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DYNAMICITY IN GRAMMAR

1. ORIENTATION

In linguistic theory, the ‘generative’ or ‘Chomskyan’ tradition has been predominant over the last four decades. Naturally it has greatly changed in this period, evolving into a heterogeneous family of contemporary theories. By and large, however, generative doctrine has emphasized the supposed modularity of language, its status as a distinct mental faculty, and its discontinuity vis-à-vis other facets of cognition (Fodor 1983). Within language, it proclaims the autonomy of syntax, which is seen as a self-contained formal system describable without essential reference to meaning. This outlook has presupposed a traditional view of meaning deriving from objectivist philosophy (cf. Lakoff 1987), i.e., some version of a truth conditional semantics based on formal logic.

A radical alternative to this tradition has emerged over the last two decades and is rapidly growing on a world-wide basis. Comprising a diverse yet basically coherent set of approaches, the movement called *cognitive linguistics* views language as an integral facet of cognition. Insofar as possible, language is seen as recruiting and manifesting other, more basic cognitive phenomena (e.g., perception, attention, memory, categorization) from which it cannot be dissociated. From the cognitive perspective grammar is regarded as being inherently meaningful (not an autonomous formal system). Its meaningfulness becomes apparent granted an independently justified *conceptualist semantics*. Research in cognitive semantics has clearly demonstrated the crucial role of *imaginative* capacities, such as *metaphor*, *blending*, the construction of mental spaces, and the evocation of myriad entities of a *fictive* nature (Fauconnier 1985, 1997; Fauconnier and Sweetser 1996; Fauconnier and Turner 1998; Lakoff and Johnson 1980, 1999; Lakoff and Turner 1989; Langacker 1986, 1999c; Matsumoto 1996a, 1996b; Talmy 1996, 2000a, 2000b; Turner 1987; Turner and Fauconnier 1995).



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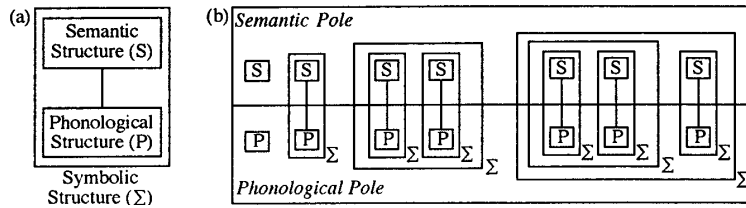


Figure 1.

Conceptualization is inherently *dynamic*. It resides in mental processing, so every conception requires some span of *processing time* – however brief – for its occurrence. In principle, of course, the temporal aspect of conceptualization might turn out to be irrelevant for linguistic meaning. It might be hypothesized that conceptual configurations are evoked holistically and are stable for the duration of their activation. Alternatively, it might be claimed that such configurations are arrived at through processing activity which is not itself linguistically relevant – only the final product has any significance. I will argue, however, that dynamicity is essential to linguistic semantics. How a conceptualization develops and unfolds through processing time is often (if not always) a pivotal factor in the meanings of expressions. This is most apparent in complex expressions, where the time scale is sufficiently large for the effects to be discernible. It is therefore unsurprising that dynamicity should also prove important in grammar, which specifies the patterns for assembling such expressions. If grammar is inherently meaningful, the dynamicity of conceptualization should have manifestations in grammatical structure. In what follows I will suggest some places to look for it.

The theoretical framework I will be assuming is known as *cognitive grammar* (Langacker 1987a, 1990, 1991, 1999b). The theory is quite natural in that its architecture directly reflects the primary function of language, that of allowing conceptualizations to be symbolized by sequences of sounds. It is highly restrictive by virtue of positing only the minimal apparatus required to fulfill that function: *semantic structures*, *phonological structures*, and *symbolic links* connecting them. As shown in Figure 1, a semantic structure linked to a phonological structure constitutes a symbolic structure. Simpler symbolic structures (e.g., words) are assembled into progressively more complex symbolic structures (such as phrases, clauses, and sentences). *Symbolic assemblies* having any degree of complexity can thus be formed.

Symbolic assemblies not only vary in their degree of complexity, but also in their level of precision and detail. They range from being quite *specific* to being highly *schematic*. Semantically, for example, the follow-

ing lexical items show increasingly greater schematicity: *poodle* > *dog* > *animal* > *thing*. The theory's central claim is that lexicon and grammar form a continuum consisting solely of symbolic assemblies. More specific assemblies are traditionally assigned to lexicon, and more schematic ones to grammar, but any particular line of demarcation would, it is claimed, be arbitrary. All grammatical markings ('function words', inflections, etc.) are attributed some kind of meaning, generally quite abstract. Grammatical patterns ('constructions') reside in complex symbolic assemblies that are partially or wholly schematic. Moreover, counter to received wisdom, it is held that basic grammatical constructs (e.g., noun, verb, subject, object) are susceptible to semantic characterization.

The viability of a symbolic account of grammar has been demonstrated in a large body of published work in which classic problems of syntax have been shown to be straightforwardly and revealingly accommodated (e.g., Achard 1998; Israel 1996, 1998; Kumashiro 2000; Langacker 1982, 1995b; Maldonado 1992; Manney 2000; van Hoek 1995, 1997). The symbolic nature of grammar can however be recognized only by adopting an appropriate view of linguistic meaning. Required is a conceptualist semantics with certain properties strongly motivated on the basis of both semantic and grammatical evidence. For one thing, *conceptualization* has to be broadly understood: it encompasses both established and novel conceptions, not just intellectual 'concepts' but also immediate experience (sensory, motor, kinesthetic, emotive), as well as full apprehension of the context (physical, linguistic, social, cultural). Moreover, a conceptualist semantics cannot be adequate without acknowledging the fundamental importance of the *imaginative* capacities alluded to earlier. Finally, it has to accommodate *construal*, i.e., our multifaceted capacity to conceive and portray the same situation in alternate ways.

As a first illustration of construal, consider the following examples:

- (1)a. *An ugly scar extends from his elbow to his wrist.*
- b. *An ugly scar extends from his wrist to his elbow.*
- c. *Au ugly scar {extends/goes/runs/reaches/stretches} from his wrist to his elbow.*

These expressions are truth-conditionally equivalent, describing precisely the same objective situation. Yet they clearly differ conceptually, and since the differences are determined by their form, they must be accepted as aspects of linguistic meaning. The contrast between (1a) and (1b) resides in the direction of mental scanning, i.e., the conceptualizer's path of mental access in building up to a full conception of the overall configuration. The alternatives in (1c) employ different verbs of motion for the metaphorical

description of what is actually a static scene. What is crucial is that the directionality and metaphorical dynamicity are conceptually imposed on the situation rather than being inherent in it objectively. These various expressions construe the same situation in contrasting ways.

Metaphor and subjective directionality are but two of the many aspects of construal incorporated in the meanings of linguistic expressions. Another is the level of specificity (or conversely, schematicity) at which a situation is characterized. Under the rubric *perspective* we find a number of factors, a couple of which are exemplified in (2). The contrast in (2a) is a matter of *vantage point*: with *come* it is presupposed that the speaker is located in the attic, and with *go*, down below. The distinction in (2b) hinges on whether a *global* or a *local* perspective is adopted. With the simple verb *winds*, (2b) assumes a global view of the river and valley, for instance as seen from a plane or when reading a map. On the other hand, the progressive *is winding* imposes a local view in both space and time, notably that of a viewer travelling through the valley along the river.

- (2a) *Why don't you {come/go} up into the attic?*
 b. *This river {winds/is winding} through the valley.*

A major dimension of construal is the degree of *prominence* accorded to the various elements within a conceptualization. Of the numerous kinds of prominence that need to be distinguished, I will consider only one, namely *profiling*. As the basis for its meaning, an expression evokes a certain body of conceptual content, called its *base*. Within this overall conception, it directs attention to some particular substructure – the *profile* – construed as the entity the expression designates or refers to. The terms *husband* and *wife*, for instance, evoke as their base the conception of a male (M) and a female (F) participating in a certain kind of relationship, represented in Figure 2a as a horizontal line connecting them. Despite this shared content, the two expressions differ in meaning by virtue of imposing different profiles (indicated by heavy lines).

Not only *things* but also *relationships* can be profiled (both notions are defined quite abstractly – see Langacker 1987b). In Figure 2b, the dashed arrow represents a relationship in which a sentient individual bears a positive mental attitude toward some other thing. The verb *admire* profiles this relationship (including its participants, which are necessary to its conception). On the other hand, the noun *admirer* profiles only the individual holding the attitude. Once more the two expressions have the same conceptual base but contrast semantically due to profiling. I note just in passing that an expression's grammatical class is determined by the nature of its

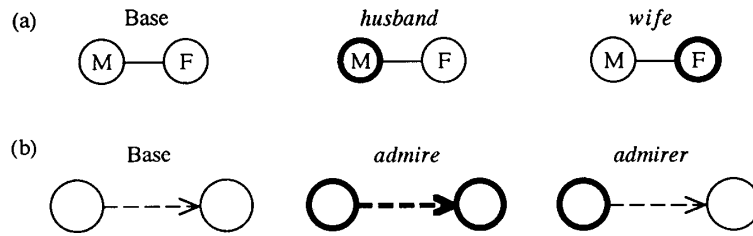


Figure 2.

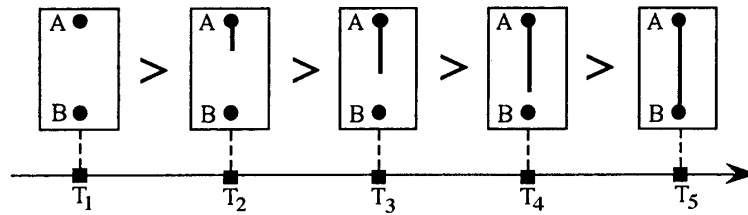
profile (not its overall content). *Admire* is a verb because it profiles a particular kind of relationship, whereas *admirer* is a noun because it profiles a thing.

2. DYNAMICITY

I use the term *conceptualization* (rather than ‘concept’) to emphasize the dynamic nature of linguistic meaning. Conceptualization does not reside in static mental entities, but in cognitive activity. Even established concepts, such as the meanings of lexical items, consist in patterns of processing activity which are actively carried out (and subject to contextual influence) on every occasion of their use. Moreover, every instance of conceptualization requires some span of processing time. Some conceptualizations can be regarded as instantaneous for certain purposes. Yet when viewed on a small enough time scale they always have a temporal duration, and how they develop through this interval is often crucial to linguistic meaning. It is specifically this time course of conceptualization that the terms *dynamic* and *dynamicity* are used here to indicate.

The conceptualizations functioning as linguistic meanings exhibit many kinds of dynamicity, pertaining to different dimensions of structure and levels of organization (hence observable on different time scales). I will start by pointing out some cases where this temporal dimension of meaning is intuitively quite evident, moving subsequently to cases where it may be less so. The first, more obvious examples are correlated with differences in *word order*, but with later examples this need not be the case. Although the temporal order of words encourages us to activate conceptual elements in a particular sequence, one should not assume that this is the only conceptual ordering we follow in processing a complex expression. We have every reason to suspect that processing proceeds simultaneously on multiple time scales, and with respect to numerous parameters. Moreover, even when it

(a) *the line from A to B*



(b) *the line from B to A*

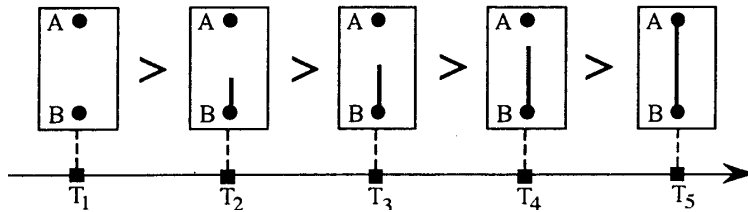


Figure 3.

correlates with (and is induced by) the order of words, it is the conceptual ordering per se that concerns us.

An initial case, already illustrated in (1), is the direction of mental scanning through a scene. Another example is given in Figure 3, where T stands for processing time.

Both expressions describe exactly the same objective entity, a line. The two linguistic encodings correspond to two different ways of *accessing*, or *building up to*, the full conception of the situation in question. The full conception is the same, as shown by the identity of the final configurations at T₅. How that configuration is arrived at is nonetheless quite different, being prompted by the contrasting expressions. In accordance with the word order and the choice of prepositional objects, the conceptualizer either traces a mental path starting with A and terminating at B, or does the opposite. While the end result is the same from a truth conditional standpoint, the path of mental access is one facet of the conceptualization evoked by the linguistic expressions and constitutes a subtle difference in their meanings.

Also quite apparent is the contrast between two variants of what I call the *nested locative construction*:

- (3)a. *Your camera is upstairs, in the bedroom, in the closet, on the top shelf.*
 b. *Your camera is on the top shelf, in the closet, in the bedroom, upstairs.*

Any number of locational expressions can be strung together to form a complex locational specification of this sort. The two expressions in (3) have the same truth conditions and situate the camera in exactly the same place. They are not however semantically equivalent. The contrast between them resides once more in how the overall locational conception is built up, or how the scene is mentally accessed. In (3a) the conceptual experience is that of ‘zooming in’, with each locative expression in the sequence specifying a location for the subject that is included in the larger location already accessed. Sentence (3b) follows the opposite strategy, starting with a narrowly specified (but unanchored) location and progressively ‘zooming out’. The full conceptualization evoked unfolds through processing time, and the specific manner of its unfolding is a significant feature of the contrasting semantic values of the two expressions.

Next consider *locative preposing*, illustrated by the contrast in (4). Whereas (4a) manifests normal English word order, the order in (4b) – with the locative coming first, and the subject following the verb – represents a special construction used to introduce new participants in a discourse.

- (4)a. *A dead rat lay in the middle of the kitchen floor.*
 b. *In the middle of the kitchen floor lay a dead rat.*

Once again it is clear that the experiential effect is very different, despite the identity of the objective situations described. In contrast to (4a), which simply ascribes a location to the subject, (4b) employs a distinct conceptual strategy to serve its ‘presentational’ function: it first ‘sets the stage’ by directing attention to a particular spatial location. The stage being set, it then specifies what is found in that location, thereby establishing the subject as a new discourse participant.

The data in (5) confirms that the two sentence types are not merely stylistic variants but do in fact contrast conceptually in the manner indicated. The pronoun *I* refers to the speaker, who is always presupposed as a discourse participant and therefore does not have to be introduced. Thus (5b) is semantically infelicitous, since the presentational function of the construction conflicts with the discourse status of the subject. The same holds for anaphoric pronouns, e.g., *it* in (5c).

- (5)a. *I lay in the middle of the kitchen floor.*
 b. **In the middle of the kitchen floor lay I.*
 c. **In the middle of the kitchen floor lay it.*

Nested locatives can also be preposed. Here an interesting difference emerges between those which ‘zoom in’ and those which ‘zoom out’:

- (6)a. *Upstairs, in the bedroom, in the closet, on the top shelf was his missing camera.*
 b. *??On the top shelf, in the closet, in the bedroom, upstairs was his missing camera.*

The ‘zooming in’ construction is compatible with the stage setting strategy of locative preposing. In both cases the strategy is one of first evoking an encompassing location as a starting point for mentally accessing something found within it. On the other hand, (6b) is rather marginal, since locative preposing and the ‘zooming out’ construction are less than fully consistent in their conceptual dynamics. The strategy of locative preposing is to first establish a location and then introduce a participant found within it. By contrast, the ‘zooming out’ construction begins with the specific location of the subject, which is subsequently expanded until an accessible global setting has been specified (e.g., *upstairs*). There is a certain awkwardness in first evoking the specific location of a participant that has not yet been introduced.

Contrasts in acceptability like those in (5) and (6) indicate that the conceptual differences I am positing do in fact have grammatical consequences. The alternate word orders are not merely a matter of stylistic choice, or something that linguists can ignore. The grammatical constructions in question incorporate particular ways of mentally accessing a complex situation. The conceptual ‘flow’ they embody is viewed in cognitive linguistics as an inherent facet of their meanings. It is one aspect of the construal the constructions impose on the conceptual content of particular sentences.

I would next like to mention the pervasive tendency in language toward *iconicity* between the form of expressions and their meaning (cf. Givón 1991; Haiman 1983, 1985a, 1985b). Especially prevalent is iconicity between the order of words in a sentence and some kind of ordering of the corresponding elements at the conceptual level. This iconicity may be conventionally established as part of an expression’s intrinsic semantic value, or it may just be inferred in the process of interpreting particular expressions. Either way, the tendency for the temporal ordering of words

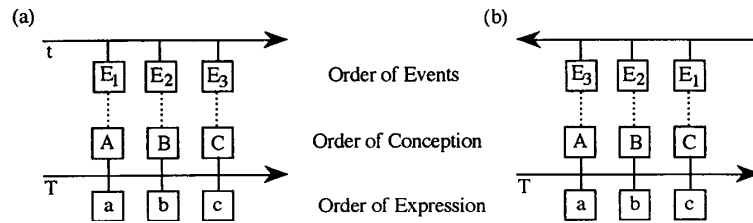


Figure 4.

in a sentence to correlate with some kind of conceptual ordering reinforces the notion that the temporal development of a conceptualization is often essential to its characterization.

An obvious case is the well-known tendency for the order in which events are described to be correlated with the order in which these events are conceived as occurring. In (7), for instance, there is a strong tendency to construe the first sentence as indicating that quitting the job preceded the marriage, and the second sentence as indicating that it followed the marriage:

- (7)a. *She quit her job and got married.*
 b. *She got married and quit her job.*

The extent to which this type of inference is conventionalized as part of a construction's inherent linguistic meaning is not of great importance for present purposes. What is relevant here is that the order of expression tends to harmonize with both the order of events and the order in which they are mentally accessed. This is sketched in Figure 4a, where small letters indicate the expressions (e.g., *got married*, *quit her job*), capital letters stand for the conceptualization of the events they describe, and E₁, E₂, and E₃ represent the events themselves. The arrow labeled with capital T is processing time, the time through which both speech and conceptualization occur. As shown, the order of expression correlates with the order in which the speaker and hearer conceptualize the events linguistically expressed – a natural consequence of the fact that the phonological structures which serve to symbolize the event conceptions necessarily occur in a particular temporal sequence. This is a kind of iconicity inherent in the very nature of linguistic expression. But a further, less automatic sort of iconicity obtains when the events in question, given in the diagram as E₁, E₂, and E₃, are interpreted as occurring in *event time* (t) in the same sequence as their conceptual access and phonological expression.

Though natural, there is nothing inevitable about this three-way correlation. We can also find cases of the situation depicted in Figure 4b, where

events are conceived and reported in a sequence precisely opposite to their actual occurrence. For instance, the passages in (8) represent two plausible and intelligible strategies for narrating a person's life history in an obituary. (8a) recounts the reported events in the order of their occurrence, (8b) in the opposite sequence.

- (8)a. *Albert A. Abernathy was born to poor parents in 1902. He worked at several jobs to put himself through school, and received his Ph.D. in theoretical basket-weaving in 1930. He went on to become one of the great basket-weaving theorists of all time. He suffered from a lengthy illness and died last night at the age of 98.*
- b. *Albert A. Abernathy died last night at the age of 98, after suffering from a lengthy illness. He was one of the great basket-weaving theorists of all time. He received his Ph.D. in theoretical basket-weaving in 1930, having worked at several jobs to put himself through school. He was born to poor parents in 1902.*

It is clear that in both passages the events are mentally accessed in the order presented. This is the first, essentially automatic kind of iconicity. The second type of iconicity – correlation of this sequencing with the actual temporal order of the events in question – is observed in (8a) but not in (8b). Yet even in (8b) the order of event conceptions is significant. The passage reflects the conscious strategy of taking the reader step-by-step through the major events of this life, but in reverse order, starting from the end and working backwards to the beginning. As shown in Figure 4b, this strategy is counter-iconic in the sense that event time and processing time run in opposite directions. But it is still iconic in the sense that the sequencing of events is maintained, apart from this inversion. The same life is portrayed, only it is mentally accessed in the opposite direction. I take it as evident that both discourse strategies exploit the conceptual ordering of events, as induced by their order of linguistic expression.

Examples like (8b) indicate that conceptual dynamicity – order of conceptualization – is independent of the temporal order of the events conceptualized. Still, event order offers itself as an obvious basis for conceptual order, and it is both natural and cognitively efficient to make them coincide. Certainly a passage like (8a) is easier to process than one like (8b). Intuitively, in going through cases like (8b) I find myself engaging in a *reconceptualization* at every stage. That is, after conceptualizing each new event described, in the order presented, I find myself mentally scanning through them in their actual temporal sequence, as a means of fixing

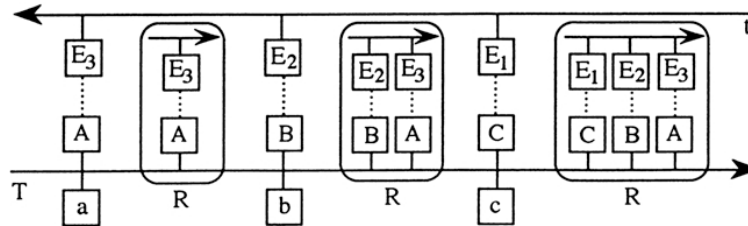


Figure 5.

in my mind the actual event ordering being characterized. With respect to Figure 4b, for instance, processing proceeds as shown in Figure 5, where the boxes labeled R enclose the episodes of reconceptualization, summarizing at each step what has been processed so far. Through these episodes of reconceptualization, which take place on a smaller time scale, an accurate picture of the overall event sequence is constructed. No such reconceptualization is necessary for (8a) and Figure 4a, where the order of presentation directly follows the order of events.

An important general point, which needs to be reiterated and kept in mind, is that no single conceptual ordering – no single pass through the elements of a complex conceptual structure – accounts for all facets of its apprehension. Processing presumably occurs more or less simultaneously with respect to numerous dimensions of structure and levels of organization. Even for a single dimension, ordering might be observed on multiple time scales, with further complications such as backtracking and reconceptualization, as in Figure 5. To properly assess the role of dynamic conceptualization in language, we must view it in a cognitively realistic manner.

In the examples considered so far, the putative order of conceptualization correlates at least roughly with the temporal order of expression. I assume that the order of expression always induces a conceptual ordering of the notions symbolized, as one facet of our dynamic apprehension of linguistic meanings. However, not every facet of dynamic conceptualization is necessarily correlated with expression order. I turn now to a class of cases where such a correlation is not always observed.

3. REFERENCE POINT PHENOMENA

We have the cognitive ability to invoke the conception of one entity as a *reference point* for purposes of establishing mental contact with another, called the *target* (i.e., to access one entity via another). In (9a), a perceptual

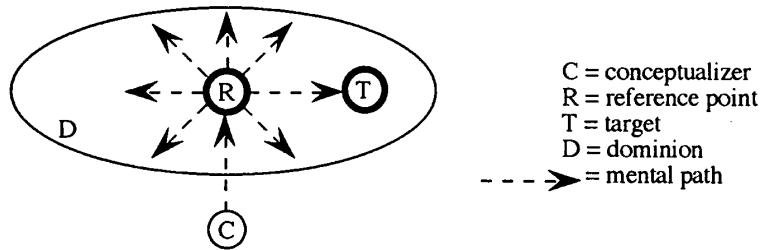


Figure 6.

example, the boat serves as a visual reference point in relation to which the duck can be found. In (9b), the surgeon is invoked as a conceptual reference point. It is only in relation to the surgeon that the individual described as *his wife* is mentally singled out.

- (9)a. *Do you see that boat out there in the lake? There's a duck swimming right next to it.*
 b. *Do you remember the surgeon we met at the party? His wife just filed for divorce.*

This reference point ability is diagrammed in Figure 6. A *dominion* is the set of entities to which a particular reference point gives access.

Being a matter of *sequenced mental access*, the reference point phenomenon is inherently dynamic. I believe it has numerous linguistic manifestations, one of them being *possessive constructions* (as argued in Langacker 1993, 1995a; Taylor 1996).

A longstanding problem is that of describing the meaning of the possessive element, 's, or the possessive construction, e.g., *the boy's shoe*. Their meaning is problematic owing to the extraordinary variety of situations coded by possessives, exemplified in (10a). A notion like 'ownership' is clearly too specific to cover the full range of uses (even allowing for metaphor). An alternative is to say that the construction merely indicates some kind of association between the possessor and possessed. While this is certainly on the right track, the proposal as it stands is too general. In particular, it fails to account for the usual irreversibility of possessive expressions, as shown in (10b).

- (10)a. *the boy's shoe, Jeff's uncle, the cat's paw, their lice, the baby's diaper, my train, Sally's job, our problem, her enthusiasm, its location, your candidate, the city's destruction*
 b. **the shoe's boy, *the paw's cat, *the diaper's baby, *the destruction's city*

My own proposal is that possessives are reference point expressions: as a schematic (i.e., abstract and fully general) description, a *possessor* can be characterized as a reference point, and the *possessed* as its target. While considerable evidence supports this characterization, here I will merely note its apparent semantic appropriateness. It is sufficiently abstract and flexible to accommodate the full range of examples. At the same time, it incorporates an intrinsic asymmetry which explains why possessives are irreversible.

In terms of word order, the typical pattern observed cross-linguistically is for the possessor to precede the possessed. This is a natural consequence of the former being invoked as a reference point to access the latter. It is a case of word order iconicity, where the conceptual sequencing inherent in the reference point relationship dovetails with the order of expression. As is usual, however, this iconicity is only a tendency – the opposite order can also be found. Yet the reference point analysis of possessives was not proposed on the basis of word order. Possessives are still best characterized in terms of sequenced mental access even when the conceptual ordering is not reinforced by an iconic correlation with order of expression. In such instances the dynamicity of conceptualization is independent of word order.

Word order is not even relevant for the next reference point phenomenon, which pertains to alternate interpretations of a single expression. In *metonymy*, we explicitly mention one entity with the intent of actually referring to some associated entity that the former, given the overall context, is able to evoke. The boldface expressions in (11) are metonymic. It is not the speaker who is in the phone book, but a representation of the speaker's name and telephone number. What Kimberly actually heard was not a piano per se, but rather the sound it emitted. And the next World Cup will not be won by a country as such, but specifically by its national soccer team.

- (11)a. *I'm in the phone book.*
 b. *Kimberly heard **a piano**.*
 c. ***Italy** will win the next World Cup.*

In metonymy, an expression's usual profile serves as a reference point providing mental access to its intended profile. Like reference point relationships in general, metonymy reflects an asymmetry in cognitive salience which makes the reference point more readily accessible than the target. A number of basic factors contribute to this greater accessibility. Other things being equal, the following salience asymmetries obtain: human >

non-human, whole > part, concrete > abstract, visible > non-visible. They are respectively exemplified by the metonymies in (12):

- (12)a. *Dante is on the top shelf.* [presumably the book]
 b. *She ate an orange.* [presumably not the peel]
 c. *The new church grew rapidly.* [the organization, not the building]
 d. *The kettle is boiling.* [the kettle is visible, the water is not]

Bear in mind that these factors are only general tendencies which can be overridden in particular circumstances. In (13), for instance, the metonymy reverses the usual asymmetries favoring human, concrete, and visible entities. One can easily imagine, however, that in a hospital setting the surgical procedures performed might be more accessible to the nurses than any other information which might identify the patients who undergo them.

- (13) *The vasectomy in room 212 needs a sleeping pill.* [one nurse to another in a hospital]

Possession and metonymy are similar in that both involve reference point relations between two things (as opposed to relationships). Moreover, both function at the level of a nominal expression (i.e., a noun and its modifiers) and pertain to the specification of its referent (profile). Let me briefly mention another type of reference point relation that holds at a different level of organization, namely the discourse level, and obtains between a thing and a proposition. This is the case in a *topic* construction:

- (14)a. *Your brother, he's always trying to borrow money.*
 b. *The wedding, I was thinking about it this morning.*

The topic nominal specifies a domain of knowledge, a 'mental address', and the proposition expressed by the following clause is 'delivered' to that address, i.e., integrated in the domain of knowledge centered on the topic. As shown in Figure 7, the topic is thus a reference point, the domain of knowledge it anchors is its dominion, and the proposition is a target located there. It should come as no surprise that in most languages a topic precedes the clause expressing the target.

Although I cannot discuss the matter at any length, the connection between a *pronoun* and its *antecedent* has also been analyzed, very insightfully, in reference point terms (van Hoek 1995, 1997). The antecedent is

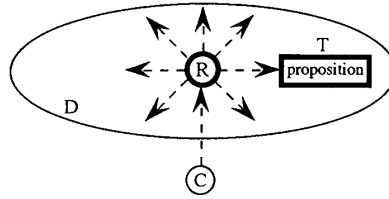


Figure 7.

so called because it establishes a referent in the discourse, thus providing initial mental access to it. It is on the basis of this prior mental access that the pronoun receives its interpretation. Rather than being established independently, the pronoun's referent is determined *via* that of the antecedent—specifically, they are interpreted as being *coreferential* (i.e., their referents are the same). In regard to their referents, the antecedent is thus a reference point through which the pronoun is accessed. Its dominion is the portion of the discourse in which an appropriate pronoun is freely interpretable as being coreferential to it, so that there is no need to reintroduce its referent or provide an identifying description. Within a sentence, the extent of the dominion is strongly correlated with structural factors, as shown in (15). Usually the antecedent precedes the pronoun in expression order, and commonly it is in a main clause, the pronoun in a subordinate clause. When neither holds, the result is usually considered ungrammatical.

- (15)a. *Sally fed the cat [before she left].* [antecedent precedes, in main clause]
 b. [*Before Sally left*] *she fed the cat.* [antecedent precedes]
 c. [*Before she left*] *Sally fed the cat.* [antecedent in main clause]
 d. **She fed the cat [before Sally left].* [antecedent follows, in subordinate clause]

4. PATHS OF MENTAL ACCESS

The conceptualizations functioning as the meanings of linguistic expressions are complex and multifaceted. It is quite implausible, both linguistically and psychologically, to suppose that these conceptualizations are static entities all facets of which are simultaneously active and accessible.

Instead, I have offered a variety of considerations supporting a dynamic view in which conceptualization unfolds through processing time. Often this time course is essential to an expression's semantic value. It is not merely the case, for instance, that we access the components of a possessive or a topic relationship in a certain sequence. Rather, I suggest that this sequenced mental access is *constitutive* of the possessive and topic relations – this dynamicity is per se a pivotal aspect of the linguistic meaning.

In describing both semantics and grammar, I therefore find it appropriate to think in terms of *paths of mental access*. I define a *natural path* as any cognitively natural ordering of the elements of a complex structure. The origin of such a path will be called a *starting point*. A complex linguistic structure, such as a sentence, comprises a substantial number of natural paths pertaining to various dimensions and levels of structure, and manifested on different time scales. Various linguistically important natural paths are listed in (16).

(16) *Some natural paths:*

- speech time (word order, expression order in general)
- locational path of access (nested or chained)
- temporal sequence of events
- successive points along any scale
- chain of reference point relationships
- empathy (speaker > hearer > other; human > animate > inanimate; etc.)
- chain of cause-effect relationships
- clausal organization (main clause > subordinate clause)
- viewpoint chain
- partonomy (hierarchy of whole-part relations)
- grammatical relations (subject > object > other)

There is a notable tendency for natural paths to *coalign*, to the extent that this is possible given their inherent nature. Other things being equal, expressions that maximize the coalignment of natural paths are more basic ('unmarked') and easier to process. We have already observed the tendency for speech time to coalign with such natural paths as nested locations, as in (3), and the temporal sequence of events, e.g., (7). A passage like (8a), where expression time and event time coalign, is certainly more common and easily processed than one like (8b), where they run in opposite direc-

tions. The latter situation requires a reconceptualization if the actual event sequence is to be properly apprehended (Figure 5).

Here are some further examples. Besides the nested locatives (of either the ‘zooming in’ or ‘zooming out’ variety), we find *chained locatives*, as in (17), where expression time correlates with the successives links in a spatial path.

- (17) *The Linguistics Hall of Fame is across the piazza, through that alley, over the bridge, and around the corner to the right.*

An order of expression which follows a spatial path in sequence from source to goal is easier to process than when the goal is presented before the source. Thus (18a) is processed more smoothly than (18b), the latter requiring a reconceptualization of the path in the proper order, after the two locatives have been presented.

- (18)a. *She drove from Chicago to New York.*
 b. *She drove to New York from Chicago.*

A comparable difficulty arises when expression order runs counter to movement along an abstract scale. I find it much easier to deal with expressions like (19a), as opposed to (19b). In the former, expression time, event time, and positive direction along the scale of prices all coalign. In the latter, order of expression runs counter to the other two natural paths.

- (19)a. *They raised the price of my book from \$35 to \$50.*
 b. *They raised the price of my book to \$50 from \$35.*

In (20a), we see a chain of reference points, specifically involving possession. Each possessor named functions as reference point providing access to a target (the element possessed), which in turn functions as reference point (possessor) for the next. Note the correlation of this path of mental access with speech time. Note further that possessor > possessed alignment tends to correlate with position on *empathy* hierarchies. The speaker is the starting point with respect to such hierarchies, and functions very naturally as initial point of reference for possession chains. Possessive expressions tend to be less felicitous when, as in (20b), the possessor > possessed relationship runs counter to the natural ordering based on empathy (Deane 1987).

- (20)a. *my friend's cousin's wife's brother's doctor*
 b. *the boy's dog; *the dog's boy; the dog's collar; *the collar's dog*

A *causal chain*, consisting of a series of cause-effect relationships, is commonly expressed linguistically in a way that correlates with both order of expression and another significant path of access, namely that leading from main clause to successively ‘embedded’ subordinate clauses. Progressively longer causal chains, with the caused event in each case grammatically subordinate to the causing event, are illustrated in (21).

- (21)a. *Our waiter brought the soup.*
 b. *The manager made our waiter [bring the soup].*
 c. *I had the manager [make our waiter [bring the soup]].*
 d. *She forced me [to have the manager [make our waiter [bring the soup]]].*
 e. *They caused her [to force me [to have the manager [make our waiter [bring the soup]]]].*
 f. *He brought it about [that they caused her [to force me [to have the manager [make our waiter [bring the soup]]]]].*

Yet another natural path is a *viewpoint chain*, consisting of a series of mental relationships in each of which a conceptualizer ‘views’ some situation. This type of chain also tends to correlate with both expression order and the path from main clause to successively embedded subordinate clauses:

- (22)a. *Jill is clever.*
 b. *Jack believes [that Jill is clever].*
 c. *I suspect [that Jack believes [that Jill is clever]].*
 d. *Sharon knows [that I suspect [that Jack believes [that Jill is clever]]].*
 e. *I hope [that Sharon knows [that I suspect [that Jack believes [that Jill is clever]]]].*
 f. *You must realize [that I hope [that Sharon knows [that I suspect [that Jack believes [that Jill is clever]]]]].*

The relationship between a *whole* and its *parts* constitutes another natural path of access. Conceptually, a whole has priority, for a part is usually characterized with respect to its place or function within the whole. The whole has greater conceptual salience, in that we tend to think of the world as comprising whole objects which can (if useful) be further analyzed into parts, rather than consisting primarily of parts which organize themselves into wholes. Usually we cannot even list all the parts. What are all the parts

of the human body? Or a house? Parts are often not discrete or distinct, there may be alternate ways of dividing things up, and, since parts can generally be divided into smaller and smaller parts, perhaps indefinitely, it is not evident what sized elements we should even consider as basic constituents. Nor could we necessarily even identify a part except in the context of the whole in which it functions.

Whole-part relations often form hierarchies, as in (23). A *partonomy* functions as a natural path.

- (23)a. *body > arm > hand > finger > knuckle*
 b. *house > door > hinge > screw*

These natural paths have a variety of linguistic manifestations. They can be observed in possessive constructions, where a whole commonly functions as reference point (possessor), and a part as target (possessed):

- (24)a. *the knife's blade, the tree's roots, the professor's beard, the girl's elbow, the table's top, the house's roof, the banana's peel, the tire's tread, the dog's tail*
 b. **the blade's knife, *the roots' tree, *the beard's professor, *the elbow's girl, *the top's table, *the roof's house, *the peel's banana, *the tread's tire, *the tail's dog*

Partonomies are also manifested in compounding. The usual pattern is for the first element of a compound to profile the whole with respect to which the second element profiles a part, as in (25).

- (25)a. *finger nail, eyelid, kneecap, earlobe, thigh bone, bellybutton, asshole*
 b. *doorknob, windowpane, windowsill, roof shingle, toilet seat, door hinge, hinge screw*

What counts as a whole-part relation is locally determined. That is, the first element of the compound can occupy any level in the hierarchy (and can thus be a part relative to higher levels), but the second element has to be a part with respect to it, at the next lower level. Skipping levels is generally not permitted:

- (26)a. **handnail, *facelid, *legcap, *headlobe, *bodybutton*
 b. **houseknob, *wallpane, *bathroom seat, *house hinge, *door screw*

5. SUBJECT AND OBJECT

The last natural path listed in (16) pertains to what linguists call *grammatical relations*. Linguists of many theoretical persuasions have found reason to posit the hierarchy subject > object > other to capture the relative accessibility of nominal expressions for grammatical purposes. That is, subjects play a role in more grammatical phenomena than do objects, objects more than obliques, and so on. Across languages, for instance, verbs agree with their subjects more often than with their objects, and seldom agree with anything else. Or consider relative clauses (Keenan and Comrie 1977). It is usually possible for the subject of a relative clause to be *relativized*, i.e., to be the element interpreted as coreferential to the modified nominal; often it is realized as a relative pronoun, as in (27a). There are somewhat fewer languages in which an object can also be relativized, as in (27b), and considerably fewer allowing the relativization of obliques or possessors:

- | | | |
|--------|---|-------------------------------|
| (27)a. | <i>the book [which was lying on the desk]</i> | [relativization of subject] |
| b. | <i>the book [which I read last week]</i> | [relativization of object] |
| c. | <i>the book [from which he got the information]</i> | [relativization of oblique] |
| d. | <i>the book [whose cover was torn]</i> | [relativization of possessor] |

It is generally agreed that the grammatical relations hierarchy involves some kind of *prominence*. Some theorists speak in terms of ‘syntactic prominence’, which so far as I can tell is just a label for the observation that some elements are grammatically more accessible than others. My own position is more explanatory, but more controversial, even within cognitive linguistics. I have argued (e.g., 1990, 1991) that the syntactic prominence of clausal subjects (and secondarily objects) merely reflects a kind of conceptual prominence which actually constitutes the semantic value of subject (and object) status. This accords with a basic claim of cognitive grammar: since grammar is symbolic, all grammatical elements are meaningful.

The schematic meanings I posit for subject and object status are as follows: a subject is the *primary focal participant* in a profiled relationship, and an object (when present) is the *secondary focal participant*. (Note that a relationship, in the general sense in which I use the term, does not require multiple participants; e.g., the adjective *square* profiles a relationship with

only one participant – the relation holds, not between two distinct entities, but rather between facets of a single entity.) But what exactly does it mean to characterize a nominal element as a primary or secondary focal participant? Let me suggest a working hypothesis that seems quite plausible given the central importance to linguistic structure of dynamicity and paths of mental access.

A relationship cannot be conceptualized without conceiving (at least schematically) of its central participants. A relational conception (e.g., *throw*, *above*, *admire*) presupposes the conception of its participants – without participants to ‘anchor’ the relationship, there is nothing to relate. By virtue of providing mental access to the conception of a relationship, the participants function as reference points with respect to it. The participants corresponding to the subject and object nominals are hypothesized to be the *first* and *second* reference points in a chain whose target is the full conceptualization of the profiled relationship. Their role as first and second reference points on this path of mental access constitutes the primary and secondary focal prominence characteristic of subject and object status.

I will mention just in passing that Chafe has reached a similar conclusion about the characterization of subjects based on his careful investigation of discourse phenomena: “. . . The function of a grammatical subject is to express a starting point to which other information is added” (1994: 92). There is a considerable amount of additional evidence for the characterization of subject and object status in terms of focal prominence, as well as the explication of this prominence in terms of dynamicity (sequenced mental access). Here I can only sketch a portion of it (for fuller discussion, see Langacker 1998a, b, 1999a).

A certain amount of experimental work, carried out by other investigators for other purposes, can be cited as bearing on the issue. The most directly relevant is a series of experiments which examined how syntactic production is affected by the focusing of attention on a single participant in an observed interaction (Tomlin 1995, 1997; Forrest 1996). It was hypothesized that a speaker would choose, as the syntactic subject of a sentence produced to describe the interaction, the participant in focal attention at the time of utterance formulation. The strong empirical confirmation this hypothesis received can be interpreted as supporting the proposed characterization of subject as primary focal participant. Other investigators have found that, under certain conditions, the agent in an interaction is mentally accessed more rapidly than the patient (Verfaillie and Daems 1996). They relate this to two linguistic observations: that an agent is prototypically chosen as grammatical subject, and the overwhelming tendency in the world’s languages for the subject to precede the object in the

most neutral word order. A considerable body of experimental research has demonstrated the special status of the initial element in a sentence as the 'foundation' or 'starting point' for constructing the rest (MacWhinney 1977; Gernsbacher and Hargreaves 1992). These findings are at least indirectly relevant, because in most cases the first element was in fact the grammatical subject.

Given that it is optimal from a processing standpoint for natural paths to coalign whenever possible, the dynamic account of focal prominence predicts the cross-linguistic tendency for subjects to precede objects in basic word order. Importantly, though, it is *not* predicted that a subject always has to precede an object (or that both have to precede the verb). For one thing, language processing requires the simultaneous negotiation of numerous natural paths which do not invariably coalign even when this is possible. While coalignment may be preferred, previous examples have clearly shown that it is not obligatory.

We must also take account of the multiple levels of organization involved, in particular the verb level and the clause level. The proposed characterization of primary and secondary focal participants – as the first and second reference points accessed in building up to a full conceptualization of the profiled relationship – holds at the level of the verb, which evokes the participants schematically as an intrinsic aspect of its meaning. This dynamicity inherent in the verbal conception is only one factor in the processing of a fully specified clause, which occurs at a higher level of structural organization, and on a larger time scale. The subject and object nominals *correspond* to the schematic participants evoked by the verb internally, and specify their identity in the discourse. But the sequenced mental access taken as responsible for their focal prominence is independent of whether the schematic participants are actually made explicit by nominal expressions, and in what order. Thus, while word order at the clause level should tend to coalign with the hypothesized path of mental access, we can also expect this tendency to be overridden by other factors, as it commonly is.

I will cite just a few grammatical phenomena to support the characterization of subject and object in terms of sequenced mental access. For one thing, it is well known that a subject has first priority for functioning as antecedent in a pronoun-antecedent relationship, while an object has second priority (Reinhart 1983; van Hoek 1995, 1997). As exemplified in (28), the subject is a potential antecedent for all the other nominals in a

clause (but not conversely), and the object for all other nominals except the subject.

- (28)a. *My sister lost her keys.*
 b. **She lost my sister's keys.*
 c. *I observed the baboons in their natural habitat.*
 d. **I observed them in the baboons' natural habitat.*

Recall that van Hoek describes the antecedent as a reference point in whose dominion an appropriate pronoun is freely interpretable as being coreferential to it. The fact that subject and object function as first and second reference points for this purpose lends credence to their suggested reference point characterization.

Further corroboration comes from the use of possessives to specify the subject and object of verbs that have undergone *nominalization* to form derived nouns. In (29a), the possessive expression *Oswald's* specifies the understood subject of the verb stem *assassinate* (which is nominalized to form *assassination*). Likewise, in (29b) the possessive expression *Kennedy's* specifies the understood object of *assassinate*. This phenomenon is so common across languages that it requires some natural explanation.

- (29)a. *Oswald's assassination of Kennedy.*
 b. *Kennedy's assassination by Oswald.*

I argued previously that a possessor is best described schematically as a reference point providing mental access to the entity possessed, this reference point relationship holding between two things at the level of a nominal expression. When a verb is nominalized, it is conceptualized as an abstract thing, expressed by a noun. If the focal participants of a verb are reference points with respect to its conceptualization, then – when the verb is nominalized – this reference point relation becomes a relation between two things, at the nominal level. That is just what a possessive relation is claimed to be. The universal tendency for possessives to be used in this way is therefore predicted by the hypothesized characterization of subject and object.

Finally, consider *equative* sentences, so called because they equate the referents of two nominals:

- (30)a. *My uncle is the mayor.*
 b. *The mayor is my uncle.*

Although both sentences in (30) identify the same two nominal referents, they are not semantically equivalent. They would be appropriate in different discourse contexts. Thus (30a) would be used in a context where the uncle is the topic of discussion, and (30b) when the mayor is being discussed. This goes along with Chafe's description of a subject as the starting point for accessing the information presented in a clause. In other words, topic and subject – as reference points at two different levels of organization – tend to coincide.

Next consider the examples in (31):

- (31)a. *A tiger is a feline.*
 b. **A feline is a tiger.*

These generic statements do not refer to any particular tiger or any particular feline. In my own analysis of nominal expressions (1991, 1999c), they profile *arbitrary instances* of the tiger and feline types, i.e., imagined instances mentally evoked for the specific purpose of saying something about the categories in question. The implication that tigers are a proper subset of the class of felines follows, in my analysis, from this notion of arbitrary instances together with the characterization of subject as starting point. Sentence (31a) indicates that, if we start from an arbitrarily chosen instance of the tiger category, it can always be equated with an instance of the feline category. This accords with our knowledge of the world, or the category structure normally assumed. On the other hand, (31b) indicates that, if we start from an arbitrarily chosen instance of the feline category, it can always be equated with an instance of the tiger category. Because this conflicts with our knowledge of the world, the sentence is infelicitous.

6. CONCLUSION

Since language and conceptualization reside in patterns of neurological activity, it stands to reason that dynamicity – understood as evolution through processing time – should prove essential. I have tried to suggest some places to look for it. Dynamicity is most apparent in discourse, e.g., in (8), because the large time scale makes sequential access readily apparent at the conscious level. It is almost as evident between the clauses or phrases of a complex sentence, e.g., the nested locatives in (3) or the view-point chain in (22), and perhaps to some extent at lower levels of structural organization. Extrapolating sequenced access to the internal structure of a single element, as I have done for the focal participants evoked by a verb, is undeniably more speculative. I believe, however, that the speculation

is quite plausible, and that a considerable range of evidence supports it. A general feature of language design is that comparable phenomena are observed at multiple levels of organization. I hope to have demonstrated that dynamicity and sequenced mental access have this character. If we are unaware of it at the lowest levels of organization, this may simply be due to the small time scales operative at those levels.

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