INTERACTIVE COGNITION:
TOWARD A UNIFIED ACCOUNT OF STRUCTURE,
PROCESSING, AND DISCOURSE

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ABSTRACT

Language is both structured and dynamic, consisting in patterns of activity that are learned, maintained, exploited, and adapted in actual instances of language use. It is both cognitive and interactive, being learned and used by cognizing individuals who apprehend expressions in relation to the interlocutors, the social circumstances, the overall context, and the ongoing discourse. A basic principle of Cognitive Grammar (CG) is that these aspects of linguistic organization cannot be properly understood in isolation from one another. In its original formulation and continued development (Langacker 1987, 1991, 2000, 2001a, 2008, 2010a), it thus envisages a unified account of structure, processing, and discourse.

1. UNIFICATION

From the beginning, CG has sought a unified account of language (Langacker 1987, 1991). A major unification is reflected in its central claim: that only semantic, phonological, and symbolic structures are needed to describe it. On this account, lexicon and grammar form a continuum of symbolic structures (form-meaning pairings). They are not distinct from semantic and phonological structure, but reside in relatively more specific and more schematic patterns of symbolic association between them.

Grammar consists in assemblies of symbolic structures, exemplified in Figure 1(a). Semantically, nominal expressions designate things (represented as circles), while verbs, clauses, prepositions, etc. designate various sorts of relationships (represented as arrows). Heavy lines indicate the designated entity—an expression’s profile. In a profiled relationship, there is generally a primary focused participant, called the trajector (tr), and often a secondary one, called the landmark (lm).

Correspondences (dotted lines) indicate how component structures are successively integrated to form more inclusive composite structures. In some cases symbolic assemblies are comparable to the “tree structures” of generative syntax, as in Figure 1(b), except that the “nodes” are symbolic (with semantic and phonological content) rather than purely formal. By
nature, however, assemblies are not limited to “classical constituency” of this sort (Langacker 1997). Their inherent flexibility makes it possible to envisage a unified account of structure, processing, and discourse.

Figure 1.

A step in this direction was the general scheme in Figure 2, proposed for the characterization of all linguistic elements (Langacker 2001a). A usage event is an instance of language use, producing an expression of any size (e.g. word, clause, sentence). Its production involves the speaker (S) and hearer (H) apprehending (--->) the semantic and phonological content that appears in a “window” of attention and focusing their attention on a particular facet of it. The interlocutors, their interaction (<--->), and their immediate circumstances comprise the ground (G). Their interaction takes place in some context against a more stable background of shared knowledge. Along another axis, the context includes the ongoing discourse itself, consisting in previous as well as anticipated usage events. All of this constitutes the current discourse space: everything presumed to be shared by the speaker and hearer as a basis for communication at a given moment in the flow of discourse.

Figure 2.
Moreover, the content apprehended by the interlocutors unfolds in multiple channels, including those in Figure 3. Semantic structure is broadly understood as encompassing any conceptualization channel, and phonological structure as encompassing any expression channel. Content from any channels can figure in symbolic relationships.

Figure 3.

Linguistic units are abstracted from usage events by the reinforcement of recurring commonalities (Langacker 2000). Should they recur, any facets of the schemes in Figures 2 and 3 can be learned as part of the conventional value of linguistic elements. In this way, not only language use but language structure itself can be seen as dynamic, interactive, and embedded.

It is dynamic because it consists in patterns of activity (neural, mental, physical, social). It thus occurs through time, and concurrently on different time scales, ranging from the brief intervals involved in coordinating articulatory gestures to the long ones required for discourse planning. Temporal organization is fundamental to linguistic structure. Its time course—how it develops through time—is essential not only in phonology (speech time) but also in grammar and semantics. For instance, the expressions in (1) have subtly different meanings even though they describe the same situation and employ the same locative phrases; they differ semantically in terms of how the complex conception is mentally accessed (by “zooming in” or “zooming out”). In short, semantic and grammatical structures are not static entities, but things that happen.

(1)(a) The brushes are in the garage, in the cabinet, on the top shelf, behind the paint cans.
(b) The brushes are behind the paint cans, on the top shelf, in the cabinet, in the garage.

The interactive nature of language is evident in Figure 2, where the speaker-hearer interaction has a central position. Language is both cognitive and social, both individual and intersubjective. Without the cognitive activity of individuals, there could be no social interaction. But without such interaction, neither language nor higher-level cognition can develop. Conception takes place in the minds of individuals but does not occur in isolation—
the conception involved in language is both shaped by, and a primary vehicle of, social interaction.

Experientially, each of us occupies the very center of the universe, from which we apprehend the world around us, as sketched in Figure 4. At a given moment, a particular conceptualizer (C) has a maximal scope of awareness (MS), and directs attention to a certain portion of it—the “onstage region” (OS), or primary window—containing the specific focus of attention (F). As such, the conceptualizer remains offstage as the implicit subject of conception, whereas the focused entity is salient as the object of conception. In a usage event, the speaker and hearer both function as subjects of conception (C) who focus their attention on the entity (F) profiled in the primary window (OS). And for each of them, the full scope of awareness (MS) encompasses everything in Figure 2, including the other interlocutor and her conceptualizing activity.

Figure 4.

This is the basis for intersubjectivity. Even in describing other entities, each interlocutor is aware of the other, reads her intention (Tomasello 2003), and assesses her knowledge and current state. To some extent, each engages in a simulation of the other’s experience, thereby apprehending the situation from the other’s vantage point within it as well as from her own. Intersubjectivity based on simulation is inherent in the meanings of personal pronouns (Langacker 2007). Canonically, the interlocutors direct their attention to other entities, as shown in Figure 5(a) for the third-person pronoun she, referring to some female (f). As the subjects of conception, the speaker and hearer are offstage and implicit. In this regard the pronouns I and you would seem to have contradictory properties, since the entities they put onstage and profile as objects of conception are precisely the offstage subjects. Intersubjectivity resolves the apparent contradiction. With the pronoun I, the speaker is not only the subject of conception but also simulates the hearer’s experience, where she functions as the object of conception. Likewise, the pronoun you invites the hearer to simulate the speaker’s experience, where the hearer functions as object of conception.

Finally, the scheme in Figure 2 calls attention to the embedded nature of language. Note in this respect that the composite structure in Figure 1(a), corresponding to the full expression Alice admires Bill, occupies only the primary window, i.e. what is put onstage and specifically attended to. In a full characterization, the expression’s linguistic import depends on everything appearing in the current discourse space. Directly or indirectly, content in any or every sector of it is incorporated as part of the contextual or conventional value of
linguistic elements. Central to the import of *Alice admired Bill* is how the focused structures relate to the ground as part of the speaker-hearer interaction. Also included are pertinent aspects of the physical, social, and cultural context. Lexical meanings do not consist of just the profiled thing or relationship, but are based on “encyclopedic” arrays of general knowledge, flexibly evoked and adapted for the purpose at hand (Langacker 1987: §4.2). The current expression is also embedded in the ongoing discourse, being construed in relation to previous and subsequent usage events. Thus it does not exist in isolation, but draws upon a vast conceptual substrate that shapes and supports it.

For instance, consider the difference between *Alice admired Bill* and *She admired Bill*. Using *she* instead of *Alice* has the conventional import that the nominal referent has already been singled out as a shared focus of attention in the immediate discourse context, typically in the prior usage event. A full characterization of this pronoun is thus more elaborate than given in Figure 5(a): as shown in Figure 6, it incorporates a previous event of this sort within the relevant scope of awareness.
2. DISCOURSE FUNCTION

That grammar is shaped by discourse is an organizing principle in the functionalist tradition (e.g. Givón 1995). Although it has been less visible in CG, it also follows from central notions of this framework. Being abstracted from usage events occurring in actual discourse, all linguistic units have discourse functions as a basic aspect of their conventional value.

Linguists most commonly concern themselves with elements representing the descriptive function of language. Description, however, is only one global function that linguistic expressions serve. To some extent, every instance of language use (and every linguistic unit) has conceptual import involving four dimensions: descriptive, expressive/emotive, interactive, and discursive. Its descriptive import consists in the interlocutors apprehending the objective situation appearing onstage in the window of attention. This is all that is shown in diagrams like Figure 1. Expressive/emotive import is internal to the interlocutors, being conveyed but not described (Langacker 2008: §13.2.4). An example would be the expression of pain, e.g. *Ouch* or *Ow!*, differing in the intensity of the pain experienced. These are conventional units of English which express an experience, rather than putting it onstage as a focused object of description. Conventional greetings, such as *Hi*, exemplify the interactive dimension. They differ from expressives like *Ouch* by pertaining to the speaker-hearer interaction (rather than the speaker’s internal experience). Discursive elements pertain to how usage events relate to one another. One such unit is the filler *uh*, which indicates that the speaker—while pausing—intends to continue: *He’s very…uh…competitive*. As a way of “holding the floor”, its conceptual import resides in the channel of speech management (Figure 3). These global functions are further exemplified in Figure 7, pertaining to orders. In 7(a), an order is put onstage as the profiled event. It constitutes the objective situation, which serves as the object of description.Canonically, the situation described is distinct from the speech event comprising the ground. But as a special case, the two can coincide, as in 7(b), resulting in a performatively expression (Austin 1962). In this case the event of ordering has both descriptive and interactive function, and the interlocutors have a dual role as both subjects and objects of conception.

In the other examples, the interactive force of ordering remains offstage as a tacit feature of the ground. Although this force is conveyed (indeed, symbolized) by the imperative construction, only the envisaged event of the hearer leaving is put onstage and explicitly described. Usually the hearer is also left implicit, reflecting her role as subject of conception, since the agent’s identity is given by the speaker-hearer interaction. Overt reference to listener, as in 7(e), reflects her role as agent and object of conception; the evident need to spell this out explicitly implicates diminished cooperation and greater imperative force. Signalled prosodically in (d) and (e), the expressive/emotive import of a strong imperative is shown by ‘<!>’ inside the circle representing the speaker. Finally, *so* in 7(f) has a discursive function, indicating that the current speech event follows in some manner (†) from the previous discourse.
My characterization of certain elements as having a narrowly discursive function should not obscure the basic notion that, in a broader sense, all language structures serve discourse functions (with some mixture of descriptive, expressive/emotive, interactive, and discursive components). Moreover, since these functions are aspects of linguistic meaning, they can also be described as semantic functions. And since grammar (from the CG perspective) is inherently meaningful, we can speak as well of grammatical functions. Discourse functions not only motivate grammatical structures but are properly thought of as an essential part of their characterization (Langacker 2009a: ch. 8). They consist in highly schematic conceptions that represent their *raison d’être* without specifying any particular means of achieving this result.

Roughly speaking, for example, a nominal (i.e. a “noun phrase”) serves the function of nominal reference: it allows the interlocutors to direct attention to a particular thing identified by its status vis-à-vis the ground in the current discourse context. Likewise, a finite clause serves the function of event reference, allowing the interlocutors to direct attention to a particular occurrence (called a process in CG) related to the ground by an indication of its epistemic status. Being highly schematic, the same function can often be fulfilled through alternate strategies involving different kinds of semantic specifications, hence different grammatical structures effecting their implementation.

For instance, alternate strategies for the function of nominal reference are reflected grammatically in three basic nominal structures: a proper name, a personal pronoun, and a determiner plus noun combination. Proper names invoke an idealized cultural model, wherein everybody in the relevant community has a unique name sufficient to identify them. Pronouns presuppose a discourse context where the intended referent has already been singled out, so
that the semantic function is merely one of redirecting attention to it. Apart from these special circumstances, we generally rely on the strategy of using a type specification together with a grounding element to single out a particular instance of that type. Canonically, the type is specified by a lexical noun. Determiners represent different ways of directing attention to particular instances (Langacker 2008: §9.3). To take just one example, a definite article does so by indicating that only one instance of the specified type is accessible in the relevant scope of awareness.

As shown by this strategy, an overall function can be broken down into subfunctions that each contribute to its fulfillment: type specification and grounding jointly serve the function of nominal reference. The function of event reference decomposes into the same two subfunctions. Lexical verbs specify a basic type of event (or process), which may be adjusted by factors like voice and aspect. From the resulting type, the specification by nominals of focused participants derives an elaborated type, which is grounded (in English by tense and modals) to form a finite clause designating an instance of that type.

For discussing these matters, I will use notations like those in Figure 8. Nested circles and boxes indicate progressive elaboration of the schematic notions ‘thing’ and ‘event’ by further conceptual content to derive more specific types, e.g. ( ) ‘thing’ > (( )n) ‘non-human thing’ > ((( )n)b) ‘book’ > (((( )n)b)e) ‘expensive book’. What differentiates a type from an instance is that the latter is thought of as occupying a particular, distinguishing location in a certain cognitive domain (domain of instantiation), which for nouns is most commonly space and for verbs is always time (Langacker 1991: §2.2.1, 2009: ch. 7). Grounded instances of a type will be indicated diagrammatically by means of a dot representing this distinguishing location.

A brief example will serve to explicate the relation of grammar and discourse function from the CG perspective. In (2), the elements in bold represent three variants of the relative clause construction:

(2)(a) // The book she read // was very interesting. //
(b) // I recommended a book // that she read immediately. //
(c) // A book just appeared // that she read immediately. //

At a certain level of abstraction, these share certain functional properties reflected in their formal similarity. They all express the conception sketched in Figure 9(a), involving a particular female (f), a particular book, and their participation in an instance of reading. There are many ways of packaging this content for linguistic presentation. For instance, it might appear in separate sentences: The book was very interesting. She read it immediately. The relative clause construction affords the discourse option of coding it all in a single sentence without resorting to pronominal anaphora. In each variant, the unified conception in 9(a) is factored into two overlapping “chunks” for symbolic purposes: one expressed by a nominal, serving the function of nominal reference, and one by a finite clause, with the function of event reference. But based on their conceptual overlap, the construction incorporates additional functions pertaining to their relationship. With respect to the clause, the nominal fulfills the function of participant specification; its description of the schematic clausal landmark derives the elaborated type invoked for clausal grounding. With respect to the nominal, the clause serves a modifying function, helping to identify or further describe the nominal referent.

Figure 9.

The relative clause constructions in (2) all involve the nominal and clausal components in Figure 9(b), linked by the correspondence indicated. Now I usually speak of correspondences in regard to grammatical composition, as instructions for “integrating” component conceptions to form a coherent composite structure. In general, however, they are better thought of as reflecting the distortion engendered by dissociating a coherent conception into partially overlapping chunks for purposes of individual symbolic expression. As such they are not inherently tied to classical grammatical constituency, as in Figure 1, where composite structures—imposing their own profile on the merged content of their components—arise at successive hierarchical levels. And indeed, constituency is viewed in CG as being flexible, variable, non-essential, and non-exhaustive of grammatical relationships (Langacker 1997). Constituency hierarchies are just one form that symbolic assemblies can (partially) assume.

The components in Figure 9(b) can thus be embedded in substantially different symbolic assemblies, being linked by conceptual overlap regardless of whether they form a grammatical constituent. Nor do the discourse functions noted above require the emergence of a distinct composite structure subsuming just their content to the exclusion of other
elements. In (2)(a), the book and she read do form a grammatical constituent, which profiles the book at the composite structure level. Moreover, the clause serves the specific modifying function of helping to identify the nominal referent; from the basic type evoked by book, it derives an elaborated type only one instance of which is portrayed, by the definite article, as being accessible in the relevant scope of awareness.

But while these properties are perhaps prototypical for the relative clause construction, they are certainly not invariable. In (2)(b), where the nominal head and relative clause belong to separate intonational groupings (delimited by ‘//’), there is no phonological basis for grouping them as a constituent that excludes other elements. And in (2)(c), where they are non-contiguous, they cannot form a classical constituent. The relative clause construction also exhibits variation in regard to discourse function. With the indefinite article in (2)(b) and (2)(c), the relative is not invoked to identify the nominal referent, but serves the weaker discourse function of merely adding to its overall characterization. The proposition expressed by the clause may then amount to a separate statement with a discourse function comparable to that of an independent sentence: I recommended a book. She read it immediately. In such cases there is no reason to believe that its processual profile is overridden by the nominal head, or that the clause is subordinate in accordance with any narrow definition (Langacker 2009: ch. 11).

In sum, grammar is viewed in CG as a conventional means of accessing and symbolizing complex conceptions not susceptible to lexical expression. It resides in dynamic symbolic assemblies allowing the same conceptual structure to be accessed and focused in different ways, as we have seen with both the “nested locatives” in (1) and the relative clauses in (2). These alternate means of accessing and packaging conceptual account result in different linguistic meanings.

3. CONCEPTUAL COORDINATION

In cognitive semantics, linguistic meaning is usually described as consisting in conceptualization. But it is not just conceptualization (Levinson 1997; cf. Langacker 2008: §2.1.3)—rather, semantic structure is defined as conceptualization adapted and employed for linguistic purposes. The transition is anything but sharp. On the one hand, conceptualization is shaped in no small measure by linguistic interaction in a sociocultural setting; indeed, what I present here as “conceptual structures”, as in Figure 9(a), reflect the shaping induced by the lexical items to be employed. On the other hand, semantic structure is neither self-contained nor clearly delineated, being supported by an extensive conceptual substrate that is not specifically or exclusively linguistic.

The transition from conceptual to semantic structure is an aspect of linguistic coding (Langacker 1987: 77). The sounds and conceptions comprising usage events count as instances of language just to the extent that conventionally established linguistic units are invoked for their apprehension. Coding is the activation of semantic, phonological, and symbolic units for this purpose, whether in a speaking or a listening capacity. Many units figure in an event’s interpretation, each serving to categorize a particular facet of it. By virtue of these categorizations, the event is apprehended as a linguistic expression with a certain structure.
Both interlocutors engage in coding. Ideally they activate the same units and impose the same structural interpretation. While this is seldom if ever fully achieved in actual practice, reasonably close approximations are usually enough for successful communication, discrepancies not even being noticed. It is important to resist the simplistic notion that the speaker merely encodes (going from meaning to sounds) while the hearer merely decodes (going from sound to meaning). For one thing, using an expression requires that both interlocutors activate all the units involved—semantic, phonological, and symbolic—whether the meanings evoke the sounds or conversely. Moreover, each interlocutor partially simulates the other’s role: the hearer anticipates what the speaker might say, and the speaker estimates how the hearer will apprehend it. Coding is thus an intersubjective process in which (ideally) the interlocutors converge on the same interpretation.

At a given moment, a speaker is capable of invoking any portions of a vast conceptual universe, including both new and established conceptions, as well as new ways of apprehending the latter. Content that is activated and exploited for linguistic purposes represents the maximal scope of awareness for the expressions that result. An essential aspect of this awareness is the ongoing discourse itself: prior expressions, the present usage event, and the projection of further expressions, all centered on the speaker-hearer interaction. The content put onstage as the focused object of description is only the tip of this conceptual iceberg, all of which figures in the current expression’s meaning.

As a usage event occurs, the scope of awareness includes the planning or anticipation of subsequent events. More distant events are of course envisaged more dimly and in less detail, and as the discourse continues, each event introduces new considerations that alter the projection. Both interlocutors engage in this activity, based on mutual assessment of their knowledge, mental state, intentions, and interactive objectives. Usually they alternate in the speaker and hearer roles, even within a single expression (e.g. one interlocutor beginning a sentence and the other completing it). The planning and execution of usage events is therefore intersubjective and subject to negotiation as the discourse proceeds. It serves as a means of conceptual coordination, allowing the interlocutors to achieve and maintain a measure of alignment in their scope of awareness and focus of attention.

We can usefully contrast this view with another that is commonly presupposed: an idealized cognitive model (in the sense of Lakoff 1987) where speech consists primarily in a series of informative statements. There is thus a strong differentiation of the speaker and hearer roles, the former being active and the latter reactive. At a given moment, the speaker entertains a target conception that needs to be expressed because it contains information that the hearer does not possess. The speaker produces an expression which encodes this information, i.e. it “covers” the target. And the hearer—by understanding the expression—obtains the information and is thereby enlightened.

Though it does reflect certain aspects of language use, clearly this cognitive model carries idealization much too far. It is not just a matter of the speaker acting and the listener reacting: above and beyond their alternating roles, both interlocutors are actively engaged throughout. One respect in which their roles are inherently interactive is that each simulates the other’s activity. The hearer is also active in providing feedback for the speaker, if only in the form of nodding, facial expression, or subtle verbal prompts (like uh-huh). Moreover, an expression conveys some force that the hearer is expected to apprehend and respond to. An extreme example is the force conveyed by imperatives (Figure 7), to which the hearer responds by carrying out some action. Questions are aimed at eliciting a verbal response. Minimally, an
expression carries with it the default expectation that the listener will attend to it and understand it in accordance with linguistic convention. This baseline force defines the speech act involved in ordinary statements (Langacker 2008: §13.2.3).

The notion of a target conception does prove useful, but it has to be properly understood. In the idealized model described above, the target is a conception, entertained by the speaker, that needs to be expressed because it contains information that the hearer does not possess. At best, however, such conceptions represent a very special case of language use. For the notion to have general utility, every aspect of its characterization must be modified. This is so even confining our attention to the descriptive use of language involving statements.

First, not every statement is informative. A great deal of language use pertains to matters that both interlocutors already know. Situations of this sort lend themselves to co-construction, as in (3), which is made-up but hopefully not too implausible. So it is not just the speaker who entertains the target conception. The hearer does so also—independently, through anticipation of what the speaker is going to say, through simulation during the speech event, or through apprehension, at its conclusion.

(3) A: Remember when we tried to wash the cat?
   B: Yeah, it cried and squirmed …
   A: … and tried to scratch us.
   B: Then it got its revenge …
   A and B: … by spraying all over the sofa.

Second, the word “target” suggests a prior goal. For the speaker, at least, this is not altogether inappropriate: usually the speaker starts out with some notion to express. Sometimes, though, it is only partially formulated, being further elaborated only as the speech event unfolds. And since conception has a time course, it may never be the case that all facets of the target are active simultaneously, especially with longer expressions.

Finally, not every aspect of the target has to be overtly expressed. Nor is this even possible, for rather than being self-contained, semantic structure draws upon a multifaceted conceptual substrate of indefinite extent. And since much of the supporting substrate is shared by the interlocutors, providing a common basis for discourse (Figure 2), even essential content is left implicit on the presumption that it is already either “active” in the mind of the addressee or readily “accessible”.

With these important qualifications, I will still speak in terms of covering a target conception. In a unified account of structure, processing, and discourse, these notions are best understood as pertaining to the conceptual coordination effected by usage events. A target comprises the conceptual content which, by virtue of a usage event, is intended to be active (and known to be active) in the minds of both interlocutors, hence intersubjectively available. An expression covers a target by bringing this content into their scope of awareness.

This characterization of linguistic structure in terms of conceptual coordination and intersubjective awareness does not entail any modification of CG. It does however represent a way of approaching it that, while clearly advantageous from the standpoint of unification, has sometimes been less than fully explicit. It constitutes an alternative to the predominant compositional view, which captures something valid but is limited and misleading if taken too seriously. Emphasizing the compositional aspect of linguistic organization leads one to think metaphorically in terms of “building” a complex conceptual structure out of smaller
“pieces”, which in turn suggests that the complex conception did not exist previously. At the discourse level, one is similarly led to think in terms of building a complex structure by combining the conceptions invoked by successive expressions, a coherent overall conception arising only as the product of discourse.

I have myself used the compositional metaphor (Langacker 1987) and have characterized discourse in this fashion, speaking of structure building through discourse and the consolidation of structures built independently in processing successive clauses (Langacker 2001a). Indeed, a basic goal of CG is to provide the means of describing compositional patterns. But limitations of the compositional metaphor have also been clearly recognized; major points include the flexibility of symbolic assemblies (constituency being just a special case) and the partial (rather than full) compositionality of semantic structure.

I am now exploring the advantages of an alternative metaphor based on access and activation. With respect to the former, I have already suggested that the target conception is not really the product of composition, even for the listener. Without very much distortion, we can think primarily in terms of expressions affording access to facets of complex conceptual structures that are largely or even wholly available at a given discourse stage. Symbolic assemblies evoke and make prominent selected portions of these conceptions, allowing the interlocutors to direct and focus their attention on elements appearing in successive processing windows. Attention and prominence presumably correlate with heightened levels of neural activation. The pattern of activation effected in one usage event provides the basis for the processing activity comprising the next. It is not a matter of combining separate structures—rather, the processing induced by each expression occurs in the context of the activation pattern established in the previous window, which it serves to maintain, adjust, or change more drastically.

4. THE ACCESS-AND-ACTIVATION MODEL

Though basically metaphorical, terms like “window”, “access”, and “activation” are well-established in many disciplines, representing fundamental aspects of mental processing. They can be united to form a more elaborate metaphorical model offering a possible basis for analysis and description. In and of itself, this model does not constitute a new linguistic theory (not even a revision of CG) or make any particular theoretical claims; it is simply a way of thinking about matters that may prove helpful. In principle it makes no real difference whether we think about language metaphorically in terms of “building” and “composition” or in terms of “access” and “activation”. They are both important aspects of language processing, and the two ways of thinking might very well lead eventually to equivalent formulations.

The access-and-activation model directly accommodates the dynamicity of language structure (Langacker 2001b). The window of attention is conceived metaphorically as a moving window. It provides access to the target conception by moving through it, until what is deemed sufficient “coverage” has been achieved. At each stage of this process, content appearing in the window is thereby activated, with some portion of it made especially prominent (highly active) as the focus of attention.

The path of access and the focusing imposed by linguistic expression effect the transition from conceptual structure to semantic structure. The same conceptual structure can be
accessed and focused in different ways, resulting in subtle differences in meaning. As a concrete example, the sequences in (4) express the same conceptual content, crudely represented as a network in Figure 10(a). Unlabeled lines and circles indicate that this content is embedded in, and selected from, a larger network of indefinite extent (the conceptual substrate).

The sequences in (4) make the same selection and employ the same lexical items to describe it. Nevertheless, they are semantically distinct by virtue of using different grammatical constructions, involving alternate ways of accessing and focusing it.

(4)(a) // A woman I know has a friend // who met a lawyer. // This lawyer advises Obama. //
(b) // I know a woman // who has a friend // who met a lawyer // who advises Obama. //

Figure 10(b) shows the construal imposed by the coding in (4)(b). A box with rounded corners represents the moving window of attention. It is given in bold to indicate the salience (heightened activation) conferred by attention on the content it subsumes. Also given in bold are the elements made especially prominent as the focus of attention (the profiled clausal processes and their central participants). The movement of the window is indicated by wedges (‘>’), for temporal succession, as well as the labels ‘i’, ‘i+1’, etc., which specify relative position in speech time (T): the box labeled i subsumes the content made active at moment Ti, box i+1 delimits the content made active at moment Ti+1, and so on.

![Diagram of conceptual and semantic structure](image-url)

Figure 10.

For diagrammatic purposes, it is more convenient to take a summary view, in which the window moving through a target conception is represented—equivalently—as multiple windows, each corresponding to its position at a given moment. We can therefore speak of a current window, labeled ‘0’, and any number of windows that are either prior to the current usage event or projected as following it, as shown in Figure 11(a). The retrospective windows are labeled ‘-1’, ‘-2’, etc., and the prospective windows as ‘+1’, ‘+2’, etc. As a matter of
Immediate experience, the current window carries with it the greatest intrinsic salience (even if that experience consists in the conception of past or future events). At a given moment, however, our scope of awareness extends to the content in retrospective and prospective windows, its salience (level of activation) naturally diminishing with distance from the current moment.

It is important not to think of language processing in terms of one, strictly linear pass through a single complex structure, as might be suggested by Figure 10(b). Processing occurs simultaneously in different structural domains, at different levels of organization, and on different time scales, ranging from the small time scale involved in speech articulation to the large one required for global apprehension of a discourse. What we identify as the current window thus depends on the phenomenon being examined and the time scale at which it is manifested. And for a given time scale, our awareness encompasses more than just the current window, which is primary in the sense of delimiting the immediate locus of attention. To some extent we also aware of phenomena manifested in secondary windows, on larger time scales. Secondary windows are represented in Figure 11(b) by dashed-line boxes; numbers at the bottom (+1, +2, etc.) indicate the time scale involved, taking that of the current window as the baseline value (0).

![Diagram of windows](image)

Figure 11.

An example is the anaphoric use of a personal pronoun like *she*, shown previously in Figure 6. It is reformulated in Figure 12(a), assuming a baseline time scale (0) where windows correspond to clauses. The female referent is a focused element in the current, primary window (ellipses indicate additional clausal content). Use of an anaphoric pronoun implies that its referent was also singled out in a retrospective window. Apprehending the anaphoric relationship implies a scope of awareness that includes both the prior and the
current reference. This more inclusive scope constitutes a secondary window on a larger (+1) time scale.

The notation in diagram (a) has the disadvantage that the same conceptual element—the pronoun’s referent—is represented twice. This is neither wrong nor inappropriate, but merely reflects the fact that the referent is mentioned twice, in separate clauses. It accords with the composition metaphor, where clausal meanings are constructed from component elements in bottom-up fashion, and the resulting semantic structures are distinct from the target conception. We are however exploring the access-and-activation model, where they are not distinct, a semantic structure consisting instead in a certain way of accessing and focusing the target. This different perspective suggests an alternate diagrammatic representation. In Figure 12(b), the referent is depicted only once, as part of two windows that overlap in the content they subsume. The coreference of the pronoun and its antecedent is therefore shown directly.

Figure 12.

In taking clause-sized windows as a kind of baseline (0-level), I am essentially following Chafe (1994: 69), who ascribes special importance to windows on this time scale:

Spoken language lends itself to segmentation into intonation units. Such units are identifiable on the basis of a variety of criteria, among which are pauses or breaks in timing, acceleration and deceleration, changes in overall pitch level, terminal pitch contours, and changes in voice quality. Intonation units are hypothesized to be the linguistic expression of information that is, at first, active in the consciousness of the speaker and then, by the utterance of the intonation unit, in the consciousness of the listener...[S]ubstantive units are fairly strongly constrained to a modal length of four words in English, a fact that suggests a cognitive constraint on how much information can be fully active in the mind at one time...[T]he majority of substantive intonation units have the form of single clauses, though many others are parts of clauses.

I call these basic-level windows; taking their duration as the baseline, they can also be described as 0-level windows. Based on their phonological properties, Chafe refers to them as “intonation units”. Based on their semantic properties, I have referred to them as “attentional frames” (Langacker 2001a).

In (5)(a), I show the presentation of a complex sentence in a series of basic-level windows. Double slashes (//) indicate their prosodic delimitation: each appears “under a
single, coherent intonation contour, usually preceded by a pause” (Chafe 1987: 22). Semantically, each is a single window of attention. The example is typical in that the windows coincide with clauses. This arrangement is optimal in the sense that clauses are the basic units of discourse, and clauses of roughly this length contain the amount of information that “can be fully active in the mind at one time”. Thus each clause is fully manifested and processed at a comfortable pace.

(5)(a) // If you see a dress // and you really like it // you should buy it // while you can. //
(b) // At least for Alice // that wonderful dress // is just too expensive. //
(c) // If you see a dress and you really like it // you should buy it while you can. //

However, there are many departures from this canonical arrangement. Some clauses have too much content to easily fit in a single basic-level window, so it is divided among several, as in (5)(b). Alternatively, multiple clauses are sometimes squeezed into a single window, as in (5)(c). In such cases they are susceptible to semantic and phonological compression, being realized in something less than full, precise detail. If nothing else they are compressed in regard to their duration: all the elements of a clause have to be realized in the time span normally devoted to clausal components (phrases). Relative to the 0-level baseline, the clauses in (5)(c) appear in windows one step lower on the time scale (level -1).

I note just in passing that classical constituency, to the extent that it emerges, is accommodated in this model through serial processing on multiple time scales. It is a matter of content accessed in successive windows, on one time scale, being co-activated to form a composite conception with emergent properties (notably, a single overall profile) that appears in a single window on a time scale at the next higher level. However, whether such structures actually arise is not a prime concern in the access-and-activation model, where hierarchical arrangements of this sort represent just one means of accessing the target conception. In this approach, composite semantic structures are not regarded as “building blocks” out of which the target conception is constructed, but as “stepping stones” providing one possible way of covering the territory.

5. COVERAGE AND ACTIVATION

Central to the access-and-activation model is the notion of covering a target conception. A target is defined as the conceptual content which, through a usage event (or a series of such events), is intended to be active in the minds of both interlocutors. An expression (or series of expressions) covers the target by bringing this content into their intersubjective scope of awareness.

Activation being a limited resource, not every facet of a complex structure can be made or maintained as active at a single moment. We accommodate this limitation by repeatedly shifting attention to different portions of the target, until it has all been accessed. The elements appearing in this moving window are momentarily rendered salient, allowing them to be apprehended with greater acuity. Saccades in visual perception, each bringing new elements into the focal region, represent a special case of this general cognitive phenomenon.
Figure 13.

As shown abstractly in Figure 13, the elements appearing in successive windows can be coincident, overlapping, or disjoint. Coincidence is manifested in discourse as full repetition. In terms of covering the target conception, this is hardly efficient—indeed, it represents the absence of progress (the speaker getting “stuck” in one place). Repetition does however have a variety of motivations and discourse functions. It naturally tends to correlate with emotive force or perceived importance: *She shot him! She shot him!* It may be deemed necessary in order to get the message across and be sure it is fully understood. Repetition to oneself serves the purpose of memorization. With an interlocutor, it serves as a kind of filler allowing the speaker to hold the floor. Or it may just be a matter of wanting to hear oneself talk.

While repetition has its place, there is no point having a moving window unless it moves. Thus it is usual for the content appearing in successive windows to overlap only partially (rather than fully) or not at all. Partial overlap (*She shot him. He died instantly*) represents the typical situation in grammar and connected discourse (Langacker 1988, 2009: ch. 1). It is generally optimal by virtue of striking a balance between two kinds of processing efficiency. In the sense of covering the most content with the fewest words, disjoint content—the total absence of repetition—is the most efficient. On the other hand, partial overlap takes advantage of the lesser processing effort required to maintain the activation of a structure already active, compared with that needed to suppress it and raise another element to the same activation level. Also reflecting this economy psychologically is the tendency for the initial element to serve as foundation for the conceptual structure evoked by a complex expression (Gernsbacher and Hargreaves 1992). Both sorts of efficiency conform to the general observation that the course of cognitive processing inclines to a path of minimal effort (Feldman 2006).

Though efficient in terms of coverage, disjoint content has certain drawbacks. One is that it fails to capitalize on particular elements already being active in the prior window, thus incurring the cost of activating an entirely new set. It can also entail uncertainty in how (if at all) the new content is connected to the prior content. In practice, though, these drawbacks tend to be more apparent than real, for two reasons. First, the target conception is embedded in an elaborate conceptual substrate, which provides an intersubjective basis for “filling in the blanks” and inferring the proper connections. Given the discourse context as well as shared knowledge of guns and their effect, the coherence of a sequence like the following can be presumed: *She fired the gun. He died instantly.* The second factor is that activation “spreads” to associated elements (Collins and Loftus 1975; Deane 1991). Explicit reference to a gun in the first sentence serves to activate associated knowledge, including their role in killing people and thus in people dying. A coherent and cohesive conception thus emerges, essentially automatically, through the co-activation of overlapping structures.

One advantage of the access-and-activation model is precisely that composition reduces to the co-activation of overlapping structures. An entailment of the composition metaphor is
that the meaning components—e.g. those symbolized by Alice, admires, and Bill in Figure
1—are initially separate and discrete, coming together only through the compositional process
of conceptual integration. Correspondence lines are viewed metaphorically as “instructions”
to be followed in this connecting operation. It is questionable, though, whether the separate
apprehension of constitutive elements is characteristic of any actual processing stage. As
shown in Figure 10, the non-compositional alternative avoids this problematic entailment. It
is not a matter of constructing an integrated conception from separate components, but rather
one of accessing a coherent conception already in place for the speaker and often the hearer.
Since the content accessed in successive windows is overlapping rather than disjoint, there is
no need for a distinct operation of conceptual integration.

Inference through spreading activation and the co-activation of implicit elements plays a
major role in language processing and linguistic understanding—and indeed, in cognition
generally. Although we are certainly capable of formal reasoning at the level of explicit
awareness and focused attention, for the most part the conclusions we arrive at emerge
automatically once a certain array of overlapping conceptions are sufficiently activated. It can
thus be seen that the access-and-activation model leads naturally to a fundamental notion of
cognitive semantics: that linguistic meaning is neither self-contained nor fully compositional.
An expression’s meaning is not really “constructed” from the meanings of component
elements, which are better seen instead as merely evoking it or prompting its emergence.
Hence the access-and-activation model avoids a basic problem that arises when the
compositional metaphor is taken seriously: the problem of how to deal with non-
compositional aspects of meaning (involving context, encyclopedic knowledge, metaphor,
metonymy, and blending). Linguistic elements are not per se the source of these rich
conceptual structures, but merely activate them and provide a particular way of accessing
them. This process of access and activation constitutes an expression’s semantic structure.

The moving window metaphor seems especially apt for many constructions that exhibit
chain-like organization based on conceptual overlap (Langacker 2010b). Besides the “nested
locatives” in (1) and the relative clauses in (4)(b), these include the diverse constructions in
(6), where slight pauses (‘/’) prosodically delimit the content made explicit in successive
windows (on some time scale). Despite their varied nature, they all direct us step by step
along a natural path of access through a complex conceptual structure. In each case, content
focused in one window also figures in the next, serving as a point of connection for invoking
it. So even though these expressions are based on very different grammatical phenomena
(locatives, relative clauses, predicate nominatives, complementation, path expressions, of-
phrases, coordination), these are adapted and incorporated in symbolic assemblies exhibiting
predominantly serial organization. Given the flexibility of symbolic assemblies, their
incorporation in serial constructions is consistent with the preservation of semantic
relationships and functional organization.

(6)(a) A lie / is a lie / is a lie / is a lie / is a lie.
(b) Alice wants Bill / to tell Chris / to expect Doris / to wash her cat.
(c) She flew from San Diego / to Los Angeles / to Honolulu / to Tokyo / to Seoul.
(d) The sculpture is just a line / of clusters / of rows / of stacks / of plates.
(e) It happened again / and again / and again / and again / and again.
The access-and-activation model also meshes very well with the notion of reference point relationships, which I have argued to be the schematic import of varied linguistic phenomena, including possessive and topic constructions (Langacker 1993, 2001c, 2004; Kumashiro and Langacker 2003). Such constructions are problematic from the compositional standpoint, especially when they lack an overt possessive or topic marker. Possession is often signalled by simply juxtaposing the possessor nominal and possessed noun, as in Guaraní: *pe-mitã rova* [that-child face] ‘that child’s face’ (Velázquez-Castillo 1999). In the compositional approach, one is naturally led to ask where the possessive meaning comes from; the obvious move of positing a “zero” possessive marker is tempting but hardly satisfying. It is also hard to find a semantic value that accommodates the wide range of possessive uses. Analogous problems arise with topic constructions, especially in the absence of either a topic marker or a resumptive pronoun: *San Diego, I really like the weather*. What is the semantic relationship between the topic nominal and the comment clause? How is the connection made?

I do not disagree with the proposal that any kind of “association” can be the basis for a possessive relationship (Bendix 1966), or the common characterization of the comment clause as being “about” the topic. I believe, however, that we gain in precision and insight by analyzing both phenomena as manifestations of the very general capacity for invoking one conceived entity as a reference point affording mental access to another. This capacity involves the elements represented in Figure 14(a): a conceptualizer (C), the reference point (R), a target (T) accessed via R, and R’s dominion (D), defined as the set of elements closely associated with R and thus accessible through it. Dashed arrows indicate the path of mental access.

This schematic import need not be regarded as a “concept” in any narrow sense, nor is it necessarily put onstage as an object of conception in its own right (though presumably it is when symbolized morphologically). In and of itself, a reference point relationship is a dynamic occurrence in which attention shifts from R to T on the basis of an association between them. It can thus be characterized in terms of a moving window of attention, where R is focused in the first window and T in the next. Focusing is a matter of activation, so the access afforded by R—defining its dominion—is a matter of spreading activation. The connection between the possessor or topic nominal, on the one hand, and the possessed noun or comment clause, on the other, consists in the latter being interpreted in the context of the activation pattern resulting from the former. T being in R’s dominion implies that its own activation is facilitated by that of R in the prior window.
This connection is not dependent on the vicissitudes of processing activity on particular occasions—in languages with constructions of this sort, the sequential access effected inferentially is established in the form of conventional linguistic units. Still, we are dealing with matters of degree subject to contextual influence. There is no precise boundary for the content appearing in a window or comprising a reference point’s dominion. And rather than being quantized, level of activation presumably also varies continuously. We can nonetheless make certain rough distinctions sufficient for present purposes. I will basically follow Chafe (1987) in positing three main activation levels, which he calls “active”, “semi-active”, and “inactive”. Finer distinctions can be made as needed to accommodate particular linguistic phenomena, as in the work by Gundel, Hedberg, and Zacharski (1993) on nominal referring expressions.

I indicate the three main levels and the terms to be employed in Figure 14(b). Active notions are those made explicit in a given window. This can happen in various ways, corresponding to different degrees of activation. Barring special emphasis—where activation is greater than it would otherwise be—the most active element is the one profiled at the composite structure level by the expression appearing in the window; in the cat on the roof, the cat is made salient in this manner. Active to a lesser extent are elements profiled by component expressions at lower levels of organization, in this case the roof and the locative relationship. Active to a lesser degree are unprofiled elements required for the conception of the profiled entity, e.g. the building evoked by roof. In (7)(a), its weakly active status in the first clause (due to roof) is sufficient for building to be accentually reduced in the second (small caps indicate full accent). Latent notions are not explicit in a window but are primed due to spreading activation, hence easily accessible. Since a team often has a coach, for instance, the latter notion is latent in the former, though not required for its conception. This latency is sufficient for coach to take the definite article in (7)(b), but insufficient for the noun to be unaccented. Latency is of course a matter of degree, so there is no sharp boundary between latent elements and those which are dormant in the sense that their current activation has no linguistic consequences.

(7)(a) The **ROOF** LEAKS if a **building** hasn’t been **MAINTAINED**.
(b) The **TEAM** is **UNSUCCESSFUL** because the **COACH** is so **INCOMPETENT**.

Figure 14(c) applies these notions to the characterization of reference point relationships. R and T are profiled, hence highly active, in successive windows (i and i+1). R’s dominion comprises the elements latent in its conception, hence primed by spreading activation when R is made active (by a possessor or topic nominal) in the first window. Due to this priming, it serves as the basis for interpreting the target expression (the possessed noun or comment clause) in the second window.

### 6. Efficiency

Speaking poses the problem of effectively covering a target conception, i.e. bringing its content into the intersubjective scope of awareness. It is generally desirable to do so with reasonable efficiency and economy of effort. Maximal economy—where the content expressed by component elements is totally disjoint—is not a practical option, if only because
there would be no indication of how the discrete conceptual “chunks” are supposed to fit together. Instead, linguistic structure is primarily based on partial conceptual overlap, where the activation of one conception facilitates the activation of an overlapping conception (Langacker 2009b). Efficiency is achieved by keeping this overlap to a minimum, consistent with communicative objectives.

The kind of overlap illustrated in Figure 1, for *Alice admires Bill*, is typical of basic grammatical constructions. The overlap consists in the verb’s schematic reference to its participants, characterized only as things (or as a sentient creature, in the case of the trajector). This schematic content is inherent in and shared by the content evoked by *Alice* and by *Bill*, but is not exhaustive of it. The elements code distinct portions of the overall conception, connected by this minimal overlap.

In such cases, a particular nominal referent is explicitly coded only once, by the subject or object nominal; the participants invoked schematically by the verb are not expressed individually, but only as aspects of the relationship it symbolizes (i.e. they are sublexical). But in other cases, especially at the discourse level, multiple coding is very common. Usually, though, there is less than full repetition, since once a referent is activated, it takes less information (processing input) to maintain its activation than it does to evoke it initially. Successive references thus tend to be progressively more succinct, coding less conceptual content:

(8) *ALICE BOUGHT an EXPENSIVE DRESS*. She really *LIKED the dress*, but it was too *TIGHT*.

The coreferential nominals in (8) are related as shown in Figure 15. They appear in three clause-sized windows (along with other content not represented). The conceptual content coded by the nominals all appears in the initial window (i), being fully expressed by *an expensive dress*. The content expressed by *the dress*, in the second clause (i+1), is a proper subpart of the content already active—there is full overlap (inclusion) with respect to description of the nominal referent. And in the final clause (i+2), the content coded by *it* is a proper subpart of that expressed by *the dress*.

The small caps in (7) and (8) reflect an important prosodic feature of English pertaining to information structure. In the absence of overriding factors (e.g. contrast or special emphasis), full accent is reserved in English for elements with substantial lexical content. Thus so-called “function words” or “grammatical markers” are generally unaccented. But even lexical items with substantial conceptual content—like the second occurrence of *dress* in (8)—appear without stress in contexts where they amount to repetitions, where this content is already active. Their reduced phonological expression reflects the lesser symbolic effort needed to maintain its activation (as opposed to inducing it).

The term focus is often applied to the content expressed by fully accented elements. To distinguish it from other kinds of prominence or focusing (e.g. profiling and contrastive emphasis), I will speak of informational focusing. I have described it in terms of the global comparison of expressions to determine where they differ (Langacker 2009a: ch. 12). This operation should not be thought of as anything special or even specifically linguistic. It is simply a matter of the vague awareness we have, in almost any endeavor, of progressing to something new. As reflected phonologically, it registers the differential processing effort involved in activating something vs. merely keeping it active. I will thus refer to the newly
active content as the differential ($\Delta$). It comprises the conceptual elements external to window $i$ but internal to window $i+1$.

Figure 15.

The informational focus stands out against a less prominent background both semantically (by virtue of being new) and phonologically (by virtue of being accented). This iconic relationship is plausibly explained in terms of spreading activation. Linguistic symbolization is a means of directing attention to the elements it makes explicit. Importantly, the interlocutors attend not only to the conceptions invoked but also the phonological structures effecting their symbolization. These too have varying degrees of salience, involving both segmental and prosodic factors. In a symbolic relationship, either the phonological or the semantic structure serves to activate the other. We can therefore speak of a phonological structure’s activating force, i.e. the strength of its tendency to activate the conception it symbolizes. Naturally, accentual salience produces a stronger force tending to activate the symbolized conception. It is thus most efficient for accent to fall on the differential: the less active an element already is, the greater is the activating force required to raise it to the desired level of prominence.

The relation between informational and accentual focus is a very complex matter involving many interacting factors (Calhoun 2010). But at the risk of being simplistic, I propose the scheme in Figure 16 as the canonical arrangement for English. A dashed arrow represents the inherent tendency for an element’s activation level to diminish over time: active at moment $T_i$ (in window $i$), it tends to be less so at moment $T_{i+1}$, hence only latent in window $i+1$. The short solid arrow represents the activation force required to prevent this decay, i.e. to keep the element active at $T_{i+1}$. This can generally be accomplished via the weaker activation force ($\Sigma$) associated with reduced accentual prominence. A stronger force ($\Sigma$), represented by a longer arrow, is needed to activate an element that is previously either latent or dormant ($\Delta$). The requisite force is supplied by expressions that are phonologically unreduced. And of course, the exceptionally strong activation force provided by contrastive stress induces the higher level of activation characteristic of special emphasis.
Illustration is provided in Figure 17. Diagram (a) represents a case where the second expression covers the same ground as the first but elaborates the verbal type description for sake of emphasis. The differential—the content appearing in window i+1 that does not appear in window i—is limited to the semantic specifications (d) elaborating *eat* to form *devour*. As is usual for personal pronouns, *she* and *it* are unaccented because their referents, already singled out in window i, need only the weaker symbolizing force required to maintain their activation.

(a) *ALICE ATE the HAMBURGER.*<br>   *She DEVOURED it.*

(b) *While ALICE WASHED the DOG,*<br>   *ANOTHER dog was BARKING.*

The conceptual overlap indicated by accentual reduction does not require either identity of reference or parallelism of grammatical structure. So in 17(b), the second occurrence of *dog* undergoes accentual defocusing even though it refers to a different instance from the first and has a different grammatical role (subject rather than object). The differential consists of *bark* plus the explicit indication, by *another*, that the instances of *dog* are distinct. *Another* and *bark* thus function jointly as informational focus and are unreduced in stress. It is unproblematic in this approach that the focus is neither a grammatical constituent nor even a continuous phonological sequence. With the flexible symbolic assemblies of CG, there is no expectation that groupings effected on different grounds will always coincide. Being based on accentual prominence and information structure, the informational focus can perfectly well cross-cut grammatical constituency based on linear contiguity and descriptive functions like nominal and event reference.
7. Ellipsis

In not requiring coreference or grammatical parallelism, informational defocusing contrasts with ellipsis and the partially formed expressions sometimes referred to as sentence fragments. These terms subsume a wide array of diverse phenomena. The extent of their similarity remains to be determined, nor has any one of them been analyzed in detail from this perspective. The following comments do no more than sketch a general way of approaching them.

Consider this simple example:

(9) Alice bought a dog. A poodle.

Here a dog and a poodle are understood as being coreferential. Moreover, mention of the poodle is specifically understood as revisiting its role in the event of Alice buying it: [Alice bought] a poodle. Were it to be fully manifested, the reconstructed clause would be a repetition of the first, both structurally and referentially. Metaphorically, it is as if the expression appearing in the first processing window casts its shadow in the second, providing the structural and conceptual context for apprehending the second expression.

The purpose of expression is to cover a target conception, usually by presenting its content in a series of windows (on some time scale). At each stage, the intent is to make its content intersubjectively available, i.e. active in the minds of both interlocutors. I have already noted that the content appearing in a window is active—hence prominent—to varying degrees. Other things being equal, the most prominent entity is the one profiled by the overall expression at the highest level of organization. Also salient, by virtue of explicit mention, are entities profiled by component expressions, at lower levels of organization. Less salient are elements that are only implicit but necessarily invoked, e.g. roof invoking ‘building’ in (7)(a). I will say that such elements are semi-active in the window.

Activation tends to decay, so unless it is reinforced, content active in one window is generally only latent in the next. In English, the weak activating force supplied by unaccented forms serves to prevent this decay. But even when left implicit, we have some retrospective awareness of the content in prior windows. Generally the content of the immediately prior window, i-1, remains accessible enough that interlocutors can rely on it for making sense of the content in the current window. When invoked in this fashion, it is semi-active in window i. This I take to be the basis for ellipsis. The “shadow” content and structure inherited from window i-1 is implicit but semi-active in window i. The overall conception can thus be factored into an active core—made salient by explicit mention—and an implicit, semi-active periphery.

Figure 18 compares ellipsis to informational focus. Both allow portions of the target conception to be less than fully expressed by virtue of having been made explicit in the prior window (i-1). In the case of informational focus, this lesser realization takes the form of accentual reduction. The repeated content is still explicit, but less prominent in the current window (i) because the unstressed symbolizing structure (Σ) has lesser activating force. Against this background, the focus stands in the foreground due to the stronger activating force of a fully accented symbolizing structure (Σ). The content made salient in this manner is
the portion not previously expressed, i.e. the differential ($\Delta$). But despite this difference in salience, all the essential content is made explicit.

With ellipsis, on the other hand, portions of the target conception are not expressed at all in the current window. Besides the explicit core, an elliptic expression’s interpretation is crucially reliant on content presented in the previous window, which remains semi-active by the very fact of being invoked for this purpose. An unlabeled arrow represents the weaker but still significant activating force felt by elements specifically invoked without being focused symbolically.

Example (9) is sketched in Figure 19. The dashed-line frame encloses the content expressed in window $i-1$. In the present example, all of this content is subsumed in window $i$, being invoked to interpret the elliptic phrase *A poodle*. The differential—the only content not already presented—consists in the semantic specifications (p) distinguishing ‘poodle’ from the general notion ‘dog’. Because it contains the differential, *poodle* functions as informational focus and is unreduced in stress. And as the explicit portion of an elliptic expression, it represents the core conception in window $i$, the remainder being only semi-active. Despite its implicit nature, the periphery provides the conceptual, phonological, and structural basis for apprehending the core. In effect, therefore, *A poodle* is understood as the audible portion of the reconstructed expression *Alice bought a poodle*.

The ellipsis in Figure 19 represents the special case where the explicit content in window $i$ is fully compatible with that in window $i-1$, serving only to elaborate it. More typical is the
situation in Figure 20(a), where the core content is inconsistent with the corresponding portion of the prior expression: *dog* conflicts with *cat*. In such cases, the content in the two windows cannot be merged to form a single, consistent event conception. Rather than just elaborating the prior expression, the elliptic expression induces the construction of a second event conception that is parallel to the first, preserving as much as possible. The portion of the original expression that corresponds to the differential can be called the anti-differential ($\Delta^{-1}$). In Figure 20(a), *dog* is the differential, *cat* the anti-differential. The dashed double-headed arrow represents the inconsistency that prevents their conceptual merger. Since they are kept distinct, the elliptic expression has to be interpreted as referring to a distinct event—one precisely analogous to the first apart from the differential, where the two diverge. Mentally constructing this event is basically just a matter of substituting the differential (*dog*) for the anti-differential (*cat*). But since different participants are involved, we are dealing with two different instances of washing.

As with informational focus, there is no requirement that the anti-differential be a grammatical constituent in the first expression or even a continuous phonological sequence. The ellipsis in Figure 20(b) involves conflicts in both subject and object position, so window $i$ has a dual core (each part being a separate window on a smaller time scale). This particular example represents the grammatical phenomenon known as gapping (Ross 1970). In the present analysis, gapping is just a special case of ellipsis in coordinate expressions. The analysis in fact reveals a close connection between ellipsis and coordination. The essential feature of coordinate structures is that the conjuncts are analogous in some respect and participate in parallel connections with other elements (Langacker 2009a: ch. 12). We have just seen that ellipsis induces the construction of parallel conceptions when the differential conflicts with the antecedent expression.

![Diagram of Figure 20](image-url)
8. ZERO ANAPHORA

The access-and-activation treatment of ellipsis extends to a phenomenon found in many languages: so-called “zero anaphora”, where a referent is not expressed at all when established in the immediate discourse context (Li 1997). An example is Luiseño, a Native American language of the Uto-Aztecan family. In (10), either the girl or (more likely) the dog is understood as doing the barking, though it is not mentioned at all in the second clause.

girl dog-OBJ kick-TNS bark-TNS
‘(The) girl was kicking (a) dog. (It) was barking.’

This well-known phenomenon poses a conceptual problem when viewed in terms of the composition metaphor, where clausal meanings are separately “constructed” and then combined in “building” a structure through discourse. The basic problem is that the second clause contains no nominal element but nonetheless invokes a specific referent as the implicit subject of the verb. Where does this nominal referent come from in composing the semantic structure of the clause? In the English translation, it is supplied by the pronoun it, via the regular subject construction. But in the Luiseño equivalent there is no subject pronoun. Faced with this conundrum, analysts are sometimes tempted to posit a “zero” pronoun.

This apparent problem stems from the compositional metaphor and the implicit view of semantic and conceptual structure as distinct levels of representation. It does not arise with the access-and-activation model, where they are not distinct and where every construction is seen as a pattern of discourse processing. A pronoun does not occur in isolation, but invokes a prior window in which its referent is already active. In just the same way, a clause like Luiseño Wa’i-qus invokes a prior frame to establish the reference of its schematic trajector.

The English and Luiseño discourse sequences are respectively sketched in Figure 21(a) and (b). They differ in the nature and extent of their conceptual overlap. With an explicit subject pronoun, It was barking specifically characterizes its trajector as an instance of the schematic type ‘non-human thing’. By contrast, Luiseño Wa’i-qus describes it internally only as a ‘thing’.

(a) The girl was kicking a dog. It was barking. (b) Nawitmal ‘awaal-i ‘ari-qus. Wa’i-qus.

Figure 21.

Diagram (b) employs the notations devised for ellipsis. The explicit content of the second clause—its core—comprises only the event of barking, the differential. There is no anti-differential, as the second clause does not conflict with the first, but merely relies on it for
identification of its schematic trajector. This is a straightforward matter of conceptual overlap: the trajector’s characterization as a particular instance of ‘dog’ is inherited from window i-1, remaining semi-active in window i as the basis for apprehending the clausal event. To be sure, such expressions are not regarded as elliptic in Luiseño. This being a perfectly normal way of invoking contextually identified participants, subjectless clauses are not felt to be incomplete, as they are in English.

**CONCLUSION**

This discussion has been exploratory. I have touched on many phenomena in rather cursory fashion, and do not pretend to have offered a comprehensive account of any. For the most part the phenomena discussed are familiar, and arguably the treatments proposed reflect what everyone already knows. But at least from my standpoint, this has nonetheless been a useful attempt at synthesis and conceptual unification. I have tried in particular to indicate how the social and cognitive aspects of language are reconciled and accommodated in CG, and how the approach outlined here makes it possible to envisage a unified account of structure, processing, and discourse.

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