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I. MEANING, LANGUAGE, COGNITION

Linguists agree on one thing – that language is diabolically hard to study. They do not always agree, however, on the how's, the why's, and the what for's: how one should go about studying it and how speakers manage to do what they do; why it is so hard and why exactly we bother to study it; what language is for, and what linguistics is for. A mainstream view that has been popular in the last thirty years (but not necessarily before that) offers the following answers.

How linguists do it: they collect grammaticality judgments from natives and concurrently build and check hypotheses about the formal structure of particular languages and languages in general. How humans do it: they come equipped biologically with innate language-specific universals, that require only minimal fine-tuning when exposed to a particular specimen. Why it's hard: easy for the child who has the innate universals already set up, hard for the linguist lost in a forest of idiosyncrasies that hide the deeper principles. Why bother? So that we can discover such principles.

What is language for? The story here is that this question is not a priority for the scientist. We can worry later about function, communication, and meaning generally. And what is linguistics for? Well, there is the platonic reward of discovering structure for the sake of structure itself. And then there is biology: Since the universals are in the brain, they must also be in the genes; linguistics is theoretical biology; geneticists and neuroscientists will fill in the messy details of its implementation in our bodies.

This strange and simple story contains its own methods and generalizations. The appropriate methods are in the 'how to do it' – collecting grammaticality judgments and so on. What counts as generalizations are the formal principles that apply to wider ranges of phenomena and/or languages.

In contrast to this sharply autonomous view of language structure, cognitive linguistics has resurrected an older tradition. In that tradition, language is in the service of constructing and communicating meaning, and it is for the linguist and cognitive scientist a window into the mind. Seeing through that window, however, is not obvious. Deep features of our thinking, cognitive processes, and social communication need to be brought in, correlated, and associated with their linguistic manifestations.

The cognitive linguistics enterprise, we believe, has already been remarkably successful. It is not far-fetched to say that perhaps for the first time a genuine science of meaning construction and its dynamics has been launched. This has been achieved by intensively studying and modeling the cognition that lies behind language and goes far beyond it, but which language reflects in certain ways, and which in turn supports the dynamics of language use, language change, and language organization. Echoing Erving Goffman, I have called this backstage cognition. Language is only the tip of a spectacular cognitive iceberg, and when we engage in any language activity, be it mundane or artistically creative, we draw unconsciously on vast cognitive resources, call up innumerable models and frames, set up multiple connections, coordinate large arrays of information, and engage in creative mappings, transfers, and elaborations. This is what language is about and what language is for. Backstage cognition includes viewpoints and reference points, figure-ground / profile-base / landmark-trajector organization, metaphorical, analogical, and other mappings, idealized models, framing, construal, mental spaces, counterpart connections, roles, prototypes, metonymy, polysemy, conceptual blending, fictive motion,

force dynamics.

Well, where does all this come from? Did it all just spring up in the fertile mind of cognitive linguists, giving them an unlimited supply of new notions to draw from in order to explain some linguistic facts that they wish to talk about? And if so, isn't all this a considerable weakening of linguistic theory, letting in so many flaky new gimmicks that virtually anything at all becomes easily but vacuously explainable?

*Mais pas du tout*. Rather remarkably, all the aspects of backstage cognition just alluded to receive ample justification on non-linguistic grounds from a variety of sources. Some have been extensively studied in psychology (e.g. prototypes, figure- ground, analogy), others in artificial intelligence and/or sociology (frames, roles, cultural models), literature and philosophy (metaphor). Metonymy, mental spaces, force dynamics, conceptual blending, initially studied primarily by linguists have been shown to apply to cognition generally. The notion of viewpoint and reference point is presumably even more general, given the nature of our visual systems and orientation. Needless to say, all these features of backstage cognition deserve to be studied and understood in their own right, not just as a means of explaining linguistic distributions. To cognitive scientists who are not linguists, the linguistic distributions matter very little. And for cognitive linguists, there has been a major shift of interest. The cognitive constructs, operations, and dynamics, and the understanding of conceptual systems have become a central focus of analysis. The linguistic distributions are just one of many sources of relevant data.

This shift bears on the methods employed and the generalizations obtained. Methods must extend to contextual aspects of language use and to non-linguistic cognition. This means studying full discourse, language in context, inferences actually drawn by participants in an exchange, applicable frames, implicit assumptions and construal, to name just a few. It means being on the look-out for manifestations of conceptual thought in everyday life, movies, literature, and science. This is because introspection and intuition are woefully insufficient to tell us about general operations of meaning construction. When we volunteer a meaning for an isolated sentence, we do it typically on the basis of defaults and prototypes. It is only in rich contexts that we see the full force of creative on-line meaning construction.

As for generalizations, the most powerful ones are those which transcend specific cognitive domains. In our work on conceptual blending, we see as a strong generalization the discovery that the same principles apply to framing, metaphor, action and design, and grammatical constructions. This is not an internal generalization about language, it is an external one relating linguistic phenomena to non-linguistic ones. Such generalizations seem primordial to the understanding of how language relates to general cognition, but they are precluded in principle by the autonomous approach evoked above. It is no surprise, then, if that approach finds no connection between language and the rest of cognition, for that autonomy is built into the very method that serves to build up the field of inquiry and the theories that are its by-products.

Although cognitive linguistics espouses the age-old view that language is in the service of meaning, its methods and results have been quite novel. The results in fact have been somewhat surprising. At the most general level, here are three that I find striking. I will call them respectively Economy, Operational Uniformity, Cognitive Generalization.

ECONOMY AND THE ELIZA EFFECT

By Economy, I mean the following: any language form in context has the potential to trigger massive cognitive constructions, including analogical mappings, mental space connections, reference point organization, blends, and simulation of complex scenes. When we try to spell out backstage cognition in detail, we are struck by the contrast between the extreme brevity of the linguistic form and the spectacular wealth of the corresponding meaning construction. Very sparse grammar guides us along the same rich mental paths, by prompting us to perform complex cognitive operations. What is remarkable is that by and large subjects engage in quite similar constructions on the basis of similar grammatical prompts, and thereby achieve a high degree of effective communication. The reason seems to be that the cultural, contextual, and cognitive substrate on which the language forms operate is sufficiently uniform across interlocutors to allow for a reasonable degree of consistency in the unfolding of the prompted meaning constructions. How this works remains in many ways mysterious. What is clear is that language is radically different from an information carrying and information preserving system, such as a code or telecommunications. Language forms carry very little information per se, but can latch on to rich preexistent networks in the subjects' brains and trigger massive sequential and parallel activations. Those activated networks are of course themselves in the appropriate state by virtue of general organization due to cognition and culture, and local organization due to physical and mental context. Crucially, we have no awareness of this amazing chain of cognitive events that takes place as we talk and listen, except for the external manifestation of language (sounds, words, sentences) and the internal manifestation of meaning: with lightning speed, we experience meaning. This is very similar to perception, which is also instantaneous and immediate with no awareness of the extraordinarily complex intervening neural

events.

What we are conscious of determines our folk-theories of what is going on. In the case of perception, the folk theory, an extremely useful one for us as living organisms, is that everything we perceive is indeed directly the very essence of the object perceived, out there in the world and independent of us. The effect is contained entirely in the cause. In the same way, our folk theory of language is that the meanings are contained directly in the words and their combinations, since that is all that we are ever consciously aware of. The effect (meaning) is attributed essentially to the visible cause (language). And again, this folk-theory is extremely useful to us as human organisms in everyday life. It makes sense. At another level, the level of scientific inquiry, this folk-theory, like other folk-theories, is wrong, and the information processing model of language breaks down. This reveals that, as humans experiencing language, we are fooled by an interesting variant of the Eliza effect. The famous computer program Eliza produced what looked like a sensible interaction between a psychiatrist and a subject operating the program, but the rich meaning that seemed to emanate from the machine was in fact read in (constructed) by the subject. And strikingly, just like a perceptual illusion, this effect cannot easily be suspended by rational denial. In the case of Eliza, the illusion may be hard to block, but it is easy to see. The more general illusion that meaning is in the language forms is both hard to repress and hard to acknowledge. And for that reason, it has made its way into many scientific accounts of language. In such accounts, the notion that forms have meaning is unproblematic, and the "only" problem becomes to give a formal characterization of such meanings associated with forms. Clearly, if the presupposition that there are such meanings is in error, the very foundations of such accounts are in jeopardy. It has been, I believe, a major contribution of cognitive linguistics to dispel this very strong unquestioned assumption.

## OPERATIONAL UNIFORMITY

It is commonly thought that very different operations apply to the various levels of linguistic analysis. For example, syntax governs the sentence, and semantics provides it compositionally with a meaning. At a higher level, other quite different operations apply to produce implicatures, derived meaning, indirect speech acts. Then rhetorical and figurative devices may kick in, such as metaphor and metonymy. Our findings suggest a very different picture. Backstage cognition operates in many ways uniformly at all levels. Figure- ground and viewpoint organization pervades the sentence (Talmy (1978). ; Langacker (19987/1991), the Tense system (Cutrer (1994)., Narrative structure (Sanders and Redeker (1996)., in signed and spoken languages, and of course many aspects of non- linguistic cognition. Metaphor builds up meaning all the way from the most basic levels to the most sophisticated and creative ones (Lakoff and Turner (1989); Grady (1997)). And the same goes for metonymic pragmatic functions (Nunberg (1978)) and mental space connections (Sweetser and Fauconnier (1996), Van Hoek (1996), Liddell (1996), which are governed by the same general Access principle. Frames, schemas and prototypes account for word level and sentence level syntactic/semantic properties in cognitive and construction grammar (Lakoff (1987), Fillmore (1985), Goldberg (1997), Langacker (1987/91)), and of course they guide thought and action more generally (Bateson (1972), Goffman (1974), Rosch;). Conceptual blending and analogy play a key role in syntax and morphology (Mandelblit (1997)), in word and sentence level semantics (Sweetser), and at higher levels of reasoning and rhetoric (Robert (1998), Coulson (1997), Turner (1996) ). Similarly, we find force dynamics and fictive motion (Talmy (1985, 1998) operating at all levels (single words, entire systems, like the modals, and general framing).

This operational uniformity is unexpected, remarkable, and counter-intuitive. It has taken cognitive linguists a lot of hard work and theoretical conceptual rethinking to uncover this series of powerful generalizations. There are quite a few interesting reasons for the difficulty of thinking in this new way. One is that language does not come with its backstage cognition neatly displayed 'on its sleeve'. Everything that counts is deeply hidden from our consciousness, and masked by the 'folk theory' effects mentioned earlier. Another difficulty has to do with the long tradition of apprehending limited aspects of language in a self- contained, language-specific, descriptive apparatus. The resulting specialized technical vocabulary has been immensely helpful in launching a coherent linguistic science, but regrettably it has also shielded linguistics from a more comprehensive cognitive framework in which the right questions could be asked.

## COGNITIVE GENERALIZATION

Operational uniformity, as outlined in the previous section, pertains essentially to language and reasoning. The uniformity is across linguistic levels, the word, the sentence, the sentence and its context, the whole discourse, and ultimately general reasoning. And yet, there are broader and even more interesting generalizations, those that transcend specific cognitive domains. Cognitive linguists have been especially attentive to this dimension of the new research, and they have argued persuasively for the cognitive generality of the mappings, correspondences, bindings, integration, perspectival organization, windows of attention, pragmatic functions, framing, force dynamics, prototype structures, and dynamic simulations that underlie the construction of meaning as reflected by language use. As a result, linguistics is no longer a self- contained account of the internal properties of languages; it is in its own right a powerful means of revealing and

explaining general aspects of human cognition.

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