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Cognitive Linguistics*

A curious thing happened to me recently. I was revisited by a graduate student from the linguistics department who had taken my course in cognitive linguistics six years ago. The son of a famous German linguist, with all the benefits of both European and American educations, this young man was unusually erudite and a pleasure in class because of the comparisons he could draw among linguistic traditions. Still, it was evident that he was politely sitting through the course in order to chock up a required elective; he clearly felt no affinity toward the subject matter. Suddenly he reappeared last week, tremendously animated, speaking so fast I could barely follow him. His dissertation, an analysis of resultative constructions, had run into a series of dead-ends, eventually exhausting all the syntactic theories available, and, despite himself, everywhere he looked he was seeing semantic prototypes and their effects. Then came the confession:

"I never really thought I would take cognitive linguistics seriously."

I could only smile and reply,

"Welcome back."

Fortunately I had just returned from a biennial meeting of the International Cognitive Linguistics Association with a treasure trove of handouts and email addresses, so I was able to bring him up to date on the latest relevant achievements and put him in contact with key scholars. A few days later he came back to thank me; his dissertation was now off and rolling again.

With some variations, this is a scenario I've been a party to several times before. My own dissertation was a problem in search of a framework almost two decades ago, when quite by accident I stumbled upon an embryonic movement without even a name or a bibliography. Yet the concepts were so compelling and the model so useful, that I have never escaped their attraction, and gave up trying long ago.

1.1 Some History

It wasn't an easy birth. Initially viewed as a "soft and fuzzy" California intruder, cognitive linguistics was not warmly embraced by mainstream American linguistics. During the early years, abstracts using the framework were routinely rejected from LSA programs, grant proposals were sidelined, our book series was shunned by Oxford U Press, and even as recently as the early nineties, cognitive linguists were still being denied tenure on the grounds that their work was "too controversial" (both of the tenured Slavic cognitive linguists in the US faced

discrimination of this sort at tenure time, and one was forced to flee to another university after being declared untenurable because her work "could not be considered linguistics at all"). Yet what began in the early eighties as a wedding of intuitive data analyses (Brugman, Lindner, Casad) with powerful linguistic concepts (Lakoff, Johnson, Langacker), by 1989 had grown into an international organization (http://odur.let.rug.nl/orgs/icla/welcome.html) with its own journal and book series. Today the International Cognitive Linguistics Association has nearly five hundred members, and there were over 450 registrants at our most recent biennial meeting in Stockholm in July 1999.

2.0 Relations to Other Disciplines

The original impetus for cognitive linguistics came from the pioneering research of psychologist Rosch (1973a, 1973b, 1978) on the nature of human categorization. Throughout its brief history, cognitive linguistics has maintained a lively dialog with allied disciplines such as psychology, anthropology, neurobiology, motor control, artificial intelligence, philosophy, and literary criticism. ICLA meetings regularly include plenary lectures delivered by scholars from these other disciplines to foster cross-fertilization. These events invariably expose the many ways in which the conclusions of cognitive linguistics corroborate results obtained in a wide spectrum of academic inquiries. Cognitive linguistics is most certainly not an exotic endeavor off on its own disconnected tangent, but rather a framework that interacts responsibly with a community of academic allies. Although this does not mean that cognitive linguistics can make any claim to psychological reality (diagrams are just artifacts, we do not presume that anyone actually thinks by means of such items), it does mean that cognitive linguistics strives in an informed way to create analyses that are at least psychologically (biologically, neurologically, etc.) plausible. Ultimately our responsibility as linguists to reflect what is known about human cognition by other disciplines is more important than any formal apparatus, however elegant, that might distract us from this goal.

3.0 Relations to Other Theories and the History of Linguistics

I've argued elsewhere (Janda 1993b, Janda 1999c; cf. also Geeraerts 1987) that cognitive linguistics gives us an opportunity to reconnect the threads of the history of linguistics and heal the gashes that have marked our field in the twentieth century. This does not mean that cognitive linguistics is some sort of theoretical "throw back", a reinvention of tired old wheels already rejected. On the contrary, thanks to its continuance of time-honored intellectual pursuits (the form-meaning relationship, the coherence of linguistic and non-linguistic cognition, the assertion that language is the most immediate artifact of human thought, etc.), cognitive linguistics invites us to draw on the wealth of accumulated achievements in the history of linguistics and move forward on this path, rather than bushwhacking off in some other direction. For us Slavists in the US, it appears there will be some very welcome company on this path. During the Cold War era Eastern European linguists in general and Russian linguists in particular were largely isolated from theoretical discussions in the West, and turned their energies inward, developing their own home-grown traditions. The indigenous Russian Smysl⇔Tekst framework and other semantic theories that emerged under these conditions are remarkably compatible with cognitive linguistics (cf. the assertion to this effect in Rakhilina 1998a), and as a result, cognitive linguistics is quite popular in Russia as well as in other Eastern European countries, particularly Poland, the Czech Republic, and Macedonia. Our colleagues in Western Europe have likewise been quick to embrace this framework, and cognitive linguistics is well-represented in the

publications of Slavists working in England, Norway, Sweden, Germany, and Austria. Consequently cognitive linguistics is already serving as an intellectual meeting place for Slavists from both East and West, facilitating discourse and collaboration.

4.0 Basic Concepts

Cognitive linguistics has not arisen fully-formed from a single source, it has no central "guru" and no crystallized formalism. At this point it is a concatenation of concepts proposed, tested, and tempered by a variety of researchers. The people whose work has been most influential in the creation of this framework include Brugman, Casad, Croft, Fauconnier, Johnson, Lakoff, Langacker, Lindner, Sweetser, Talmy, Tuggy, and Turner; some of their classic works are cited in section 9.1. This framework is anything but static. As it grows, cognitive linguistics continues to present us with fresh ideas and new means for interacting with other disciplines. A significant innovation in the mid 1990's was the study of blends (see 4.6 below), and in 1999 typologist Croft debuted his "radical construction grammar", which promised immediate implications and support for developmental psychologist Tomasello's "verb island hypothesis" of child language acquisition.[1]

The fact that cognitive linguistics can point to no definitive text or single authority does not mean that it is a trackless wilderness of shifting sands. There is a set of core concepts and goals, most of which are shared by most cognitive linguists, as well as by the philosophers, psychologists, and other scholars who have collaborated on the development of this framework. These concepts are not the product of an imposed theory, but have instead emerged from empirical observation corroborated across languages and disciplines. Rather than being a random hodge-podge, these concepts mutually support one another and have coalesced into a theory (or something closely approximating a theory) firmly grounded in fact. Overall, cognitive linguistics tends to lean more strongly toward data than toward theory, and it tends to expect that the latter can be gradually elaborated from the former. Early analyses of intricate arrays of natual language data performed by Lindner, Brugman, and Casad were formative in the development of cognitive linguistics, and the best research in this framework continues to use observations of data to tweak and refine the theory.

The above-cited ICLA webstate states that "[The cognitive linguistic] perspective subsumes a number of concerns and broadly compatible theoretical approaches that share a common basis: the idea that language is an integral part of cognition which reflects the interaction of cultural, psychological, communicative, and functional considerations, and which can only be understood in the context of a realistic view of conceptualization and mental processing."

In 4.1–4.6 I will attempt to outline the most enduring and widely held concepts of cognitive linguistics.

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[1] Radical construction grammar proposes that there is really no such thing as syntax; syntax as we know it is an epiphenomenon of the semantic structures of grammatical constructions. This shocking idea (I have to admit that I was initially inclined to discard it as absurd, but the wealth of cross-linguistic empirical data Croft presented convinced me to change my mind) resonates well with Tomasello's finding that children do not acquire syntactic structures which they then implement with sets of verbs. Instead, children acquire individual verbs, each of which is associated with a construction, and information about the construction of a known verb is not transferred to new verbs.

4.1 The Status of Linguistic Cognition

For a cognitive linguist, linguistic cognition simply is cognition; it is an inextricable phenomenon of overall human cognition. Linguistic cognition has no special or separate status apart from any other cognition. This means that we expect patterns of cognition observed by psychologists, neurobiologists and the like to be reflected in language. Furthermore, the various phenomena of language are not cognitively distinct one from another. Although it is often useful and convenient for linguists to talk about various "levels" or "modules" of language, these distinctions are perceived by cognitive linguists to be somewhat artificial. The truth is that all the "parts" of language are in constant communication, and indeed are really not "parts" at all; they are a unified phenomenon operating in unison with the greater phenomena of general consciousness and cognition. Linguists have frequently observed that the borders between traditional linguistic phenomena can be crossed. Phonology, for example, can be affected by morphology, semantics, syntax, and pragmatics; and syntax has likewise been shown to be vulnerable to the workings of phonology, semantics, and pragmatics. The fact that these items are not pristinely discrete is perhaps not news, but for a cognitive linguist this type of evidence is expected, pursued, and focused on rather than being relegated to the status of something marginal and unimportant.

4.2 The Status of Meaning

All the various phenomena of language are interwoven with each other as well as with all of cognition because they are all motivated by the same force: the drive to make sense of our world. Making sense of what we experience entails not just understanding, but an ability to express that understanding, and indeed these two projects inform each other: our experience is formative to expression (see 4.4 below), but it is also the case that our expressive resources have some influence on how we perceive our experiences. Of course language does most of the heavy lifting (and the finer handiwork) in this job of expression that is so important to cognition. All phenomena of language are mobilized for this task, and all are therefore driven by the need to express meaning. Meaning underwrites the existence of all linguistic units and phenomena, none of which are semantically empty. Meaning is therefore not tidily contained in the lexicon, but ranges all through the linguistic spectrum, because meaning is the very energy that propels the motor of language. Grammar is an abstract meaning structure that interacts with the more concrete meanings of lexicon. Grammar and lexicon are not two discrete types of meaning, but rather the extreme ends of a spectrum of meaning containing transitional or hybrid types (functor words like prepositions and conjunctions are examples of hybrids that carry both lexical and grammatical semantic freight). From the supra- and segmental features of phonology through morphology, syntax, and discourse pragmatics, all of language shares the task of expressing meaning. This includes even idioms and "dead metaphors", which remain motivated within the system of a given language, and whose motivation can be made explicit.[2]

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[2] At the ICLA meeting in Stockholm in 1999 Sakis Kyratzis demonstrated in his talk that no metaphor is entirely dead; some are in a frozen state, but can be thawed out when desired, often in the context of humor. A regular feature in my courses on metaphor and cognitive linguistics is a homework assignment asking students to implement parts of a conventional metaphor that are usually not active to produce jokes such as "His ideas are so far out that even the Hubble telescope can't detect them", or "I'm at the end of my rope! Could you hand me something longer, like maybe a bungi cord?" This task shows that even the metaphors underlying idiomatic expressions are not really "dead" — they can be reactivated and pressed into creative service.

4.3 The Status of Prediction

Linguistics is a field with an almost desperate desire to be an exact science. Science and precision have unparalleled status in our society, for they command respect and authority. The operational definition of a scientific result hinges upon proving that the result can be repeated; i.e., it is predictable. The reality for linguistics is however very different from that of the physical sciences. Historical linguistics and dialectology provide plenty of evidence that even when you are starting from more or less the same place (or even exactly the same place) linguistically, you can end up with an amazing variety of results.[3] We have to face the fact that linguistics is really a field in which none of the experiments have controls, there are way too many variables, and all the data is contaminated. It doesn't make much sense for us to depend entirely on the metaphor LINGUISTICS IS AN EXACT SCIENCE to structure our inquiry. As Croft (forthcoming) has pointed out, if linguistic phenomena were truly predictable, there wouldn't be any variation, and variation is one of the best-documented phenomena we know. By accepting these facts, cognitive linguistics neither disintegrates into a morass of arbitrary chaos, nor does it give up all aspirations to scientific inquiry.[4] Cognitive linguistics does not subscribe to a strictly dualistic understanding of the concepts predictable vs. arbitrary or objective science vs. subjective interpretation. Just because a phenomenon is not entirely predictable doesn't mean that it is entirely arbitrary, and one should expect a dynamic relationship between data and interpretation. Cognitive linguistics searches for the motivations that drive linguistic phenomena, recognizing that sometimes several variants are equally motivated, and the choice of which one succeeds is a language-specific convention that cannot be predicted. Though the motivations vary (and often a given phenomenon may be multiply motivated in the system of a given language), at an abstract level, these motivations yield a consistent pattern (all linguistic phenomena are meaningful; linguistic categories are radial categories with prototype effects; meaning is grounded in embodied experience and elaborated via metaphor, metonymy, and blends; construal determines how perceived reality is sorted into foregrounded and backgrounded information; etc.). Exploration of this pattern of motivations takes the place of a search for "universals" in cognitive linguistics. Because cognitive linguistics is not in the business of prediction, it is also not looking for a set of concrete universals that would facilitate prediction (on the assumption that this is neither desirable nor realistically achievable). In the big picture, cognitive lingusitics' ultimate goal is to understand how human cognition motivates the phenomena of language, to be described in terms of abstract trends rather than air-tight, absolute rules. One could say cognitive linguistics recognizes that human beings are not rule-guided algorithms, but individuals with a free will which they exercize in ways not entirely consistent and predictable, but on the whole well-motivated and according to certain patterns.

4.4 The Embodiment of Meaning

Given the central role of meaning in language, it is essential that we understand what it is and where it comes from. One could easily spend an entire lifetime studying philosophical debates on

[3] A historical linguist once pointed out to me that it is just as common to see a change in which A goes to B, as to see one in which A "just goes all to hell". Many chapters from the history of Slavic linguistics corroborate this sentiment, like, for example, the tu`rt/tru`t reflexes and jer loss/vocalization.

[4] What we are really using is our lay interpretation of what "scientific" inquiry is. Even the "hard" sciences are not immune to liberal application of "soft" interpretation. As often happens with folk theories such as LINGUISTICS IS AN EXACT SCIENCE, we apply a stripped-down version of the model, ignoring the subtler intricacies. We forget that the traditions of how to interpret data are often just as valid and venerable as the data themselves.

the nature of meaning. I've taken a wade in this pool myself and quickly discovered that if I stayed in, I would soon be in so deep that I wouldn't be able to do anything else, so instead of trying to swim alone, I have relied on a variety of philosophers and texts.[5] Some of the details and the philosophical implications of cognitive linguistics are hotly contested within the movement itself.[6] However, the vast majority of research that can be conducted in the cognitive linguistic framework requires only the principles I will describe in this subsection; the debatable details are of almost no consequence for the kind of work most of us do. I will therefore restrict my remarks to the assumptions that most cognitive linguists agree on.

Meaning has to come from somewhere. It can't just exist by fiat as a set of symbols. It isn't just there in the words (or morphemes or whatever).[7] And for the most part, meaning in natural languages cannot be manipulated by pushing symbols through the rigors of a set of logical rules. Very little of language can be fruitfully explained in this way. One cannot magically breathe the life of meaning into theoretical algorithms.[8]

Cognitive linguistics works from the premise that meaning is embodied. This means that meaning is grounded in the shared human experience of bodily existence. Human bodies give us an experiential basis for understanding a wealth of concepts (often called "image schemas" in cognitive linguistics), such as IN vs. OUT, UP vs. DOWN, NEAR vs. FAR, COUNT vs. MASS, FIGURE vs. GROUND, BALANCE, and SOURCE-PATH-GOAL. One of the first experiences babies rehearse is that of the body as a container (IN/OUT), by putting things in their mouths. UP/DOWN is dictated by gravity and the erect adult posture, itself an achievement of BALANCE. NEAR/FAR, COUNT/MASS, and FIGURE/GROUND all derive from the way our senses work (primarily sight and hearing, though to a lesser extent touch, taste, and smell all participate in these distinctions), and SOURCE-PATH-GOAL results from our experience of ourselves and other objects moving through space. This is only a small sampling of the meanings

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[5] I've made a very modest foray into the philosophy of meaning (Janda 1999c), and have attempted to inspire others to explore the interface between philosophy and cognitive linguistics by organizing a theme session on this topic at the 1999 ICLA meeting in Stockholm. The concepts presented in Innis 1994, who is working entirely from the perspective of the philosophy of meaning, are remarkably familiar to cognitive linguists, and indicate a strong potential affinity between the two lines of inquiry.

[6] There are a lot of ideas associated with cognitive linguistics that one does not have to swallow in order to work within this framework. For example, Lakoff (1987) asserts that because all human experience is mediated through perception, humans have no unmediated transcendant experience of absolute reality, and therefore there is no absolute reality. In other words, cognitive linguistics can be taken as a proof that God does not exist. I would argue that our lack of access to absolute reality does not disprove the existence of this reality; I am joined in this conviction by several outstanding contributors to the field of cognitive linguistics who come from SIL (who are attracted by the data-friendly framework, and retain unshaken religious convictions). Lakoff and Johnson (1999) take this argument even further, and come close to asserting that there is no real world out there. Again, I (and many other cognitive linguists) think that just because there are filters of perception and conception between us and the real world does not mean that the latter is absent, but I lack the philosophical sophistication (as well as the time and inclination) to attempt a refutation. Both Lakoff (1996) and Johnson (1992) have likewise used the premises of cognitive linguistics to support a certain moral perspective, but when Lakoff first presented his case at the 1995 ICLA meeting, there was strong opposition voiced by the audience, and Johnson's article sparked considerable debate, chronicled in rebuttals published by McLure (1993), Gorajska (1993) and Sinha (1993). The point is that none of these theological or moral assertions necessarily follow from the premises of cognitive linguistics, and it is not necessary to agree with them in order to be a productive contributor to this field.

[7] Cf. Reddy's (1979) article about how this common fallacy has been conventionalized in the metaphorical system of English and why it is indeed a fallacy.

[8] Hilary Putnam has gone to great pains to show that "brains in a vat" (i.e., a disembodied thinking system), though they might be able to pass symbols around, would not have access to meaning, and also that the assumption that meaning could exist in such a system leads to an essential logical error, cf. Lakoff 1987: 229–59.

directly attributable to bodily existence.[9] Cognitive linguistics is an exploration of the fabric of meaning, woven thread by thread from bodily experience and embroidered by metaphor. This is an ambitious and intricate project that has only just begun.

It is necessary to remember that all experience is filtered by perception, and that as a consequence language is not a description of the real world (nor any possible world), but rather a description of human perception of reality. Therefore, when we examine meaning, our goal is not to find a correspondence between utterances and a world (real or otherwise), but rather to explore the ways in which meaning is motivated by human perceptual and conceptual capacities.[10] A salient characteristic of these capacities is that they aren't constantly processing everything that comes their way; human beings are usually ignoring the vast majority of perceptual information available at any given instant. This ability to attend to certain inputs while ignoring the rest is essential to successful cognitive functioning, and can be manipulated at various levels of consciousness.[11] The tension between what is perceptually and cognitively foregrounded and what is backgrounded can be resolved in a variety of ways, and can even be resolved differently by the same person at different moments. In cognitive linguistics we call this phenomenon construal, and it has significant linguistic consequences. For example, the same event of objective reality may be differently construed by different speakers or even by the same speaker in different utterances, thus resulting in differences in linguistic expression such as aspect, syntax, case, etc. Recognition of this fact once again makes it impossible for cognitive linguists to aspire to prediction, but it does enable us to examine a much broader spectrum of language use than would be possible if we assumed a direct correspondence between the input of exterior reality and linguistic output. Accepting the fact that there are both a body and a mind between those two endpoints makes the formula more complicated, but it also makes our endeavor more accurate (and note that formalism and prediction do not necessarily correlate with this type of accuracy).

The premise that meaning results from human bodily experience as processed by perception and cognition has many ramifications that cannot be explored in detail in this paper. Here are a few of them for the reader to ponder. There is a huge (perhaps unbridgeable) gulf between human and artificial intelligence. Computers don't have bodies. Worse yet, they don't share our perceptual organs or our cognitive abilities (especially the drive to manipulate construal and to organize information in radial categories based on experience). Consequently, computers don't have access to meaning, the engine that drives both thought and language. Unless we can find a way to give them this access, computers will never be able to think or truly use language (rather than just aping cognitive and linguistic tricks via massive calculations). Barring such a breakthrough, machine translation of human utterances is similarly doomed to failure. Cognitive linguistics sides with Searle: his "Chinese room" does not understand Chinese, and passing the Turing Test does not prove that a computer can think.[12]

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[9] Johnson (1987) presents these and several other basic image schemas, and also discusses ways in which they are metaphorically extended to other domains in cognition, language, and art. Johnson's list of image schemas is very abbreviated; a complete catalog would be enormous.

[10] The interplay of perception and conception has inspired Talmy (1996) to coin "ception" as an umbrella term.

[11] Churchland (1996) provides numerous examples of how human attention is focused and manipulated. At the neuronal level, it appears that vision, for example, tends to focus on moving objects. At the level of conscious manipulation, there are ambiguous drawings (the beauty/hag and rabbit/duck are the most familiar examples) that people can construe in different ways. This type of construal is probably more common and more significant in the manipulation of linguistic categories than it is in perception.

[12] The Turing Test was conceived by Turing (1950/1996) as an operational definition of the goal of artificial intelligence — a computer that could think. According to Turing, if a computer and a person were engaged in

Here's an anecdote to illustrate why the embodiment of meaning is important to linguists. A psycholinguist once called to tell me about some strange patterns he was finding in data on the grammatical status of numerals in various languages (I think he called me because Slavic languages are very typical of what he was finding). The numerals 'one' and 'two' tended to be treated differently, 'two' was sometimes treated differently from 'three', but sometimes they were treated the same, and often 'four' followed a similar pattern. However, 'five' tended to behave very differently from both 'four' and 'six', and 'six', 'seven', 'eight', 'nine', etc. tended to behave similarly again. My colleague was puzzled by the fact that this distribution is so consistent among unrelated languages. My answer went something like this: you've found that 'five', 'one', and a lesser extent 'two' tend to have a special status in languages. To understand 'five', hold your hand up in front of your face. To understand 'two', notice your other hand, and the similar pairing of legs, eyes, ears, etc. 'One' is your experience as a unique human being, and your experience of single as opposed to plural things. The motives are all there in the body, though different languages may conventionalize and grammaticalize these facts in various ways.

4.5 The Structure of Cognitive Catgories

If linguistic categories are cognitive categories, then we should expect them to have the same structure. Empirical research in psychology, neurobiology, and linguistics indicates that human knowledge is stored, accessed, and manipulated in categories with a specific structure. Set theory and Venn diagrams have trained us to expect that a category is defined by a boundary, that category membership is all-or-nothing (usually based on the criteria of necessary and sufficient features), and that all members of a category share equal status within the category.[13] None of these parameters are valid for the vast majority of (and possibly all) human categories. Rather than having a defining boundary and no internal structure, human categories tend to have a defining internal structure and no boundary. A given category is motivated by and organized around a prototypical member, to which all other members ultimately bear some relationship. Bearing a relationship to the prototype does not necessarily entail sharing a feature with the prototype, since a relationship to the prototype may be mediated by a chain of linked members, in which each contiguous pair shares features, but there may be no feature shared by category members at the extreme ends of this chain. Indeed, it is probably impossible to arrive at the set of

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conversation with a human judge to whom the identities of the interlocutors were not revealed, and the human judge was unable to tell which interlocutor was the computer and which the live person, then the computer has passed the Turing Test, and the computer is indeed thinking, not just performing calculations. Searle (1990/1996) protested that simulations such as the Turing Test are not adequate proof of conscious cognition, and presented an analogy to the Turing Test, the Chinese room, in an attempt to defeat Turing's proposal. The Chinese room contains a person who does not know anything about Chinese and a rule book that the person uses to match incomprehensible Chinese inputs with equally incomprehensible Chinese outputs. A Chinese speaker who provides the inputs and reads the outputs is satisfied that s/he is having a conversation with a Chinese speaker, but does this mean that the Chinese room understands Chinese? Searle insisted that the Chinese room does not understand Chinese, but rather than laying the Turing Test to rest, Searle's analogy sparked further debate over what it means to understand language, and many scholars insisted that his Chinese room does indeed understand Chinese. Churchland & Churchland (1990/1996) present a counterpoint to Searle, suggesting that advancements in artificial intelligence and neurobiology make it possible to envision a thinking computer. As far as I can tell, the jury is still out on this issue.

[13] The notion of "fuzzy sets" attenuates the absolute values of these characteristics, but does not change the nature of the set structure. One should note that set theory is itself a metaphorical projection of the IN/OUT image schema. This fact makes the theory accessible and compelling, and very useful for many mathematical applications, though it is inadequate to the task of describing human categorization.

members of a cognitive category by using features to define it.[14] Complex categories can have numerous chains radiating from the prototype, and are therefore referred to as "radial categories". The prototype has privileged status in a category, and peripheral members are less representative of a category than the prototype. The relationship of the center/prototype to the periphery cannot be described in terms of a core + rules model, because the entire category, complete with its structure, is something that exists rather than being continuously generated from the center. The contents and structure of categories vary from language to language (and to some extent even from speaker to speaker); they are conventional and often language-specific, not a predictable result of the application of rules, and categories can both grow and shrink.

An illustration will demonstrate some of these points. The English word *mother*[15] has as its prototype a woman who is married to the father of a child whom she concieves, gives birth to, and nurtures. However, of course there are lots of mothers: stepmothers, adoptive mothers, birth mothers, surrogate mothers, foster mothers, genetic mothers (egg donors), etc. None of the features of the prototype is necessary or sufficient to define all these people as mothers, since there is no one feature that they all share (a birth mother usually does only the conceiving, gestating and birth, but none of the nurturing, whereas the opposite is true of an adoptive mother; a stepmother is not required to perform biological or nurturing functions — she need only be married to the father). And the category of mother is a dynamic one, showing growth at the periphery in response to fertility technologies and new legal and ethical precedents.

The category represented by English *chair* demonstrates that such categories are often language-specific. Both Czech and Russian use an entirely different lexeme for what we call *armchair* (Cz *kŝeslo*, R *kreslo*) than for what we call *chair* (Cz *židle*, R *stul*); for Czechs and Russians, an armchair is not in the chair category, it's a different object altogether. Furthermore, Czechs are capable of viewing a wheelchair as either a type of armchair or as an entirely different type of object. In the literary language, a wheelchair is *kŝeslo na kolečkách*, literally an 'armchair on wheels'; but in the spoken language a wheelchair is usually called *vozejk*, a 'small cart'. Thus even in different registers of a single language the conventional categorization of an object can vary.

The value of the radial category to linguistics is by no means limited to the semantics of lexemes such as *mother*. Successful analyses demonstrating the validity of this model have been applied to many phenomena, among them the allo-/-eme relationship (phonemes and morphemes are central to categories with allophones and allomorphs being relatively more or less central or peripherial), the semantics of grammatical morphemes (such as conjunctions, prepositions, prefixes, suffixes, and desinences), and the syntax of grammatical constructions (where some constructions are prototypical, and others are variants of these prototypes). Indeed, the radial category provides powerful explanations for all kinds of linguistic relationships involving polysemy, for it allows the linguist to explore both the variety and the coherence of related items (rather than attending exclusively to either the variety by making atomistic lists, or to the

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[14] I have been searching for a counterexample to this for years, by asking students (and offering them credit toward their grades) to find a definition via features that will accurately capture all and only the members of a category represented by a monomorphemic lexeme of their choice, yet no one has ever succeeded in this challenge. Every featural description either excludes members that need to be included, or includes members that should be excluded, and most descriptions do both. Thus "four legs, a seat, and a back" as a definition of "chair" excludes wheelchairs and beanbag chairs, but includes many stools, couches, and benches, whereas "made to be sat upon" excludes toy chairs and logs that might be referred to as chairs when they come in handy at a campsite, but again includes other pieces of furniture for sitting. Even if a counterexample is found, it is clear that the vast majority of human categories (linguistically represented as morphemes) do not yield to a featural analysis.

[15] This example of *mother* is borrowed and adapted from Lakoff 1987.

coherence by assigning abstract features that fail to capture the variety). The linguist can see both the trees and the forest, since even the messiest array of related items can usually be viewed as a unified (though internally complex) category. As I have argued elsewhere (Janda 1996c), the radial category also establishes the asymmetric relationships (between center and periphery) that motivate the phenomena that linguists of all stripes attribute to markedness. Markedness thus emerges as a by-product of the way in which human knowledge is organized. I have likewise argued at length (Janda 1993a, 1993c, 1996a, 1998a) that linguistic change flows according to the structure of radial catgories (with pruning and growth expected at the periphery; analogical leveling is therefore the pruning of a peripheral catgory member in favor of the prototype).

The prototype of any category is an item with special salience. This special salience is not something that can be mathematically defined (eg., as the one feature shared by most members of the category). Instead this special salience is attributable to how human beings interact with members of the category, which is exactly what we should expect given that meaning is grounded in human bodily experience. The source of meaning for the word chair is a kinesthetic image schema of how a human being typically interacts with a chair. In other words, the act of sitting in a prototypical chair is the experience that defines what a chair is, and variations on that experience result in variations among the peripheral members of the category. Human interaction generally proves to be much more significant than features that might be available in an "objective" description of a category. For example, even though dictionaries and English speakers consistently identify falsity of information as the defining feature of lie, when presented with potential examples of lies (some containing true and some containing false information), speakers of English consistently rate incidents involving intention to decieve (even when all the information is true) as better examples of lies than incidents merely containing false information.[16] In other words, it is the human interaction with lies, the experience of being deceived, that is most salient in the prototype for this category. One might easily claim that the objective defining feature of the bird category is the presence of feathers. However, feathers are only a minor factor in human interaction with birds, which also includes experiences such as that birds move fast (preferably by flying), are voracious eaters, sing, build nests and lay eggs in them, and both birds and their eggs are often a source of food. The current immense popularity among non-scientists as well as many paleontologists of the theory that birds and dinosaurs are the same kind of creature has been facilitated by discoveries that some dinosaurs did move fast, eat a lot, and lay eggs in nests. Knowing that some dinosaurs exhibited behavior like the salient prototypical behavior of birds makes it easy to imagine these dinosaurs as "featherless birds", a concept that would be oxymoronic under a featural analysis requiring feathers in order to belong to the bird category. It is the way we interact with birds that makes it possible for us to imagine the existence of dinosaurs that were really birds rather than reptiles (which do lay eggs, but nobody seems to want to call them birds, probably because they don't usually move very fast or eat very much, nor do they build impressive nests, etc.).

The urge to categorize is very strong, and it seems that in order to process, store, manipulate, and access information, human beings need to organize it in categories. Even damaged, impartial, and irrelevant information is run through this process, enabling people to make sense out of fuzzy or faded photographs, or to "see" various items in the shapes of clouds and inkblots. As neurobiologists have indicated, there is no "grandmother cell" in the brain that uniquely contains everything you know about your grandmother, nor is any other information stored as

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[16] This result was published in Coleman & Kay 1981, and I have reduplicated it with three different groups of students as a class demonstration. Though all of the samples involved are very small, the consistency of results is quite compelling.

discrete bits. Instead all information is distributed and interconnected. Not only is information arranged in categories, but these categories are related to one another, and further participate in a hierarchy of categorization involving subordinate and superordinate levels. All of the categories we have looked at in this section have been basic-level categories, which generally correspond with monomorphemic linguistic units (like *bird*, *chair*, *mother*, or a grammatical morpheme). The subordinate level provides finer detail clustered around members of a given basic-level category (thus the category of *armchairs*, with ones that recline or swivel and ones that do not, etc., would be a subordinate category). The superordinate category of *furniture* includes the chair as one of its more prototypical members (with items such as chaise-lounges, ping-pong tables, standing lamps, and cabinet-style television sets as relatively more peripheral examples of furniture). Subordinate, basic, and superordinate levels are not simply concentric sets; these relationships are complex and follow the center/periphery structure. Radial categories of all types (organizing lexical meaning, grammatical meaning, and hybrid types) are constitutive of mental spaces that structure both thought and language use.

A radial category is not necessarily composed of unique, discrete members, each occupying a single slot in a structure defined by a single set of relations to the prototype. Cognitive categories are not in the business of pigeon-holing information anymore than the brain is in the business of growing "grandmother cells". Often there are category members that fit into a given category in more than one place (or in a transitional zone between parts of a category) and/or are related to the prototype in more than one way. Cognitive linguists refer to such category members as "multiply motivated", and do not eschew such redundancy, since it is a natural part of human cognition. The recognition of multiply motivated category members allows us to analyze and account for phenomena of ambiguity and overlap, which are rampant in natural languages, but frequently ignored by linguistic theories.

In addition to the prototype, many cognitive linguists (especially Langacker and his students) posit an overall abstract schema that sums up an entire category and relates to all the members. This concept is probably more important and more understudied than most of us realize. Cognitive linguistics still has quite a bit of work to do in order to research, develop and ultimately define the role of the overall abstract schema (perhaps best described as "firstness" for those familiar with Peircean semiotics).

Section 6 will present the radial category of the Russian genitive to demonstrate the efficacy of this model for linguistic analysis. Like most items expressed in a simplex morpheme,[17] the genitive case is a basic level radial category with a prototypical member (SOURCE) and three variants (GOAL, WHOLE, REFERENCE). Subordinate structures organize smaller details of meaning (such as the implementation of the SOURCE meaning in the various domains of space, time, etc.), and the basic level category of the genitive participates in a superordinate category of case relationships in general.[18] There is evidence that this kind of organization motivates most (perhaps all) linguistic phenomena.

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[17] The fact that Russian case endings are synthetic, expressing number and sometimes gender as well, is not problematic here, nor is the fact that a given case morpheme has different forms in different numbers and paradigms.

[18] The most prototypical member of the superordinate category is the nominative case (which is why we think of it as the "default" case in dictionaries, on signs, etc.). Accusative is somewhat more peripheral (opposing the nominative as an agent to the accusative as a patient in a prototypical SVO clause). The genitive is even more peripheral, since it does not involve the verb (central to the structure of a clause). And the instrumental, dative, and locative are relatively peripheral in relation to the nominative, accusative, and genitive, respectively. In other words, Jakobson was right in 1936, and indeed much of his work on case (and other phenomena) looks to a cognitive linguist like it was ahead of its time.

4.6 Mental Spaces and Mapping

Cognition and the use of language involve the access and manipulation of mental spaces. Mental spaces are constructed from human perceptual experience and are extended through imaginative mapping processes. The three most significant processes are metaphor, metonomy, and blends. All three processes are vital to linguistic analysis.

For a cognitive linguist, the definition of metaphor is very broad. A metaphor is a mapping from a source domain to a target domain. In other words, whenever a person takes a concept that has been formed in one domain and tries to implement it in another, a metaphor has occurred.[19] The domain in which virtually all (maybe just "all") human knowledge is formed is that of a human body in physical space, which usually serves as the source domain for metaphor. Common target domains are time, emotions, and states of being. As mentioned above, babies become acquainted with their bodies as containers by practicing putting things in their mouths. After this routine has been established, they move on to placing objects in other containers (many baby toys are designed just for this task). On a crude level, even this is a metaphor, for the concept IN/OUT has thus been mapped from the body to external objects. Later, babies will learn to extend IN/OUT to many other domains; in English these include time (by getting things done in time and running out of time), emotions (by falling in and out of love), and states of being (by getting in and out of trouble). The ways in which these metaphorical extensions are realized and conventionalized are highly language-specific, but the metaphorical process itself is a pervasive universal.[20] Metaphor is a very robust phenomenon for all languages. It is quite impossible to speak any language without mastering the metaphorical conventions embedded in it.

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[19] Notice that under this definition there is no substantive difference between metaphor and simile, or, to be more accurate, all similes are actually metaphors. US public education never fails to indoctrinate all children with the belief that there is an important difference between the two, and disabusing them of this notion at the college level can be quite a challenge. The difference they have learned to cherish is one of superficial syntactic variations on metaphorical expression that has little bearing on the substance of the comparison. It also hides the fact that there are more ways to produce metaphor than by saying that "x is y" or even that "x is like y". Metaphor is present in all kinds of syntactic situations, and can be expressed by all kinds of morphemes. Here are two examples with an adjective (*firey*) and a verb (*beefing*): *firey anger*; *authorities are beefing up security at area schools* (see also the metaphors using IN and OUT in the following paragraph, and those using the genitive case in section 6).

[fn20] Lakoff and Johnson (1980) identify three basic types of metaphor: orientational metaphor, ontological metaphor, and structural metaphor. Orientational metaphor is the extension of orientations such as IN/OUT, UP/DOWN, FRONT/BACK to non-spatial domains. Ontological metaphor is the conceptualization of non-things (emotions, abstract ideas, ambient phenomena) as if they were things (usually entities, substances, or places), as in *We are working toward peace* (where peace is conceived of as an object or place), or *His emotional health has deteriorated recently* (where emotional health is an object subject to deterioration). Structural metaphors take an item with rich structure in bodily experience as the source domain for understanding something else. For example, the structural metaphor PEOPLE ARE PLANTS underlies many metaphorical expressions, enabling us to refer to the growth of children as *sprouting up*, youth as a *blossom*, old age as a time of *withering and fading*, and the slaughter of soldiers as being *mowed down*. The three types of metaphor are not entirely discrete and often collaborate in a given expression. *Falling in love*, for example, uses all three types: an orientational metaphor extending the use of *in*, an ontological metaphor indentifying love as a place, and a structural metaphor that maps our understanding of physical falling onto our understanding of an initial encounter with love. Languages make use of all three types of metaphor in their grammars. Orientational metaphors are quite routine (often involving cases, prepositions, and prefixes), and they typically collaborate with ontological metaphors (as in *getting things done in time*, *running out of time*, where time is a container or a substance). Section 6 demonstrates that the genitive case uses a structural metaphor mapping our experience of physically withdrawing from a thing to emotions such as fear , shame, and aversion.

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The mapping that metaphor performs is usually highly selective. It is by no means a one-to-one mapping of all the information from a source domain to a target domain. For example, the fact that in English we use fire as a source domain for understanding anger (cf. Lakoff 1987: 380–415; *His temper is like a powder-keg*, *She's white-hot with rage*, *I'm fuming*, *doing a slow burn*, etc.) does not mean we expect anger to be something we can light with a match, use for cooking, or use to produce ashes. Like the prototype, metaphor is motivated by relevant information that is salient in human experience; it highlights some facts about the target domain, but hides others. The behavior of metaphor is likewise well-motivated but not entirely predictable.

For the purposes of linguistic analysis, metaphor is equally essential. Metaphors involving IN/OUT, as mentioned above, and similar metaphors based on kinesthetic image schemas are valuable for exploring the meaning and grammatical functions not only of cases and prepositions, but of all sorts of linguistic categories and functor words. Iconicity of all sorts is also a metaphorical phenomenon, for it is the mapping of a parameter from one domain to another. Analogy in both the broad ordinary sense and in the specific linguistic sense of analogical change is likewise the product of a metaphorical transfer of information from one place (usually a paradigm) to another. When linguists recognize and focus on the central role that metaphor plays in all language, it becomes possible for us not only to better understand grammatical phenomena, but also to participate in cultural studies and poetic analysis. The difference between the types of metaphors prevalent in linguistic categories and those encountered in creative expression is not a matter of quality, but rather a matter of the degree to which certain metaphors have become conventionalized in a given language and culture. Conventionalized metaphors form the backbone of linguistic categories, idioms, clichés, expository prose, and ritual. Creative use of writing also contains metaphors that are either less conventional (being extensions of conventional metaphors, cf. the jokes mentioned in footnote 2), or altogether unconventional. It is also instructive to note that most theories are based on metaphors, and that the inferences we draw from theories are influenced by our understanding of these metaphors. Set theory is the IN/OUT image schema writ large. The modern understanding of the structure of benzene arose from an iconic metaphor inspired by a dream of a snake biting its tail. Understanding of atomic structure has undergone many metaphorical realizations in this century, going from a grapes in gelatin model, to a model of miniature solar systems, to a mathematical probability model. Light continues to be understood partly according to a metaphor based on waves and partly according to a metaphor based on particles. Closer to home, the vowel triangle is a metaphor which helps us predict which vowels are likely to turn into which other vowels because they are "closest" to each other. Radial categories are likewise a metaphor of our experience of points and links (rather like the old tinker toys). The presence of these metaphors is not a problem unless we forget that they are there and assume that we are just dealing with raw "truth". Metaphors facilitate understanding and lend power to our theories, and they often inspire us to draw inferences that we might otherwise overlook. However, they can also inspire us to draw incorrect inferences or can shade our eyes from inferences that we should consider (were we not so enamored of the current metaphor). We need to be able to not only recognize and respect metaphors, but also to look beyond them.

Cognitive linguists have paid less attention to metonymy (but note Goossens 1990, Croft 1993, and Kövecses & Radden 1998), yet it is also a rampant phenomenon in linguistics. Metonymy is present whenever a part of something stands in for the whole item, or when something closely associated with an item (like a name or attribute, eg, *Dostoevsky takes up a whole shelf in my library*; *The ham sandwich wants his check*) stands in for the item itself. In other words, a partial or associative reference maps to the referent itself. All phenomena of

elipsis, truncation, and phonological reduction/neutralization are linguistic examples of metonymy. Very common uses of metonymy in the world's languages are the reduction of movement along a path to either a stationary path or just the endpoint of a path. English *over* provides examples of both types of reduction. We can invoke movement along a path by saying *Bill walked over the hill*. This can be reduced to a stationary path in *The road goes over the hill*. A statement like *Bill lives over the hill* accesses only the endpoint of the path described by *over*. Two of the submeanings of the genitive (presented in section 6), GENITIVE:: A REFERENCE and GENITIVE:: A WHOLE result from metonymical reductions of paths to endpoints of the more prototypical meanings GENITIVE: A SOURCE and GENITIVE:: A GOAL. In my work on the dative case in Slavic, I have argued that metonymy has been used to extend the indirect object to constructions lacking a direct object (Janda 1993a). There are many verbs (especially verbs that denote the giving of money/gifts, giving of messages, and giving of good/evil, such as the Slavic equivalents of 'pay', 'advise', and 'please'/ 'hamper') that denote the giving of something that is so predictable from the meaning of the verb itself that there is no need to express the something given as an accusative direct object. We know, via metonymy, that when we pay someone, we are giving them money; when we communicate with someone, we are giving them a message; and when we please or hamper someone, we are giving them a good or hard time. This metonymy motivates the use of the indirect object, and therefore the dative case, with a host of verbs which otherwise look rather like a random list.

Blends are a more recent topic for cognitive linguistics and even less has been written about them than about metaphor or metonymy (however, see http://www.wam.umd.edu/~mturn/www/ blending.html). Like metaphor, a blend involves two domains and a mapping relationship. However, in a blend both domains are source domains, and together they contribute to the creation of a third, entirely new domain. For example, if I were to talk about a discourse between Roman Jakobson and cognitive linguistics, I might say that Jakobson made certain contributions, which cognitive linguistics reacted to, and that Jakobson did not accept all the premises of cognitive linguistics, etc. This discourse is of course hypothetical and anachronistic, since Jakobson died several years before anyone ever used the term "cognitive linguistics". The discourse is a blend constructed from Jakobson's work and work on cognitive linguistics. On the morphological level blends are fairly common and are traditionally called just that: blends. Morphological blends include the coinage of words like *motel* (from *motor + hotel*) or *workaholic* (from *work + alcoholic*). Blends also occur at the level of the linguistic category. The historical development of virile endings from what was originally dual morphology in some Slavic languages appears to be the result of a blend in which special distinctions that could be made in the plural number and special distinctions that could be made in the masculine gender contributed to the creation of a special plural masculine distinction, namely virility (Janda 1999a). Both metonymy and blending merit further research.

Metaphor and metonymy appear to have neurological analogs. It is believed that eye-hand coordination is achieved by mapping vectors of eye angles onto vectors of muscle contractions, in other words, taking information from one domain (eye positions) and transferring this information to find "equivalents" in another domain (muscle positions) (Churchland 1987: pp), a process that looks very much like metaphor. A computer simulation of human retinal cells (Churchland 1995: 236–42) reveals that our visual perception focuses on certain information (particularly movement and edges), largely ignoring other possible inputs. Thus we tend to see moving parts and edges rather than wholes, and this seems to parallel metonymy. These analogs do not mean that we know how metaphor and metonymy work on the biological level, but they do mean that metaphor and metonymy at least appear to be biologically plausible (whereas serial processing of ordered rules seems much less promising, given what we know about brain

structure and neural processing time). Lakoff has devoted considerable attention to the issue of neural nets and how they relate to the theoretical constructs of cognitive linguistics; more information on this topic can be accessed at http://www.icsi.berkeley.edu/NTL/.

5.0 Advantages of Cognitive linguistics

Cognitive linguistics offers a number of advantages over some other linguistic frameworks, particularly in relation to the range of language phenomena it can address and in relation to researchers' need to communicate their results. I would contend that cognitive linguistics facilitates the analysis of far more language data, and that the results of analysis are far more accessible to others both within and particularly beyond the field of linguistics.

5.1 Cognitive Linguistics is Data-friendly

From the very beginning, cognitive linguistics has been a refuge for linguists who are intimately acquainted with real language data and have a profound respect for empirical methods. The most outstanding contributions made by cognitive linguists continue to be insightful analyses of intricate sets of naturally-occurring data performed by linguists with a subtle and detailed understanding of the languages they work on. Although theory is a crucial concern, it is treated as something that emerges gradually from and must be constantly verified against data. It is impossible for a proper cognitive linguist to imagine "marshalling data to support theory" (an exact quote of praise from one non-cognitive linguist about another). Whenever I hear this kind of language, I shudder to think what this means: Was the data forced into conform to pre-determined regiments? What happened to the "naughty" data that didn't support the theory? Was it banished from consideration? Where did the data come from? Was it real data (spontaneously produced by native speakers under natural conditions)? Or not (concocted, elicited, etc.)? I rejoice in finding the "naughty" data that challenges us to stretch or change our theory (this "naughty" data need not be the least bit exotic or ungrammatical — it's usually hidden in plain sight, until you gather a database of real usage). I always start every project by gathering as much data as I can before even beginning to think about how it might be organized, and I likewise insist that all my students "get their hands dirty" with some data before thinking about their analysis. There is much that can be learned about linguistics by simply gathering and sifting through data, and no amount of theory or classroom lecturing is a substitute for this experience.

   The framework of cognitive linguistics (especially the radial category and metaphorical extensions of it) is particularly adept at handling analyses of very messy arrays of data. There is never any motive for hiding or ignoring "problematic" data, primarily because cognitive linguistics is interested in finding internal structures, however fine-grained, rather than air-tight immutable boundaries for categories. The "ugly ducklings" that are often shunned by other theories are properly appreciated for their beauty in this framework. For example, the Russian verb *zavidovat'* 'envy' bears no close affinity to other "dative-governing" verbs, but it serves as an important transitional type linking two parts of the semantic category of the dative case (Janda 1993c). Case usage is itself an example of a relatively messy phenomenon for which cognitive linguistics provides an ideal solution, making it possible to respect all the variation while producing a coherent analysis. This not only facilitates the description of a given case in a given language, but it also makes cross-linguistic comparisons relatively easy and transparent (a feat not previously achievable). Case semantics is only one of the enduring, intractable problems of Slavic linguistics for which the cognitive framework is likely to provide elegant solutions. Further venues I have explored include aspect (aspectual distinctions seem to have the same

motives as the phenomena of motor control theory), phonological change (the prototype of a syllable in the Common Slavic period appears to be a sequence with level tonality and rising sonority), paradigm change (the masculine *o*-stem paradigm has experienced more change than any other in the past millenium, and almost all of this change seems to be motivated by increasing distinction between figure and ground). Others have investigated a remarkable array of topics, ranging from morphology, syntax, semantics, and translation, as evidenced in the bibliography in 9.2.

In summary, cognitive linguistics is an excellent framework for probing both the complete range of language use (all natural production, including errors, anomalies, creative use, poetry, idioms, even "dead metaphors") and the complete range of language phenomena (phonology, morphology, syntax, and semantics).

5.2 Cognitive Linguistics is User-friendly

The absence of an entrenched formalism has its advantages. A cognitive linguist never has to build a mountainous formal machine to strain at a gnat (or any bigger prey, for that matter), and no one has to master a formal system in order to appreciate research in cognitive lingusitics. This means that cognitive lingusitics research is readily accessible to all linguists, and also that cognitive linguists can focus more of their effort on collecting and analysing data than on toying with the formal artifacts of a theory. With very minor adaptations, research done in cognitive linguistics can also be made accessible to other audiences. This is particularly valuable for those of us who wish to communicate with colleagues in other fields, as well as for young scholars who are likely to have to give a job talk to a mixed audience, or for researchers who submit grant proposals (NEH, SSRC, ACLS, etc.) that will be evaulated both by linguists and by other scholars. More important is the fact that cognitive linguistics facilitates the transfer of research to teaching; it allows us to make our research breakthroughs available to students. Rather than encouraging the production of arcane scholarship, too often consisting of minutiae hopelessly embedded in complex and counter-intuitive frameworks, cognitive linguistics facilitates the production of scholarship that is actually useful, both to scholars and to students. The demonstration of cognitive linguistics presented in section 6 is abstracted from a forthcoming textbook for learners of Russian on the case system. The textbook itself contains virtually no terminology (except "verb", "preposition", and "metaphor", and the former two are often just referred to as "words"), and only a very sparse formalism (a circle is an object, an arrow is an action — but all of this is translated into prose, and the book can be comprehended without reference to the formalism). In studying the Russian cases, students are asked to build upon their everyday experiences (of orientation, forces, and movement along a path, for example), and to use metaphor to extend spatial concepts to other domains such as time and states of being (guided by familiar and parallel metaphorical extensions in English). This book has already been beta-tested by a small group of students, none of whom have ever heard of cognitive linguistics (even after reading the book). Their reaction was unanimously enthusiastic, proving that cognitive linguistics can be made utterly transparent and valuable for many people other than cognitive linguists.
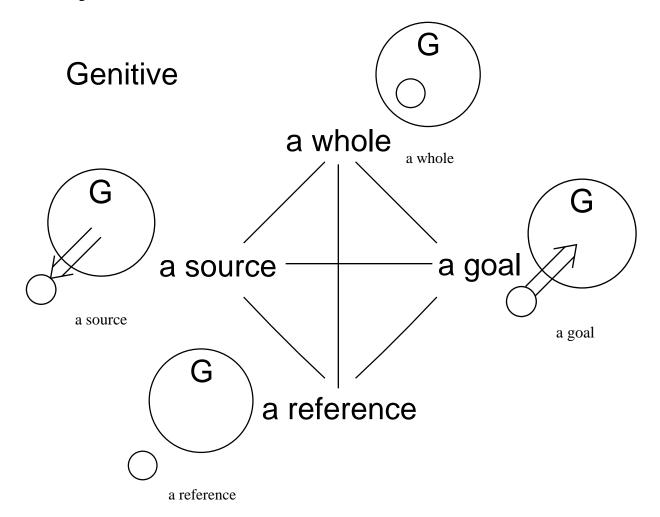
Cognitive linguistics is particularly friendly to Slavists. As mentioned above, it is highly compatible with some of our traditions, both old (most notably the work of Roman Jakobson) and new (cf. the work of many contemporary Russian linguists, particularly Apresjan, Arutjunova, Kibrik, Kobozeva, Kreidlin, Padučeva, Plungian, Rakhilina, and Uryson), providing opportunities to heal disconitnuities of both time and place (in particular, Cold-War geopolitics). The bibliography in 9.2 demonstrates that cognitive linguistics is making considerable

contributions to Slavic linguistics. In fact, this trend is so robust that the organizers of the next ICLA conference (to be held in Santa Barbara in 2001) have already suggested that a theme session be devoted entirely to Slavic languages.

6.0 A Brief Demonstration (the Russian Genitive)

I will use an (abbreviated) analysis of the Russian genitive case to illustrate how concepts such as the embodiment of meaning, radial category, and metaphorical extension can serve as valuable tools for researchers.

A genitive case is a common phenomenon in languages across typologies; basically the term genitive indexes the fact that languages tend to group possession, adnominal relationships, and the complements of certain verbs together (Blake 1994: 151). The dimensions and dynamics of the genitive case in any given language are, of course, unique. I will present a highly principled network consisting of only four nodes that is, however, comprehensive enough to account for the wide range of data found in Russian.

Genitive

a whole

a whole

G

a source   a goal

G   G

a source   a goal

a reference

G

a reference

Let's look at the radial category of the genitive first. The specific submeanings of the Russian genitive constitute the four members of this category: GENITIVE: A SOURCE (the prototype), GENITIVE:: A GOAL, GENITIVE:: A WHOLE, and GENITIVE:: A REFERENCE. The four labels used here hint at both what the basic meaning of the genitive is and why it is so hard to make sense of it. The genitive is by nature an elusive beast, a sort of "back-seat driver" constantly handing off

the responsibility of <mark>focusing attention</mark> to <mark>something else.</mark> When we say that something comes from a source, we generally aren't as interested in the source as we are in the something that comes from it. The same goes for goals; while a goal is important, what we really care about is the person or thing that is headed for it. In the GENITIVE:: A WHOLE use, there is always another item that plays the role of the "part", and of course when we are talking about something that is part of a whole, we are focusing our attention on the part more than on the whole. A reference point is something we use to locate something else, and in its GENITIVE:: A REFERENCE use, the genitive serves as a mental address for other things. Rather than turning focus to the item it marks, the genitive deflects our focus away from it. It is this habit of retreating into the background that makes the genitive so hard to pin down. Passing the buck, by the way, also makes the chaining of genitives possible, allowing focus to bounce from one item to the next.

For cognitive linguists it is fairly easy to pick out the links that hold this category together. SOURCE and GOAL present the same relationship of trajector, trajectory, and landmark; it is only the direction of the trajectory that varies. WHOLE and REFERENCE present the two endpoints of the SOURCE/GOAL trajectory; the reduction of a trajectory to its endpoint is a very familiar phenomenon in cognition (a metonymy, as mentioned in 4.6). Abstractly, we could say that all of the uses of the genitive support the following definition:

The genitive is a backgrounded item (big circle) that <mark>yields focus of attention to something else</mark> (small circle) which exists or maneuvers in its proximity. The genitive is cognitively prior to or more salient than the other item, but <mark>yields this salience to the trajector.</mark> The abstract schema appears to be grounded in universal human experience of containers, movement along a path, and relative distance.

The <mark>remainder</mark> of this demonstration will be devoted to the specific submeanings that are members of the genitive category. I will suppress a large amount of detail, offering just small samplings of phenomena such as <mark>trigger words (primarily prepositions and verbs) and metaphorical extensions of genitive meanings.</mark> Numbered examples from a large database of naturally-occuring sentences illustrate some of the genitive uses (for more detail, see Janda forthcoming).

6.1 Genitive: a Source

Prose caption of diagram: An item (small circle) departs from a GENITIVE: A SOURCE (circle labeled G).

GENITIVE: A SOURCE is always associated with meanings of coming from (motivating metaphorical extensions to causation) and withdrawal. The source meaning is triggered by various prepositions meaning 'from' or 'because of' (*ot* 'from', *s* 'off of; from', *iz* 'from'; ex. 1), as well as verbs signaling withdrawal, many of them involving metaphorical extension from the spatial domain to the domain of emotions (*bojatʹsja* 'fear', *pugatʹsja* 'be frightened', *izbegatʹ* 'avoid', *dičitʹsja* 'avoid', *stesnjatʹsja* 'be shy of', *styditʹsja* 'be ashamed of', *gnušatʹsja* 'abhor', *storonitʹsja* 'shun, avoid', *osteregatʹsja* 'beware of'; ex. 2).

(1) Na stulʹjax i krovati ležali vešči, vynutye iz *sunduka.*
     [On chairs-LOC and bed-LOC lay things-NOM, taken-NOM from trunk-GEN.]
     On the chairs and bed lay things that had been taken out *of the trunk*.

(2) Oni soveršenno ne stesnjalisʹ *prisutstvija* ljudej.
     [They-NOM completely not were-shy presence-GEN people-GEN.]
     They are not the least bit shy *of the presence* of people.

6.2 Genitive:: a Goal

Prose caption of diagram: An item (small circle) reaches a GENITIVE:: A GOAL (circle labeled G).

GENITIVE:: A GOAL is virtually the mirror-image of the source meaning, but is somewhat more nuanced, particularly in its use with verbs. GENITIVE: A GOAL is associated with prepositions meaning 'approach' in space or time, the latter yielding 'until'; 'for', a metaphorical extension of 'approach' to the domain of purpose; and 'touch', with metaphorical extension to the domain of the intellect yielding 'concerning' (*do* 'up to, until', *dlja* 'for', *radi* 'for the sake of', *protiv* 'against', *kasatelʹno* 'touching, concerning', *otnositelʹno* 'concerning'; ex. 3). When the notion of 'approach' is extended to the domain of merit/morals, it motivates the use of the genitive with the adjective *dostojnyj* meaning 'worthy'.

(3) Stupenʹki mojego vagona ne doxodjat do *zemli*.
     [Steps-NOM my wagon-GEN not go to ground-GEN.]
     The steps of my wagon do not reach *the ground*.

The use of GENITIVE:: A GOAL with verbs depends upon the meanings of the verbs and the perceived definiteness of what is approached. For verbs that involve definite objects, such as *dobivatʹsja* 'get, strive for', *dostigatʹ* 'attain', *zasluživatʹ* 'deserve', *želatʹ* 'desire', *stoitʹ* 'be worth', *kasatʹsja* 'touch', *deržatʹsja* 'hold to', *slušatʹsja* 'obey', the genitive is required (ex. 4). For verbs that do not make this stipulation, such as *iskatʹ* 'seek', *prositʹ* 'request', *ždatʹ* 'wait for', *ožidatʹ* 'expect', *trebovatʹ* 'demand', *xotetʹ* 'want', the decision about the definiteness of the object is up to the construal of the speaker (ex. 5). Thus, if a specific item is sought, it will appear in the accusative, whereas non-definite items will appear as GENITIVE:: A GOAL. For example, one can say Boris is waiting for a bus, putting the bus in either the accusative or the genitive. If we use the accusative, we mean that Boris is waiting for a certain bus. But if we use the genitive, we mean that Boris just wants to get away — he will take any bus that comes.

(4) Kak vy dostigli *takogo nravstvennogo soveršenstva*?
     [How you-NOM attained such moral perfection-GEN?]
     How have you attained *such moral perfection*?

(5) ›iznʹ, kotoruju my veli, *trebovala značitelʹnyx rasxodov*.
     [Life-NOM, which-ACC we-NOM led, required considerable expenditures-GEN.]
     The life we led required *considerable expenditures*.

6.3 Genitive:: a Whole

Prose caption of diagram: An item (small circle) is a part of a GENITIVE: A WHOLE (circle labeled G).

GENITIVE:: A WHOLE brings together the adnominal, possessive, and quantificational meanings are characteristic of genitives; everything that English can do with 'of' and then some. This includes part/whole relationships, possessive uses (ex. 6), membership in a category (ex. 7), and the various having relationships that are motivated by the typical event, holding between the agent, the patient, and the action. Like English 'of', the Russian genitive displays all six possible combinations of agent, patient, and action. Example 8 illustrates the action (*publication*) belonging to the patient (*edible children's books*).

(6)   Ne povtorite ošibku *prezidenta*.
      [Not repeat error-ACC president-GEN.]
      Don't repeat *the president's* error.

(7)   Nadejus′, ty vyrasteš′ čelovekom *bol′šoj duši*.
      [Hope, you-NOM grow-up person-INST big soul-GEN.]
      I hope that you grow up to be a person *with a big soul*.

(8)   On planiroval izdanie *s″edobnyx detskix knig*.
      [He-NOM planned publication-ACC edible children's books-GEN.]
      He planned the publication *of edible children's books*.

There are three prepositions that make use of GENITIVE:: A WHOLE (*sredi* 'among', *posredi* 'in the middle of', and *vnutri* 'inside'; ex. 9), as well as about 50 prepositional phrases (among them: *v adres* 'directed toward', *v vide* 'in the form of', *v kačestve* 'in the capacity of'; ex. 10) which serve as complex prepositions. The adverb *žal′/žalko* 'pity, regret' (ex. 11) seems to stand out; a clumsy English translation as 'for pity of' might help us to see the connection to GENITIVE:: A WHOLE here.

(9)   V pereryve sredi *učastnikov* načali cirkulirovat′ dokumenty.
      [In break-LOC among participants-GEN began circulate documents-ACC.]
      During the break documents began circulating among *the participants*.

(10) Vpervye v kačestve *polnopravnyx učastnikov* meždunarodnogo soglašenija
      vystupilipjatnadcat′ byvšix sovetskix respublik.
      [For-the-first-time in capacity-LOC full-fledged participants-GEN international
      agreement-GEN acted fifteen-NOM former Soviet republics-GEN.]
      For the first time the fifteen former Soviet republics acted in the capacity *of full-fledged
      participants* in an international agreement.

(11) Ja ljublju detskie golosa, I mne pri ètom byvaet nevyrazimo žal′ *svoej uxodjaščej žizni*.
      [I-NOM love children's voices-ACC, and me-DAT at this-LOC is inexpressibly regret
      own slipping-away life-GEN.]
      I love children's voices, and when I hear them I feel inexpressible regret *for my own life
      which is slipping away*.

'Amount of' with GENITIVE:: A WHOLE can be triggered by numerals and other quantifiers (ex. 12), or can appear without any quantifier at all, in which case the meaning is usually 'some' and is referred to as partitive (ex. 13). In addition, a number of words that describe having or manipulating amounts are associated with GENITIVE:: A WHOLE (*dostatok/dostatočno* 'enough', *ispolnennyj* 'full', *ispolnjat′sja* 'become filled', *nabirat′sja* 'collect, pick up', *naedat′sja* 'eat/have one's fill', *polnyj* 'full', *pribavljat′(sja)* 'increase, add', *ubavljat′(sja)* 'decrease, subtract', *xvatat′* 'be enough'; ex. 14).

(12) Ja opozdala na pjatnadcat′ *minut*.
      [I-NOM got-late on fifteen-ACC minutes-GEN.]
      I was fifteen *minutes* late.

(13) Ja vypil *čaju*, kotoryj zakazal po telefonu.
　　　[I-NOM drank-up tea-GEN, which-NOM ordered along telephone-DAT.]
　　　I drank up *the tea* that I ordered by phone.

(14) On nabralsja *xrabrosti* i sprosil: počemu?
　　　[He-NOM collected courage-GEN and asked: why?]
　　　He collected *his courage* and asked: why?

6.4 Genitive:: a Reference

Prose caption of diagram: An item (small circle) is in the proximity of a GENITIVE: A REFERENCE (circle labeled G).

　　　GENITIVE:: A REFERENCE locates an item relative to a genitive item which serves as a reference point in various domains. Dates serving as reference points in time are one of the most common uses of GENITIVE:: A REFERENCE (ex. 15). Additionally, there are over 2 dozen prepositions that locate objects relative to GENITIVE:: A REFERENCE in domains of time, space, similarity, and intellectual concepts (*bez* 'without', *bliz* 'near', *vblizi** 'nearby', *vvidu** 'in view of', *vdol′** 'along' ... *poperek** 'across', *posle* 'after', *prežde* 'before', *sverx** 'above', *u* 'by, near'; asterisks indicate reflexes of prepositional phrases, originally motivated by GENITIVE:: A WHOLE). One preposition, *u*, 'by, near' could be a whole chapter to itself, for it displays numerous extensions and conventionalizations, being deployed for meanings of possession and causation in addition to spatial location (ex. 16).

(15) *Vos′mogo* avgusta 1927 g. M. Cvetaeva pisala svoej znakomoj S. N. Andronikovoj-
　　　Gal′pern.
　　　[Eighth-GEN August-GEN 1927 year-GEN M. Cvetaeva-NOM wrote own
　　　　acquaintance S. N. Andronikova-Gal′pern-DAT.]
　　　On the eighth of August 1927 M. Cvetaeva wrote to her acquaintance S. N. Andronikova-
　　　Gal′pern.

(16) U *dveri* sidit miss Fillips i vjažet.
　　　[By door-GEN sits Miss Phillips-NOM and knits.]
　　　Miss Phillips sits by *the door* and knits.

　　　GENITIVE:: A REFERENCE can also signal separation interpreted as negation (not necessarily of the existence of something, but of its availability for perception; ex. 17).

(17) V to že vremja v častnom sektore *nikakix zabastovok* ne bylo.
　　　[In that same time-ACC in private sector-LOC no-kind strikes-GEN not was.]
　　　At the same time there were *no strikes* in the private sector.

　　　A number of words specifically trigger the negation construal of GENITIVE:: A REFERENCE (among them: *deficit* 'deficit', *lišat′(sja)* 'deprive [be deprived]', *nedostavat′* 'be lacking', *nedostatok* 'lack', *nexvatka* 'shortage'; ex. 18).

(18) Obyčnaja naša žizn′ byla lišena *vsej ètoj roskoši, kazavšejsja teatral′noj, prednaznačenoj*
      isključitel′no dlja sčastlivoj minuty.
      [Ordinary our life-NOM was deprived all this luxury-GEN, seeming-GEN theatrical-
      INST, set-aside-INST exclusively for happy minute-GEN.]
      Our ordinary life was deprived *of all this luxury, which seemed theatrical, and was set
      aside* exclusively for a happy time.

   The distance of separation in GENITIVE:: A REFERENCE is further interpretable as
differentiation along a scale of comparison, motivating the use of comparatives with the genitive
case in Russian (ex. 19).

(19) Obščee delo dolžno byt′ vyše *ličnyx interesov.*
      [Common cause-NOM should be higher personal interests-GEN.]
      The common cause should be higher (priority) *than personal interests.*

   This completes our "bare bones" survey of the Russian genitive, a demonstration of how
cognitive linguistics can reveal the complex infrastructure of an abstract grammatical meaning,
while allowing us to also appreciate the ultimate unity of the linguistic category it represents.

7.0 Projected Trends

Predicting the future is always a dangerous undertaking, but fortunately I don't have to take all
the responsibility on myself, since a considerable amount of predicting was done at the ICLA
meeting last July. I'll summarize and comment on some of the trends projected by colleagues at
that event.
   Suzanne Kemmer specifically devoted her talk to summarizing achievements to date and
suggesting "areas ripe for exploration with cognitive concepts and methods". At the top of her
list is sociolinguistic variation, certainly a topic near to the heart of Slavists who work with
Czech. I've long wished that I could find the time to undertake a thorough cognitive analysis of
Czech diglossia (there would be prototypical items in the phonology, morphology, syntax, and
lexicon for each register, literary Czech and spoken Czech, and there would be a range of
deviations from these prototypes, etc.; there would also be prototypes of situations for use of
each register, etc., etc.) — maybe someone else will take this on. All of our languages have some
similar phenomena (variations in colloquial language, slang, taboo language, and also dialectal
variations) that would similarly benefit from a cognitive linguistic account. Serbo-Croatian as we
once knew it has now broken apart, and each new "language" has selected certain phenomena
which it wields as identifying characteristics (prototypes!) to distinguish it from the other
successor languages. Closely related topics on Kemmer's list are bilingualism and language
contact, both of which are likewise relevant to Slavists (for example, the influence of German on
West Slavic, and of Russian on all other Slavic languages; and the struggle now for Belorusian,
Ukrainian, Baltic, and Central Asian languages to shed Russian and reestablish themselves as
full-fledged literary languages; and the sudden surge of influence English is now having on all
our languages). Historical linguistics presents seemingly endless opportunities, especially given
the fact that our languages are relatively well-documented, so there is plenty of material to work
on (the semantic development of grammatical categories immediately suggests itself, but one
could also look at the evolution of phonological systems, syntactic structures, etc.). Kemmer also
suggests second language acquisition and language learning, both of which are relevant to our
roles as teachers of our languages; in this connection I am endeavoring to produce (or in most

cases to encourage others to produce) pedagogical materials for teaching the case and aspect systems of our languages. The possibilities for deployment of cognitive linguistics in the service of language teaching are likewise virtually unlimited. Literacy and translation are the next two items on Kemmer's list. The former (literacy) might be of value in serving heritage students who often arrive in our classrooms with very incomplete knowledge of a language, particularly in its literary form. Translation is inevitably a part of what we do, and can be greatly informed by understanding the structure of linguistic categories, metaphorical extension, and the like. Those of our colleagues who approach translation as an object of research would benefit from cognitive linguistics on a more theoretical level (note in particular the works of Elżbieta Tabakowska and her students at Jagiellonian University of Kraków, cited in 9.2). Lexicography comes next. It is an area of relative neglect among US scholars, but one that has been pioneered from a largely cognitive perspective by a fellow Slavist, Anna Wierzbicka (whose work is very popular in Russia, by the way). Kemmer closes her list with Social Psychology, which she illustrates with a study of the meaning of given names (this study of course flies in the face of the traditional assertion that names don't mean anything), showing that naming tends to conform to phonetic schemas, as well as formal schemas associated with ethnicity, gender, and other variables (for example, there is a tendency in English for male names to gradually become female names, like Beverley, Lynn, Evelyn, Dale, Hilary; and for last names to be assigned as first names for babies of both genders, like Logan, Tyler, Cody, Carter). Modern Russian experienced interesting innovations in naming people in the early years of communism, as well as considerable experimentation with the use of abbreviations to name places and things. A dissertation is now underway (by Anne Keown) studying the evolution of various politeness strategies in Slavic languages (*ty* vs. *vy*, conditionals, negation, etc.), using a cognitive model of the social structures that motivate these phenomena. Social psychology certain plays a role also in sorting out the influence of English and the reestablishment of non-Russian languages in the public sphere mentioned above.

Several other colleagues presented provocative papers that chart new directions for cognitive linguistics. Bill Croft debuted his "radical construction grammar", providing robust cross-linguistic evidence that that "virtually all formal grammatical structure is language-specific and construction-specific", that there is a "conceptual space over which constructional distributional pattens are defined", and that syntactic relations do not exist. Ultimately, this is an assertion that all of syntax can be reduced to semantics, and it is an ambitious project indeed. On the other end of the spectrum was an entire theme session devoted to "Phonology in Cognitive Grammar", which took up fundamental issues such as embodiment in cognitive phonology, phonological neutralization, and phonology-morphology interaction. Both syntax and phonology in the framework of cognitive linguistics are pretty much virgin territory for Slavists, since precious little has been done on our languages. Ron Langacker outlined in his plenary talk ways in which discourse analysis might be undertaken from a cognitive perspective, and there is a shortage of discourse analysis being done on Slavic languages from any perspective. Finally, George Lakoff described his investigations of neural nets and how they relate to the foundational principles of cognitive linguistics. More specifically, he presented the models of neural behavior developed by researchers in motor control theory, and showed how they correlate to verbal aspect (with units for initiation, repetition, completion, etc.). Given the prominence of aspect in the verbal systems of our languages, this is a particularly fertile opportunity. Alan Cienki has done groundbreaking work in gesture and language for both English and Russian, and there is plenty of room for other researchers to join this effort as well.

In short, we can expect cognitive linguistics to lead in many directions in the years ahead, and Slavists can make valuable contributions to all these undertakings.

8.0 In Lieu of a Conclusion

Obviously I have used this article as a platform from which to do some preaching and to vent some of my frustrations (as I understand it, this is part of the task of writing a position piece). However, I would like to step away from all that for a bit and remind both myself and everyone else that all theoretical frameworks, cognitive linguistics included, are built upon metaphorical models, and all metaphorical models reveal some truths and suggest some questions while suppressing other truths and other questions that might be asked. In other words, neither cognitive linguistics nor any other framework is entirely comprehensive; no one framework is THE answer to all our problems. Some frameworks are more apt than others, particularly at addressing given issues. Cognitive linguistics happens to be a great way to deal with the kinds of puzzles that light my fire: gramatical meaning, polysemy, and historical change. But ultimately the use of any one framework shutters one's eyes one from other opportunities for inquiry. If we cannot communicate across theories, we risk a fate like the proverbial three blind men encountering an elephant: one finds the ear and declares that an elephant is like a sheet of leather, one finds the side and declares an elephant to be like a wall, and the third finds the tail and declares an elephant to be like a rope. The results of their research are entirely incompatible and they are unable to find any common ground on which to base a discussion. Cognitive linguistics can only offer one view of linguistic inquiry. Thus far I've enjoyed the view and never run out of things to see from this vantage point, and I've also tried to make my contributions as accessible as possible to others who might want to take a peek (or even an extended gaze). I've attempted to peer at language phenomena from other points of view now and again (more as a spectator than as a participant), but too often found unnecessary clouds in my way. Let's hope that this conference and this volume will help to clear away some of the clutter that has accumulated over the years and foster closer unfettered communication across our various frameworks. In the future, may we all, in all of our work, collectively recognize and support each other.

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9.2 Bibliography of Cognitive Linguistic Analyses of Slavic Data

Disclaimer: This is not a comprehensive bibliography, nor is it a careful representative sample. It
is merely the sum of what information I could gather from the sources available to me. This
bibliography is most certainly imperfect, and the author begs the reader's indulgence to overlook

gaps and omissions. It is, however, hoped that this bibliography will give the reader some sense of the breadth and depth of the impact of cognitive linguistics on Slavic linguistics.

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