

Converging Evidence for the Notions of *subscene* and *primary scene*

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1. Introduction

The general question that forms the background to this paper is one that has interested many scholars over the years, including linguists, psychologists, philosophers, and others. This question concerns the role of our experiences in motivating features of language. A number of influential studies have proposed that certain categories of experiences—or their cognitive representations—are particularly significant in accounting for facts of language use and structure. Examples of these proposed ways of parsing experience into significant divisions include *experiential domains*, which play a central role in the conceptual metaphor theory of Lakoff and associates (Lakoff & Johnson 1980; Sweetser 1990; Johnson 1987; Lakoff 1987, 1993; Turner 1991; etc.); *prototypical events*, discussed in Slobin's (1985) study of the acquisition of grammatical categories; and Fillmore's (1968, 1982) *case frames* and *semantic frames*, which are important elements in several current theories of semantic representation. Each of these proposed constructs parses experience in ways which are relevant to language.

In this paper we consider two types of linguistic evidence for a pair of additional constructs of this general sort. By looking at facts about metaphorical language and about children's acquisition of grammatical constructions, we hope to show that our two proposed units of experience, which we call *subscene* and *primary scene*, respectively, play a significant role in explaining aspects of linguistic and conceptual structure.

We begin by considering some aspects of metaphorical data.

2. Metaphorical evidence for primary scenes and subscenes

2.1 'Gaps' and primary metaphors

Recent research into the cognitive structures referred to as 'mappings' in conceptual metaphor theory has shown that these mappings—systematic sets of metaphoric correspondences between concepts from different experiential domains—are best analyzed as low-level, local conceptualizations. To see the significance of this principle, consider the following example, taken from Grady et al. (1996). Sentences like those in (1) have been cited as evidence for a mapping between buildings (the 'source' domain of the metaphor, which provides the lexical material and inferential structure) and theories (the 'target' domain).

- (1) a. You have failed to *buttress* your arguments with sufficient facts.
- b. Recent discoveries have shaken the theory to its *foundations*.
- c. Their theory *collapsed/caved in* under the weight of scrutiny.

However, there are crucial elements of buildings which are not conventionally mapped onto theories, even though these elements are integral to our experiences with buildings—a crucial point given the emphasis on experiential motivation within conceptual metaphor theory. Sentences like those in (2) are much less readily interpretable than those in (1), suggesting that whatever conceptual mapping underlies the expressions in (1) is not based on our typical experiences with buildings.

- (2) a. ? This theory has no *windows*.
- b. ? The *tenants* of her theory are behind in their *rent*.
- c. ? I examined the *walls* of his theory.

An alternative analysis of the metaphoric conceptualizations underlying the sentences in (1) involves mappings at a much lower level of conceptual elaboration and images that are much less rich and specific:

- (3) a. PERSISTING IS REMAINING ERECT
- b. ORGANIZATION IS PHYSICAL STRUCTURE

These two metaphors motivate figurative language about target concepts other than theories, and are not restricted to source terms from the semantic area of buildings. For instance, the examples in (4) are licensed by (3a) and (3b), respectively:

- (4) a. This situation will not *stand*.
- b. Society seems to be *unraveling*.

The interaction of (3a) and (3b) allows references to the *collapse* of a theory, and so forth, since theories (like political regimes, grammatical systems, and other non-physical organizations of linked elements) can be understood as erect physical structures. Data sets licensed by metaphors at this level do not show ‘gaps’ of the sort illustrated in (2).

2.2 Experiential motivation for metaphors

Another advantage of the ‘primary metaphor’ analysis is that it comes closer to addressing the issue of experiential motivation, both for expressions such as those in (1), and by extension for conceptual metaphor in general. One of the aims of the account offered here is to provide further detail and substance to our understanding of the basis for metaphorical conceptualizations.

While there is no plausible basis for forming a strong cognitive association between theories and buildings per se, we can construct a reasonable account of how the mappings in (3) might arise. They can plausibly be traced to recurring experience types (or 'primary scenes'¹) which bring together the source and target concepts in tightly coherent and predictable ways. Figure 1 sketches the experiential basis for conceptualizing the organization of an abstract entity—i.e. the relevant complex of internal causal relationships—as physical structure:

	Participant 1	Participant 2	Nonparticipant
Subscene 1: Physical manipulation of complex object	Person who manipulates object	Complex, structured physical object	
Subscene 2: Formation of cognitive representation of object's organization	Person who forms cognitive representation of object	Cognitive representation of object's (logical) organization	
(Perception of object's color)	Perceiver of color		Color of object

Figure 1 — Primary scene: manipulation of a complex object

The figure reflects the fact that Participant 1 in each 'subscene'—or distinguishable aspect of the scene as a whole—is the same person, in the roles of physical manipulator and conceptualizer, respectively. Participant 2 is the structured object itself in one case, and in the other the cognitive representation of the relationships holding within the object. These dimensions of the total experience unfold simultaneously. From the point of view of the person in the scene (i.e. Participant 1) the relevant association is between manipulating the object and forming an understanding of its structure. An additional aspect of the overall scene—the potential for the person to be aware of the object's color—is included as a reminder of the fact that any actual experience involves innumerable details to which we could potentially attend; only certain dimensions of these experiences are linked in ways which give rise to entrenched metaphoric associations.

We can construct similar figures to illustrate the scenes which motivate the following primary metaphors:

- (5) a. ACHIEVING A PURPOSE IS ACQUIRING A DESIRED OBJECT
- b. BECOMING ACCESSIBLE TO AWARENESS IS EMERGING FROM A CONTAINER

These basic mappings underlie data such as the following, which has previously been analyzed as evidence for a complex ‘Conduit Metaphor’ for communication (Reddy 1979)²:

- (6) a. I didn’t *get much out of* this article.
- b. There’s very little *content in* this paper.

The Conduit Metaphor—which on Reddy and others’ analyses involves a mapping between sending objects in packages (source) and linguistic communication (target)—shows ‘gaps’ like those illustrated in (2) for the theories-as-buildings metaphor: we cannot typically speak of *envelopes*, *boxes* or *couriers*, or of acts of *sealing*, when referring to communicative processes.

Figure 2 indicates the type of recurring scene which could give rise to the association in (5b). This diagram refers to the temporal coincidence of processes in the domains of perception and knowledge. Here X represents the object of perception and X’ represents knowledge associated with X as a perceptual stimulus.

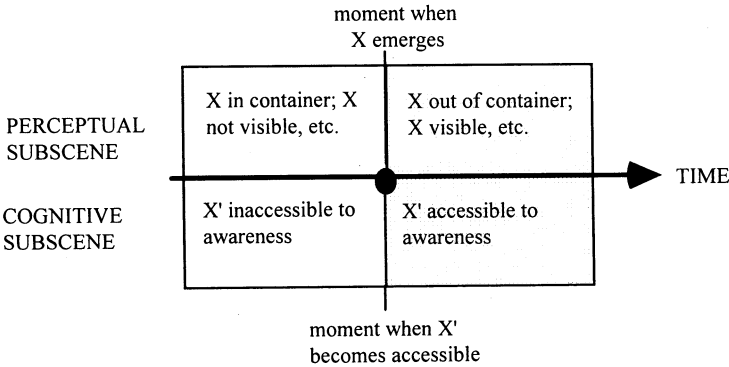


Figure 2 — Primary scene: emergence of object from container

We experience scenes like the one schematized in Figure 2 many times each day—whenever we perceive something in our environment as it emerges from a containing space—and the association between the perceptual and inferential aspects of such scenes is likely to be very well established in our cognitive structure.

It would be possible to give many more examples like the ones already discussed in this section. For instance, a primary metaphor along the lines of ACCEPTING IS SWALLOWING—where ‘accepting’ means offering no resistance to a proposed claim, or to some event or situation—is motivated by a recurring event type involving an emotional/intentional subscene as well as a physical one. We

experience this correlation every time we consciously swallow something (and this is certainly one of children's first experiences with accepting vs. rejecting what the world offers them).

To summarize the proposal of this section, primary metaphors are motivated by tight correlations between distinguishable dimensions of recurring, locally defined experience types. We refer to these dimensions, which unfold dynamically (over very brief time spans), as *subscenes*.

3. Acquisitional evidence for subscenes and primary scenes

In this section we consider the apparent role played by subscenes in semantic acquisition. It is argued that young children tend to map linguistic forms onto aspects of learning contexts which are describable in terms of subscenes. In particular, they tend to associate forms either with primary scenes—the tight correlations of subscenes which serve as the basis for primary metaphor—or with individual subscenes. We first take a brief look at data pertaining to each of these two situations.

3.1 Mapping forms onto primary scenes

There is evidence that some linguistic expressions with conventional metaphorical uses are initially associated by children with scenes which conflate their literal and metaphorical meanings (this idea is termed the *Conflation Hypothesis* in Johnson 1997a). For example, consider the following sentence from Clark's Shem corpus, from the CHILDES archive (see MacWhinney 1995 and Clark 1982). This sentence was uttered by an adult to a child in response to the child's request for a toy:

(7) Oh, I see what you wanted.

This sentence can be interpreted in a literal, visual way as making a statement about the speaker's visual experience (seeing the object that the child sought). It can also be interpreted metaphorically as making a statement about the speaker's new state of awareness. Under the latter interpretation it is an example of the UNDERSTANDING IS SEEING metaphor (Lakoff & Johnson 1980, Sweetser 1990).

These are mutually compatible interpretations of the kind discussed in Norvig (1988). That is, it is not necessary for a hearer to choose between the two interpretations in order to make sense of the sentence. Interpretational overlap of this kind is made possible by the fact that there is a primary scene associating the two interpretations. This primary scene involves two subscenes: a physical act of perception and a change of awareness. It is in fact quite similar to the primary scene described in Figure 2:

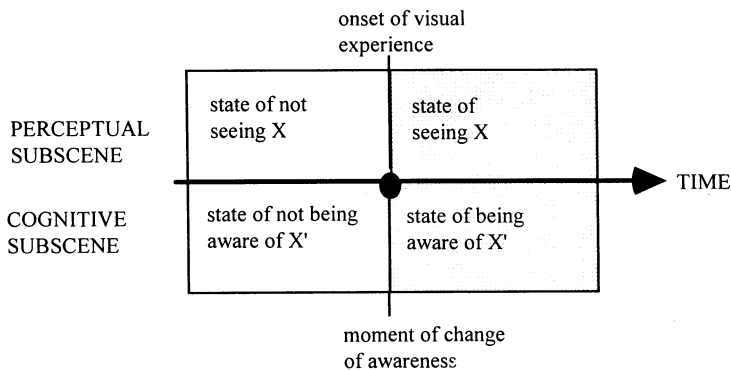


Figure 3 — Primary Scene: Becoming aware by seeing

In addition to the primary scene shown here, there is a specifically linguistic property of (7) which makes it amenable to interpretational overlap. Not only does it include a polysemous verb, but it also includes a complement which can be analyzed in two different ways: either as a free relative clause which denotes an object, or as an embedded interrogative clause which denotes a proposition or piece of knowledge. These analyses correspond to participants in the perceptual and cognitive subsences, respectively (i.e. X and X').

Due to this combination of semantic and formal properties, the interpretational overlap shown by example (7) can be a property of a variety of expressions of the form *see* + *wh*-clause provided they occur in contexts characterized by primary scenes like the one in Figure 3. In Johnson (1997a) it is shown that such contexts are very frequent in adult speech to children, and that children produce evidence of mapping this expression type, as a lexical construction, onto the primary scene. If this is the case, then the child's process of learning to use such expressions metaphorically is a matter of differentiating the cognitive from the perceptual subsence in the semantic representation, rather than extending the expression on the basis of a complex mapping. This allows for simple learning of metaphorical senses on the basis of positive evidence (Johnson 1997c).

3.2 Mapping forms onto subsences which are parts of complex scenes

Subsences can be seen to play a somewhat different role in the acquisition of a semi-idiomatic construction called the 'What's X doing Y?' construction, or 'WXDY' (see Kay & Fillmore 1994, Sag 1996). This construction superficially resembles *wh*-questions about activities. However, it does not denote anything about activities. Consider the following example:

- (8) What is this scratch doing on the table? (Kay & Fillmore 1994)

This sentence seeks an explanation for the fact that there is a scratch on the table. The word *doing* does not denote an activity. Rather, what is important is the predication holding between the phrase right after *doing* (the Y phrase—in this case *on the table*) and the subject of *doing* (the X phrase—in this case *this scratch*). The construction conventionally expresses that this described state of affairs requires an explanation.

In Johnson (1997b) it is argued that children initially treat instances of this construction as normal wh-questions. These interpretations are motivated by a class of expressions which allow interpretational overlap, and expressions of this type are common in adult speech to children. Consider the following:

- (9) What are you doing with that knife?

This sentence can be interpreted either as a literal question about an activity, or as an instance of the WXDY construction, indicating the incongruity of the addressee's holding a knife. The difference between the two interpretations depends on whether the phrase *with that knife* is interpreted as an Instrumental associated with an activity, or as a possessive *with*, as in

- (10) She stood in the doorway with a knife.

Both interpretations can be entertained simultaneously because, in order for a person to be performing an activity with a knife, they must typically be holding a knife. That is, the relatively complex scene of a person using an object in order to perform an action typically includes the simple subscene of a person holding the object.

In order to allow interpretational overlap like this, WXDY expressions must have Y constituents which can be construed as predicates on events or as predicates on individual participants in events. This is a property of *with*-phrases, as we have seen, and also a property of Locative expressions:

- (11) What are you doing in my room?

Like the *with*-PP discussed above, this Locative PP has two possible interpretations: it can be construed as denoting the location of an activity, or simply the location of the addressee. With both the Locative and the *with*-PPs, one available interpretation is relatively complex (location of an event, using an object to perform an action) and one is simple (location of a person or thing, possession of an object). The simple interpretations correspond to what we call subscenes.

There is evidence that young children have a preference for attributing subscene interpretations to PPs. Johnson (1997b) discusses data from the Shem corpus on the child's utterances having the same form as the WXDY construction. Despite the fact that the child hears examples of such sentences with many different kinds of Y phrase, the child produces examples only with Y phrases that

are Locatives or *with*-PPs—that is, only with Y phrases for which subscene interpretations are available.

4. Further discussion of subscenes and primary scenes

4.1 A more detailed characterization

We view primary scenes and subscenes as the products of humans' innate tendency to 'chunk' experiences in certain ways. Because they are the result of built-in ways of chunking experience, they reveal themselves in our conceptualizations and linguistic encodings of experience. Below are more detailed discussions of the properties which we attribute to primary scenes and subscenes.

Temporal locality

Implicit in the idea of chunking experience is one of the most important properties of both primary scenes and subscenes: *temporal locality*. By this we mean that, as experience-types and conceptualizations, they can unfold in their entirety over a very short time span—speaking intuitively, these experiences can be registered in an instant. Scenes which take longer to unfold necessarily involve the experience of multiple, differentiated states or events.

On the other hand, we do not mean that primary scenes and subscenes must be inherently delimited—i.e. they need not have natural endpoints or culminations, and they need not be instantaneous (or 'punctual') events. In fact, they need not involve change over time. For instance, the primary metaphor UNINTERESTING IS FLAT may be partly motivated by a subscene in which we merely observe a flat surface and find no remarkable textures or depth variations to attend to. Aside from the process of *scanning* (see Langacker 1987) there is no dynamic activity or change inherent in such a scene. A subscene like 'Observing Flatness' would be *imperfective*, in Langacker's (1987) sense, meaning that it would be conceived as involving no change. It also would not be delimited by an inherent beginning or endpoint. Although the flatness relation is temporally unbound, the instantiation of the subscene (of observing flatness) could take place in an instant, precisely because there is no change to register, no complex sequence of states or events involved. In short, a moment within an undifferentiated succession of such moments can be the basis for a subscene or primary scene; in any given instant there is correlation between flatness and the lack of stimulus of a certain kind.

Causal simplicity

The property of temporal locality is closely related to another important property of subscenes: *causal simplicity*. The notion of causal simplicity or directness has played a role in various discussions of lexical vs. phrasal causatives (Fodor 1970, Lakoff 1977, Dowty 1979, etc.). Croft (1991) defines an *atomic event* as one involving only a single type of causation and a single aspectual type. It seems that all subscenes, if they involve change, count as atomic events in Croft's sense.

However, primary scenes do not count as atomic events, because the causal properties of primary scenes are more complex.

In fact, Croft's typology of causation can shed some light on what makes primary scenes special. He recognizes four types of causation: physical (typified by 'billiard ball' causation between two inanimate objects), volitional (or mental-to-physical causation, e.g. moving one's arm intentionally), affective (or physical-to-mental causation, e.g. being frightened by a loud noise), and inductive (or mental-to-mental causation, e.g. persuading someone of the truth of a proposition). One interesting feature of the division of a primary scene into subscenes is that it crosscuts the causal structure of the primary scene. For example, consider the primary scene hypothesized to characterize children's early understanding of the *see* + *wh*-complement construction, illustrated in Figure 3. In each subscene there is a moment (represented as a dot on the temporal line) when one state changes to another. These moments are simultaneous because they correspond to what can be viewed as a single causal event: light carrying the information of a visual scene hits the retina and the scene enters the seer's consciousness. This event can be construed as an instance of physical causation or of affective causation, because the person who sees can be construed as either a physical or a sentient being. A cause in the physical subscene has an effect in both the physical and the cognitive subscenes. Therefore the cognitive subscene has the same temporal structure as a simple physical event by virtue of being causally connected to a simple physical event.

Subscenes and primary scenes as constraints on lexicalization in acquisition

The discussion of the causal structure of primary scenes suggests a way in which they help children encode abstract concepts linguistically. Various researchers have made proposals about what types of events and relations children might tend to encode first. For example, Clark (1993) suggests that children use a 'whole-action' assumption in mapping meanings onto verbs, similar to the 'whole-object' constraint proposed for children's early noun meanings (Markman 1989). Suppose, as was suggested in the discussion of *with*-phrases and the *WXY* construction, children have an innate tendency to encode what we have called subscenes. This would not be surprising, given the properties we have attributed to subscenes. The causal simplicity and temporal locality of subscenes would tend to make them maximally individuable as eventualities in the child's experience. Furthermore, the temporal locality of subscenes would tend to make them relatively available for ostension. That is, assuming children in the early stages of acquisition tend to map forms onto aspects of the immediate contexts in which they hear the forms, it is natural that they would map words for states and events onto those that are temporally local in the utterance contexts.

Primary scenes can then be regarded as providing the child with special opportunities to linguistically encode relatively abstract meanings, since in primary scenes, abstract subscenes share the simple temporal and causal properties of physical subscenes.

4.2 *Theoretical context: Other hypothesized units of meaning and experience*

In order to provide a fuller understanding of how we conceive subscenes and primary scenes, in this section we briefly compare them with several other theoretical proposals regarding ways of parsing experiences into units relevant to language and conceptualization.

Metaphor domains. It should be clear from the foregoing discussion that subscenes are quite different from the *domains* of conceptual metaphor. One clear difference is that there are many different types of events and scenes which make up our experience with any particular domain, whether it is a richly elaborated domain such as travel or a relatively schematic, unidimensional domain such as vertical elevation. In the latter case, for instance, we have experiences with lifting objects, lowering objects, ascending or descending staircases, observing that certain actions are easier or harder depending on our relative elevation (e.g. being able to better observe a scene from a raised position), and so forth. Subscenes cross-cut rich domains—since entities emerge from containers whether we are traveling, cooking, or fighting, for instance—and combine to inform our understandings of even narrowly defined domains.

Semantic primitives/atoms. Subscenes have something in common with semantic primitives or atoms—as discussed for instance by Katz & Fodor (1963), Wierzbicka (1972), Norman et al. (1975), and Schank (1975)—in that subscenes are conceived as irreducible units. They are units of experience, however, rather than semantic representation per se. Furthermore, a semantic atom like CAUSATION (Norman et al.) is not equatable with a subscene, even if we are permitted to understand it as a component of experiences, as opposed to stored representations. This is because causation is a phenomenon which inheres in all sorts of scenes which we participate in. Lifting a book, heating a cup of coffee, and informing people of news (i.e. causing them to know it) are all instances of causation, yet there is no self-contained component shared by all these experiences; when we observe causation we are necessarily observing some additional detail(s) of a scene, for instance that lifting, heating, or changes in knowledge states are involved. Causation, therefore, is more schematic as a concept than any particular subscene. The schematicity of subscenes is constrained not by our ability to perform logical decompositions of concepts—e.g. into causation plus other elements—but by our ability to consciously attend to aspects of experience.

Schematic concepts. Like certain accounts of semantic atoms, Langacker's discussions of *schematic* concepts such as 'extensionality' and 'abstract motion' (e.g., 1987: 169-170) present a picture which differs from our characterization of subscenes in that the schematic concepts include less detail. For instance, abstract motion includes 'reciting the alphabet' as well as the process of milk going sour

(170). This category of events (as construed by a human conceptualizer) is broader than any category defining a subscene could be. Events which Langacker would categorize as instances of abstract motion would constitute distinct subscenes, in a way parallel to those involving CAUSATION, as discussed above.

Prototypical events. Slobin's (1985) *prototypical events*—including 'object manipulation' and 'transfer'—are also slightly more schematic than subscenes, since object manipulation, for instance, could include grasping, pushing, squeezing, pulling apart, etc., each of which would be a distinct subscene; we cannot, in real-time, attend to a process of object manipulation without being aware of additional details of the process. (Note that we can attend to an act of squeezing without attending to various other details of the overall scene, such as whether we are standing or sitting, the color of the object, what the purpose of the squeezing is, and so forth.)

Semantic frames and mental spaces. Subscenes are distinguishable from various other theoretical constructs on the basis that subscenes are more narrowly constrained, and by definition may include less detail. For instance, *semantic frames* (Fillmore 1982) may include richly elaborated scenarios and bodies of cultural background knowledge, such as are involved in the restaurant dining frame. *Mental spaces* (Fauconnier 1985) too can be quite rich in detail—e.g. the space evoked by a phrase like *in the Impressionist painting hanging above my uncle's love seat*. Another important property which distinguishes subscenes from mental spaces is the grounding role played by subscenes in conceptual structure. While mental spaces may include counterfactuals, unreal entities, and impossible scenarios, subscenes are by definition components of actual experiences, and primary scenes involve tight, literal correlations between these dimensions of experience.

Image-schemas and basic-level categories. These are two other types of theoretical entities which bear comparison with subscenes, since they are conceived as fundamental units in terms of which we understand experience. In the limited space we have here it is impossible to do anything more than point out some possible distinctions between subscenes and these cognitive structures. Based on published accounts, image-schemas can be distinguished from subscenes on the basis that they can include such static representations as 'a flat bounded planar space' (Turner 1991: 57) and because there can be many subscenes which make up our experience of a given image-schema. (See, for instance, Johnson's discussion [1987: 21-23] of the extremely varied scenes which involve types of containment.) Basic-level categories (Brown 1958, Rosch 1975, etc.) have only received substantial treatment as categories of objects, rather than experiences; DOG is an instance of a basic-level category for most speakers of American English, but clearly not an instance of a subscene. It might be interesting, however, to consider whether a basic level of activities could be

described in terms of subscenes. (For a brief reference to the possibility of defining basic-level activities, see Lakoff 1987: 271.)

5. Conclusion and Prospect

Based on evidence from children's acquisition of semantic structure and from metaphorical language—both the particulars of data and the possibilities for accounting plausibly for the data—we conclude that experiences at the level of the subscene are very relevant to conceptualization and the linguistic forms that follow from particular conceptualizations. Representations with a minimal level of complexity, and constrained to very local temporal and causal frames, are apparently at work behind metaphoric mappings and at least some semantic structures formed by children as they acquire English. Key to the characterization of subscenes is that they appear to be at the lowest level of cognitive processing to which we can consciously attend—that is, they are self-contained dimensions of subjective experience.

We speculate that subscenes may prove useful as analytic units in many areas of language study. For instance, they may help account for cross-linguistic differences in the organization of important semantic domains, such as spatial relations. Choi & Bowerman's (1991) study of Korean acquisitional data and Talmy's (1983) study of Atsugewi spatial suffixes illustrate the fact that spatial concepts which seem basic to English-speakers (e.g. containment) do not play a distinct part in all grammatical systems for representing space. It may be the case that subscenes define the most basic units for organizing the spatial domain, and that more general concepts such as containment are well-motivated but non-universal generalizations over more particular relations. These relations inhere directly in particular experience types (i.e. subscenes). Different languages might then sort these more specific concepts in various ways.

In language acquisition, we can speculate that the tendency for young children to map forms onto subscenes and primary scenes is a universal. If this is the case, then the phenomenon observed in the child's interpretations of the WXDY construction should reflect a more general phenomenon concerning children's interpretations of Instrumentals³ in other contexts. This means that, in other languages in which the Instrumental has the same form as a 'possessive' marker, we would predict that the possessive meaning would be learned first, since it corresponds to a subscene. In languages in which the Instrumental does not share a form with a possessive marker, we would expect the Instrumental to be learned relatively late, because it is characterized by a complex scene involving the relation between an object, a person, and an activity (see Jackendoff 1990).

Subscenes and primary scenes may also contribute to explanations of historical semantic change. Primary scenes, we claim, are the kinds of correlations in experience which are the most likely to result in compatible but distinguishable construals of situations and events. They may therefore be significant factors in semantic/pragmatic reanalysis (see, e.g., Traugott 1988).

In conclusion, we feel that the notions of *subscene* and *primary scene* have an important foundational role to play in cognitive approaches to semantic structure, and they may serve as the basis for analysis and predictions in a number of subfields of linguistics.

Notes

¹We refer to these experiences as primary scenes because they are basic structures from which more complex conceptualizations arise.

²For further details of the recent, decompositional analysis, see Grady (1998).

³There are several statements in the literature (e.g. Clark & Carpenter 1989) to the effect that the Instrumental relation is learned early by children. We speculate that on careful review the data will prove compatible with our analysis.

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