feature which makes them suitable as a source-target pair; neither do quantity and elevation. (In both cases we might say that there actually is a shared feature: punctual aspect in the first case and scalar structure in the second, but while these features may allow the concepts to be aligned in our experience, they are not the motivations for the respective pairings. If they were, then any punctual experience, such as breaking a dish or blowing out a candle, should stand metaphorically for achieving an objective, and any scalar phenomenon, such as the blueness of the sky or pitch of an acoustic signal, should serve as a source concept for quantity.) As we have seen, shared features (or the perception of shared features) are not the typical basis of conceptual metaphor. If they are the basis for the conceptualization underlying "Achilles is a lion," then this is a reason to consider it different in kind from those metaphors which are derived from primary scenes.

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A network model

There is a simple network model which supports and helps explain the resemblance hypothesis. If we think of metaphors as patterns of association within activation networks then primary metaphors could be characterized as links between distinct concepts, perhaps based on numerous experiences where the concepts are tightly correlated, and are therefore simultaneously activated. This situation is schematized in figure 3. The concepts PILE, QUANTITY and ELEVATION are used as examples.

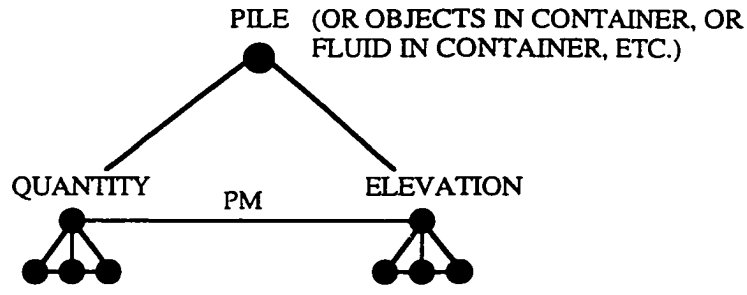

Figure 3. Schematic network representation of a correlation-based metaphor

The node at the top of the figure represents the concept of a pile—a conceptualization in which quantity and vertical dimension are correlated. The link labeled PM (for *primary metaphor*) represents the association which is the basis of the metaphor MORE IS UP.[7]

A metaphor like "Achilles is a lion," on the other hand, would have a different kind of representation, at least according to the resemblance hypothesis. In figure 4 the circled section represents overlapping activation—in this case, activation of the notion of courage.

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[7] In the very crude representations in this section I ignore a number of important issues—perhaps chief among them, directionality.

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The broken line represents the association between lions and brave people, based on the feature they (apparently) share.

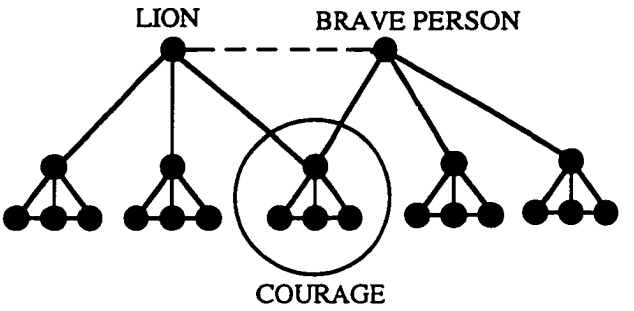

Figure 4. Schematic representation of simple non-primary metaphor

We can draw no such diagram for MORE IS UP or ACHIEVING AN OBJECTIVE IS ARRIVING. These concepts do not share a feature which motivates the mapping between them; they are instead linked by co-occurrence.

These crude diagrams illustrate a distinction that can be drawn between the two types of metaphor that I have been contrasting. If a certain configuration (as in the diagram above) can represent one metaphor but not another, this suggests that there is a substantive difference between the two metaphor types.

"GENERIC-IS-SPECIFIC" metaphors

Besides correlation and resemblance there is yet another possible relationship between concepts which could possibly account for a metaphorical association between them, namely the *isa* relationship—instantiation. Here I refer to cases where the source concept appears to be a specific instance of the more generic target concept, e.g., RISK-TAKING IS GAMBLING or COÖPERATIVE ACTIVITY IS MUSICAL HARMONIZING. There is a clear

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logical relationship between concepts of this kind, and this would appear to be a plausible basis for forming an association between them.

In *More than cool reason*, Lakoff & Turner state the following:

(6) There exists a single generic-level metaphor, GENERIC IS SPECIFIC, which maps a single specific-level schema onto an indefinitely large number of parallel specific-level schemas that all have the same generic-level structure as the source domain schema. (Lakoff & Turner 1989: 162)

Lakoff & Turner illustrate the GENERIC IS SPECIFIC metaphor with discussions of several Asian proverbs, including "Blind blames the ditch." This proverb, they propose, describes a specific instantiation of a more general schema, in which a person blames his own mistakes on circumstances he should have foreseen. We understand the meaning of the proverb by recognizing that it refers to this more general schema, which applies to many situations. (The metaphorical correspondence between vision and understanding is also evident here, of course, and Lakoff & Turner point out that these proverbs often rely on conventional mappings as well as the GENERIC-IS-SPECIFIC structure.)

We may not want to refer to GENERIC IS SPECIFIC as a metaphor per se, if we would like to reserve the term for particular figurative pairings of concepts. Nonetheless, this type of metaphorical structure might exist, and if so, might add to the typology we have developed so far. It would seem awkward, for instance, to refer to a correlation in our experience between falling in ditches and suffering setbacks. One simply seems to be an instance of the other.

On further consideration, though, it may be unwarranted to add GENERIC-IS-SPECIFIC metaphors to our typology, since it is difficult to make a principled distinction

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between these metaphors and metaphors of the resemblance type. For example, if I claim that "Achilles is a lion" is motivated by perceived resemblance between the behavior of a brave man called Achilles and the stereotypical behavior of a lion, how can I argue that this is not actually a sort of GENERIC-IS-SPECIFIC metaphor, where the lion stands for the more generic category of brave things. That is, one could argue that Achilles and the lion share a generic-level representation, along the lines of "COURAGEOUS BEINGS." (Equivalently, I could argue that the behavior of courageous people and lions are instances of a more general schema for courageous behavior.)

In both these types (which may in fact be a single type) a particular image is used to refer to another image with which it shares salient perceived features, and therefore, an identical representation at a higher level of generality. Figure 3 crudely illustrates this situation. The lines represent association between concepts and as you can see this association can be traced along either of two routes in both cases—either a direct association, shown by a line representing resemblance, or an association by way of a shared underspecified representation, or generic space, shown by dashed lines:

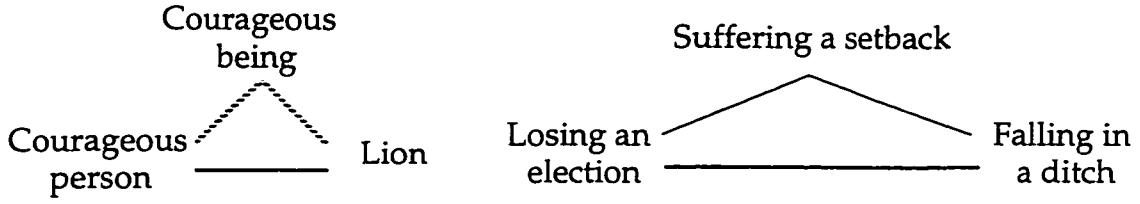

Figure 5. Resemblance vs. GENERIC IS SPECIFIC

Both of these types are distinct from the correlation metaphors discussed earlier. Those metaphors, such as EMOTIONALNESS IS WARMTH, cannot be analyzed as GENERIC-IS-SPECIFIC metaphors: the metaphoric link between emotionalness and warmth is not based on a generic schema which both instantiate. (What could such a schema be?) And we

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have already discussed the fact that they cannot be analyzed as resemblance metaphors, for all the reasons that have prompted Lakoff and others to reject the similarity theory.

Comparison between the types of metaphor

Considering the evidence, we now have what appear to be two distinct classes of metaphors—the resemblance and GENERIC-IS-SPECIFIC metaphors on one hand and the correlation-based metaphors, including primary metaphors, on the other. This is not an elaborate typology, but it is one which involves some critical distinctions. There are a number of ways in which these two classes of metaphors appear to differ.

Directionality: Despite Lakoff & Turner's argument that somewhat different information is being mapped in the metaphors which might be called BRAVE PEOPLE ARE LIONS and THE INSTINCTIVE FEARLESSNESS OF LIONS IS HUMAN COURAGE, it seems as though there really is a sense in which this type of metaphor violates the unidirectionality that is usually attributed to conceptual metaphors. For instance, I might say of a dog who appears fearless in confronting larger dogs, "Rover is a lion." In this case there is no question of differing levels of instinct vs. personality, and so forth. For further evidence, consider that a person can be cast as another person: "Martin is a real Einstein." If cases like these are metaphors at all (e.g., as opposed to *metonymic* references to qualities like intelligence and courage), then they seem to be truly symmetrical: Intelligent people can be linked with other intelligent people, brave animals with other brave animals, etc. Another metaphor which appears to be based on resemblance is DEATH IS SLEEP, as in Hamlet's "to sleep perchance to dream." (We could argue, by the way, that this correspondence is based on a shared generic-level schema involving inactivity.) This metaphor, too, works in reverse—e.g., "He is *dead* to the world" (meaning 'He is asleep').

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Metaphors of the GENERIC-IS-SPECIFIC type also seem to be bi-directional, as we would expect from Lakoff & Turner's description in (6). Consider a hypothetical proverb like "Careless blames the hammer," based on an image in which someone has accidentally injured his thumb with his own tool. There is no reason why this proverb could not apply to the person who falls into the ditch, and vice versa. In this important respect, then, both resemblance and GENERIC-IS-SPECIFIC metaphors are like image metaphors, which work equally well in either direction: a woman's waist can be an "hourglass;" an hourglass can have a slender "waist."

Ontology : The types of objects which are associated in resemblance metaphors are different from the types which are associated in correlation metaphors. The most obvious difference is that resemblance metaphors may involve correspondences between concepts of the same type, whereas correlation metaphors link concepts of different types. For instance, weight and difficulty are two concepts linked in the primary metaphor DIFFICULTIES ARE BURDENS (e.g., Caring for an elderly relative places a *heavy burden* on a family). The phenomenon of physical weight is recognized and judged by cognitive faculties very distinct from those which underlie the notion of difficulty—i.e. discomfort, strain, stress, etc. The same principle applies to the correspondences between quantity and vertical elevation, between similarity and proximity, between logical organization and physical part-whole structure, etc. In each of these cases, the linked concepts are fundamentally distinct in the way they are perceived and understood.[8] Resemblance metaphors, on the other hand, may involve objects of identical or nearly identical types, as

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[8] In fact, it is typical of the source and target concepts of primary metaphors that they are characterized by very distinct properties. For instance, source concepts tend to involve sensory content whereas target concepts involve our responses to sensory input. (See Grady, 1997.)

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we have seen. One animal is linked with another; one state of inactivity is linked with another; one type of physical mishap is mapped onto another, etc.

Conventionality: Because the human imagination is boundless in its capacity to impose resemblance on disparate objects, resemblance metaphors would appear to be nearly unconstrained. The moon and a monkey wrench surely do have something in common, at least in the way we perceive them. (As Turner points out, both "can expand and contract" [1991: 154].) There exists a nearly infinite range of potential pairings of concepts and images which somehow remind us of each other. The same is true of GENERIC-IS-SPECIFIC metaphors, which may involve links between, as Lakoff & Turner put it, "an indefinitely large number of parallel specific-level schemas."

Correlation-based metaphors, on the other hand reflect specific, recurring experience types, and are therefore much more constrained. This is especially clear when we look at primary metaphors, the ones which have direct experiential motivation. Similarity, for instance, corresponds with Proximity, but not with some arbitrary list of other relations. The same associations arise in language after language—apparently because the experience types which motivate them are so basic that they characterize human life in all times and places—and these associations fall into well-defined sets of patterns.

A theory of "resemblance" needed

If we posit that some metaphors are based on the resemblance—from our point of view—between distinct phenomena, then of course we ultimately need a theory of resemblance: Exactly what does it mean to say that some phenomena "resemble" others? I offer no such theory here, but merely point out that our ability to perceive resemblance is surely constrained by the cognitive mechanisms of perception, possibly including the structuring role of the image schema. (See Chapter 5.) That is, it may ultimately be possible, given the

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ongoing progress in the cognitive study of perception, to state which types of perceptual "overlap" constitute the kind of resemblance on which metaphorical associations may be based. Whatever understanding of resemblance we ultimately arrive at, however, it seems unlikely that the metaphoric association between quantity and height, or between arriving at a location and feeling that we have achieved a goal, or between importance and size, could ever be explained in terms of resemblance. These metaphors are instead based on the correlation between the concepts in question.

Types of metaphors and controversy over the nature of metaphor

The debate about the nature of metaphor has been sharp and long-running in several different scholarly traditions. Part of the reason may be that researchers have pointed to objects of different kinds in support of their own preferred definitions. I suggest that if we make a distinction between these types, many of the controversial issues about metaphor might be resolved. Supporters of the similarity theory would have to acknowledge that there are metaphors which are not in any way based on resemblance or perceived resemblance—the correlation metaphors. Conceptual metaphor theorists, who are used to defending the position that similarity is not the basis for metaphors, might allow that there is a class of linguistic and conceptual phenomena which is motivated by the perception of a resemblance between distinct objects, a resemblance which would, of course, have to be described in terms of cognitive mechanisms of perception and categorization. Scholars such as Lakoff & Turner have already opened the door to the classification of metaphors based on distinct properties. Their proposals regarding "the GENERIC IS SPECIFIC metaphor" and image metaphors, for instance, suggest that metaphors can involve quite different sorts of cognitive mechanisms and structures. The simple taxonomy I have suggested here follows up on proposals like those.

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Other claims about metaphors—besides the extent to which similarity plays a role in motivating them—also fall out from the two positions, and might be resolved by recognizing a taxonomy. For instance, the traditional understanding of metaphor as an exceptional, creative product of imagination may have resulted from a focus on metaphors of a particular types. Many of the metaphors which have appeared in traditional philosophical discussions of metaphor have fallen into the class of "resemblance" metaphors. If the resemblance hypothesis is correct, then expressions like "Achilles is a lion" or "Man is a wolf," which appear over and over in these discussions, are based on perceived parallelism between their source and target concepts—or to put it another way, the perception that there is a superordinate category which includes both concepts. I propose that the unconstrained nature of resemblance metaphors underlies various scholarly claims that metaphor is ungoverned by rules or principles, and that it is a tool for adding originality and color to texts (to be used with abandon or with caution depending on the source one consults). The finite list of conventional, highly-motivated associations proposed by scholars like Lakoff & Johnson, on the other hand, might be associated with metaphors based on correlation.

7.3 Metaphoric expressions and "blending"

Some metaphoric expressions seem to be based on neither primary metaphor, nor composed metaphor, nor even the kind of shared-feature relationship treated in the last section. To account for these examples we need to import yet another model.

The blending model

In a series of recent papers, Gilles Fauconnier and Mark Turner have outlined a model of "conceptual integration" (or "blending")—a phenomenon involving the creation of a novel conceptualization by combining features from other conceptualizations (Fauconnier & Turner 1994, Turner & Fauconnier 1994, etc.). This framework, which they originally

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characterized as a "competing model" (T & F 1994: 1) to replace the two-domain model of conceptual metaphor theory—but have more recently described as a generalized model of the same structures, or even a different mechanism which recruits conceptual metaphors—involves a minimum of four conceptual spaces. Two of these spaces correspond to the source and target conceptualizations in metaphor or analogy; there is also "a generic space—which contains skeletal structure that applies to both input spaces [i.e., source and target, in the case of metaphor]—and a blended space—which is a rich space integrating in a partial fashion specific structure from both of the input spaces" (T & F 1994: 2). Fauconnier and Turner also use the mechanisms of blending to account for a wide variety of linguistic and conceptual phenomena which they do not see as conceptual metaphor, including some which have typically been treated as simple instances of compositional semantics, such as adjective-noun phrases (e.g., *red pencil*). In this section I will briefly review a few of the principles of blending, and then discuss the ways in which the phenomenon of blending might interact with the metaphorical phenomena that have been the focus of this dissertation, especially primary metaphor.

Some of the examples discussed by Fauconnier and Turner have, on first glance, the appearance of metaphorical language, but differ in important ways from conceptual metaphor as it has been treated here and elsewhere. For instance, one of F & T's frequently-used examples involves a newspaper account of a boat crew trying to beat a previous record sailing time along the same route. In this example, the catamaran sailing in 1993 is described as "maintaining a 4.5 day lead" over the clipper which sailed the course in 1853. While this figurative race is "metaphorical" in a loose sense—it isn't a real race, but a "virtual" race between two boats separated by a hundred and forty years—it is not a metaphorical conceptualization of the sort we have been examining up to this point[9]. The

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[9] Although the image could be taken as an instance of the conventional metaphor COMPETITION IS A RACE, as in the "arms race," the fact that there literally are objects

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image of the race does not involve a mapping between two distinct concepts. Instead, the word *lead* refers to a fictional situation in which the two boats are sailing simultaneously. This framing—the "blended space" in F & T's terminology—incorporates elements from two distinct spaces, but the elements are different tokens, rather than distinct types. If we tried to state the figurative aspect of this conceptualization as a metaphorical correspondence, it would look something like, TWO DISTINCT EVENTS ARE ONE INTEGRATED EVENT. Clearly, this statement fails to capture the essence of the phenomenon, which is the simultaneous "activation" of two separate mental images into an integrated whole, where inferences are drawn and other conceptual work is done.

Other cases treated by F & T also involve the juxtaposition of two understandings of the world. Another example which has appeared in several of their discussions is a scene from Shakespeare's *King John*, in which the king is framed as simultaneously above and below a messenger who has brought bad news. The king responds to the messenger's troubled face with the lines:

(7) So foul a sky clears not without a storm./ Pour down thy weather. (*King John*, IV, ii, 108-9)

As F & T point out, the king has "higher" social status than the messenger, and is also in a literal spatial position above him, but his lines cast the messenger in the superior, and more powerful position. The tension between these aspects of the scene—or of the blended

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speeding along the same route in this case suggests to me, at least intuitively, that the race image is motivated by a superimposition of the two historical events. The conventional RACE metaphor may reinforce this image, but it is easy to imagine similar non-literal, anachronistic images which don't involve races—e.g. F & T's (1994) image of "conversing with" a long-dead philosopher. Such cases make plain the need for explanation in terms other than the conventional metaphor.

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space, on this account—is a powerful expression of the instability of the king's situation as depicted in the play. In this case, as F & T mention in their thorough (1994) discussion, there are conceptual metaphors which underlie the conflicting spatial conceptualizations in the scene: the king is above the messenger by virtue of the metaphorical mapping between status and height (in addition to his probable spatial position with respect to the kneeling messenger), but the messenger is "above" the king if he is conceptualized as a storm-cloud (i.e. a harbinger of trouble), especially since the king is likely to be powerless against, and therefore metaphorically *under* the domination of, the forces referred to in the message. In this example, F & T's blended space could be described as the simultaneous activation of two incompatible metaphorical images of the same scene. It is impossible to entertain a single image of the king both above and below the messenger. As we have seen, conflicting mappings are not allowed to unify into a compositional mapping, and therefore this case requires a different sort of account from the ones offered above for examples where coherent images result from the combination of distinct mappings. The juxtaposition of different aspects of our understanding of the world—though not always as obvious or dramatic as the cases discussed here so far—is the hallmark of conceptual integration.

Blending and the elaboration of metaphorical images

The model proposed by F & T to account for cases like the ones above also offers a way of characterizing other kinds of metaphorical examples, closer in spirit to the ones we have been examining. These are cases where there is no conflict between mappings, of the kind seen in the *King John* case, but which involve extensions beyond the scope of mappings as we have understood them so far. Consider the following example, taken from a *New Yorker* commentary on the suitability of "The Star-Spangled Banner" as a national anthem:

(8) By all means, let us ease the old chestnut into well-deserved retirement. ("Star-Spangled Banter," *The New Yorker*, 7/21/97, p. 4)

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Clearly, this example involves several layers of conceptual elaboration. The basis for the ultimate image is a metaphorical correspondence between work and processes in general. The same mapping underlies examples like the following:

(9) a. The many-space model brings to light essential and powerful *work done by* metaphor, blending, and conceptual projection in human affect, invention, and discovery. (F&T 1994: 3)

b. That building has been *out of action* for a while now.

Via this conventional metaphor (which we could call PROCESSES ARE WORK) the prospect of people no longer singing the song is framed as the possibility of the song becoming an idle person. In the *New Yorker* sentence, however, the image of inactivity is further elaborated in several ways. First, the source concept of inactivity is specified as retirement, the inactivity of a worker at the end of a career. In keeping with this framing, the retiring worker is described as *old.* Furthermore, there is a metaphorical image of easing the worker "into" retirement—a further layer of metaphor which refers to a life transition as though it were a physical motion to a new location, like an object being carefully inserted into a container.

While blending is a fairly unconstrained phenomenon as F & T describe it, in the sense that it operates opportunistically to bring together concepts in a way that cannot be

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predicted, it is still likely that certain factors can "trigger" the phenomenon[10], and one of these factors should certainly be the existence of a conventional metaphoric mapping between two domains. In the national anthem case, the generic source image of an idle person is evoked by the conventional metaphor PROCESSES ARE WORK and this image in turn triggers various images associated with idle people, including the image of an old retiree—and might actually "activate" or "prime" these images in neural terms. Once the retirement frame has been evoked, we can imagine elaborating the image even further, via metonymy, to allow references to retirement homes, etc., as in the following hypothetical example:

(10) That song ought to be somewhere in Florida playing shuffleboard.

We could construct an account for this sentence without referring to blending—e.g., by discussing a "chaining" of a metaphor with metonymic references to retirement—but the mechanism of the mental space (cf. Fauconnier, 1985) in the blending account offers an efficient way to explain the easy accessibility of such images as Florida and shuffleboard in this context. The whole frame of retirement is available once the space has been evoked by the metaphor. Note that within the metaphoric mapping there is nothing which corresponds to Florida or to shuffleboard, and that in some sense these "ungrounded" elements are therefore likely to be less meaningful than the central image of inactivity. The following multi-stage model is intended to suggest the triggering of the blend by the metaphoric mapping, and should be taken as a logical ordering, rather than a representation of discrete cognitive processes succeeding each other in time (though it is possible that there could be a measurable interval during which "activation" takes place):

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[10] See Fauconnier's (1994) discussion of *space-builders*.

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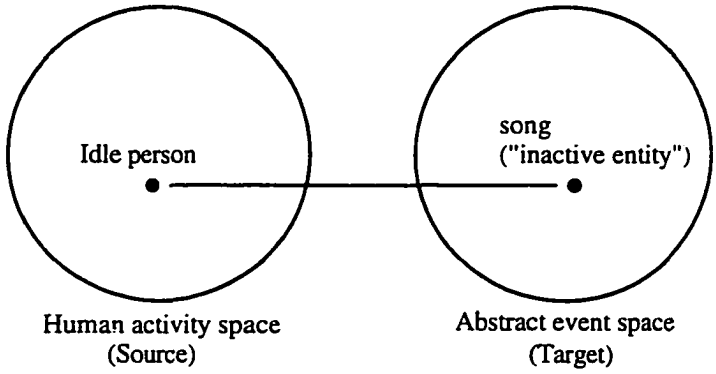
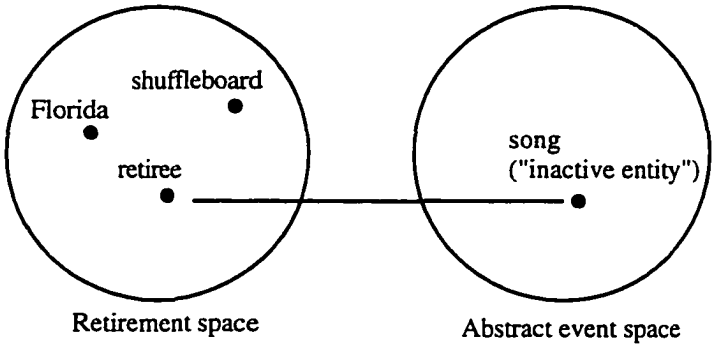
Stage 1: Metaphor evokes image of idle person



Stage 2: Image of human inactivity "activates" retirement frame, including elements metonymically associated with retiree



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Stage 3: Elements of the Retirement space project into the blended space

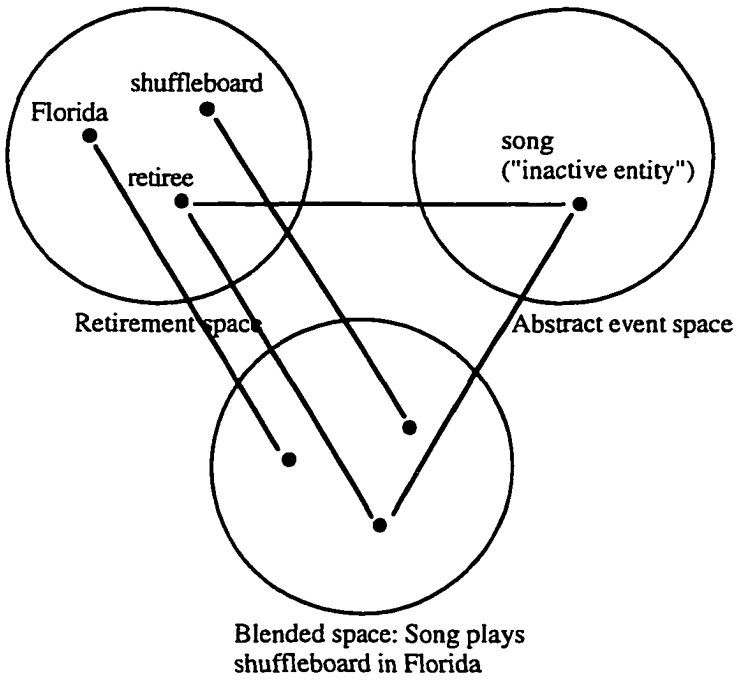

Figure 6. Motivation for the image of a song as a retiree in Florida

As in the examples discussed by F & T, the logic and structure of the blended space cannot be accounted for in terms of a neat metaphorical mapping between source and target: the conceptualization which constitutes the target space (in which the song is no longer sung) includes nothing which corresponds to playing shuffleboard or to Florida. Instead these elements of the blended space are metonymically related to the concept of retirement within the (elaborated) source space.

Many other colorful metaphoric expressions which we encounter appear to be products of a similar process, whereby basic metaphorical mappings evoke simple images, which can then be infinitely elaborated—via metonymic links—for any number of conceptual or communicative purposes. In fact the mechanism of blending may be the simplest way to represent the frequently-encountered "special cases" in metaphoric

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expressions based on more generic mappings. For instance, the expression "shift into high gear," when it refers to speeding up the performance of an action, involves considerably more detail and structure than are specifically licensed by the primary mapping between action and self-propelled motion. We may want to say that once the concept of spatial motion has been evoked by the basic metaphor, an entire range of concepts associated with spatial motion, including car-driving images, has been "activated," and made accessible for cognitive manipulation. While some details of these motion images—such as the gearshift, and perhaps the car itself—do not correspond to anything in particular in the target space, they nonetheless function in the blended space as referents to action.

A digression on blending and directionality

Coulson's 1996 paper on the "Menendez Brothers Virus" suggests that metaphoric mappings may sometimes serve to map inferences onto, rather than from, the source domain. In the paper, Coulson analyzes a joke about the (fictitious) Menendez Brothers Virus, which "eliminates your files, takes the disk space they previously occupied, and then claims that it was the victim of physical and sexual abuse on the part of the files it erased" (Coulson 1996: 67-68). Her contention is that the joke highlights a particular (controversial and by no means universally shared) framing of the case, which holds that the brothers lied about abuse as an excuse for killing their wealthy parents and inheriting their property. On Coulson's analysis the joke achieves this effect by blending the input spaces of the Menendez situation (source) and the actions of computer viruses (target) into a space where the virus is making an absurd and impossible claim—namely, that it has been the victim of abuse. The absurdity of the claim in the blended space, Coulson argues, is then projected back into the source space, the real-life situation of the Menendez brothers. In this way, the joke is supposed to violate the generalization that metaphors and analogies map information, structure, and inferences *from source to target*, and not the other way around (cf. Fauconnier's, 1996, and Sweetser & Fauconnier's, 1997, similar

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arguments about counterfactuals and conditionals, and the projections between spaces which underlie them).

It is hard to argue with Coulson's conclusion that the real point of the joke is to make a point about the Menendez affair, rather than about computer viruses. What is slightly less clear is that the Menendez case is properly considered the "source" space for this blend. If the essence of conceptual integration is the conceptual projection of elements from two distinct spaces, this does not imply that there must always be a distinction between the two which corresponds to the distinction between source and target in, say, primary metaphor. In fact, several of F & T's blending examples do not require special reference to the differential status of the two input spaces involved. For instance, the input spaces to the *King John* blend, described above, are conflicting metaphoric construals of the same situation. (Each of these input spaces, in turn, is a blend between a true metaphorical source and target; the target in each case relates to the king and his situation. F&T's framework allows for infinitely nested blending, and this case involves at least two layers.) In one of these input spaces, the king is conceived as above the messenger—via a metaphor mapping height onto social dominance—and in the other the messenger is above the king—due to mappings involving communication as transfer (in this case, precipitation) and circumstances as nature/weather. If these two metaphorical spaces are the input spaces for the ultimate blend, as F&T argue, then what grounds are there for calling one the source and the other the target?

Returning to the Menendez Brothers case, it is very clear that the joke is not an instance of primary metaphor, and not even a case of compositional metaphor. Instead, as Coulson points out, it is an analogical mapping constructed on the basis of shared structure between two spaces, and intended to highlight a belief about one of the two. However, unless a clear distinction is possible between source and target spaces, it is difficult to evaluate the relevance of this example to the principle of directionality in conceptual

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metaphor.[11] I mention this case because apparent violations of the directionality principle should be taken seriously, but as in the "universal acid" case considered earlier in the chapter, it is possible to account for the Menendez Brothers Virus blend without violating that principle.

7.4 Conclusion

A chief goal of this dissertation is to investigate the fundamental mechanisms by which metaphoric conceptualizations and expressions arise. We have seen in earlier chapters that many foundational conceptual metaphors are based on primary scenes—basic experience types that bring distinct aspects of experience into tight correlation. Primary metaphors underlie huge numbers of linguistic expressions and also reveal very low-level structure in our conceptualizations of the world. The focus of this chapter has been those linguistic examples which appear to be metaphorical, in that they involve figurative equations between a source concept and a target concept, but which do not conform to the patterns we have seen in examples based ultimately on primary scenes and the correspondences within them.

The first kind of linguistic example we considered was the type which arises from a combination of compatible primary metaphors. When the images evoked by primary metaphors are compatible—i.e. they do not contradict one another, but can be seen to relate in some way—then they may "unify," and the result is a more specifically elaborated metaphor which is not directly grounded in experience in the way that primary metaphors are, and may even refer to a source image which could not realistically exist. The

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[11] As Eve Sweetser points out (p.c.) the backwards projection here could be analyzed on the conversational level, where my *reasons* for making a certain comparison are as important as the exact structure of the comparison.

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expressions *high road*, *glass ceiling*, and *buttress* (in the context of theories) all illustrate the idea of a composite metaphor.

The second kind of example derives neither from primary mappings nor composite mappings, but from some other source. Metaphorical expressions like "Achilles is a lion" do not arise from primary metaphors or combinations of them, but from a perceived resemblance between different objects. The justification for distinguishing "resemblance metaphors" from the correlation-based metaphors considered earlier includes the fact that such metaphors may operate between similar or identical ontological types (e.g., two species of mammal), the fact that their directionality —like the directionality of image-metaphors—is not constrained in the way that primary metaphors are, and the fact that it is difficult to identify any experiences which could be bring the relevant concepts into tight correlation.

As we also saw in this chapter, there are certain cases—such as the virtual "race" between boats sailing the same course in different centuries—which are figurative and yet cannot be analyzed as conceptual metaphors: they involve neither a correspondence between concepts of distinct types nor the perception of shared features among distinct phenomena. But other cases do seem to involve both blending and primary metaphor. These are cases in which a metaphor evokes a frame—such as retirement—and that frame in turn provides the input for a blended space that includes elements with no counterparts in the target space. References to Florida and shuffleboard in the national anthem case are not based on metaphorical conceptualizations of particular objects, places, or states in the literal domain of songs, but on metonymic elaboration of the inactivity frame evoked by the basic metaphor. In this way, blending provides a framework in which to account for numerous colorful metaphorical expressions which cannot be analyzed as straightforward cases of metaphorical conceptualization.

Along the way we have seen that several arguments against the principle of directionality in conceptual metaphor are based on unclear notions of how source and target

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concepts relate. There seems to be, at present, no reason to abandon the idea that conceptual metaphor is characterized by a unidirectional mapping of language and imagery from source to target.

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Chapter 8. Beyond metaphor

In earlier chapters we have seen that an adequate account of primary metaphors—the kind which are the most reliable predictors of linguistic data and which are most plausibly motivated by aspects of experience—relies on units such as primary scenes (and subscenes), primary source concepts, and primary target concepts. In the course of primary scenes, fundamental concepts are evoked in closely related ways, and this correlation in experience leads to entrenched, metaphoric associations at a fundamental level of conceptual structure. For several reasons, it is worth broadening our perspective on these fundamental units of experience and conceptualization by looking for possible connections between these objects and phenomena outside of metaphor. First, evidence of such connections would confirm the value of adding these units to our repertoire of theoretical concepts related to meaning. Additionally, analyzing such connections could enrich our understanding of phenomena beyond metaphor, by clarifying how they fit into a larger picture of cognitive, conceptual, and linguistic processes.

In this chapter we will consider several such linguistic phenomena—ones where primary scenes or primary source or target concepts seem to be relevant outside the domain of metaphor. While more research would be needed to clarify the exact relationship between primary scenes and these other aspects of language, there is enough evidence here to suggest that metaphor is only one area where these fundamental units of meaning have explanatory value.

8.1 Child language

Given that primary scenes are conceived as basic elements of universal experience, and that primary source and target concepts are fundamental aspects of our mental representations of the world, we should expect to find evidence of these objects in children's conceptual structure, in their gradual construction of mappings between meanings and linguistic

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forms, and in their semantics. There are several areas in which this does seem to be the case, based on some preliminary forms of evidence. The first of these areas is the marking of instruments, typically accomplished by the use of *with* in (adult) English.

With *and instrumental marking*

A number of studies of child language over the past twenty years have commented on patterns in children's acquisition of instrumental marking—i.e., the marking of objects as instruments used in the performance of actions. There has been a curious lack of agreement among these studies, however—at least with regard to children learning English as their first language—as some have investigators have reported that children acquire *with* in its instrumental sense early and without apparent difficulty (e.g., Clark & Carpenter 1989, Bowerman 1983), while others have reported that young children do not use *with* in the instrumental sense of the adult language (e.g., Duchan & Lund 1979). The status of *with* —and instrumental marking more generally—in children's language is therefore still in need of clarification.

Grady & Johnson (To appear) draw on evidence from the "Shem corpus" (see MacWhinney 1995) to argue that children at a certain stage of language acquisition do not use *with* in the adult instrumental sense, and that those utterances which appear to conform with adult usage are actually motivated by other form-meaning mappings—i.e., associations between *with* and other types of relations. Consider the following representative exchanges, for instance, between Shem and his adult interlocutors:

(1) [Context: Shem and the investigator are looking at a picture book.]
Investigator: And what's he doing with the baby?
Shem: He'suh clean duh baby.

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(2) [Context: Shem is playing with a balloon.]

Father: What're you doing with it?

Shem: I'm going like dis. [Shem performs the motion.]

(3) [Context: The investigator has been drawing a picture with a crayon, directed by Shem.]

Shem: Pam do it. Pam.

Investigator: The pen?

Shem: Yeah.

Investigator: You want the pen to do it?

Shem: Yeah.

Investigator: Okay, you want the pen to make Shem playing in the water?

Shem: Yeah.

As example (1) illustrates, Shem has no trouble understanding or responding to questions which contain a verb+*with* construction referring to action on a direct object. In example (1), the baby is the object, or patient, of the cleaning activity. Note that from the adult perspective, this verb+*with* construction might be considered more idiomatic than other, more nearly compositional constructions involving verb+*with*. A question like *What have you done with the car keys?* does not seek a response like *I have started the car with them*, but a response about the location of the keys. Though the former, inappropriate response might at first glance seem to be the most literal and straightforward answer to the question, it is not the answer which the particular semantics of this question-type demand. Regardless of the basicness or idiomaticity of this construction, it is one which poses no difficulty for Shem, at roughly three years of age.

Example (2) illustrates the fact that Shem does not necessarily interpret questions in the way that an adult speaker would; in particular, he misses (or does not respond to) the

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semantic element of the question which refers to a goal—the purpose he has in mind as he manipulates the balloon. He answers a question about his motive by referring instead to the simple physical motion that he's engaged in, evidently unaware that the question presupposes instrumentality and an overarching activity in which the manipulation of the balloon plays a role.

Example (3) captures a moment when Shem would be best able to convey his wishes by using an instrumental construction, but fails to do so, even when it is apparent that he is not getting his message across. Instead of producing a sentence like "Draw it with the pen," for instance, (or even a phrase like "with pen") he says "pam [i.e. pen] do it."

While the examples cited are merely anecdotal when taken out of context, a review of thousands of lines of the Shem corpus, and dozens of usages of *with*, fails to yield instances where Shem is unambiguously using *with* in the adult instrumental sense—i.e. to mark an object which is being used to achieve a purpose—and yields many cases where this is clearly not how Shem is using or interpreting *with*, even when this is what his adult interlocutor evidently intends.[1] Furthermore, examples like (3) show that it is not merely the word *with* that Shem has so far failed to associate with the concept of instrumentality. The evidence is consistent with a stronger hypothesis: that Shem has not mapped the concept of instrumentality onto any forms (and in fact may not have access to this concept at all). If he had, he could make good use of it in these contexts. A word like *use*, for instance—a basic vocabulary item by adult standards—would have served Shem well during this episode; he could have asked the investigator to "*use* the pen."

If Shem has not yet developed the concept of instrumentality, this conflicts with various earlier proposals about innate or pre-linguistic *semantic relations* (Slobin 1970,

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[1] Shem's interpretation of *with* often seems to have more in common with what an adult would consider a Possession relation, or even to reflect something like a "Prop" relation, not found in adult speech, in which the object is possessed and manipulated but not to any particular effect or purpose.

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Bowerman 1973, etc.), but not with the idea that primary scenes play a fundamental role in the development of conceptual and semantic structure. An analysis in terms of primary scenes and primary concepts could account for Shem's usages of and responses to *with* by reference to a notion of Possession (and, for some other cases, Accompaniment). This is roughly the sense of *with* in the adult utterance "He walked into the room with a notebook." Possession here refers not to ownership but to a more general relation between a person and an object. Any discrete, inanimate physical object which a person controls (e.g., an object held in the hand) is a possession in this sense. Scenes in which people hold or otherwise control objects in their environments are daily elements of our experience, and can be recognized based on simple, nearly instantaneous cues, such as co-location, coordinated motion of the person and object, and so forth. These scenes give rise to the metaphorical association between control of a situation and (manual) control of an object, as in:

(4) This is a situation I can *handle* by myself.

The notion of Instrumentality, by contrast, does not fit the characterization of primary scenes in that it is not immediately and directly apprehensible. That is, whereas there is no complex analysis required to understand how one is manipulating a particular object (pushing, squeezing, shaking, etc.), or to observe that two people are "together" in some simple sense—possibly based on physical proximity, and/or joint motion, direction of eye-gaze, etc.—it requires more analysis, and possibly a broader temporal perspective, to determine that an object is being used as a tool in the performance of a particular, goal-directed activity. As daily experience shows us, it is not always easy to see what someone is "doing with" an object, even when we can plainly see the exact nature of the physical process. ("Why is she pressing those two metal plates together?"). Instrumentality relates to purposes and larger frames than the action itself, and therefore by definition, cannot be

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an element of a single primary scene. Several previous studies (e.g., Howe, 1976) have argued that some proposed semantic roles may be too conceptually rich to be mastered by very young children; the primary scene account supports such a view—with respect to Instrumentality, at least—and offers a broader framework in which to consider the availability of concepts to children at early stages of language acquisition. Possession, object-manipulation of various sorts, and accompaniment (relevant because Shem sometimes uses *with* to refer to the fact that one person is *with* another) are scenes which can be observed immediately, and probably without conscious analysis.

Cases like Possession and Accompaniment bring up the important point that the primary scene is an important, particular and privileged level of mental experience. In the case of Accompaniment—experienced in scenes where two people are perceived as being *with* each other, and acting *together*—there must obviously be some sort of computation which precedes our judgment that the two people are together, even in the simplest sense. For instance, if we arrive at this conclusion based on visual evidence then there are a large number of intermediate stages of visual processing before we can recognize that we are looking at distinct objects, that these objects are people, that their bodies and gazes are oriented in certain ways, that they are at certain distances from us and from each other, and so forth. So while the idea of people being together may be simple from the subjective, phenomenological, and conceptual perspectives, it is quite a sophisticated notion, from the point of view of the cognitive mechanisms which allow us to recognize an instance of it in our environment. This means that like basic-level concepts, primary concepts constitute a special level of cognition, but not necessarily a "lowest" or "highest" level. (See the discussion of *basicness* in Chapter 1.)

Duchan & Lund (1979) also observe, based on data gathered from three-year-olds, that children's use and comprehension of verb+*with* differs markedly from the adult standard. For instance, when three-year-olds were asked the question "What do you chew with?" they invariably responded with a noun that would in adult speech be treated as a

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patient (the "target" of the action, such as gum) rather than an instrument (e.g., teeth). Based on their findings they argue that *instrumental* as a semantic relation is not a valid predictor of children's usages of *with*, and that a better account of the relations available to children should categorize activity-participants along different lines:

> ..[We] propose that the range of choices available to children fall into two categories. One contains those objects or persons that are continuously present or at least present independent of the activity performed. This would include, for example, body parts and mommy, and we are calling it our CONTINUOUS category. The other category consists of those things that are present or used only during an activity. We are calling this our BOUNDED category in that the beginning of the activity is accompanied by the beginning of an interaction with the object named and terminated by and end of that interaction. (Duchan & Lund 1979: 248)

Duchan and Lund propose that when a bounded instrument such as a toothbrush or a crayon plays a salient role in an activity, children will name it in response to the question "What do you *verb* with." When the instrument of an action (such as chewing) is instead a continuous object such as teeth, however, children are likely to respond with a patient, such as gum. This account has some merits on an intuitive level since it is known that children learn very early to distinguish between themselves and external objects, and also that they distinguish between entities which are apparently animate and those which are not. Therefore, it seems certain that children are capable of making discriminations something like the ones suggested by Duchan & Lund.

The Duchan & Lund account, however, is rather complex, in that it involves a multi-stage algorithm: Children look first for a certain type of instrument (per se) which bears a particular relationship with the temporal structure of a scene; if this search fails they then look for something which is not necessarily an instrument, but has the right temporal

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profile. Another, simpler way of interpreting the same data, subtly different from Duchan & Lund's account, would be to focus less on the temporal shape of an object's salience—i.e. it's "appearance" on the scene at the beginning of the activity and its "disappearance" after that—and more on the fact that a distinguishable object (prototypically, a manipulable object) is salient within a scene. When children are asked about what they "chew with," they unanimously respond with the only discrete object that is a natural participant in a chewing scene—namely, gum. Duchan & Lund report that children are confused by questions about what they *stand*, *walk*, and *see* with—they respond to these questions hesitantly, and often mention "continuous" objects, such as their eyes, presumably because there is no particular "bounded" object which is a predictable participant in these scenes. No such hesitation is reported, however, regarding questions about what children *chew* with or *taste* with, even though these actions, no less than standing or seeing, involve body parts ("continuous" objects) as instruments. As Duchan & Lund suggest, the explanation for the differences between *stand* and *chew*, for instance, seems to be that in trying to find a noun with which to reply to the question, children select the discrete object which they can most easily associate with the verb in the question. With *chew* and *taste*, there is no difficulty in choosing a salient, discrete object (even though these objects are "continuous"); with *stand*, *walk*, and *see* there is.

Explanation in terms of discrete objects can also account for children's apparent tendency to respond with instruments rather than patients in many cases where patients are available. (Duchan & Lund see this pattern as evidence that children do have some grasp of instrumentality per se, and prefer to name instruments when they can—i.e. when these instruments fit the boundedness criterion.) Table 1 lists several verbs, along with numbers of children who responded with patients and instruments (with typical examples included in parentheses):

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Table 1. Children's responses to some 'What do you VERB with?' questions (from Duchan & Lund 1979)

Verb	Patient	Instrument
brush	1 (teeth)	8 (toothbrush)
draw	1 (picture)	8 (crayon)
pound	3 (nails)	4 (hammer)
saw	4 (wood)	2 (saw)
drink	5 (milk)	3 (cup)

Rather than showing that children prefer to name instruments when possible, as Duchan & Lund claim, these representative examples reveal a different pattern: Children choose salient, discrete ("bounded") objects, without regard to whether these objects are instruments. Teeth are typically not chosen because they are not independent objects; pictures are not independent objects but are created by the drawing activity. When there are two equally salient discrete participants to choose from—as with *pound*, *saw*, and *drink*—children's selections show no bias towards instruments.

As we saw in the Shem data, a primary scene which helps account for the verb+*with* examples would be a simple POSSESSION scenario, in which a person has control over an independent object. *With* apparently refers, in young children's speech, to this relation between a person and a discrete object which is salient in the same scene. No notion of instrumentality whatever is necessary to account for the linguistic facts; and, as we have seen, some of the Shem data makes it clear that this is not a notion which he associates with linguistic forms, if he has access to it at all. Other mentions in the literature of language acquisition hint that instrumental marking may also be acquired rather late by children learning other languages (e.g., Schieffelin, 1985). This claim should be investigated in future research.

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"Emergent categories"

Eve Clark's proposal regarding "emergent categories," discussed in Chapter 6, also relates in an intriguing way to concepts we have considered in connection with metaphor. Since emergent categories are by definition categories which are encoded in children's speech but not in their ambient (target) language, these categories must either be innate or learned pre-linguistically, and are likely to be universal. As we have seen, these descriptions might easily apply to source and target concepts of primary metaphor as well. Such concepts as heaviness, difficulty, similarity, desirability, intensity, and so forth would appear to be basic aspects of cognitive and conceptual function, rather than an arbitrary set learned by children in some speech communities but not others.

One of Clark's "candidate emergent categories" is degree of control, or agency. She points out, for instance, that one young child in her data (drawn from Budwig 1989) consistently uses *me* or *my* to refer to herself as an agent with a degree of control—as in *My cracked the eggs*—but *I* to refer to herself as a mere passive experiencer—as in *I like peas.* As we have seen, the concept of control of a situation is a target concept for primary metaphor—e.g., CONTROLLING IS GRASPING (or MANIPULATING WITH THE HAND) or CONTROLLING IS BEING ABOVE:

(5) a. I have the situation in hand.

b. I'm on top of the situation.

Furthermore, the intentional action of an agent is mapped onto motion:

(6) a. I'm trying to decide on my first *move*.

b. They *sat* passively by and did nothing.

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As these examples reflect, the notion of control/agency is a primary target concept, as well as a potential emergent category. Like other emergent categories and primary target concepts, this one would be a valuable tool in the performance of goal-oriented activity: knowing the degree of control we exercise over a scenario should help us foresee outcomes and choose actions.

Clark also proposes "inherent" vs. "temporary" properties as contrasting emergent categories, based on the observation that a child consistently marked such properties in his utterances, using *-y* to encode inherent properties—as in *crumby* amarettini biscuits, which by their nature produce lots of crumbs—vs. a *crumbed* foot, which has recently stepped in crumbs (Clark, E., To appear: 16). This distinction is also captured in the metaphor ESSENTIAL IS INTERNAL, which relates to the correlation between important properties of objects and their internal structure:

(7) a. There is a great deal of strength *in* steel.

b. ? There is a great deal of coldness *in* this steel.

The temporary property of coldness is harder to conceptualize as something *inside* the steel, as example (7b) illustrates.

Irish (Gaelic) has grammaticalized the distinction between essential and temporary properties, and expresses it in a pair of standard metaphors. In Irish, temporary personal states, such as fatigue, happiness, or hunger, are said to be *on* a person, whereas more permanent qualities, such as strength or intelligence, are said to be *in* a person:

(8) a. Tá áthas *orm*.

is happiness on-me

I am happy

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b. Tá eagna *ionam.*

is intelligence in-me

I am intelligent.

(Grady, MS) AS these examples reflect, the distinction between inherent properties and those which are temporary or inessential forms the basis for distinct primary target concepts.

The data which suggest the existence of emergent categories, then, can provide additional evidence that there is a set of fundamental concepts—basic aspects of our parsing of the world—as we were led to posit based on the properties of primary target concepts.

Not all Clark's candidate emergent categories can be identified with primary target concepts, however. For instance, Clark finds that shape is an important definitional property in children's categorization of objects. Round objects are all referred to as *ball* in one child's speech, for example, and in another's *stick* means anything long and thin. As we saw in Chapter 5, geometric shapes do not tend to be either source or target concepts of primary metaphor. This appears to be because there are no specific experience types where shapes are saliently and recurrently correlated with other concepts, for which they could provide the source images. While shapes such as "round" and "long and thin" are not likely source concepts for primary metaphor,[2] though, they do appear to be concepts at the same level of simplicity and directness (from the experiential point of view) as concepts like heaviness and hardness, which do serve as primary source concepts. Further examination of the emergent categories evident in children's speech should reveal interesting contrasts

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[2] 'Straight,' on the other hand, does seem to be primary source concept, which is mapped onto normalcy, the uncomplicated pursuit of goals, and so forth (cf. Cienki MS). Straightness, unlike roundness, for instance, does seem to correlate strongly with particular types of scenes, and regularity of shape vs. various types of deformity may well be a

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between these categories and the ones which figure in primary metaphor, and should shed additional light on the reasons some concepts participate in entrenched metaphorical associations and some do not. One hypothesis to explore would be that the extension of lexical items (like *ball*) to broader categories operates on slightly different principles from the extension of grammatical markers, like pronouns and affixes. If so, it may be the case that the latter set of cases lines up more neatly with primary target concepts. On an even more speculative note, it would be worth exploring the possibility that grammatical meaning *in general* corresponds closely the range of concepts which serve as targets for primary metaphor.

An interesting research project along these lines would be to specifically look for evidence that some concepts identified here as primary target concepts—e.g., quantity or change—are the basis for emergent categories in the speech of some children. Such an investigation would be constrained by the requirement that the ambient language *not* systematically encode the category (which limits the number of languages where one could find evidence for quantity as an emergent category, for instance), and by the limits on ways in which concepts might plausibly be encoded. For example, intimacy (the target concept of INTIMACY IS PROXIMITY) is less likely to be encoded grammatically than lexically, as shown by Talmy, for instance, in his general studies of constraints on grammatical meaning. Potential evidence, then, might include the over-extension of something like an intimate familial-relation word to other people.

The "conflation hypothesis"

In several recent papers on children's acquisition of polysemy structures, of both words and syntactic constructions, Chris Johnson has proposed a hypothesis which relates to the acquisition of conceptual metaphor. Johnson proposes that rather than learning mappings

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parameter we consider in deducing all sorts of useful information about the world (see Leyton, 1992).

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between previously established conceptual domains, children may in many cases be mapping forms onto "conflated" senses to begin with—i.e. senses which conflate elements of literal and metaphoric meaning, from the adult point of view. On this hypothesis, children's conceptual and linguistic development consists partly in learning the distinctions between these senses. Their early use and comprehension of senses which are extended and metaphorical from the adult perspective would therefore not depend on the acquisition of a mapping, as previous accounts of conceptual metaphor might suggest, but would arise from their early hypotheses about the (basic) meanings of the forms.

For example, Johnson argues against the hypothesis that children initially learn a strictly visual sense of *see*, and later come to associate the form with mental awareness, via a conceptual mapping like "KNOWING IS SEEING." Based on evidence from the Shem corpus (see MacWhinney, 1995), Johnson suggests instead that the extended semantics associated with this form may be a feature of the child's early understanding of *see*. Evidence for this claim is found in numerous exchanges between Shem and adults in which *see* refers simultaneously to a visual event and a mental event, as in a sentence like *Let's see what's in the box.* A preponderance of adult usages of *see* in the Shem corpus are "ambiguous" in this way—*see* apparently refers to both the visual dimension of the scene and the intellectual event (i.e. discovery or realization) which accompanies the visual one. Shem's reactions in these cases show that he has no difficulty in grasping both of these elements of the intended meaning. (He directs his gaze towards visual stimulus, indicates that he has found the answer to a question, and so forth.) Johnson argues that these exchanges do not demonstrate Shem's (passive) mastery of a KNOWING-AS-SEEING metaphor, but could instead show that Shem associates *see* with both the "literal" and "metaphoric" senses in his early semantic theory of the word. They certainly suggest that even a child's earliest exposures to the word are likely to be metaphorical from the adult perspective.

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Johnson's accounts do not suggest that conflation cases explain all linguistic metaphor data. Clearly the metaphorical sense of a word like *illuminate* does not arise from children's usage or understanding. The development of systematic mappings—and the ability to consciously manipulate these mappings—must be a facet of conceptual development at some stage.

The Conflation Hypothesis is consistent with the view that primary scenes and primary source and target concepts play an important role in both metaphor and language acquisition more generally. In the cases Johnson cites, a child's attention is being drawn simultaneously to two distinguishable aspects of a single experience. From the point of view of the adult speaker (and conceptualizer) these can be viewed as distinct subscenes, unfolding simultaneously, and connected by causal links. One subscene involves the perception of a visual stimulus, and the other involves the sense of realization—the sense that we have just learned a fact that we were not aware of a moment before. In such cases, where elements of subjective experience are so tightly co-aligned, it is not surprising that children should perceive them as a single meaning. The Conflation account of the acquisition of mental senses of *see*, then, is not about complex domains of knowledge or experience, or rich frames or scripts, but about narrow, correlated dimensions of experience, and their relevance to semantic structure. And, of course, the same experiences that motivate "conflated" uses of *see* give rise to the conceptual mapping which becomes highly elaborated in adult language.

A nice feature of the Conflation Hypothesis is that, in principle, it applies equally to the acquisition of polysemy structures which do not involve metaphor, and therefore offers an opportunity for unifying different strands of investigation into language acquisition. For instance, words for various spatial relations (which will be discussed more in the next section) involve numerous distinct senses sharing different combinations of features, as shown for instance in Brugman's study of *over* and Lindner's study of *up* and *out*. The Conflation Hypothesis might suggest that we treat the different schematic features in the

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meaning of a particular spatial term—such as contact, support, and vertical superiority, in the case of prototypical *on*—as semantic elements which are conflated in these meanings, but are nonetheless distinguishable. There is nothing metaphorical about the association between physical contact and physical support, but these notions are tightly correlated in many prototypical situations we describe with *on*.

8.2 The modeling of semantic domains

Just as child language is a logical place to look for evidence of basic conceptual structures, so is the organization of basic semantic domains. If primary scenes and primary source and target concepts are fundamental to human physical and mental experience, then they should motivate facets of synchronic semantic structure, even outside the realm of metaphor. In this section I will briefly consider a recent study of a particular semantic domain, and the parameters which must be included in a connectionist model of this domain in order for it to effectively learn the meanings of words in various languages.

In the important domain of spatial relations, the parallels between the semantic systems of various languages are often more obvious than the differences. For instance, quite a few languages have words which refer to approximately the same set of spatial configurations as English *in*—e.g., French *dans*, Russian *v*, and Arabic *fii*. Despite the similarities often encountered among spatial systems, however, there are also important differences which semantic theories must account for. For instance, German has no form which closely matches the range of senses of English *on*; many situations which would be described using *on* in English require *auf* in German, while many others require *an*. Any model of the parameters of this domain must therefore capture both the similarities and the differences between forms like *on* and *auf*.

In his 1992 dissertation on the lexical semantics of spatial terms, Regier describes a connectionist model which makes use of a range of perceptual features in order to learn the semantics of spatial markers from different languages. Figure 1 represents a contrast which

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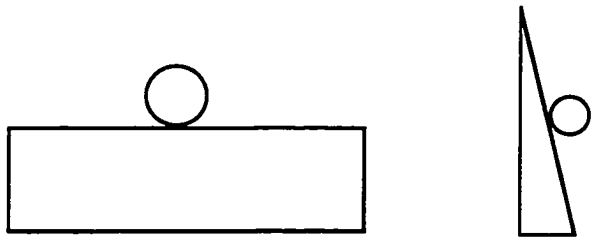
his system successfully learns. The diagrams represent two configurations which are both describable using *on* in English, but only one of which fits the semantics of *auf*:



(a) (b)

Figure 1—Two instances of *on*, only one of which is an instance of *auf*

For English speakers, these schematic drawings represent situations like those described in examples (9a) and (9b), respectively:

(9) a. The ball is *on* the table.

b. The bubble is *on* the wall.

While (9a) may strike us as more prototypical usage of *on*, both are clearly acceptable. Figure 1b, however, cannot be described in German using *auf*, though this is the obvious choice for describing Figure 1a.

Regier's connectionist system learns the ranges of senses (i.e. configurations) encoded by English *on* and German *auf*, and does so by giving different weightings to the same set of parameters, or "perceptual primitives" in each case. These parameters include contact, and the orientation of an imaginary line drawn between the centers-of-mass of the two objects. For *auf*, this *center-of-mass orientation* must be vertical or nearly vertical, whereas this is not a requirement for *on* (though it may be a feature of prototypical cases).

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In English we can speak of a coat of paint *on* a wall, whereas this situation would not be an instance of *auf*.

As we have seen in earlier chapters, the spatial relation in which one entity is vertically above another—the parameter which German *auf* obligatorily encodes, but *on* does not—is one which figures in primary scenes and primary metaphors. The metaphor CONTROLLING IS BEING ABOVE, for instance, maps the situation of being in control onto spatial location above some landmark. (We might even go back and amend the description of that metaphor to indicate that in the source image, the center-of-mass of one entity is above the center-of-mass of the other.) The metaphor is motivated by our experiences in which gravity gives an advantage to the person located above another person, or object. The same type of experience may be part of what motivates the 'aboveness' parameter in German *auf* and other spatial markers. More generally, it is obviously our experiences in which gravity is a salient factor which give the major up-down axis its importance in spatial markers.

An additional factor which helps define the semantic range of English *on* has to do with the potential of an object to fall. Regier states (170-171) that if an object would fall without additional support, then it is not described as being *on* a landmark. For instance, a piece of paper which is momentarily located flat against a wall is not *on* the wall unless something is holding it there, so that it will not fall. (Contrast this scenario with one where the paper is in motion, and is only against the wall in a particular "snapshot" of that motion.) Again, a concept which figures in primary metaphors, and which is obviously based on recurring experiences with objects in space—the notion of support vs. falling—is an important parameter for describing the lexical semantics of a spatial term. While in a sense it seems obvious that this should be the case, there are theories of semantics in which any logically possible geometric configuration is an equally likely candidate as the semantic referent of a spatial marker. What Regier's work shows is that the possibilities for the semantics of spatial markers are far more constrained than such views would suggest—

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there are many logically possible spatial concepts which his system fails to learn, and which also do not appear to occur in natural languages—and that it is factors which matter in our interactions with objects that determine the meaningful parameters in this semantic domain. In this way, Regier's findings are consistent with the proposal that basic, recurring dimensions of local, dynamic experience play an important role in motivating semantic structure.

A similar story could be told about another semantic domain: physical action. In several recently completed dissertations, members of a working group at the International Computer Science Institute (ICSI) have introduced a connectionist model in which to describe actions. Bailey (1997) uses this framework to model the semantics of terms for manual actions in various languages—e.g., *push* or *slide* in English—and finds, like Regier, that the differences among the lexical semantics of terms from different languages can be captured as settings in a relatively small set of parameters. In the model of hand actions these parameters include rate of speed, shape and size of the object being manipulated, and so forth. Narayanan (1997) has extended the framework to include a general "aspect schema," which models the structure of actions in general. Parameters in this schema—again, motivated by the details of a wide range of terms, and a range of languages—include the amount of energy available for acting, a binary setting for whether or not the goal has been achieved, etc. Thus like spatial terms, action terms can be analyzed and modeled based on a set of parameters which relate to individual dimensions of conscious experience— dimensions in terms of which primary scenes and primary metaphors are characterized.

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Chapter 9. Conclusion

9.1 Retrospect

The study presented in this dissertation began with the rather straightforward goals of providing accurate analyses of metaphorical language data and explaining how the language and conceptualizations could be motivated. As it turned out, the same kinds of analyses proved best with respect to explaining linguistic data and also conformed best to the principle that metaphors are not arbitrary but grounded in some way. In Chapter 2 we saw that a metaphor like THEORIES ARE BUILDINGS , for instance, if conceived as a conceptual mapping between theories per se and buildings per se, is neither accurate with respect to the language and imagery that apply to theories, nor explainable in terms of aspects of experience which could motivate particular associations between concepts. Instead, the data are best analyzed in terms of mappings between much more basic concepts, arising from basic aspects of experience. Numerous other cases, considered in later chapters, proved to work in the same way. Based on these examples, it seems that the primary metaphor framework therefore goes a great distance towards solving two problems at once which are central to conceptual metaphor theory. It offers accounts with maximal predictive power and simultaneously addresses in a serious way the question of how particular conceptual mappings might be motivated. These converging results argue compellingly that primary metaphors are important elements of the semantic and conceptual machinery which makes linguistic metaphor possible.

When considered further, primary metaphors, and their conceptual content, display patterns relevant to other aspects of language and conceptual structure as well. As we saw in Chapters 3-5, once we find metaphors which account well for data and are plausibly explained as arising from particular aspects of experience, both the concepts which participate in the mappings and the experiences which motivate them can be characterized in very interesting ways. Primary source concepts—i.e. the concepts which provide the

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words, imagery and inferential structure for the metaphors—can all be described as having image-content. They are aspects of our perception of our bodies and our environment, in all possible modalities. They include our (schematic) cognitive representations of the shapes and sizes of objects around us, their positions, their smells and flavors, our own motion through space, temperatures, brightness, basic actions like holding and cutting and examining, bodily sensations like hunger, itching, and strain, and so forth. The target concepts of primary metaphor, on the other hand, consist of our subjective (but still very real and basic) responses to bodily experience, including judgments, affective reactions, and inferences—all of which can be referred to as *operational content.* We judge the difficulty of performing an action, we respond with pleasure or displeasure to certain sensations, we infer logical and causal relationships from what we perceive, we are moved to act in certain ways, we determine whether or not we have achieved our (local and immediate) goals, and so forth.

In discovering these patterns in the source and target concepts for primary metaphor we clarify the relationship between metaphor and certain other types of structures—e.g., image-schemas, which relate closely to primary source concepts but not primary target concepts—and we also discover further evidence about the kinds of experiences and experiential correlations which give rise to metaphor. Primary scenes seem, based on the evidence of metaphor mappings that arise from them, to be a class of basic subjective experiences, which involve tight correlations between the kinds of image-content and conceptual operations discussed above. That is, the evidence of metaphorical language has led to an account of certain important dimensions of experience which seem to have a special status. As we saw in Chapter 8, these dimensions of experience appear to be relevant not only to the semantic patterns of metaphorical language, but to other aspects of language as well. They may, for instance, help explain patterns in children's acquisition of the instrumental sense of *with*, and possibly other such markers. In this way, primary scenes may contribute to the search for universals in conceptual and semantic

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development—an idea which has sometimes been treated as very promising, but at other times been dismissed because hypothesized universals proved to be at the wrong level of granularity. Primary scenes might be considered universals of human subjective experience, which in turn lead to shared features in language and thought.

At the most speculative level, given that primary metaphors involve the evocation of image-content, and that image-content probably forms the substance of much of our subjective mental experience, including reasoning (at least on some well-supported theories, such as Damasio's [1994]), there are reasons to believe that primary metaphors contribute in a significant way to the feel and structure of that experience. And given the fact that primary scenes are, by definition, recurrent features of experience, and that the conceptual bindings which result from them may therefore be nearly inevitable, the degree to which they shape our thoughts and reasoning, in addition to our language, may be very great.

9.2 Prospect

This study has raised at least as many questions as it has answered. For instance, the case studies presented in the second and third chapters could, in themselves, be given book-length treatments, since they involve so many related factors tied to lexical usage, construals of various phenomena, categorization, and so forth. There is no limit to the possible refinements and improvements to the theory which could arise simply from the semantic analysis of additional metaphor data. Corpus-based analysis of the metaphors treated in the dissertation also has the potential to reveal interesting facts about which metaphors are most strongly conventionalized in which languages, and so forth.

Some of the questions raised here, though, are of much more general and fundamental sorts. For instance, linguistic evidence suggests that primary source concepts, characterized by image-content, and primary target concepts, characterized by operational content, form natural categories in our conceptual system. This claim raises the question of

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whether such classes can be corroborated by other research methods. For instance, might there be neurological correlates of these distinct classes of concepts—i.e. types of neural structures which are activated by one class and not the other? Or might it be possible to determine by the methods of experimental psychology that the sets of concepts behave differently from one another? I have at various points in the dissertation speculated that such questions might be answerable in principle, and I hope that there will be readers interested in pursuing these questions in their own ways.

Besides these experimental methodologies there are other ways of addressing the questions I have raised about the nature of conceptual binding and subjective mental experience. These questions are within the province of philosophers and others who specialize in devising models of cognition. Researchers involved in designing connectionist systems, for instance, might find that there are ways in which it is natural to model what I have called primary source concepts differently from what I have called primary target concepts, or that particular kinds of directional binding between these concepts are natural emergent features of connectionist systems which take aspects of experience as input. In general, any of these kinds of evidence has the potential to challenge or confirm aspects of my framework, and shed new light on the proposals I have made. And scholars in these various fields might also find that the proposals here offer interesting insights into problems that are already being worked on, such as the philosophical concern with the content of phenomenological experience.

A final result which I hope will emerge from this dissertation is that a few readers who had not already been convinced will now be convinced that the investigation of patterns in language can lead to important conclusions (or at least, intriguing hypotheses) about the nature of cognition and mental experience. Any claims and arguments which are compelling in this dissertation stem ultimately from observations about the meanings, interpretations and usages of words. Trying to account for these patterns leads us ever deeper into the realm of cognitive study.

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APPENDIX: PRIMARY METAPHORS

This appendix consists of a list of metaphors which appear to have the properties of primary metaphors. They are taken from this dissertation and from various other published sources as well. A number of these require further investigation and analysis; the list should be taken as suggestive rather than definitive.

Each listing includes an indication of the source and target concepts, one or more linguistic examples, and a brief suggestion as to experiential motivation.

The metaphors are organized into the following rough categories: *Atemporal relations*; *Quantity and degree; Time, action and event structure; Affect, evaluation and social relations*; and *Thought and consciousness*.

Atemporal relations

Metaphor:	ATTRIBUTES ARE POSSESSIONS
Motivation:	The correlation between cognitive "reference point" relations and physical relationships associated with possession.
	And/or the tendency to categorize people based on objects they possess.
Examples:	She's *got* a loud voice that really carries.
	This painting *has* a tremendous amount of personality.

Metaphor:	ESSENTIAL IS INTERNAL
Motivation:	The correlation between internal features of objects and their essential properties—e.g., hard interior of a stone as opposed to its color, texture, etc.
Examples:	It's what's on the *inside* of a person that counts.
	She only has *surface* charm.

Metaphor:	DEGREE TO WHICH AN ATTRIBUTE DEFINES AN ENTITY IS DEPTH
Motivation:	(Corollary of ESSENTIAL IS INTERNAL)
Examples:	This scanning system is *deeply* flawed.
	My grandmother is *deeply* religious.

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Metaphor: THE NATURE OF AN ENTITY IS ITS SHAPE

Motivation: The tendency to draw inferences about an object from its shape. The correlation between an object's shape and its behavior.

Examples: Democracy takes very different *forms* in different countries. (i.e. it not only "looks" different, but is different in substantial ways)

Irish is of a very different *cut* from other European languages.

Metaphor: CONDITION IS SHAPE

Motivation: The correlation between the condition of an object and its apparent physical integrity, including its shape.

Examples: The committee is in pretty good *shape* this year.

I'm really not in good *form* these days.

Metaphor: CERTAIN IS FIRM

Motivation: The correlation between uncertainty and perception of shifting shapes/locations of objects.

Examples: The plans for the trip have finally been *firmed* up.

Next year's budget is fairly *solid* at this point.

Metaphor: CONSTITUENTS ARE CONTENTS

Motivation: The relationships between physical parts/constituents and the spatial boundaries of whole objects (correlation between membership/constituency within a whole and spatial location within the boundaries of the whole).

Examples: There are seven days *in* a week.

I'm going to *take* several chapters *out of* the manuscript.

Metaphor: (LOGICAL) ORGANIZATION IS PHYSICAL STRUCTURE

Motivation: The correlation between observing the part-whole structure of objects and forming cognitive representation of the logical relationships holding within them.

Examples: Which *part* of the theory don't you agree with?

I admire the way this automated collection system is *put together.*

Metaphor: FUNCTIONALITY/VIABILITY IS ERECTNESS

Motivation: The correlation between erect position and state of functionality, for objects and people.

Examples: That record still *stands.*

The new regime has been *toppled* by defectors within the ruling party.

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Metaphor: ASSISTANCE IS SUPPORT (corollary of VIABILITY IS ERECTNESS)

Motivation: The correlation between physical support and continued functionality.

Examples: Our conservation program needs your *support*.

I've really been *leaning on* my friends the past few months.

Metaphor: INTERRELATEDNESS IS PHYSICAL INTERCONNECTEDNESS (e.g., interweaving)

Motivation: The correlation between intricate physical structure and complex logical interdependence.

Examples: Emigration has threatened to *unravel* the fabric of this small society.

The chairman has managed to *weave together* quite a coalition.

Metaphor: CATEGORIES/SETS ARE BOUNDED SPATIAL REGIONS

Motivation: The tendency for similar objects to be clustered together (correlation between set membership and location).

Examples: Are tomatoes *in* the fruit or the vegetable category? In any case, they're *among* my favorites.

I wouldn't quite call him a star; he falls just *outside* that fine line.

Metaphor: SIMILARITY IS PROXIMITY

Motivation: The tendency for similar objects to be clustered together.

And/or the tendency for adjacent objects to appear similar because they are in similar conditions.

Examples: These fabrics aren't quite the same but they're *close*.

His singing style is *miles away from* mine.

Metaphor: SIMILARITY IS ALIGNMENT

Motivation: Objects may be oriented in the same way because they serve similar functions, are involved in similar processes or acted on by similar forces.

And/or, orientation is a basic parameter for perceptual/cognitive classification.

Examples: Her new dress is very much *in line with* those worn by her co-workers.

There are stunning *parallels* between these two novels.

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Metaphor: EXISTENCE IS LOCATION HERE

Motivation: The correlation between our awareness of objects (i.e. knowledge of their existence) and their presence in our vicinity.

Examples: All the bridges that used to span this river are *gone*.

The affordable cellular modem has finally *arrived*!

Metaphor: EXISTENCE IS VISIBILITY

Motivation: The correlation between our awareness of objects (i.e. knowledge of their existence) and their presence within our field of vision.

Examples: The dodo *disappeared* in the 1600s.

Rap music first *appeared* in the late 70s.

Metaphor: A SITUATION IS A LOCATION

Motivation: The association between our location and the circumstances that affect us. (See CIRCUMSTANCES ARE SURROUNDINGS.)

And/or the correlation between our location and the courses of action available to us.

Examples: *Where* do things *stand* between you and your father?

I'm *in* a pretty good *position* at work.

I don't know how we *got into* this situation in the first place.

Metaphor: IMPORTANT IS CENTRAL (cf. Sweetser 1995)

Motivation: Being in a central position allows maximum access to, control over, causal effect on surrounding objects.

Also based on the importance of internal (vs. external) features of objects. (See ESSENTIAL IS INTERNAL.)

Examples: That issue is *central to* these negotiations.

At the heart of the problem is the fact that he can't act.

Metaphor: CONTEXTUAL ROLES ARE LOCATIONS

Motivation: The tendency for people/objects filling certain functions to be in particular locations.

Examples: He's *filling in* for me at tonight's concert.

We're drinking lemonade *in place of* beer tonight.

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Quantity and degree

Metaphor: QUANTITY IS SIZE (i.e. VOLUME)

Motivation: The correlation between perception of volume and judgment of (more general sense of) quantity. (Explaining this metaphor obviously requires a more detailed account of the nature of "quantity"—e.g., is it somehow related to the interval of time it takes to perform a mental operation, or to the intensity of such an operation?)

Examples: She assigned us *huge* amounts of work.

He has a *tiny* amount of personality.

Metaphor: QUANTITY IS VERTICAL ELEVATION (AKA MORE IS UP)

Motivation: The correlation between quantity and level in piles, fluids in containers, etc.

Examples: Violent crime is *down* for the second year in a row.

The world population continues to *rise*.

Metaphor: DEGREE IS DISTANCE ALONG A PATH

Motivation: The correlation between perception of distance and judgment of degree. (Explaining this metaphor obviously requires a more detailed account of the nature of "degree"—e.g., is it somehow related to the interval of time it takes to perform a mental operation, or to the intensity of such an operation?)

Examples: He is *far* more intelligent than he looks.

She is *way* hungrier than I am.

Metaphor: QUANTITY IS POSITION (ALONG A PATH)

Motivation: (Corollary of DEGREE IS DISTANCE.)

Examples: These two numbers are very *close*.

Inflation figures aren't *where* they were in the 80s.

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Time, action and event structure

Metaphor:	CHANGE IS MOTION (related to STATES ARE LOCATIONS)
Motivation:	The correlation between our location and how we feel.
	And/or the correlation between perceiving motion and being aware of a change in the world-state around us.
Examples:	My car has *gone from* bad *to* worse lately.
	Things have *shifted* a little since you were here last.

Metaphor:	STATES ARE (TEMPORARY) LOCATIONS
Motivation:	(Corollary of CHANGE IS MOTION)
	The correlation between our location and how we feel.
	And/or the correlation between perceiving motion and being aware of a change in the world-state around us.
Examples:	He was *in* a state of shock after the accident.
	The bridge is still *in* a state of disrepair.

Metaphor:	AN EVENT IS THE MOTION OF AN OBJECT
Motivation:	(See CHANGE IS MOTION and MOMENTS IN TIME ARE OBJECTS IN MOTION ALONG A PATH)
Examples:	Things are *going smoothly* at the hospital.
	The concert *went* until 4 o'clock.

Metaphor:	ACHIEVING A PURPOSE IS ARRIVING AT A DESTINATION
Motivation:	The correlation between achieving a purpose and moving to a spatial location.
Examples:	He'll ultimately be successful, but he's not *there* yet.
	I've *come a long way* towards finishing the project.

Metaphor:	MEANS ARE PATHS
Motivation:	(corollary of ACHIEVING A PURPOSE IS ARRIVING AT A DESTINATION)
	The correlation between goal-oriented decision-making and confronting alternative paths.
Examples:	You did that in a very *circuitous way*!
	There are many *paths* to success.

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Metaphor:	ACTION IS SELF-PROPELLED MOTION
Motivation:	The correlation between performing actions and moving.
Examples:	I've got to start *moving* on this project.
	The parents committee has to make the first *move*.

Metaphor:	COMPULSION IS A COMPELLING FORCE
Motivation:	The correlation between deliberate action and motion through space (corollary of ACTION IS SELF-PROPELLED MOTION).
Examples:	Vanity finally *drove* me to have the operation.
	My friends *pushed* me into volunteering.

Metaphor:	ACHIEVING A PURPOSE IS ACQUIRING A DESIRED OBJECT
Motivation:	The correlation between acquiring objects and feeling satisfaction.
Examples:	I saw an opportunity for success and I *grabbed* it.
	I've *gotten* everything I ever wanted out of life.

Metaphor:	OPPORTUNITIES ARE RESOURCES
Motivation:	The correlation between material possessions and chances of achieving goals.
Examples:	We've *got* plenty of chances *left*.
	I've *squandered* every opportunity to advance my career.

Metaphor:	TIME IS A RESOURCE
Motivation:	(Corollary of OPPORTUNITIES ARE RESOURCES.)
Examples:	It's a shame to *waste* so much time.
	This new schedule *gives* me a lot more time on Mondays.

Metaphor:	MOMENTS IN TIME ARE OBJECTS IN MOTION ALONG A PATH ("Moving-time")
Motivation:	The correlation between the perception of motion and the awareness that the world-state has changed between one moment and the next. (See CHANGE IS MOTION.)
Examples:	Time *flies*.
	Summer always *passes* too quickly.

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Metaphor: THE EXPERIENCE OF TIME IS OUR OWN MOTION ALONG A PATH ("Moving-ego")

Motivation: The correlation between moving to a new location and being aware of a new set of facts about the world-state.

Examples: Let's hope for the best as we *enter* the new year.

I've just *come out of* the bumpiest period of my life.

Metaphor: NOW IS HERE

Motivation: The correlation between our awareness of a particular world-state and our own surroundings.

Examples: Spring is almost *here*!

Autumn is a *long way off.*

Metaphor: TIME PERIODS (IN OUR LIVES) ARE CONTAINERS

Motivation: (Possibly a corollary of TIME PERIODS ARE BOUNDED PORTIONS OF PATHS)

Examples: My morning has been very *full.*

Every minute today has been *filled* with obligations.

Metaphor: CIRCUMSTANCES ARE SURROUNDINGS

Motivation: The correlation between our physical surroundings and our state of mind, etc.

Examples: I've reached a good *place* in my life.

She's in a tough *spot.*

Metaphor: CIRCUMSTANCES ARE FLUID

Motivation: (Corollary of CIRCUMSTANCES ARE SURROUNDINGS)

Examples: I am *immersed* in paperwork these days.

He's really *plunged* whole-heartedly into his research.

Metaphor: EVENTS ARE ACTIONS, INANIMATE PHENOMENA ARE HUMAN AGENTS (See Lakoff & Turner, 1989)

Motivation: The correlation between observable events in our environment and the presence of human agents.

And/or the correlation between goal-oriented action and interaction with other people.

Examples: It *decided* to rain after all.

This lid *refuses* to come off.

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Metaphor: PROCESSES ARE LIVING FORCES

Motivation: The correlation between animacy and activity.

Examples: The campaigning has *died off* for now.

We'd like to keep the debate *alive* if we can.

Metaphor: THE NECESSARY MATERIAL FOR A PROCESS IS FOOD

Motivation: The observation that living things need food.

Examples: This business *feeds* on scandal.

Hollywood requires a steady *diet* of young, hopeful actors.

Metaphor: ACTIVITY IS LIFE (INACTIVITY IS DEATH)

Motivation: The correlation between animacy and motion/availability for interaction.

Examples: The phone line is *dead.*

This town really comes to *life* at night.

Metaphor: ACTIVITY IS WAKEFULNESS (INACTIVITY IS SLEEP)

Motivation: The correlation between wakefulness and motion/availability for interaction.

Examples: My computer is *asleep.*

What a *sleepy* town!

Metaphor: EFFECTS ARE TRANSFERRED OBJECTS

Motivation: The correlation between receiving a transferred object and being affected in some way.

Examples: Don't *give* me a hard time!

I *got* a headache from listening to that music.

Metaphor: CAUSES ARE SOURCES

Motivation: The tendency for objects to move in a direction away from whatever caused them to move.

Examples: Several important results *came out of* the conference.

I worn out *from* worrying about the election results.

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Metaphor: EFFECTS ARE OBJECTS WHICH EMERGE FROM CAUSES

Motivation: Related to CAUSES ARE SOURCES, and possibly BECOMING PERCEPTIBLE IS EMERGING.

Also, the association between internal structure and essential nature—effects arise from the essential (internal) nature of objects.

Examples: Nothing good *came out of* the meeting.

What results *emerged* from the project?

Metaphor: CAUSAL RELATEDNESS IS PHYSICAL CONNECTION

Motivation: The inference of causality from the joint motion (and "common fate") of connected/contiguous objects.

Examples: There's a strong *connection* between grades and study habits.

I've discovered a *link* between smoking and needing to do my laundry more often.

Metaphor: CIRCUMSTANCES ARE WEATHER

Motivation: The correlation between weather conditions and our affective state or our situation.

Examples: The *storm* has passed.

She's a *fair-weather* friend.

Metaphor: BEING IN CONTROL IS BEING ABOVE

Motivation: The correlation between being in a higher physical position and having greater control over objects, people, situations.

Examples: She's *on top of* the payroll situation.

I've worked *under* some pretty tough bosses.

Metaphor: INTENSITY OF ACTIVITY IS HEAT

Motivation: The correlation between being active and feeling warm.

And/or the correlation between fast motion and friction-induced heat.

Examples: Trading has really *heated up* this week.

Things have *cooled down* at the paper since the election.

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Affect, evaluation and social relations

Metaphor: IMPORTANCE IS SIZE/VOLUME

Motivation: The correlation between size/volume of objects and the value, threat, difficulty, etc. they represent as we interact with them.

Examples: Tomorrow is a *big* day for this organization.

We have a *huge* test tomorrow.

Metaphor: IMPORTANCE IS MASS/WEIGHT

Motivation: The correlation between mass/weight of objects and the value, threat, difficulty, etc. they represent as we interact with them.

Examples: This is a *substantive/substantial* problem for us.

That's a *lightweight* issue.

Metaphor: DIFFICULTY IS HARDNESS

Motivation: The correlation between the hardness of objects and the strain/discomfort we experience as we try to manipulate them.

Examples: This is a very *hard* problem to solve.

This is a *tough* situation to deal with.

Metaphor: DIFFICULTIES ARE OPPONENTS

Motivation: The correlation between feelings of strain and discomfort and physical struggle.

Examples: I've been *wrestling* with this problem all winter.

This project has got me *beat.*

Metaphor: OBJECTING IS ATTACKING

Motivation: The correlation between negative evaluation of objects and the instinct to physically reject them, destroy them, etc.

Examples: He tried to *strike* down my proposal before I could even explain it.

They've been *fighting* these changes all along.

Metaphor: DIFFICULTY/HARDSHIP IS HEAVINESS (and EASE IS LIGHTNESS)

Motivation: The correlation between perceiving weight and feeling strain, discomfort.

Examples: I have a *heavy workload* this year.

This situation is hard to *bear.*

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Metaphor: GOOD IS FORWARD

Motivation: (Corollary of ACHIEVING A PURPOSE IS ARRIVING AT A DESTINATION)

Examples: He's way *ahead* of me in writing ability. (Compare with ?He's way *ahead* of me in incompetence.)

Metaphor: IMPERFECTION IS DIRT

Motivation: The (health-related) negative evaluation of dirt on objects.

Reinforced by the perceptual tendency to interpret irregularities—e.g., irregularities in the color of a surface—as flaws.

Examples: I need to *clean* up these manuscripts before submitting them.

The signal we're receiving is very *dirty.*

Metaphor: APPEALING IS TASTY

Motivation: The correlation between our evaluation of flavor and our state of desire.

Examples: What a *delicious* suggestion!

Even the thought of going about it that way leaves a *bad taste in my mouth.*

Metaphor: BAD IS FOUL-SMELLING

Motivation: Correlation between smell and affective evaluation.

Examples: This movie *stinks*!

His efforts *reek* of mediocrity.

Metaphor: GOOD IS BRIGHT/BAD IS DARK

Motivation: Correlations between light and safety, dark and danger.

And/or, the correlation between cleanliness and healthiness (see MORALLY GOOD IS CLEAN).

Examples: There are *dark* forebodings in the recent reports from Akron.

The outlook has *brightened* since the new council took office.

Metaphor: MORALLY GOOD IS CLEAN (See Lakoff 1996)

Motivation: The correlation between the cleanliness of objects we interact with (e.g., food) and our evaluations of them, based on their appeal, healthiness.

Examples: She is a woman of *spotless* virtue.

He has long wallowed in the *filth* of iniquity.

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Metaphor: MORALLY GOOD IS HEALTHY (See Lakoff 1996)

Motivation: Correlation between good health, or healthful effects of objects and situations, and positive evaluation.

Examples: Only a *sick* and degenerate man would do a thing like that.

That's an *unhealthy* thought!

Metaphor: NORMAL IS STRAIGHT (See Cienki MS)

Motivation: The perceptual tendency to treat irregularities as anomalies to be analyzed (see Leyton 1992).

And/or an innate preference for symmetry—i.e. correlation between regularity and positive evaluation.

And/or the inability of deformed objects to function normally.

Examples: He has a *twisted* notion of fair play. There's something *warped/off* about him.

This situation is a bit *off kilter*.

Metaphor: AFFECTION IS WARMTH

Motivation: The correlation between affection and body warmth, produced by physical proximity.

Examples: They greeted me *warmly*.

She has always been *cold* to me.

Metaphor: EMOTIONAL INTIMACY IS PROXIMITY

Motivation: The correlation between being emotionally intimate with a person and being physically near to that person.

Examples: My sister and I are very *close*.

Our disagreements over money have really driven us *apart*.

Metaphor: SYMPATHY IS SOFTNESS

Motivation: Correlation between being sympathetic and being amenable to persuasion (i.e. willingness to do as an agent wishes). See DIFFICULTY IS HARDNESS.

Examples: He's a *hard* taskmaster.

She's a *softy*.

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Metaphor: AFFECT IS MOISTURE

Motivation: (Corollary of AFFECT IS SOFTNESS; wetness implies softness?)

And/or the correlation between sympathetic relations and physical proximity, leading to contact with tears, sweat, saliva, etc.?

Examples: He is a very *dry*, unemotional speaker.

This movie is *dripping* with *soggy* sentimentality.

Metaphor: SOCIAL STATUS IS VERTICAL ELEVATION

Motivation: (Corollary of BEING IN CONTROL IS BEING ABOVE)

And/or the tendency to defer to taller, bigger people.

Examples: She's a notorious social *climber.*

His station in life is anything but *lofty*.

Metaphor: CORRECT/APPROPRIATE IS IN THE RIGHT LOCATION

Motivation: The importance of precise position in many goal-oriented activities.

And/or the expectation of finding particular objects in particular locations.

Examples: There's something *off* about this analysis.

You *hit the nail on the head.*

Metaphor: DESIRE/NEED IS HUNGER

Motivation: The correlation between the sensation of hunger and the desire to find and eat food.

Examples: We're *hungry* for a victory.

I have little *appetite* for that kind of experience.

Metaphor: DESIRE/COMPULSION TO ACT IS AN ITCH

Motivation: The correlation between an itching sensation and the desire to perform an action (i.e. to scratch).

Example: I'm *itching* to get to the concert.

Metaphor: ACQUIESCING IS SWALLOWING

Motivation: The correlation between physical act of swallowing and the decision not to resist the object.

Examples: This demotion has been a bitter pill to *swallow.*

They forced the new regulations *down our throats.*

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Metaphor: ACQUIESCING TO A SITUATION IS TAKING AN OBJECT

Motivation: The correlation between acquiescence and receiving the physical transfer of an object.

Examples: These new work conditions are hard to *take*.

I *welcome* these changes, though some have *rejected* them.

Metaphor: HARM IS PHYSICAL INJURY

Motivation: The correlation between physical harm and affective response—unhappiness, and so forth.

Examples: This rain has really *hurt* our chances.

The bank *took a beating* in the latest round of investment scandals.

Metaphor: INTENSITY OF EMOTION IS HEAT (See Kövecses 1990)

Motivation: The correlation between skin temperature and agitation.

And/or the correlation between the heat of objects and the agitation it causes us to touch/ be near them.

Examples: The argument really *heated up* when she accused him of losing the car on purpose.

He is a man of *fiery* passions.

Metaphor: "HAPPY IS UP" (See Lakoff & Johnson 1980)

Motivation: The correlation between happiness and erect body posture.

And/or correlation between being in a higher position (e.g., on a hill) and feeling safe, in control, etc.

Examples: I was feeling *low* yesterday but the good weather has really *picked me up*.

My spirits *soared* when they announced the winners of the competition.

Metaphor: ATTRACTION IS PHYSICAL FORCE

Motivation: The correlation between desire for an object and physical motion towards it.

Examples: I'm really *drawn* to any story about motorcycle-racing.

She's a *magnet* for losers and hard luck cases.

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Thought and consciousness

Metaphor:	KNOWING/ UNDERSTANDING IS SEEING
Motivation:	The correlation between visual perception and the conscious awareness of information.
Examples:	I *see* what you mean.
	That point isn't very *clear* to me.

Metaphor:	ALTERNATIVE UNDERSTANDINGS OF AN ENTITY ARE SIDES OF AN OBJECT
Motivation:	(Corollary of KNOWING IS SEEING and/or THE NATURE OF AN ENTITY IS ITS SHAPE.)
Examples:	There's an amusing *side* to this whole situation.
	It depends which *aspect* of the problem you're considering.

Metaphor:	PERCEPTIBLE IS "OUT" (and IMPERCEPTIBLE IS "IN")
Motivation:	The correlation between perceiving that an object has emerged from a container and perceiving its properties.
Examples:	Heat *brings out* the flavor in the soup.
	That sweater *brings out* the blue in your eyes.

Metaphor:	ACCESSIBLE TO AWARENESS IS "OUT" (and INACCESSIBLE IS "IN")
Motivation:	(See PERCEPTIBLE IS "OUT")
Examples:	The facts in the case will *come out* sooner or later.
	Some interesting details have *emerged* from the documents.

Metaphor:	DEDUCIBLE INFORMATION IS CONTENTS
Motivation:	(Corollary of ACCESSIBLE TO AWARENESS IS "OUT")
Examples:	The history of the forest is *contained* in these tree rings.
	There's not much usable information *left in* these old footprints..

Metaphor:	CONSIDERING IS LOOKING AT (corollary of KNOWING/UNDERSTANDING IS SEEING)
Motivation:	The correlation between visual inspection and gaining information/understanding.
Examples:	You should really *take a good look at* your own motives sometime.
	We'll be taking a good long *look* at him as a suspect in this case.

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Metaphor: ACCESSIBLE TO PERCEPTION/AWARENESS IS "UP"

Motivation: The correlation between being in a higher position—e.g., at eye level, or out from under an obstruction—and being perceptible.

Examples: Why did you have to *bring that up* again?

A couple interesting facts turned *up* during the discussion.

Metaphor: UNDERSTANDING IS GRASPING

Motivation: Correlation between close manipulation of an object and access to information about it.

Examples: I'm trying to *grasp* the meaning of this verdict.

I think I finally have a *handle* on the statistical principles.

Metaphor: ANALYZING IS CUTTING

Motivation: Correlation between cutting into an object and gaining information about its internal structure.

And/or correlation between physical part-whole structure and logical structure —i.e. analyzing is cutting into components.

Examples: She has the kind of *sharp, incisive* mind that *cuts right to the heart* of a situation.

He quickly *dissected* the problem.

Metaphor: CONSIDERING IS WEIGHING

Motivation: The correlation between the weight of an object and other salient properties—e.g., value.

Examples: I'll have to *weigh* your proposals carefully before getting back to you.

Metaphor: BEING AWARE IS BEING AWAKE

Motivation: The correlation between wakefulness and awareness of one's surroundings.

Examples: I wish the board would *wake up* to what's going on here.

Metaphor: AGREEMENT/SOLIDARITY IS BEING ON THE SAME SIDE

Motivation: The correlation between agreeing with sharing beliefs with people and being physically close to them.

Examples: Whose *side* are you on?

I'll *side* with him every time.

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Metaphor: KNOWLEDGE IS PHYSICAL CONTENTS OF THE HEAD

Motivation: The association between intellection and the head, possibly because of the location of eyes and ears as sources of information.

Examples: He's got every fact in the world *in* that head of his.

His brain is like a *sponge*.

Metaphor: REASONING IS ADDING AND SUBTRACTING

Motivation: The correlation between performing basic addition and subtraction and drawing conclusions about outcomes.

Examples: Don't you see what's happening? *Put two and two together!*

Something about this situation doesn't *add up*.

Metaphor: OUR OWN ATTITUDES ARE THE MENTAL PRODUCTS OF OTHER PEOPLE (see Lakoff, MS)

Motivation: The apparent independent existence of thoughts (especially those in verbal form, which may therefore have a cognitive representation similar to remembered speech).

And/or the correlation between interacting with other people and responding to their subjective mental states.

Examples: Part of me thinks I shouldn't do it.

I pleaded with myself to take the job.

Metaphor: CONSIDERING IS CHEWING

Motivation: The correlation between the physical process of chewing and the mental experience of gaining information.

Examples: I've got to *chew on* that proposal for a while.

Metaphor: VISION IS PHYSICAL CONTACT

Motivation: The correlation between seeing and touching objects as we interact with them.

Examples: She *picked* my face out of the crowd.

They made eye *contact* as he entered the room.

Metaphor: BEING CONSCIOUS IS BEING HERE (see Lakoff, 1996)

Motivation: Correlation between consciousness and ability to perceive, interact with one's environment.

Examples: I was *out* for a minute, but quickly *came back to* consciousness.

I thought he was *coming* to, but we've *lost* him again.

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Metaphor: MENTAL STATES ARE PLACES

Motivation: The correlation between our surroundings and the content of our awareness.

Examples: My wand is *wandering.*

He's off *in* his own *world* again.

Metaphor: COMMUNICATING IS LEADING (See Sweetser 1990)

Motivation: (Corollary of MENTAL STATES ARE PLACES)

Also, the correlation between being near a person and being able to communicate.

Examples: I'm not sure I *follow* you.

I was *with* you till a moment ago but now you've *lost* me.

Metaphor: A BELIEF IS A PHYSICAL POSITION/ORIENTATION

Motivation: (Corollary of KNOWING IS SEEING?)

Examples: That's my *position* and I'm sticking to it.

I have a very different *stance* on that matter from my partner's. Her *orientation* is quite different.

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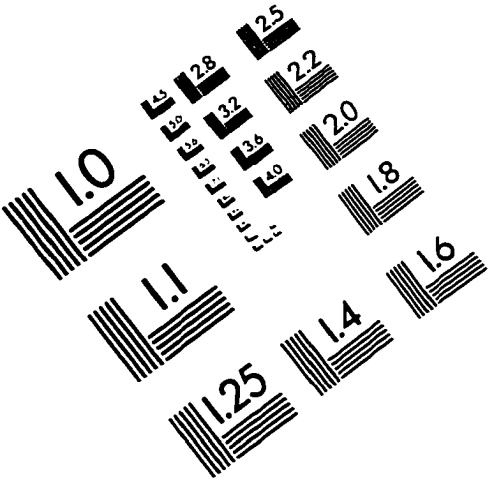
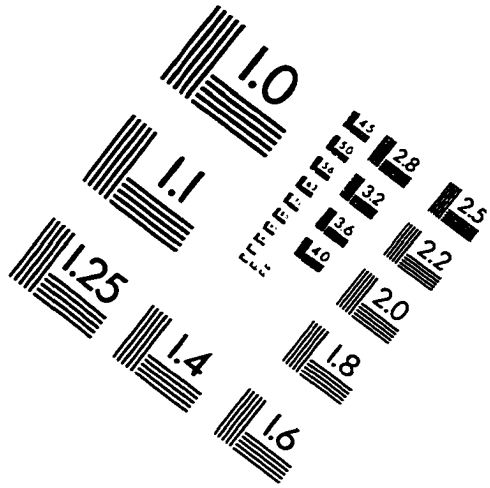
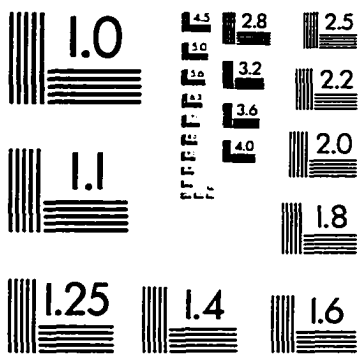
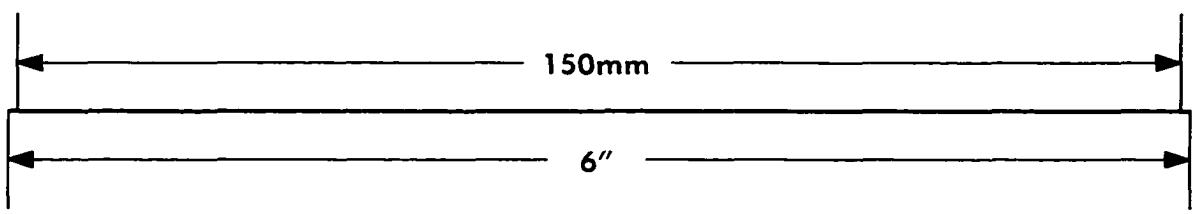
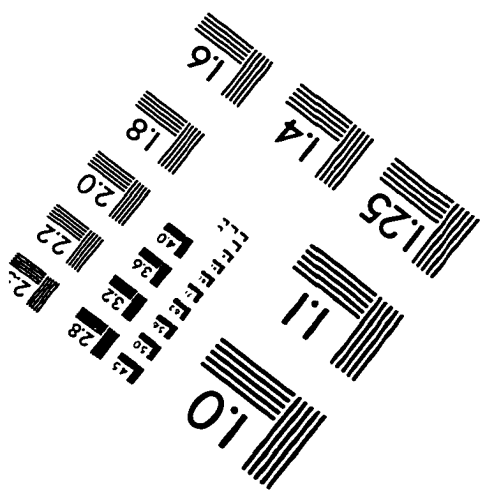
IMAGE EVALUATION TEST TARGET (QA-3)

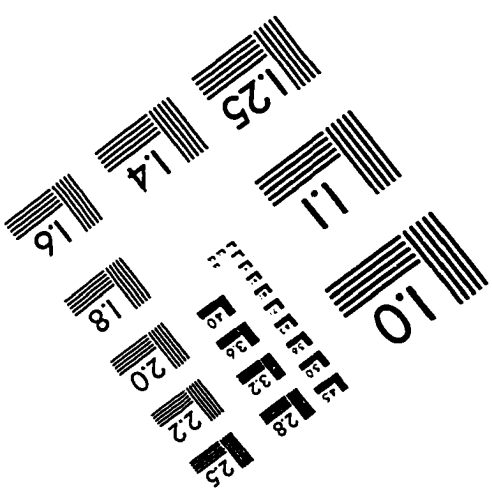












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