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An Introduction to Cognitive Grammar

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Cognitive grammar takes a nonstandard view of linguistic semantics and grammatical structure. Meaning is equated with conceptualization. Semantic structures are characterized relative to cognitive domains, and derive their value by construing the content of these domains in a specific fashion. Grammar is not a distinct level of linguistic representation, but reduces instead to the structuring and symbolization of conceptual content. All grammatical units are symbolic: Basic categories (e.g., noun and verb) are held to be notionally definable, and grammatical rules are analyzed as symbolic units that are both complex and schematic. These concepts permit a revealing account of grammatical composition with notable descriptive advantages.

Despite the diversity of contemporary linguistic theory, certain fundamental views enjoy a rough consensus and are widely accepted without serious question. Points of general agreement include the following: (a) language is a self-contained system amenable to algorithmic characterization, with sufficient autonomy to be studied in essential isolation from broader cognitive concerns; (b) grammar (syntax in particular) is an independent aspect of linguistic structure distinct from both lexicon and semantics; and (c) if meaning falls within the purview of linguistic analysis, it is properly described by some type of formal logic based on truth conditions. Individual theorists would doubtlessly qualify their assent in various ways, but (a)–(c) certainly come much closer than their denials to representing majority opinion.

What follows is a minority report. Since 1976, I have been developing a linguistic theory that departs quite radically from the assumptions of the currently predominant paradigm. Called "cognitive grammar" (alias "space grammar"), this model assumes that language is neither self-contained nor describable without essential reference to cognitive processing (regardless of whether one posits a special faculté de langage). Grammatical structures do not constitute an autonomous formal system or level of representation:

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They are claimed instead to be inherently symbolic, providing for the structuring and conventional symbolization of conceptual content. Lexicon, morphology, and syntax form a continuum of symbolic units, divided only arbitrarily into separate 'components'—it is ultimately as pointless to analyze grammatical units without reference to their semantic value as to write a dictionary which omits the meanings of its lexical items. Moreover, a formal semantics based on truth conditions is deemed inadequate for describing the meaning of linguistic expressions. One reason is that semantic structures are characterized relative to knowledge systems whose scope is essentially open-ended. A second is that their value reflects not only the content of a conceived situation, but also how this content is structured and construed.

In the confines of a short article, I can neither articulate this framework in careful detail nor present the full rationale for its adoption. My objectives are necessarily more limited: to make its existence known to scholars with overlapping concerns; to afford an overview of its basic concepts and organizing assumptions; and, in restricted areas, to give some brief indication of its descriptive potential. The discussion is therefore aimed at presenting these notions concisely, not at offering definitive justification or arguing against conceivable alternatives. For extensive exposition and illustration, I refer the interested reader to the following works: Casad and Langacker (1985), Hawkins (1984), Langacker (1982a, 1982b, 1984, 1985, in press), Lindner (1981, 1982), Tuggy (1981), and Vandeloise (1984).

Cognitive scientists will note many similarities to their own concepts and approaches; I will not attempt to point them all out. Cognitive grammar departs from most varieties of traditional and formal semantics, as well as the newer 'situation semantics' of Barwise and Perry (1983), by equating meaning with conceptualization (or cognitive processing). It agrees in this regard with the 'procedural semantics' of Miller and Johnson-Laird (1976) and Johnson-Laird (1983) and the linguistic theories of Chafe (1970) and Jackendoff (1983), however it is quite different from all of these in its conception of grammatical organization and its specific proposals concerning semantic structure. Although cognitive grammar is not a direct outgrowth or a variant of any other linguistic theory, I do consider it compatible with a variety of ongoing research programs. Among these are work of Lakoff (in press) and Lakoff and Johnson (1980) on categorization and metaphor, Fauconnier's (1985) study of 'mental spaces', Haiman's (1980, 1983) ideas on iconicity and encyclopedic semantics, Talmy's (1975, 1977, 1978, 1983) research on spatial terms and related problems, the proposals of Moore and Carling (1982) concerning the nonautonomy of linguistic structure, Fillmore's (1982) conception of frame semantics, and the multifaceted investigations by scholars of the 'functional' school, too numerous to cite individually (though Givón [1979, 1984] must certainly be mentioned).

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LINGUISTIC SEMANTICS

Meaning is equated with conceptualization. Linguistic semantics must therefore attempt the structural analysis and explicit description of abstract entities like thoughts and concepts. The term conceptualization is interpreted quite broadly: it encompasses novel conceptions as well as fixed concepts; sensory, kinesthetic, and emotive experience; recognition of the immediate context (social, physical, and linguistic); and so on. Because conceptualization resides in cognitive processing, our ultimate objective must be to characterize the types of cognitive events whose occurrence constitutes a given mental experience. The remoteness of this goal is not a valid argument for denying the conceptual basis of meaning.

Most lexical items have a considerable array of interrelated senses, which define the range of their conventionally sanctioned usage. These alternate senses are conveniently represented in network form; Figure 1 depicts a fragment of the network associated with the noun *ring*. Certain senses are "schematic" for others, as indicated by the solid arrows. Some represent "extensions" from others (i.e., there is some conflict in specifications), as indicated by the broken-line arrows. The nodes and categorizing relationships in such a network differ in their degree of entrenchment and cognitive salience—for instance, the boldface box in Figure 1 corresponds to the category prototype. The precise configuration of such a network is less important than recognizing the inadequacy of any reductionist description of lexical meaning. A speaker's knowledge of the conventional value of a lexical item cannot in general be reduced to a single structure, such as the category prototype or the highest-level schema. For one thing, not every lexical category

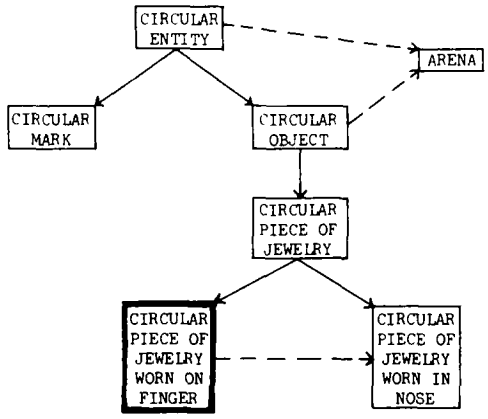

Figure 1.

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has a single, clearly determined prototype, nor can we invariably assume a high-level schema fully compatible with the specifications of every node in the network (none is shown in Figure 1). Even if such a structure is posited, moreover, there is no way to predict precisely which array of extensions and elaborations—out of all those that are conceivable and linguistically plausible—have in fact achieved conventional status. The conventional meaning of a lexical item must be equated with the entire network, not with any single node.

Because polysemy is not our central concern, we will nevertheless focus on individual nodes. What is required to adequately characterize any particular sense of a linguistic expression? Specifically rejected is the idea that a semantic structure reduces to a bundle of features or semantic markers (cf. Katz & Fodor, 1963). Rejected as well is the notion that all meanings are described directly in terms of semantic primitives. It is claimed instead that semantic structures (or "predications") are characterized relative to "cognitive domains," where a domain can be any sort of conceptualization: a perceptual experience, a concept, a conceptual complex, an elaborate knowledge system, and so forth. The semantic description of an expression therefore takes for its starting point an integrated conception of arbitrary complexity and possibly encyclopedic scope. The basic observation supporting this position is that certain conceptions presuppose others for their characterization. We can thus posit hierarchies of conceptual complexity, where structures at a given level arise through various operations (e.g., coordination) performed on structures at lower levels. Crucially, the cognitive domains required by linguistic predications can occur at any level in such hierarchies.

Consider some examples. The notion [HYPOTENUSE] is readily characterized given the prior conception of a right triangle, but incoherent without it; [RIGHT TRIANGLE] therefore functions as the cognitive domain for [HYPOTENUSE]. Central to the value of [ELBOW] is the position of the designated entity relative to the overall configuration of the human arm (try explaining what an elbow is without referring in any way to an arm!), so [ARM] is a domain for [ELBOW]. Similarly, [TIP] presupposes the conception of an elongated object, and [APRIL], of the calendrical cycle devised to plot the passage of a year. A meaningful description of [SHORTSTOP] or [SACRIFICE FLY] is possible only granted substantial knowledge of the rules and objectives of baseball. The implications of this position are apparent: the full and definitive characterization of a semantic structure must incorporate a comparable description of its domain, and ultimately of the entire hierarchy of more fundamental conceptions on which it depends. Pushing things to their logical conclusion, we must recognize that linguistic semantics is not an autonomous enterprise, and that a complete analysis of meaning is tantamount to a complete account of developmental cognition.

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This consequence is terribly inconvenient for linguistic theorists imprinted on autonomous formal systems, but that is not a legitimate argument against its validity.

What occupies the lowest level in conceptual hierarchies? I am neutral in regard to the possible existence of conceptual primitives. It is however necessary to posit a number of "basic domains," that is, cognitively irreducible representational spaces or fields of conceptual potential. Among these basic domains are the experience of time and our capacity for dealing with two- and three-dimensional spatial configurations. There are basic domains associated with the various senses: color space (an array of possible color sensations), coordinated with the extension of the visual field; the pitch scale; a range of possible temperature sensations (coordinated with positions on the body); and so on. Emotive domains must also be assumed. It is possible that certain linguistic predications are characterized solely in relation to one or more basic domains, for example, time for [BEFORE], color space for [RED], or time and the pitch scale for [BEEP]. However most expressions pertain to higher levels of conceptual organization and presuppose nonbasic domains for their semantic characterization.

Most predications also require more than one domain for their full description, in which case I refer to the set as a "complex matrix," as illustrated for [KNIFE] in Figure 2. One dimension of its characterization is a shape specification (or a family of such specifications). Another is the canonical role of a knife in the process of cutting. Additional properties are its inclusion in a typical place setting with other pieces of silverware; specifications of size, weight, and material; information about the manufacture of knives; the existence of knife-throwing acts in circuses; and so on indefinitely. Obviously these specifications are not all on a par. They differ greatly in their degree of "centrality," that is, the likelihood of their activation on a given occasion of the expression's use. Moreover, some are probably incorporated as components of others—for instance, Figure 2 plausibly suggests that a shape specification is typically included in the conceptions constituting other domains of the complex matrix. I do however adopt an encyclopedic

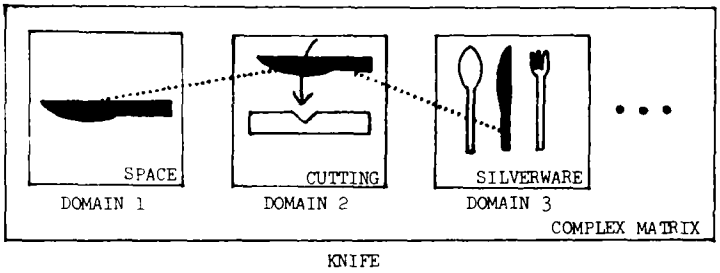

Figure 2.

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view of semantics. There is no sharp dividing line such that all specifications on one side of the line are linguistically relevant and all those on the other side clearly irrelevant: Any facet of our knowledge of an entity can play a role in determining the linguistic behavior of an expression that designates it (e.g., in semantic extension, or in its combination with other expressions).

If we succeed in identifying and describing the domain or complex matrix invoked by a linguistic predication, we have not yet finished its characterization. Equally significant for semantic structure is the "conventional imagery" inherent to the meaning of an expression. By imagery, I do not mean sensory images à la Shepard (1978) or Kosslyn (1980), though sensory images—as one type of conceptualization—are quite important for semantic analysis. I refer instead to our manifest capacity to "structure" or "construe" the content of a domain in alternate ways. This multifaceted ability is far too often neglected in semantic studies. Let us explore its dimensions and briefly note their grammatical significance.

DIMENSIONS OF IMAGERY

The first dimension of imagery, observed in every linguistic predication, is the imposition of a "profile" on a "base." The base of a predication is simply its domain (or each domain in a complex matrix). Its profile is a substructure elevated to a special level of prominence within the base, namely that substructure which the expression "designates."[1] Some examples are sketched in Figure 3, with the profile given in boldface. The base (or domain) for the characterization of [HYPOTENUSE] is the conception of a right triangle; for [TIP], the base is the conception of an elongated object, and for [UNCLE], a set of individuals linked by kinship relations. The base is obviously essential to the semantic value of each predication, but it does not per se constitute that value: A hypotenuse is not a right triangle, a tip is not an elongated object, and an uncle is not a kinship network. The meaning of *hypotenuse, tip,* and *uncle* is in each case given only by the selection of a particular substructure within the base for the distinctive prominence characteristic of a profile. The semantic value of an expression does not reside in either the base or the profile individually, but rather in the relationship between the two.

Some further examples will demonstrate both the descriptive utility and the grammatical import of these constructs. Consider first the particular sense of *go* that is diagrammed in Figure 4(a). This is a relational rather

[1] Observe that designation, in my technical sense of the term, does not pertain to the relation between a linguistic expression and the world—rather it is a relationship holding between a cognitive domain as a whole and certain of its subparts. I do not know whether profiling reduces to any independently established cognitive phenomenon. Possibly it constitutes one level of figure/ground organization, but not every figure is a designatum.

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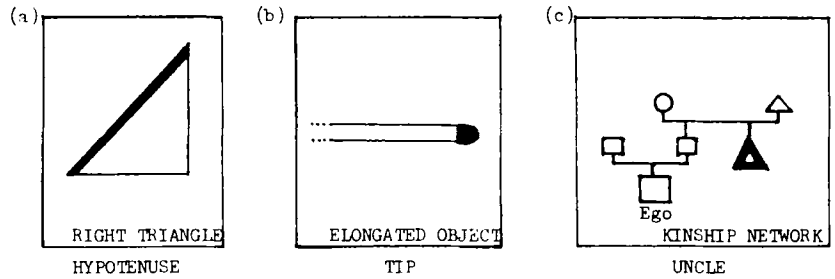

Figure 3.

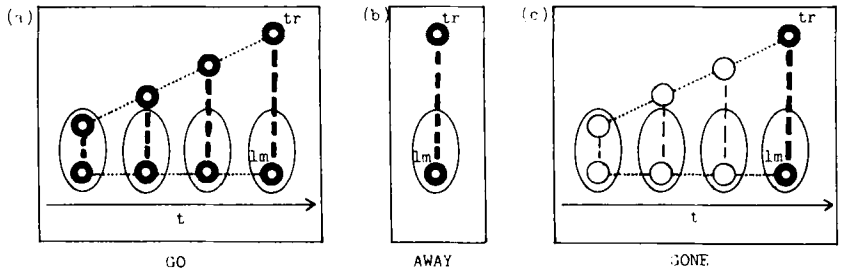

Figure 4.

than a nominal predication, that is, it profiles the "interconnections" between conceived entities; these interconnections are indicated in Figure 4 by the dashed, boldface lines. The relevant domains are space and time. With the passage of time, one individual, referred to here as the "trajector" (*tr*), moves from a position within the neighborhood of another individual, the "landmark" (*lm*), to a final position outside that neighborhood. Only four states in the process are shown explicitly, but they represent a continuous series. The dotted lines indicate that the trajectors "correspond" from one state to the next (i.e., they are construed as identical), as do the landmarks.

Figures 4(b) and 4(c) represent the sense of *away* that occurs in sentences like (1)(a), and the sense of *gone* found in sentences like (1)(b).

(1)(a) China is very far away.
(b) When I arrived, he was already gone.

Away profiles a relationship that is identical to the final state of *go:* The trajector is situated outside the vicinity of the landmark. Observe now that the participle *gone* profiles this same relationship, but it does so with respect to a different base. The base for *away* is simply the spatial domain, but the base for *gone* is the same process that is profiled by *go*—something cannot be *gone* except by virtue of the process of going. The semantic contribution of the past participial inflection is to restrict the profile of the stem, in this case *go,* to its final state. *Gone* thus differs from *go* by virtue of its profile, and from *away* by virtue of its base.

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A second dimension of imagery is the "level of specificity" at which a situation is construed. The same situation, for example, might be described by any of the sentences in (2):

(2)(a) That player is tall.
(b) That defensive player is over 6 feet tall.
(c) That linebacker is about 6 feet 5 inches tall.
(d) That middle linebacker is precisely 6 feet 5 inches tall.

Each of these sentences can be regarded as schematic for the one that follows, which elaborates its specifications and confines their possible values to a narrower range. It is well known that alternate lexical items are generally available to characterize conceived entities at different levels of schematicity, for example, *animal→reptile→snake→rattlesnake→sidewinder.* Relationships of schematicity are also important for grammatical structure. Consider the combination of *drop* and *the cup* to form the composite expression *drop the cup.* As part of its internal structure, the predicate [DROP] makes schematic reference to two central participants. The combination of *drop* and *the cup* is effected through a correspondence established between one of these participants (its landmark) and the entity profiled by *the cup,* which is characterized with far greater specificity. One of the component expressions thus elaborates a schematic substructure within the other, as is typically the case in a grammatical construction.

A third dimension of imagery pertains to the "scale" and "scope of predication." The scope of a predication is the extent of its coverage in relevant domains. A predication's scope is not always sharply delimited or explicitly indicated, but the construct is nonetheless of considerable structural significance (cf. Casad & Langacker, 1985). Consider the notion [ISLAND] with respect to the various scopes indicated in Figure 5. The outer box, scope (a), is presumably sufficient to establish the land mass as an island, but scope (b) is at best problematic. There is no precise requirement on how extensive the body of water surrounding an island must be, but the narrow strip of water included in (b) does not have the necessary expanse (e.g., it

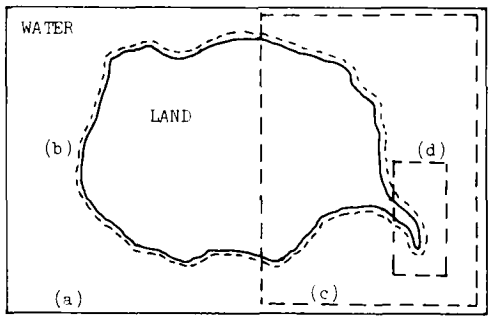

Figure 5.

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could simply be a moat—the land inside a moat is not thought of as an island). Similarly, the finger of land projecting out into the water qualifies as a *peninsula* given scope (c), but not (d); only from the former can we determine that the overall land mass is quite large relative to the finger-like projection. We can see that predications often imply a particular scale by noting the infelicity of using *island* to designate a handful of mud lying in the middle of a puddle. In my own speech, *bay* and *cove* are quite comparable in meaning except that *bay* specifies the requisite configuration of land and water on a larger scale.

Body-part terms illustrate the semantic and structural significance of these constructs. Essential to the characterization of terms like *head, arm,* and *leg* is the position of the profiled entity relative to the body as a whole, whose conception functions as their domain and immediate scope of predication. Each of these designated entities functions in turn as the immediate scope of predication for other body-part terms defined on a smaller scale, for example, *hand, elbow,* and *forearm* in the case of *arm. Hand* then furnishes the immediate scope of predication for *palm, thumb,* and *finger,* on a still smaller scale, and *finger* for *knuckle, fingertip,* and *fingernail.* This hierarchical organization has structural consequences. For example, sentences like those in (3), where *have* pertains to part-whole relationships, are most felicitous (other things being equal) when the subject designates the immediate scope of predication for the object (cf. Bever & Rosenbaum, 1970; Cruse, 1979).

(3)(a) A finger has 3 knuckles and 1 nail.
(b) ?? An arm has 14 knuckles and 5 nails.
(c) ??? A body has 56 knuckles and 20 nails.

A similar restriction can be observed with noun compounds. We find numerous terms like *fingertip, fingernail, toenail, eyelash,* and *eyelid,* where the first element of the compound constitutes the immediate scope of predication for the second.[2] Compare this to the nonexistence and oddity of expressions like **bodytip, *armnail, *footnail, *facelash,* and **headlid* to designate the same entities.

In certain grammatical constructions the scope of predication plays a specific structural role. A case in point is the 'nested locative' construction exemplified in (4).

(4)(a) The quilt is upstairs in the bedroom in the closet on the top shelf behind the boxes.
(b) The rake is in the yard by the back fence near the gate.

Each locative expression confines the subject to a specific "search domain," which then constitutes the scope of predication for the locative that follows. Thus in (4)(a) the locative *upstairs* confines the quilt to an upper story, and

[2] In these expressions *eye* is evidently construed as the eye region, not the eyeball itself.

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in the bedroom is construed relative to this restricted region—only an upstairs bedroom need be considered. The search domain imposed by this second locative functions in turn as the scope of predication for *in the closet,* and so on. Formally, these relationships are handled by positing a correspondence between the search domain of each locative and the scope of predication of its successor. Apart from the abstractness of the entities concerned, this correspondence is just like that found in any instance of grammatical combination (e.g., between the landmark of *drop* and the profile of *cup* in *drop the cup*).

The relative salience of a predication's substructures constitutes a fourth dimension of imagery. Salience is of course a very general notion, so its descriptive significance depends on our ability to sort out the various contributing factors. One factor is the special prominence associated with profiling, considered previously. A number of others can be discerned, but only two will be discussed: the relative prominence of relational participants, and the enhanced salience of elements that are explicitly mentioned.

Relational predications invariably manifest an asymmetry in their portrayal of the relational participants. This asymmetry is not strictly dependent on the content of the predication, and is consequently observable even for expressions designating symmetrical relationships, for example, *resemble.* I maintain that *X resembles Y* and *Y resembles X* are semantically distinct (even granting their truth value equivalence): The former characterizes X with reference to Y, and the latter describes Y with reference to X. We can similarly employ either *X is above Y* or *Y is below X* to describe precisely the same conceived situation, but they differ in how they construe this situation; in the former, Y functions as a point of reference—a kind of landmark—for locating X, whereas the latter reverses these roles. The subtlety of the contrast with predications like these hardly diminishes its significance for linguistic semantics and grammatical structure. The asymmetry is more apparent in cases like *go, hit, enter,* and *approach,* where one participant moves in relation to another (which is stationary so far as the verb itself is concerned), but its characterization must accommodate the full range of relational predications.

I attribute this inherent asymmetry to figure/ground organization (for discussion, see Langacker, in press, Ch. 6). Every relational predication elevates one of its participants to the status of figure. I refer to this participant as its "trajector"; other salient participants are referred to as "landmarks." This terminology is inspired by prototypical action verbs, where the trajector is generally the primary mover, but the definitions make no specific reference to motion and are therefore applicable to any relational expression. The trajector/landmark asymmetry underlies the subject/object distinction, but the former notions have considerably broader application. In particular, a schematic trajector and landmark are imputed to a relational predication's internal structure, regardless of whether these entities receive

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(or are capable of receiving) separate expression. The verb *read* consequently has a trajector and a landmark in all the sentences of (5), despite the fact that both are made explicit (by elaborative noun phrases) only in (5)(a):

(5)(a) David read a new book.
(b) David is reading.
(c) The best way to learn is to read.

The terms subject and object are generally reserved for overt noun phrases that elaborate a relational trajector and primary landmark at the clausal level. By contrast, trajector/landmark asymmetry is characteristic of relational predications at any level of organization, even if left implicit.

The enhanced salience of explicitly mentioned elements can be illustrated by the semantic contrast between pairs of expressions like the following: *father* versus *male parent; pork* versus *pig meat; oak* versus *oak tree; triangle* versus *three-sided polygon;* and *sink* versus *passively descend through a medium under the force of gravity*. I am not concerned here with differences in connotation or information content—for sake of discussion, let us accept the members of each pair as equivalent in these respects. My claim is that the paired expressions nevertheless contrast semantically because the second expression in each case explicitly mentions certain semantic components and thereby renders them more prominent than they would otherwise be. Even for a speaker who knows perfectly well that pork comes from pigs, the expression *pig meat* renders this provenience more salient than does *pork,* simply because the former incorporates a symbolic unit that specifically symbolizes this source. In similar fashion, the inclusion of the designated entity in a broader class of geometrical figures is highlighted by *three-sided polygon,* but remains latent in the case of *triangle*.

A linguistically appropriate characterization of meaning should accommodate such differences. Cognitive grammar defines the meaning of a composite expression as including not only the semantic structure that represents its composite sense, but also its "compositional path": the hierarchy of semantic structures reflecting its progressive assembly from the meanings of component expressions. Let us assume, for example, that the composite semantic values of *pork* and *pig meat* are identical. As an unanalyzable morpheme, *pork* symbolizes this notion directly, so its compositional path consists of the single semantic structure [PORK]. However *pig meat* is "analyzable," that is, speakers recognize the semantic contribution of its component morphemes. The meaning of *pig meat* therefore incorporates not only the composite structure [PORK], but also the individually symbolized components [PIG] and [MEAT], together with the relationship that each of them bears to the composite value. The two expressions arrive at the same composite value through different compositional paths (a degenerate path in the case of *pork*), with the consequence that they differ in meaning.

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Besides accounting for the semantic contrast between simple and composite expressions, this conception of meaning has the advantage of resolving a classic problem of truth-value semantics. The problem is posed by semantically anomalous expressions, for example, **perspicacious neutrino* and **truculent spoon,* which lack truth conditions and thus ought to be meaningless and semantically equivalent. Not only is this counterintuitive, but it also predicts—quite incorrectly—the semantic anomaly of sentences like those in (6), which contain anomalous constituents.

(6)(a) There is no such thing as a perspicacious neutrino.
(b) It is meaningless to speak of a truculent spoon.

In the present framework, anomalous expressions are indeed both meaningful and nonsynonymous. Though a coherent composite conceptualization fails to emerge for **perspicacious neutrino,* it has a semantic value, consisting of the meanings of its components together with their specified mode of combination (as determined by the grammatical construction). The same is true for **truculent spoon,* and because its components are different from those of **perspicacious neutrino,* so is its semantic value. Lacking a coherent composite sense, these meanings are defective, but they are meanings nonetheless. Sentences like (6) are semantically well-formed precisely because they comment on the anomaly of a constituent.

I will mention two more dimensions of imagery only in passing, though each is multifaceted and merits extended discussion. One is the construal of a situation relative to different background assumptions and expectations. To take just one example, either (7)(a) or (b) might be used to describe the same state of affairs:

(7)(a) He has few friends in high places.
(b) He has a few friends in high places.
(c) Few people have any friends in high places.
(d) *A few people have any friends in high places.

Intuitively, the difference between *few* and *a few* is that the former is somehow negative, and the latter more positive. This is corroborated by (7)(c) and (d): *any,* which requires a negative context (cf. Klima, 1964), is compatible with *few,* but not with *a few.* Analytically, I suggest that *few* construes the specified quantity as being less than some implicit norm, whereas *a few* construes the quantity relative to a baseline of zero. These respective predications therefore indicate departure from an implicit reference point in a negative versus a positive direction.

The final dimension of imagery is perspective, which subsumes a number of more specific factors: orientation, assumed vantage point, directionality, and how objectively an entity is construed. Orientation and vantage point are well known from the ambiguity of sentences like (8)(a). The contrast between (8)(b) and (c) shows the importance of directionality, even for situations that appear to involve no motion.

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(8)(a) Brian is sitting to the left of Sally.
(b) The hill falls gently to the bank of the river.
(c) The hill rises gently from the bank of the river.
(d) The balloon rose swiftly.

I suggest, though, that (8)(b)–(d) all involve motion in an abstract sense of the term. Described in (8)(d) is physical motion on the part of a mover construed "objectively," by which I mean that it is solely an object of conceptualization, maximally differentiated from the conceptualizer (i.e., the speaker and/or hearer). Motion along a similar trajectory is implied in (8)(c), but in this case the movement is abstract and the mover is construed "subjectively": the mover is none other than the conceptualizer, in his role as the agent (rather than the object) of conceptualization. Gradations between physical and abstract motion on the one hand, and between the objective and subjective construal of conceived entities on the other, are important to the analysis of numerous linguistic phenomena.[3]

GRAMMAR AS IMAGE

Lexicon and grammar form a continuum of symbolic elements. Like lexicon, grammar provides for the structuring and symbolization of conceptual content, and is thus imagic in character. When we use a particular construction or grammatical morpheme, we thereby select a particular image to structure the conceived situation for communicative purposes. Because languages differ in their grammatical structure, they differ in the imagery that speakers employ when conforming to linguistic convention. This relativistic view does not per se imply that lexico-grammatical structure imposes any significant constraints on our thought processes—in fact I suspect its impact to be rather superficial (cf. Langacker, 1976). The symbolic resources of a language generally provide an array of alternative images for describing a given scene, and we shift from one to another with great facility, often within the confines of a single sentence. The conventional imagery invoked for linguistic expression is a fleeting thing that neither defines nor constrains the contents of our thoughts.

The most obvious contribution of grammar to the construal of a scene pertains to designation. Grammatical constructions have the effect of imposing a particular profile on their composite semantic value. When a head combines with a modifier, for example, it is the profile of the head that prevails at the composite-structure level. Consider a simple situation in which a lamp is suspended over a table. Starting from such simple expressions as *the lamp, the table, above,* and *below,* we can combine them in alternate ways

[3] The constructs needed to make this notion of subjectivity/objectivity precise are introduced in Langacker (to appear) and (in press, Chs. 3 and 7). For vantage point and orientation, see Vandeloise (1984) and Casad and Langacker (in press).

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to form composite expressions that profile different facets of the scene. *The lamp above the table* naturally designates the lamp. By choosing *the table* for the head, and appropriately adjusting the prepositional-phrase modifier, we obtain instead *the table below the lamp,* which profiles the table. Another option is to add the proper form of *be* to the prepositional phrase, converting it into a process predication designating the extension of the locative relationship through a span of conceived time, for example, *is above the table.* When a subject is then supplied, the resulting sentence *The lamp is above the table* also profiles the temporally extended locative relationship.

Let us further explore the sense in which grammar embodies conventional imagery by considering the semantic contrast between (9)(a) and (b).

(9)(a) Bill sent a walrus to Joyce.
(b) Bill sent Joyce a walrus.

The standard transformational analysis of these sentences treats them as synonymous and derives them from a common deep structure; depending on the particular choice of deep structure, *to* is either deleted or inserted transformationally, and the nonsubject nominals are permuted in the course of deriving the surface form of either (a) or (b). Cognitive grammar does not posit abstract deep structures, and neither sentence type is derived from the other—they are claimed instead to represent alternate construals of the profiled event. (9)(a) and (b) differ in meaning because they employ subtly different images to structure the same conceived situation.

The essentials of the analysis are sketched in Figure 6, where the small circles represent Bill, Joyce, and the walrus; the large circles stand for the regions over which Bill and Joyce exercise dominion; and boldface indicates a certain degree of relative prominence. Up to a certain point the sentences are semantically equivalent. Each symbolizes a conception in which a walrus originates in the domain under Bill's control and—at Bill's instigation—follows a path that results in its eventual location within the region under Joyce's control. The semantic contrast resides in the relative salience of certain facets of this complex scene. In (9)(a), the 'grammatical' morpheme *to* specifically designates the path followed by the walrus, thereby rendering this aspect of the conceptualization more prominent than it would otherwise be, as indicated in Figure 6(a). In (9)(b), on the other hand, *to* is absent, but the juxtaposition of two unmarked nominals (*Joyce* and *a walrus*) after the

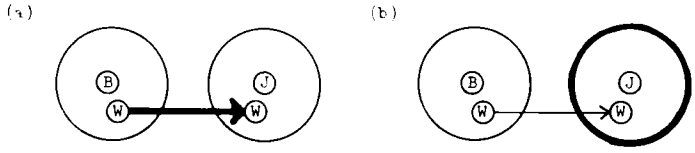

Figure 6.

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verb symbolizes a possessive relationship between the first nominal and the second. Consequently (9)(b) lends added prominence to the configuration that results when the walrus completes its trajectory, namely that which finds it in Joyce's possession, as indicated in 6(b).

All of the 'content' present in one conception may be presumed to figure in the other as well—what differs is the relative salience of substructures. This subtle difference in imagery has an impact on the felicity of using *to* or the double-object construction for certain types of situations.[4] Consider the data in (10):

(10)(a) I sent a walrus to Antarctica.
(b) ?I sent Antarctica a walrus.
(c) I sent the zoo a walrus.

(10)(a) is fully acceptable because *to* emphasizes the path traversed by the walrus, and a continent can perfectly well be construed as the endpoint of a path. However it is harder to construe a continent as a possessor exercising control over other entities, so (10)(b), which specifically places Antarctica in a possessor role, is felt to be marginal. The status of (10)(c) depends on the construal of *zoo*. If the zoo is simply construed as a place, it is difficult to view it as a possessor, and (10)(c) is questionable for the same reason as (10)(b). But a zoo is also an institution, and it is conventional in English to treat institutions as being analogous to people, which allows them to function linguistically as agents, possessors, and so forth. (10)(c) is consequently well formed to the extent that this second construal prevails. As viewed in the present framework, then, judgments of well-formedness often hinge on the interplay and compatibility of images, and are influenced by subtle shifts in context, intended meaning, or how a speaker chooses to structure and interpret a situation.

The examples in (11)–(13) provide further illustration.

(11)(a) I gave the fence a new coat of paint.
(b) ?I gave a new coat of paint to the fence.

(12)(a) I cleared the floor for Bill.
(b) ?I cleared Bill the floor.
(c) I cleared Bill a place to sleep on the floor.

(13)(a) I baked her a cake.
(b) ?I mowed her the lawn.

It is conventional in English to employ possessive locutions for part–whole relations, so construing a fence as the possessor of a new coat of paint, in the manner of (11)(a), is quite natural. It is more difficult to envisage a coat of paint moving along a path to the fence; (11)(b) is thus a bit less natural,

[4] Goldsmith (1980) presents a very similar analysis.

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because *to* renders the path more prominent than the eventual possessive relationship.[5] The sentences in (12)–(13) bring out another consequence of the analysis. Because the two constructions are claimed to be parallel (i.e., neither is derived from the other) and semantically distinct, it is to be expected that the double-object construction—having no intrinsic connection with *to*—might serve as an alternative to other prepositions as well. It is well known from transformational studies (where the fact has long been problematic) that the double-object construction alternates with *for* as well as *to*. With *for* also the double-object construction is restricted to instances where the first object is plausibly construed as winding up in possession of the second. In (12), for example, Bill does not come to possess the floor just because I clear it for him, so (12)(b) is peculiar; (12)(c) is perfectly acceptable, however, since the additional context provided by the second nominal (*a place to sleep on the floor*) makes it apparent that the spot in question effectively comes under Bill's control and lies at his disposal by virtue of the action of clearing it. The data in (13) is similarly explained. Baking someone a cake puts the cake at that person's disposal, but mowing a lawn can hardly have a comparable effect under normal circumstances.

GRAMMATICAL ORGANIZATION

The ultimate goal of linguistic description is to characterize, in a cognitively realistic fashion, those structures and abilities that constitute a speaker's grasp of linguistic convention. A speaker's linguistic 'knowledge' is procedural rather than declarative, and the internalized 'grammar' representing this knowledge is simply a "structured inventory of conventional linguistic units." The term "unit" is employed in a technical sense to indicate a thoroughly mastered structure, that is, one that a speaker can activate as a preassembled whole without attending to the specifics of its internal composition. A unit can therefore be regarded as a cognitive routine. The inventory of conventional units is "structured" in the sense that some units function as components of others (i.e., they constitute subroutines).

I speak of an "inventory" of conventional units to indicate that a grammar is nongenerative and nonconstructive. That is, I reject the standard notion that a grammar is properly conceived as an algorithmic device giving a well-defined class of expressions ('all and only the grammatical sentences of a language') as output. This conception is viable only if one imposes arbi-

[5] The importance of conventionality should be emphasized. Often a speaker is led to employ a particular image simply because an alternative construction, which might seem more appropriate, happens not to be conventionally established. For instance, many verbs of transfer (e.g., *transfer* itself) are not employed in the double-object construction; the *to*-construction represents the speaker's only option with such verbs.

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trary restrictions on the scope of linguistic structure and makes gratuitous assumptions about its character. It is commonly assumed, for example, that judgments of grammaticality are categorical rather than a matter of degree; that semantics is fully compositional; that figurative language is properly excluded from the domain of linguistic description; and that a motivated distinction can be made between semantics and pragmatics. Although assumptions like these support the notion that language is self-contained and cognitively autonomous, there is little factual basis for their adoption.

Instead, I conceive the grammar of a language as merely providing the speaker with an inventory of symbolic resources, among them schematic templates representing established patterns in the assembly of complex symbolic structures. Speakers employ these symbolic units as standards of comparison in assessing the conventionality of novel expressions and usages, whether of their own creation or supplied by other speakers. The novel symbolic structures evaluated in this fashion are not a well-defined set and cannot be algorithmically derived by the limited mechanisms of an autonomous grammar. Rather their construction is attributed to problem-solving activity on the part of the language user, who brings to bear in this task not only his grasp of linguistic convention, but also his appreciation of the context, his communicative objectives, his esthetic sensibilities, and any aspect of his general knowledge that might prove relevant. The resulting symbolic structures are generally more specific than anything computable from linguistic units alone, and often conflict with conventional expectations (e.g., in metaphor and semantic extension). Assessing their conventionality (or 'well-formedness') is a matter of categorization: Categorizing judgments either sanction them as elaborations of schematic units or recognize them as departing from linguistic convention as currently established.

Only three basic types of units are posited: semantic, phonological, and symbolic. A symbolic unit is said to be "bipolar," consisting of a semantic unit defining one pole and a phonological unit defining the other: [[SEM]/[PHON]]. That lexical units have this bipolar character is uncontroversial; *pencil,* for example, has the form [[PENCIL]/[pencil]], where capital letters abbreviate a semantic structure (of indefinite internal complexity), and a phonological structure is represented orthographically. A pivotal claim of cognitive grammar is that grammatical units are also intrinsically symbolic. I maintain, in other words, that grammatical morphemes, categories, and constructions all take the form of symbolic units, and that nothing else is required for the description of grammatical structure.

Symbolic units vary along the parameters of complexity and specificity. With respect to the former, a unit is minimal (a 'morpheme') if it contains no other symbolic units as components. For instance, despite its internal complexity at both the semantic and the phonological pole, the morpheme *sharp* is minimal from the symbolic standpoint, whereas *sharpen, sharpener,*

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and *pencil sharpener* are progressively more complex. With respect to the second parameter, symbolic units run the gamut from the highly specific to the maximally schematic. Each sense of *ring* depicted in Figure 1, for example, combines with the phonological unit [ring] to constitute a symbolic unit. Some of these senses are schematic relative to others, so the symbolic units in question vary in their level of specificity at the semantic pole. Basic grammatical categories (e.g., noun, verb, adjective, adverb) are represented in the grammar by symbolic units that are maximally schematic at both the semantic and the phonological pole. A noun, for instance, is claimed to instantiate the schema [[THING]/[X]], and a verb the schema [[PROCESS]/[Y]], where [THING] and [PROCESS] are abstract notions to be described later, and [X] and [Y] are highly schematic phonological structures (i.e., they specify little more than the presence of 'some phonological content').

A grammatical rule or construction is represented in the grammar by a symbolic unit that is both complex and schematic. For example, the morphological rule illustrated by the deverbal nominalizations *teacher, helper, hiker, thinker, diver,* and so on consists in a complex unit that incorporates as components the verb schema [[PROCESS]/[Y]] and the grammatical morpheme [[ER]/[er]] (i.e., the suffix *-er,* which is attributed substantial though schematic semantic content). This unit further specifies how the component structures are integrated—conceptually and phonologically—to form a composite symbolic structure. Using '-' to indicate this integration (to be examined later), we can write the constructional schema as follows: [[[PROCESS]/[Y]]-[[ER]/[er]]]. Its internal structure is exactly parallel to that of an instantiating expression, for example, [[[TEACH]/[teach]]-[[ER]/[er]]], except that in lieu of a specific verb stem it contains the schema for the verb-stem category.

One constructional schema can be incorporated as a component of another. In the top portion of Figure 7(a), the schema just described combines with the noun schema [[THING]/[X]] to form a higher order constructional schema, which speakers presumably extract to represent the commonality of *pencil sharpener, lawn mower, mountain climber, back scratcher, taxi driver,* and so on. The lower portion of 7(a) represents the lexical unit *pencil sharpener,* which conforms to the specifications of this schema but elaborates it greatly. The arrow labeled (a) indicates that the upper structure as a whole is judged schematic for the overall expression; this categorizing relationship is what specifies the membership of the expression in the class that the schema characterizes. This global categorizing relationship is based on local categorizations between component structures: relationship (b) identifies *pencil* as a member of the noun class; (c) categorizes *sharpener* as a deverbal nominalization derived by *-er;* and (d) classes *sharpen*

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as a verb.[6] The full set of categorizing relationships of this sort constitutes the expression's "structural description." Observe that *pencil sharpener* has a conventional meaning which is considerably more specific than anything derivable compositionally from the meanings of its parts—a pencil sharpener is not simply 'something that sharpens pencils'. Given the nonconstructive nature of the present model, we can nevertheless accept the expression as a valid instantiation of the construction in question, without relegating the unpredictable semantic specifications to the realm of 'extra-linguistic' knowledge. The constructional schema is not responsible for assembling the expression, but only for its categorization.

All of the structures and categorizing relationships in Figure 7(a) have the status of units, which I indicate by enclosing them in boxes or square brackets. What about a novel expression on the same model, for example, *chalk sharpener?* Its organization is sketched in Figure 7(b), where a closed curve (as opposed to a box) indicates a structure that does not yet constitute a unit. The assembly of this novel symbolic structure is largely prefigured by existing units, including the constructional schema, the components *chalk* and *sharpener,* and the categorization of *chalk* as a noun. Taken as a whole, however, neither the full expression *chalk sharpener* nor its categorization by the constructional schema (relationship (a)) has unit status. It does not matter for our purposes whether a speaker employs the existing units to construct or simply to understand the novel expression—in either case, all of the structures and relationships in 7(b) figure in its composition and structural description, and in either case its contextual meaning may incorporate specifications that are obvious from the situation being described (which functions as the domain for the composite expression) but are not supplied by the conventional meanings of its components. Despite this lack of full compositionality, the expression may well recur with sufficient frequency to

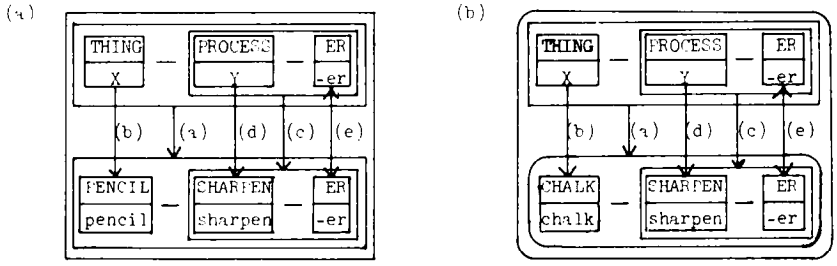

Figure 7.

[6] At this level of organization, we can ignore the fact that *sharpen* is morphemically complex. The double-headed arrow labeled (e) in Figure 7 indicates identity of the associated structures.

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become established as a conventional unit parallel to *pencil sharpener, lawn mower,* and so on. If so, its contextual meaning (in an appropriately schematized form) becomes the conventional meaning of the new lexical unit. Full semantic compositionality is therefore not a hallmark of either novel expressions as they are actually understood or the fixed expressions which result from their conventionalization.

This conception of grammar makes it possible to impose the following restriction on linguistic analyses: The only units permitted in the grammar of a language are (i) semantic, phonological, and symbolic structures that occur overtly in linguistic expressions; (ii) structures that are schematic for those in (i); and (iii) categorizing relationships involving the structures in (i) and (ii). I call this the "content requirement," and consider it to be intrinsically more restrictive (at least in a certain, possibly nontechnical sense) than the constraints generally imposed on algorithmic models. What it does, essentially, is rule out arbitrary descriptive devices, that is, those with no direct grounding in phonetic or semantic reality. Among the devices excluded are syntactic 'dummies' with neither semantic nor phonological content, introduced solely to drive the formal machinery of autonomous syntax (cf. Perlmutter, 1978); arbitrary diacritics or contentless 'features'; and the derivation of overt structures from abstract, 'underlying' structures of a substantially different character (e.g., the derivation of passives from actives—see Langacker, 1982a, for an alternative account).

GRAMMATICAL CLASSES

The content requirement proscribes the use of diacritic features. How, then, does a grammar indicate the behavior and class membership of conventional units? Some classes are characterized on the basis of intrinsic semantic and/or phonological content. In this event, a schematic unit is extracted to represent the shared content, and class membership is indicated by categorizing units reflecting the judgment that individual members instantiate the schema. The vowel [i], for example, is classed as a high vowel by virtue of the categorizing unit [[HIGH VOWEL]→[i]], where [HIGH VOWEL] is a schematic phonological structure which neutralizes the properties that distinguish one high vowel from another. Similarly, among the categorizing units depicted in Figure 7(a), relationships (b) and (c) identify *pencil* and *sharpen* as a noun and a verb respectively, whereas relationship (a) identifies *pencil sharpener* as an instance of the grammatical construction characterized by the overall schema. Only symbolic structures with actual semantic and phonological content figure in these relationships.

Obviously, though, the membership of many grammatical classes is not fully predictable on the basis of semantic or phonological properties,

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for example, the class of nouns that voice *f* to *v* in the plural (*leaf/leaves,* but *reef/reefs*), or the class of verbs that conventionally occur in the double-object construction described earlier (cf. Green, 1974; Oehrle, 1977). The fact that morphological and syntactic behavior is often not fully predictable is generally taken as establishing the independence of grammar as a distinct aspect of linguistic structure. However this conclusion does not actually follow from the observation—the tacit reasoning behind it confounds two issues that are in principle distinct: (i) what "kinds" of structures there are; and (ii) the "predictability" of their behavior. The present framework accommodates unpredictable behavior without positing arbitrary diacritics or 'rule features'. To say that *leaf* (but not *reef*) voices *f* to *v* in the plural is simply to say that the composite symbolic structure *leaves* (but not *reeves*) is included among the conventional units of the grammar. Similarly, to say that *send* participates in the double-object construction amounts to positing the constructional schema [send NP NP], where the verb is specific but the two noun phrases are characterized only schematically. The nonoccurrence of *transfer* in this construction is reflected in the grammar by the nonexistence of the parallel symbolic unit [transfer NP NP].[7]

Crucial to the claim that grammatical structure resides in symbolic units alone is the possibility of providing a notional characterization of basic grammatical categories, nouns and verbs in particular. The impossibility of such a characterization is a fundamental dogma of modern linguistics, but the standard arguments that appear to support it are not immune to criticism. For one thing, they presuppose an objectivist view of meaning, and thus fail to acknowledge sufficiently our capacity to construe a conceived situation in alternate ways. Consider the argument based on noun/verb pairs which refer to the same process, for example, *extract* and *extraction*. Such pairs demonstrate the impossibility of a notional definition only if one assumes that they are semantically identical, yet this is not a necessary assumption when meaning is treated as a subjective phenomenon. It is perfectly coherent to suggest that the nominalization of *extract* involves a conceptual 'reification' of the designated process, that is, the noun and verb construe it by means of contrasting images. Another type of argument against a notional characterization pivots on the confusion of "prototypes" and "abstract schemas." In the case of nouns, for instance, discussions of notional definitions generally focus on physical objects (or perhaps 'persons, places, and things'), which are clearly prototypical; the existence of nouns like *extraction,* which do not conform to this prototype, is then taken as demonstrating that nouns are not a semantic class. Obviously, a schematic characterization of the class—one compatible with the specifications of all class members—cannot be identified with the category prototype representing typical in-

[7] Fuller discussion is provided in Chapter 11 of Langacker (in press). Chapters 5–7 greatly elaborate the following discussion of basic grammatical categories.

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stances. If a schematic characterization is possible at all, it must be quite abstract, accommodating both physical objects and many other sorts of entities as special cases.

Cognitive grammar posits a number of basic classes that differ in the nature of their profile. As previously indicated, a noun is a symbolic structure that designates a thing, where "thing" is a technical term explicated below. Contrasting with nouns are relational expressions, which profile either an "atemporal relation" or a "process." Symbolic structures designating processes are equated with the class of verbs. Adjectives, adverbs, prepositions, and certain other classes profile various types of atemporal relations.

A thing is defined as a "region in some domain"; in the case of count nouns, the profiled region is further specified as being "bounded." Because physical objects occupy bounded regions in three-dimensional space, expressions which designate such objects qualify as count nouns, but the definition does not specifically refer to them or to the spatial domain in particular. In fact, the term "bounded region" must be interpreted abstractly enough to overcome the limitations of its spatial origin. Here, though, I will simply illustrate its applicability in some representative cases where its import is intuitively obvious.

With respect to basic domains, *moment, instant,* and *period* designate bounded regions in time; *point, line,* and *circle* in two-dimensional space;[8] and *sphere, cone,* and *cylinder* in three-dimensional space. When used as a noun, a color term like *red* profiles a bounded region in color space, whereas count nouns like *spot, streak,* and *stripe* designate sensations of limited expanse within the visual field. A *beep* occupies the pitch domain and is bounded in time. A *blip* and a *flash* occupy both the visual and the temporal domains, but differ in their domain of bounding: a *blip* must be bounded in the visual field, whereas a *flash* need not be (it can totally suffuse the visual field), but is sharply bounded in time.

Most nominal predications are characterized relative to nonbasic domains, that is, other, more fundamental conceptualizations. *Arc, hypotenuse,* and *great circle* presuppose the conception of a geometrical figure and profile a bounded region within it. *Arm, leg,* and *torso* designate bounded regions within a body, whereas *elbow, forearm,* and *hand* in turn take for their domain the conception of an arm. For nouns like *January, Tuesday, hour,* and *second* the domain is not time, but rather an abstract frame of reference devised to track and measure its passage; in similar fashion, the basic domain of pitch figures only indirectly in the meaning of expressions like *C-sharp, B-flat,* and *F,* which invoke a musical scale for their domain

[8] A count-noun referent need not be bounded in all domains or dimensions; a line is sharply bounded in one axis of two-dimensional space, but not necessarily along the other. The bounded region profiled by a term like *circle* may be just a line, but can also be construed as the entire enclosed area.

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and profile specific points along it. Terms like *prolog, act, scene,* and *intermission* designate bounded portions of a stage performance, and for segments of athletic events we have nouns like *inning, quarter, half, round,* and *period.*

The bounding that characterizes count nouns is not always determined by objective or perceptual factors. Such factors are irrelevant for nouns whose domain is abstract, for example, *Tuesday,* sketched in Figure 8(a); the conception of a recurrent cycle of 7 days functions as its domain, and its profile—outlined in boldface—is one of the segments in this abstract construct. With more concrete examples, the boundary is often imposed rather than objectively given. In the case of *dent,* diagrammed in 8(b), one segment of the imputed boundary (indicated with a dashed boldface line) is "virtual," obtained by extrapolating along the canonical or expected surface of an object. The boundary of an *archipelago* (Figure 8(c)) can be considered virtual in its entirety, though its approximate position is marked out by the location of peripheral islands. The *middle* of a floor or a rug is conceived as a bounded region even if there is no perceptual basis for distinguishing the designated area from other portions of the reference object. The virtual boundary indicated in 8(d) is free to vary in size so long as it is more or less centered within the landmark object and does not extend to its margins.

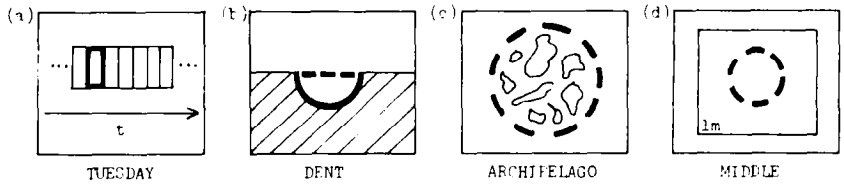

Figure 8.

In short, the existence of a region and its possible bounding reflect the occurrence of particular sorts of cognitive events, and are to some degree independent of objective factors. The importance of cognitive processing is more evident still when we turn from nominal to relational predications and seek to distinguish their subtypes. A relational predication is one that profiles the "interconnections" among conceived entities. The term "entity" is employed in a maximally general way, and subsumes anything we might have occasion to refer to for analytic purposes: things, relations, boundaries, points on a scale, and so on. Interconnections can be regarded as cognitive operations that assess the relative position of entities within the scope of predication. It is speculated that only four basic types of assessment are necessary, provided that cognitive domains have been properly described: inclusion (INCL), coincidence (COINC), separation (SEP), and proximity (PROX). Significantly, the interconnecting operations defining a relational conception commonly associate entities other than the major relational par-

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ticipants (trajector and primary landmark), or associate selected facets of these participants rather than treating them as undifferentiated wholes.

By way of illustration, consider the predicate [ABOVE], sketched in Figure 9. Its domain is space organized into horizontal and vertical dimensions, including an implicit reference point O_v (the vertical origin). The major relational participants are both things, characterized only schematically; one is further identified as the trajector (relational figure).[9] Among the entities invoked by specifications of this predicate are the horizontal and vertical projections of the trajector (h_t, v_t) and the landmark (h_l, v_l). The expression *above* is optimally employed when the horizontal projections of the trajector and landmark coincide, that is, [h_t COINC h_l], but is tolerated so long as they remain in proximity to one another: [h_t PROX h_l]. With respect to the vertical dimension, on the other hand, their projections must not coincide—the specification [v_t SEP v_l] is obligatory. The pivotal specification of [ABOVE] is provided by an operation interconnecting two entities that are still more abstract. Let [$O_v > v_t$] be the operation which registers the displacement of the trajector from the vertical origin, and [$O_v > v_l$] that of the landmark. The specification in question resides in a higher order operation assessing the relative magnitudes of the component operations: [($O_v > v_t$) INCL ($O_v > v_l$)].

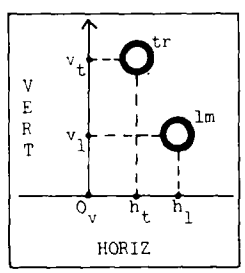

Figure 9.

Interconnecting operations of roughly this sort must somehow figure in the cognitive representation of a relational notion (though I take no position on the specifics of their implementation). [ABOVE] is a "simple atemporal relation" (or "stative" relation), in the sense that its specifications portray a single, internally consistent configuration. We must also recognize "complex" atemporal relations, where such is not the case. Consider the constrast between (14)(a) and (b).

(14)(a) There is a tree across the river.
(b) A hiker waded across the river.

Three conventionally established senses of *across* are illustrated. (14)(a) is ambiguous between the senses sketched in Figures 10(a) and (b). In 10(a),

[9] By reversing the trajector/landmark assignation, we obtain the predicate [BELOW].

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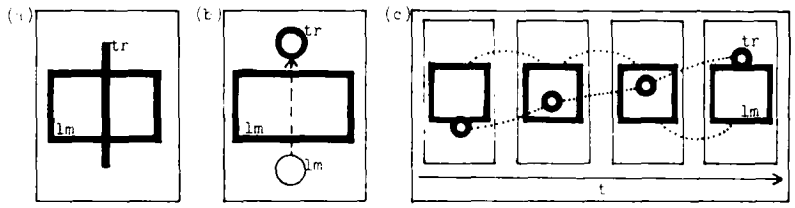

Figure 10.

the trajector (in this case the tree) simultaneously occupies all the points on a path leading from one side of the primary landmark (the river) to the other. In 10(b), on the other hand, the trajector occupies only one endpoint of such a path; the other endpoint is occupied by a secondary landmark of lesser prominence that functions as a reference point. The predications depicted in 10(a) and (b) are both simple atemporal relations, for the profiled relationship reduces to a single configuration. This is not the case in 10(c), corresponding to (14)(b). Here the trajector occupies all the points on the path leading from one side of the landmark to the other, but does so only successively through time. The profiled relationship involves indefinitely many distinct configurations (or states), of which only a few are represented diagrammatically. This sense of *across* is consequently a "complex atemporal relation."[10]

Atemporal relations contrast with processes, which define the class of verbs. What, precisely, is the nature of this contrast? Let us consider the conceptual factors that might set verbs apart from other relational predications. We might expect a verb to profile not just one but a sequence of relational configurations (cf. Figure 4), but this does not distinguish verbs from complex atemporal relations. Time is clearly a relevant factor, but many nonverbal elements also make crucial reference to time, for example, the noun *Tuesday* (Figure 8(a)) and relational expressions like *before* and *after*. Nor is it sufficient to combine these two specifications and characterize a verb as profiling a series of relational configurations conceived as being distributed through a continuous span of time: this definition is fully compatible with the sense of *across* exemplified in (14)(b) and Figure 10(c). Thus, if verbs are notionally definable, they must have some additional property we have not yet identified. What is it that distinguishes the verb *cross* from the preposition *across* under the third interpretation?

I propose that the distinction between a process and a complex atemporal relation involves the contrast between "sequential" and "summary scanning." Sequential scanning is the mode of processing we employ when

[10] I omit the dashed line standing for the profiled interconnections, because the nature of these interconnections is implicit in the position of the major participants within the diagrams. Note that I regard these diagrams as heuristic in character, not as formal objects. They are analogous to the sketch a biologist might draw to illustrate the major components of a cell and their relative positions within it.

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watching a motion picture or observing a ball as it flies through the air. The successive states of the conceived event are activated serially and more or less instantaneously, so that the activation of one state begins to decline as that of its successor is initiated; essentially, we follow along from one state to the next as the event unfolds.[11] On the other hand, summary scanning is what we employ in mentally reconstructing the trajectory a ball has followed (e.g., in identifying a pitch as a curve, slider, or fastball and diagramming its degree of curvature). The component states are activated successively but cumulatively (i.e., once activated they remain active throughout), so that eventually they are all coactivated as a simultaneously accessible whole. The difference between a complex atemporal relation (like *across*) and the corresponding verb (*cross*) is therefore attributed not to their intrinsic content, but rather to the mode of scanning employed in their activation—it is a matter of conventional imagery. Figure 10(c) is thus appropriate for either *across* or *cross,* depending on whether summary or sequential scanning is invoked for its construal. Moreover, the sense in which a process is "temporal," while other relations (even those referring to time) are "atemporal," can now be clarified: The terminology does not pertain to the role of time within the predication (i.e., "conceived" time), but rather to "processing" time, and specifically to whether the component states are activated only sequentially with the passage of processing time or are also available as a simultaneously active whole.

Though I cannot prove that verbs are characterized by sequential scanning, this analysis is natural and leads to a coherent account of otherwise problematic linguistic phenomena. It is natural in the sense that the difference between summary and sequential scanning is established on nonlinguistic grounds, and also because it helps explain the common intuition that verbs are more 'dynamic' than other elements. Linguistically, it enables us to make the necessary distinctions among basic grammatical classes, to explicate their similarities and differences, and to capture revealing generalizations about their behavior. For example, both simple and complex atemporal relations are distinguished from verbs by their mode of scanning. At the same time, a complex atemporal relation like *across* in (14)(b) is very similar to the corresponding verb in content, so it is hardly surprising that there are languages in which the same form can be used in either fashion—merely by changing the mode of scanning, an expression meaning 'across' can be extended to mean 'cross/go across' (or conversely). We can also account for the distinct but nonetheless verb-like character of nonfinite forms such as infinitives and participles. They are verb-like because they derive from verbs, with the process designated by the verb stem functioning as their

[11] Only for convenience do I speak of discrete states—a process is more accurately viewed as continuous.

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base. However the 'grammatical morpheme' serving to derive the participle or infinitive has the effect of suspending the sequential scanning of the stem, hence the composite expression is classed as an atemporal relation. This shift from sequential to summary scanning is the only semantic contribution of the infinitival *to* (e.g., *to go*). The present- and past-participle morphemes have aspectual import in addition.[12]

We can now state certain generalizations about grammatical structure and explicate a variety of distributional facts with reference to them. One generalization is that "a finite clause always profiles a process." As implemented in English, this requirement demands the presence of a verb which contributes the processual profile to the clause as a whole. Construed as finite clauses (or simple sentences), the expressions in (15) are consequently ungrammatical because the relational predications following the subject are atemporal (hence nonprocessual).

(15)(a) *That boy tall(s).
(b) *The lamp above(s) the table.
(c) *The dog running along the beach.
(d) *A traveler attacked by bandits.
(e) *Alice seen the results.

(16)(a) The boy is tall.
(b) The lamp is above the table.
(c) The dog is running along the beach.
(d) A traveler was attacked by bandits.
(e) Alice has seen the results.

(17)(a) Rachel appreciates flattery.
(b) *Rachel is appreciate(s) flattery.

The corresponding sentences in (16) are grammatical, however, because an auxiliary verb, either *have* or *be,* combines with the atemporal predication and contributes the requisite sequential scanning. I analyze auxiliary verbs semantically as highly schematic processes, that is, they have little content beyond a specification of their processual character. Though slight from the standpoint of information or truth conditions, their semantic contribution is significant with respect to the grammatical generalization stated above. Note further that an auxiliary verb is not required to satisfy the restriction when a less schematic verb is available, so the distribution illustrated in (17) is quite natural.

[12] Besides suspending sequential scanning, the present-participial morpheme *-ing* construes the component states of the base process as effectively homogeneous and imposes an immediate scope of predication confined to a limited internal sequence of such states. The past-participial morpheme has several semantic variants (cf. Langacker, 1982a), one of which confines the profile to the final state of the base process (e.g., *gone* in Figure 4(c)).

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A second generalization is that "noun modifiers are always atemporal."[13] Construed as noun phrases (not as clauses or sentences), the expressions in (18) are consequently well-formed:

(18)(a) the tall boy
(b) the lamp above the table
(c) the dog running along the beach
(d) a traveler attacked by bandits
(e) the person to see about that

(19)(a) *the be tall boy
(b) *the lamp be above the table
(c) *the dog be running along the beach
(d) a traveler be attacked by bandits
(e) *the person to be see about that

(20)(a) That woman resembles my cousin.
(b) *that woman resemble my cousin
(c) that woman resembling my cousin

The noun phrases in (19) are however ungrammatical, as expected, because the addition of *be* converts the modifiers into processual predications, in violation of the restriction. The distribution in (20) provides further illustration: the verb *resemble* furnishes the processual predication needed for a finite clause, as in (20)(a), but its processual character makes it inappropriate as a noun modifier unless some other element, such as *-ing,* suspends its sequential scanning and converts it into an atemporal relation, as we see in (b)–(c).

By way of summary, let me introduce for the basic classes of predications the abbreviatory notations presented in Figure 11. A circle is the natural choice to represent a thing. A simple atemporal (or stative) relation profiles the interconnections between two or more conceived entities, where an entity can be either a thing or another relation. A complex atemporal relation consists of a sequence of stative relations scanned in summary fashion. A process is comparable to a complex atemporal relation in profiling a sequence of relational configurations, but has certain other properties as well: (i) the component states are conceived as being distributed through time; (ii) these states are scanned in sequential fashion; and (iii) the trajector is always a thing (never a relation). The arrow in Figure 11(e) stands for conceived time, and the boldface bar along this arrow indicates that the component states are scanned sequentially through processing time.

[13] Specifically excluded from this statement are finite-clause modifiers (i.e., 'unreduced' relative clauses), which require separate treatment precisely because finite clauses have special semantic and grammatical status (the reasons lie beyond the scope of this paper).

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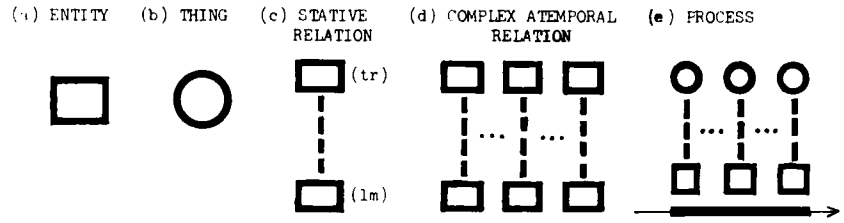

Figure 11.

Apart from restriction (iii), we can note that relational predications allow any combination of things and relations for their trajector and primary landmark:

(21)(a) The plane is above the clouds.
(b) She left home before I arrived.
(c) The children played in the park.
(d) The milk finally turned sour.

In (21)(a), *above* has a thing for both its trajector and its landmark. The trajector and landmark of *before* are both relations (specifically, processes) in (21)(b). The trajector of *in* is processual in (c), but its landmark is nominal. Finally, the trajector of *turn* in (d) is nominal, but its landmark is a stative relation.

GRAMMATICAL CONSTRUCTIONS

Grammar resides in patterns for the successive combination of symbolic structures to form more and more elaborate symbolic expressions. It is described by a structured inventory of "grammatical constructions," each of which specifies the relation between two or more "component" structures and the "composite" structure resulting from their integration. The essential structures and relationships in a grammatical construction are spelled out in Figure 12, where [SEM_3/$PHON_3$] is the composite structure formed by integrating the component expressions [SEM_1/$PHON_1$] and [SEM_2/$PHON_2$]. The two diagrams are notational variants: 12(b) is an 'exploded' version of 12(a) and shows the component and composite structures separately at each pole.

Four symbolic relationships are indicated in Figure 12. The ones labeled s_1 and s_2 are those which hold between the semantic and the phonological pole of each component expression, whereas s_3 indicates that the composite phonological structure symbolizes the composite semantic structure. The fourth relationship, s_t, reveals an important sense in which grammar is said to be inherently symbolic: The integration of component structures at the

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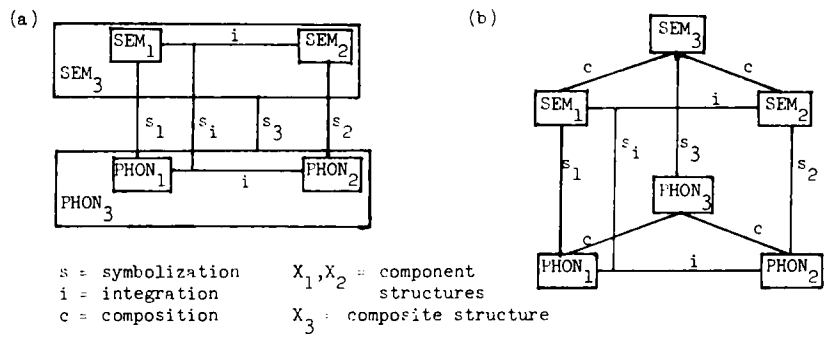

Figure 12.

phonological pole serves to symbolize the integration of the corresponding component structures at the semantic pole. Consider the plural noun *walls*. At the phonological pole, the component structures are integrated by the suffixation of *-s* to *wall*, which involves the appropriate temporal sequencing, syllabic organization, and minor phonetic adjustments. It is precisely the fact that *-s* suffixes to *wall* (and not to some other noun stem) which symbolizes the fact that the plurality it expresses is being predicated of [WALL] in particular (rather than the thing designated by some other noun in the sentence). Or to put it in other terms, the symbolic association s_i does not hold between a semantic and a phonological structure per se—instead it associates the "relationships" between two semantic and two phonological structures.

Integration and composition work in essentially the same way at the phonological and at the semantic pole, but we will confine our attention to the latter. I suggest that the integration of two component structures always involves "correspondences" being established between certain of their substructures. The corresponding substructures provide points of overlap between the component predications, which are necessary if a coherent composite conception is to emerge. The composite structure is obtained by superimposing the specifications of corresponding substructures. In those instances where there is some conflict in their specifications, a fully consistent composite notion cannot be formed, and the result is what we perceive as semantic anomaly (or the violation of 'selectional restrictions').

The semantic pole of a typical construction is sketched in Figure 13(a), which diagrams the integration of *above* and *the table* to form the prepositional phrase *above the table* (I will ignore the semantic contribution of the definite article). [ABOVE] profiles a stative relation in oriented space between two things, each characterized only schematically; [TABLE] profiles a thing characterized in far greater detail with respect to numerous domains—purely for sake of diagrammatic convenience, it is represented by a mnemonic shape

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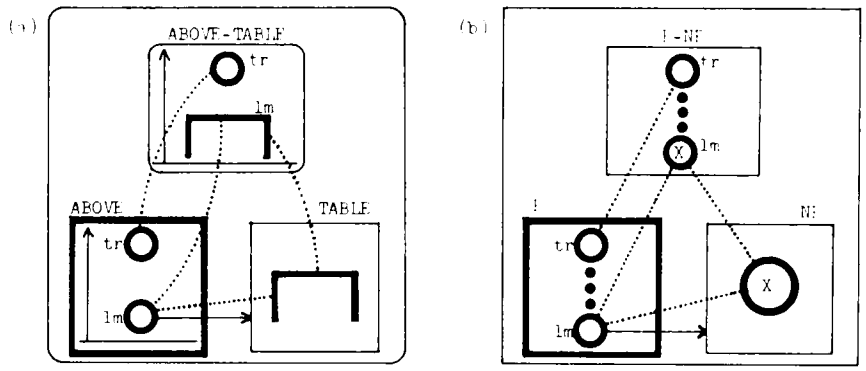

Figure 13.

specification. The integration of these component predications is effected by a correspondence established between the landmark of [ABOVE] and the profile of [TABLE] (correspondences are represented by dotted lines). By superimposing the specifications of these corresponding substructures, and adopting the relational profile of [ABOVE], we obtain the composite predication (ABOVE-TABLE), which designates a stative relation involving a schematic trajector and a specific landmark. Note that the compositional process results in 'vertical' correspondences between elements of the component and composite structures, in addition to the 'horizontal' correspondence(s) linking the components.[14]

Semantics is not fully compositional. When first assembled, an expression's composite structure may incorporate specifications (e.g., the orientation of the table) that are not predictable from conventional units. Because such specifications are part of how the expression is actually understood in context, and may well be included in its conventional semantic value should the expression become established as a unit, it is arbitrary to exclude them from the domain of semantic analysis. There are nevertheless conventional patterns of composition that determine central aspects of the composite structure's organization. These are represented in the grammar by constructional schemas, whose internal structure is parallel to that of the specific expressions which instantiate them. For example, the grammar of English includes a schema for the prepositional-phrase construction. Its phonological pole specifies the contiguity and linear ordering of the preposition and its noun-phrase object; its semantic pole, given in Figure 13(b), is precisely analogous to 13(a) except that the component and composite struc-

[14] The component structures are enclosed in boxes, to indicate that *above* and *the table* have the status of units. Closed curves surround the composite structure and the construction as a whole on the presumption that *above the table* is a novel expression (in the text, parentheses serve this purpose).

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tures are schematic rather than specific. The first component is schematic for the class of prepositions. Basically, it is identified only as a stative relation whose trajector and primary landmark are both things. The other component is the noun-phrase schema: It profiles a thing, and implies additional content (labeled X), but it does not itself specify the nature of this content. As in the specific structure 13(a), a correspondence holds between the landmark of P and the profile of NP, and the composite structure is formed by superimposing the specifications of these correspondents (and adopting the relational profile of P). Speakers can employ this constructional schema in the computation and evaluation of novel expressions. It serves as the structural description of any expression which it categorizes when so employed.

The constructions in Figure 13 have various properties that are probably to be regarded as prototypical. There are just two component structures, one of them relational and the other nominal. A correspondence holds between two highly prominent substructures: the profile of the nominal predication, and the primary landmark (one facet of the profile) of the relational predication. Moreover, there is a substantial asymmetry in the degree of specificity at which the predications characterize the corresponding elements —the landmark of [ABOVE] is quite schematic, whereas by comparison the profile of [TABLE] is specified in considerable detail. I have indicated this diagrammatically by means of an arrow (standing for a relationship of schematicity) between the landmark of [ABOVE] and the other predication as a whole. Finally, it is the relational predication which lends its profile to the composite structure (i.e., *above the table* designates a stative relation, not a thing). I thus refer to [ABOVE] in 13(a) as the "profile determinant" in the construction, and make this role explicit by putting the box enclosing this predication in boldface.

None of the properties just cited is invariant except the existence of at least one correspondence between substructures of the components. By recognizing these properties as prototypical rather than imposing them as absolute requirements, we obtain the flexibility needed to accommodate the full range of attested construction types. It is probably necessary, for example, to allow more than just two component structures at a particular level of constituency (e.g., for coordinate expressions such as *X, Y, and Z*). It need not be the case that one component is relational and the other nominal —in fact, there need be no relational component at all. Appositional constructions involving two nominal predications, for instance *my good friend Geraldine Ferraro,* are straightforwardly accommodated in this framework by means of a correspondence established between the nominal profiles. In all the examples cited so far, the corresponding elements have been things that either constitute or are included within the profile of the component structure. Often, however, the correspondents are relational substructures, and they need not be in profile. Consider once more the sense of *gone* dia-

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grammed in Figure 4(c). The component structures are [GO], which designates a process, and one particular semantic variant of the past-participial morpheme. This particular predication profiles the final state of an otherwise unprofiled process that constitutes its base. The participial morpheme itself characterizes this process quite schematically; only in combination with a verb stem is the nature of the process made specific. The integration is effected by a correspondence between the specific process profiled by [GO] and the schematic process functioning as the base within the participial predication. By superimposing their specifications, and adopting the profile contributed by the 'grammatical' morpheme, we obtain a composite structure that profiles just the final state of the process [GO].

A factor we have not yet considered is "constituency," which pertains to the order in which symbolic expressions are progressively assembled into larger and larger composite expressions. Clearly, the composite structure resulting from the integration of component structures at one level of organization can itself be employed as a component structure at the next higher level, and so on indefinitely. In Figure 14, for example, the composite structure (ABOVE-TABLE) from 13(a) functions as a component structure, combining with [LAMP] to derive the composite semantic value of the noun phrase *the lamp above the table.* At this second level of organization, it is the schematic trajector of the relational predication that is put in correspondence with the profile of the nominal predication—moreover it is this latter which functions as the profile determinant in the construction. The composite structure (LAMP-ABOVE-TABLE) consequently designates the lamp, not its locative relationship vis-à-vis the table, though this relationship is included as a prominent facet of its base.

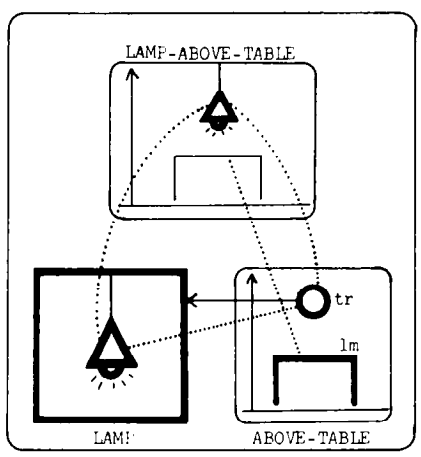

Figure 14.

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Some grammatically significant observations can be made on the basis of these examples. For one thing, we see that either a relational or a nominal predication is capable of serving as the profile determinant in a construction. In Figure 13, it is the relation [ABOVE] which contributes the profile of the composite expression, whereas in Figure 14 it is the nominal [LAMP]. Moreover, the constructs now at our disposal permit workable and revealing characterizations of certain fundamental grammatical notions that have long been problematic, namely "head," "modifier," and "complement." At a given level of organization, the head of a construction can be identified with its profile determinant. *Above* is thus the head within the prepositional phrase *above the table,* whereas *lamp* is the head within the noun phrase *the lamp above the table.* In appositional expressions like *my good friend Geraldine Ferraro* there is no real basis for singling out either component noun phrase as the head—but that is precisely what we expect: Because their profiles correspond, and each corresponds to the profile of the composite structure, it is arbitrary to say that the latter inherits its profile from either one of the component structures (as opposed to the other).

To the extent that one component structure, taken as a whole, serves to elaborate a salient substructure within the other, I will speak of the elaborating component as being "conceptually autonomous," and the elaborated component as "conceptually dependent." In Figure 13(a), then, [TABLE] is conceptually autonomous with respect to [ABOVE] because it elaborates the latter's schematic landmark. In Figure 14, similarly, [LAMP] is autonomous by virtue of elaborating the schematic trajector of the dependent predication (ABOVE-TABLE). The notions modifier and complement can now be characterized explicitly in a way that reconstructs the normal usage of these traditional terms: A modifier is a conceptually dependent predication that combines with a head, whereas a complement is a conceptually autonomous predication that combines with a head. *The table* is consequently a complement (or argument) of *above* in *above the table,* and this entire prepositional phrase functions as a modifier of *lamp* in *the lamp above the table.* What about appositional constructions? Because there is no basis for recognizing either component structure as the head (and often no autonomous/dependent asymmetry), the definitions are correctly found to be inapplicable. In *my good friend Geraldine Ferraro,* neither *my good friend* nor *Geraldine Ferraro* is considered a modifier or a complement of the other.

This conception of grammatical structure has numerous descriptive advantages, only a few of which will be noted by way of conclusion. One advantage is that it readily accommodates variability of constituency, which is in fact quite common. The present framework does not posit phrase trees of the sort familiar from transformational studies, nor does it rely on phrase-structure configurations for the definition of grammatical relations. Constituency is simply the sequence in which component symbolic structures are

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progressively assembled into more and more elaborate composite expressions. Though a specific order of assembly commonly becomes conventionalized as the sole or default-case sequence, the choice is not inherently critical in this model because alternate constituencies commonly permit the same composite structure to be derived. Moreover, because grammatical relations are not defined in configurational terms, a unique constituency is not essential. What identifies *the table* as the object of *above* in *above the table,* for example, is the fact that the noun phrase elaborates the preposition's landmark. Though constituency happens to be invariant in this case, the critical factor in defining the prepositional-object relation is the correspondence established between the landmark of the preposition and the profile of the noun phrase.

We can better appreciate these points with regard to sentences like the ones in (22):

(22)(a) Alice likes liver.
(b) Liver Alice likes.
(c) Alice likes, but most people really hate, braised liver.

(22)(a) exhibits the normal, default-case NP + VP constituency of English clauses: *Liver* elaborates the schematic landmark of *likes* at the first level of constituency, yielding a processual predication with a specified landmark and schematic trajector; *Alice* then elaborates the trajector of *likes liver* at the second level to derive a process predication whose trajector and landmark are both specific. It should be apparent, however, that the same composite structure will result if the constituents combine in the opposite order, with *Alice* elaborating the schematic trajector of *likes,* and then *liver* the schematic landmark of *Alice likes.* This alternative constituency is available for exploitation, with no effect on grammatical relations, whenever special factors motivate departure from the default-case arrangement. Two such factors are illustrated here. In (22)(b) we observe the topicalization of the direct object noun phrase, normally described as a movement transformation. There is no need in this framework to derive this sentence type by transformation—it can be assembled directly through the alternate compositional path. The second type of situation arises in conjoined structures when two verbs have different subjects but share the same object, as in (22)(c). In lieu of the transformational process of 'right node raising', which supposedly derives this type of sentence from conjoined clauses of normal NP + VP constituency, we can once again assemble the overt structure directly. The two subject-verb constituents are put together first and then combined in a coordinate structure. A direct-object NP is subsequently added, being integrated simultaneously with each conjunct through a correspondence between its profile and the conjunct's relational landmark.

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Also eliminable in this framework is the raising rule needed in certain transformational accounts (e.g., Keyser & Postal, 1976) to handle agreement between a subject and auxiliary verb, as in (23).

(23) The lamp is above the table.

The rationale for a raising rule goes something like this: (i) A verb is assumed to agree with its own subject; (ii) *the lamp* is not the logical subject of *be,* which—if anything—has a clause for its underlying subject; (iii) hence, to account for agreement, some rule must raise *the lamp* from its position as subject of *above* and make it the subject of *be.* However the need for such a rule is obviated given a proper analysis of *be* and a suitably flexible conception of grammatical constructions.

The semantic pole of (23) is outlined in Figure 15.[15] Pivotal to the analysis is the semantic value attributed to *be,* of which three main features are relevant. First, *be* is a true verb, that is, a symbolic expression that profiles a process. Second, all the component states of the designated process are construed as being identical; this is indicated by the dotted correspondence lines internal to [BE] that link the three states which are explicitly represented (additional correspondence lines specify that the trajector is the same from one state to the next, as is the landmark). Third, apart from this specification of identity, the profiled process is maximally schematic. *Be* is one of numerous verbs in English which designate a process consisting of the extension through time of a stable situation (cf. Langacker, 1982b; Smith, 1983)—others include *have, resemble, like, know, contain, slope, exist,* and so on—but it abstracts away from the specific content that distinguishes these predications from one another. In summary, [BE] follows through time, by means of sequential scanning, the evolution of a situation that is construed as being stable but not further specified (except for its relational character).

Any single component state of [BE] constitutes a schematic stative relation. At the first level of constituency in Figure 15, the more specific stative relation (ABOVE-TABLE) is put in correspondence with a representative state of [BE], the latter serving as profile determinant. The result is the composite predication (BE-ABOVE-TABLE), which is like [BE] except that all the specifications inherited from (ABOVE-TABLE) are attributed to the situation followed sequentially through time. Observe that the landmark of (BE-ABOVE-TABLE) is now specific, whereas its trajector remains schematic. At the second level of constituency, this schematic trajector is elaborated by [LAMP] to derive the composite structure (LAMP-BE-ABOVE-TABLE), which represents the composite meaning of the full

[15] Omitted are the semantic contributions of the definite article and the verb inflection on *be*. Note that our concern is not the nature of agreement, but rather the issue of whether *the lamp* can be considered the subject of *be* in accordance with assumption (i).

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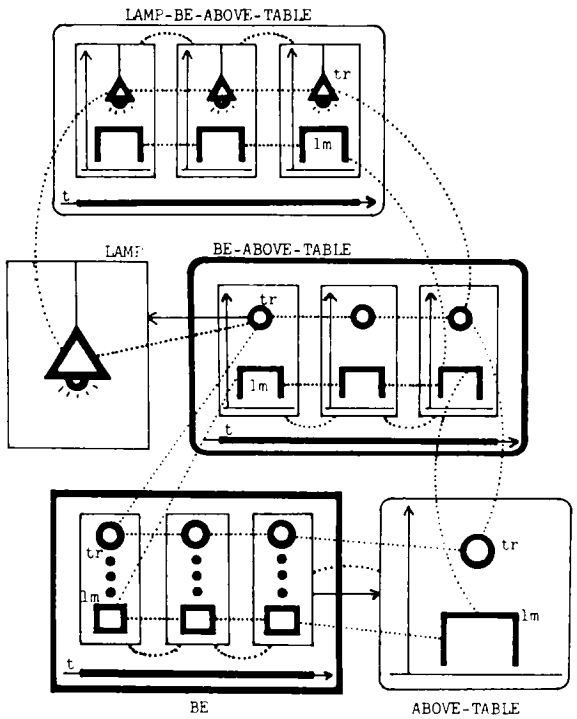

Figure 15.

sentence. It profiles the extension through time of a stable situation in which the lamp and the table participate in a particular locative relationship.

Observe that the sentence is assembled directly, in accordance with its surface constituency. In particular, there is no 'raising' rule which derives it from a hypothetical underlying structure by changing the grammatical relation of the subject NP. But does *the lamp* function as the subject of *be,* as their agreement presumably requires? It certainly does, given the way grammatical relations are defined in this framework. A subject NP is one which elaborates the schematic trajector of a relational predication by virtue of a correspondence established between that trajector and its own profile. With respect to Figure 15, note first that [BE] does in fact have a schematic trajector, characterized as both a thing (not a clause) and a relational participant. Moreover, [BE]'s trajector does correspond to the profile of *the lamp,* when both 'horizontal' and 'vertical' correspondences are taken into account: The profile of [LAMP] corresponds to the trajector of (BE-ABOVE-TABLE), which in turn corresponds vertically to the trajector of [BE]. It is simply incorrect, in this analysis, to claim that *be* has no nonclausal subject, or that *the lamp* is not its 'logical' subject in (23). With no special apparatus,

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the analysis establishes a relationship between *the lamp* and *be* which is perfectly adequate as a basis for agreement.

Finally, the analysis permits a simple and natural account of sentences like (24)(b), in which an auxiliary verb functions as a pro form:

(24)(a) Q: What is above the table?
(b) A: The lamp is.

As highly schematic process predications, auxiliary verbs are perfectly suited to this role, and sentences of this type are derivable without any deletion operation. Because constituency is potentially variable in this framework, we can derive (24)(b) simply by combining *the lamp* and *be* directly. A correspondence is established between the profile of the former and the schematic trajector of the latter. *Be* is the profile determinant, so the composite structure designates a process involving the evolution of a stable situation through time. Apart from its trajector, identified as the lamp, this situation is characterized only schematically.

CONCLUSION

Due to space limitations, this presentation of cognitive grammar has itself been quite schematic. I cannot claim to have established its validity in these few pages, or to have provided a definitive analysis of any specific range of data. I do however hope to have shown that currently predominant linguistic theories do not represent the only possible way of conceiving the nature of language structure and linguistic investigation. By taking a radically different perspective on questions of meaning and grammar, it is possible to formulate a coherent descriptive framework which promises to be not only adequate and revealing from the purely linguistic standpoint, but also quite compatible with the findings and constructs of cognitive science.

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