Image-Schematic Bases of Meaning

Mark JOHNSON
Southern Illinois University (Carbondale)

Our purpose in this article is to explore the intimate relation between perception and meaning[1]. By way of introduction, I would like to note one very important fact that bears directly on the nature of meaning; namely, that every human being has a body. To be human is to be embodied, and our bodily interactions set out the contours of our world as we experience it. Consequently, the very possibility of our experiencing anything as meaningful depends upon the character of our bodily experience. What we can experience, what it can mean to us, how we understand that experience, and how we reason about it are all integrally tied up with our bodily being.

This is precisely what we should expect as we focus on the relation of perception and meaning. We are all animals trying to survive and thrive within our ever-changing environment. In order to do this well we must perform an enormous number of highly structured sensorimotor activities. For instance, we must be able to identify objects, persons, and events, which involves recognizing recurring patterns as significant and meaningful. We have to manipulate objects and to move our bodies in ways that coordinate perceptual structures with complex motor programs. We must move our bodies through space without reflective thought, in order to accomplish tasks necessary for our survival. And we must interact socially with our fellow beings, who share and co-create our material and social environment. It should consequently come as no surprise that our bodily experience and activity play a crucial role in defining our meaningful existence.

The point I want to make is that meaning cannot be separated from the structures of our embodied perceptual interactions and movements. If we did not have the bodies we do, or if they were somehow radically different than they are now, then we would not create, understand, and communicate meaning in the way we do.

1. The Objectivist View of Meaning and Reason

The view of the intimate and inextricable link between structures of perception and meaning, as described above, is not compatible with the received "objectivist" view of meaning that underlies much of contemporary semantics (cf. Johnson 1987: XXI-XXV). Semantic objectivism consists typically of a number of commonly-held, interrelated views about the world and cognition:

 © Association canadienne de sémiotique/Canadian Semiotic Association

The Objectivist View of Meaning

(1) The world consists of mind-independent objects that have determinate properties and stand in definite relations to each other. The nature of these objects is independent of the ways in which people experience and understand them.

(2) Meaning is an abstract relation between symbolic representations (either words or mental representations) and objective (i.e., mind-independent) reality. These symbols are arbitrary and meaningless in themselves, but they are supposedly given meaning by virtue of their capacity to correspond to things, properties, and relations existing objectively "in the world."

(3) Meaning is sentential (propositional) and truth-conditional. Providing the meaning for a particular utterance or sentence consists of stipulating the conditions under which it would be true, or the conditions under which it would be "satisfied" by some state of affairs in the world. Such a view seeks a recursive theory that shows how we can build up larger true or satisfied units from smaller units, which are taken as semantic primitives.

(4) Meaning is fundamentally literal. Literal concepts or terms are, by definition, simply those entities whose meanings specify conditions of satisfaction for the objects, properties, and relations they designate. It follows that there can be no irreducibly figurative or metaphorical concepts, because metaphorical projections cut across basic experiential domains, and such cross-categorical projections are held to have no counterparts in the real world, which supposedly has discrete and definite categorical boundaries.

(5) Objectivism clearly distinguishes meaning from understanding. Meaning is held to be objective and in no way dependent on any person's or community's understanding or grasp of it. A term has meaning objectively, by virtue of its relation to the world, and not because somebody happens to understand it in a particular fashion. It follows, according to this view, that a theory of meaning is not the same as a theory of human understanding.

(6) Finally, reason is regarded as a transcendent, self-sufficient, ahistorical structure that exists independently of any particular mind or historical instantiation of it. The core of this objective rationality is delineated by formal logic and is held to be entirely value-neutral and free of emotional and imaginative dimensions. Rationality is "disembodied" in the sense that it consists of pure abstract logical relations and operations which are independent of subjective processes and sensorimotor experiences in the bodily organism. Reasoning is thus seen as the rule-governed manipulation of symbols that are meaningless in themselves but attain their meaning through their objective relations to states of affairs in the world. It consists of a series of operations in which connections among symbols and rule-governed combinations of symbols are established and traced out according to various logical principles.

This "Symbol Manipulation" or "Language of Thought" (Fodor 1981) view of meaning supports the dominant metaphor of contemporary cognitive science; namely, THE MIND IS A COMPUTER PROGRAM. Reasoning is treated as a program that can be run on any suitable hardware. Neither the structure of rationality nor the nature of meaning is supposed to be affected significantly by its embodiment.

2. Cognitive Semantics: The Embodiment of Meaning

Objectivist semantics is actually more misleading than it is helpful. It is bad metaphysics, bad epistemology, bad psychology, bad linguistics, and bad cognitive science. These criticisms can be illustrated by a consideration of the picture of human cognition that objectivism presupposes. Objectivism takes the world to be a pre-given collection of determinate objects that are distinct from the subjects who experience them. The body is thus regarded as a mere mechanical transducer that translates input signals from the external world into output signals that are picked up by our minds as symbolic representations. This rigid subject-object dichotomy creates the epistemological problem of figuring out how we can be sure that our mental representations really do map onto the external physical world from which we are separated. Hence, we are caught up inescapably in a web of sceptical problems about the possibility of knowledge.

Even worse, no mention is made of the role of biology, that is, of the importance of the organism's embodiment in the structures of its system of meaning. Objectivism makes virtually no mention of imaginative processes (such as metaphor, metonymy, concept formation, schemata, and categories whose structures are imaginative rather than actually present in the external world) that are grounded in our bodily experience and are central to meaning and rationality. No theory of meaning, rationality, or knowledge influential today allocates any central place to imagination. In fact, objectivists have never known what to do with imagination, because it does not correspond to their notions of pure meaning and reason, and it is not formalizable in the requisite logical fashion. And since imagination is very much dependent upon our physical, linguistic, and cultural interactions and orientations, it is no surprise that human embodiment has mattered little or not at all in objectivist and "Language of Thought" theories of meaning and rationality.

In striking contrast to this objectivist view of meaning and reason, research in "cognitive semantics" (Lakoff 1987; Langacker 1986; Johnson 1987) has come to recognize the central role played by our physical embodiment, our nonpropositional understanding, and our imaginative structuring in the way we experience, make sense of, and communicate our sense of reality. A theory of meaning is a theory of understanding, where 'understanding' is our way of being in and experiencing our world. Such understanding is something we do with our whole unified embodied mentality through perception, manipulation, movement, and conscious and unconscious acts of organizing and unifying. Much of this understanding is imaginative activity that is neither sentential nor strictly logical in the objectivist sense, yet understanding of this sort is the basis for our ability to make sense of things and to reason about them.

Cognitive semantics pursues the hypothesis that the alleged "higher" cognitive functions that are supposed to make meaning and reasoning possible are indeed continuous with and inseparable from our sensorimotor activities. This thesis of the intimate connection between perceptual and semantic structures is not new. Dewey (1981: 207-222) was quite explicit about just such a connection,[2] Merleau-Ponty (1962) explored the role of what he called the

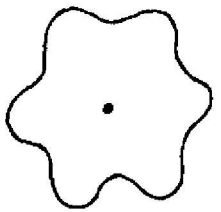
"phenomenal body" in the development of meaning, and Patricia Churchland has recently argued that:

> ... it seems to me quite possible that some capacities hitherto considered strictly cognitive may be discovered to share fundamental elements with paradigmatic motor skills. (1986: 449)

What is new in cognitive semantics is the way in which it has been able to be more concrete and specific about the way in which structures of our perceptual interactions work their way up into our understanding of more abstract conceptual domains. A comprehensive treatment of such processes is obviously going to be quite complex. At present we have only a sketch of what such an account would involve. However, in order to provide some idea of the types of imaginative processes that connect perception and meaning, I would like to examine briefly the nature and role of what George Lakoff and I (1980) have called an "image schema."

3. The Role of Image Schemata in Meaning

Consider, for example, the nature of our perceptual horizon. During the first days of its life out of the womb, the infant gradually develops its visual focusing abilities. It learns to direct its attention toward areas within its visual field and to highlight a figure against a background that fades off into an indefinite perceptual horizon on its periphery. In order to survive and to flourish, animals must realize such focusing skills, and whatever occupies the center of the perceptual horizon tends to become *more important* than that which is peripheral, at least for the brief moments that it occupies center stage. Our perceptual experience, then, always manifests the same recurring schematic structure consisting of a focal center surrounded by a horizon that fades off into an indeterminate periphery. Visually, we might diagram this imaginative structure as follows:



CENTER-PERIPHERY

This CENTER-PERIPHERY structure of perceptual experience holds for all of our sensory modes, not simply for vision. As my attention is directed to the voice on the telephone, I cease to be aware of the fan humming in the computer on my desk, but I can later shift the *center* of my attention back to the hum and away from the voice. What is central can become peripheral and what was peripheral can become central.

In this way, a CENTER-PERIPHERY pattern structures virtually all our perceptual experience, and it constitutes one of the fundamental imaginative

contours of our embodied experience of our world. The CENTER-PERIPHERY schema is crucial to our most basic preconceptual understanding of our world, and it concerns the way in which our world grows up around us as an arena of our meaningful action. The CENTER-PERIPHERY structure is an image schema. It is a continuous structure or pattern of an organizing activity of imagination by means of which we order and unify our perceptions, motor programs, spatial orientations, temporal sequences, and so forth. Such structures are what we bring to our experience and understanding in an anticipatory fashion, but they are also transformed in and through their appearance in our ever-changing, ongoing concrete experience.

An image schema is thus neither an abstract, finite proposition or concept (such as a propositional definition of the FIGURE-GROUND or CENTER-PERIPHERY pattern), nor is it a concrete, rich image (such as a mental image of a center-periphery diagram). It is, rather, an evolving pattern of our imaginatively-structured experience as it is organized with a center-periphery orientation.

4. Metaphorical Extensions of Image Schemata

As an imaginative construct, an image schema is never tied merely to its perceptual manifestations. It can be related to the structure of our understanding of more abstract domains of our experience, usually by means of imaginative metaphoric and metonymic projections. Given the CENTER-PERIPHERY structuring of our perception, in addition to the tremendous importance of perception as a basis for our knowledge, it should be no surprise that the CENTER-PERIPHERY schema is also epistemically central to our understanding of more abstract domains of experience, such as the social, political, moral, and logical dimensions. Just as a visual or auditory horizon fades away from the center of our perceptual field, so a conceptual or epistemic horizon also fades off from the focal point of our knowledge. Just as whatever occupies the center of our perceptual field tends to be most clearly delineated and considered as most important at the moment, so the focus of our intellectual insight is also that which is most important for our knowledge. In the epistemic realm, for example, we speak of that which is *central* to a *viewpoint*, of the importance of the *central* tenets of a *position*, of the *central insights* of a theory, and of the *focus of our attention* in a theory. In each case, that which is most cognitively "central" is that which is most epistemically important. The structure of the CENTER-PERIPHERY schema in the perceptual domain is thus carried over by metaphorical extension into the logic of the abstract epistemic domain.

This conception of knowledge is so basic for us that we are hardly ever aware that it rests on at least two fundamental metaphors and one image schema. The metaphors are: (1) UNDERSTANDING IS SEEING (as in, "I *see* what you mean," "I've *lost sight* of the main thesis," "Your argument just isn't *clear* to me," "Could you *shed more light* on the issue?")[3] and (2) THE VISUAL FIELD IS A CONTAINER (as in, "The space shuttle is just *coming into* view," "The ship is completely *out of* sight now," "I've lost him now, the building is *in the way*"). The image schema structures both our *visual field* and its metaphorical projection onto the *epistemic* domain.

The idea that whatever is central is most important depends upon these two metaphors and one image schema in the following way: our visual field is organized as a bounded space with a CENTER-PERIPHERY orientation. Understanding and knowing are conceived, by means of the UNDERSTANDING IS SEEING metaphor, as modes of (intellectual) insight. The epistemic domain is thus understood metaphorically as a contained region with a CENTER-PERIPHERY structure. In this way, the logic of our visual experience is mapped onto our understanding of knowledge, based upon the shared CENTER-PERIPHERY image schema. This metaphorical projection from the domain of visual experience to that of epistemic activity gives rise to the following mappings:

— the visual field maps onto the domain of knowledge;
— the object in a visual field maps onto an idea/concept;
— visual focus maps onto cognitive attention;
— ambient light maps onto the 'light' of reason;
— clear vision maps onto intellectual insight;
— a visually important object maps onto an epistemically significant idea.

Since that which is perceptually central is most important, then that which is cognitively central is epistemically most important.

By means of metaphors and image schemata such as these, we are able to make sense of highly abstract or indeterminate aspects of our experience on the basis of constantly recurring structures of our shared sensorimotor activity. Our most abstract patterns of understanding and reasoning are prefigured in bodily experiences, by virtue of which we are able to inhabit a shared, meaningful world. In politics, for example, the *central issues* are the most important and receive the greatest attention. Socially, someone may seek to occupy *center* stage. The *central* committee holds the greatest power and influence. The morally important concerns are the *focus* of our attention. That which is *on the fringe* is far less important than that which is central.

Epistemic centrality and perceptual centrality are thus very closely related via the center-periphery image schema. The same kind of organizational pattern connects these two diverse domains of understanding, which turn out to be far more closely related, through metaphor, than we might at first have suspected. This intimate relationship is no accident, given the kinds of bodies we have, the way in which our brains work, the purposes and values we share as necessary for survival and the enhancement of the quality of our experience, and the nature of the tasks we undertake. We experienced the world meaningfully before we acquired language, both as a species and in our individual growth, so that there is an existential and cognitive continuity between our perceptual and theoretical understanding. Linguistic meaning is thereby prefigured in prelinguistic patterns of significant movement, perceptual interaction, gesture, practices, and communicative interactions.

5. Implications for a Theory of Meaning

My brief account of the CENTER-PERIPHERY schema is intended only as an illustration of a representative image-schematic structure of imagination. A comprehensive account would need to include at least the following basic image

schemata: OBJECT, CONTAINER, SOURCE-PATH-GOAL, BALANCE, CYCLE, FORCE (INCLUDING ATTRACTION, RESISTANCE, COMPULSION, BLOCKAGE, POTENTIAL), UP-DOWN, SCALARITY, ITERATION, etc. (see Johnson 1987; Lakoff 1987). All of these interrelated structures together mark out the contours of our understanding, both of physical and of abstract domains. It might seem as though this list of image schemata could go on indefinitely, like Plato's problem of whether there are Forms for everything, including hair and dirt. However, the list of basic schemata of this sort is, in fact, relatively small. Many apparently distinct image schemata turn out to be projections on, or elaborations of, more basic schemata. For example, the CENTER-PERIPHERY schema provides a framework for the instantiation of a large number of secondary structures. Because we see ourselves as lying at the center of our experiential horizon, we can map a number of relational pairs onto the CENTER-PERIPHERY orientation, as follows:

center	periphery
figure	ground
self	other
here	there
near	far
toward	away from
important	unimportant

and, in conjuction with the container schema:

inner	outer
mine	not mine
core	periphery

Furthermore, much of our semantic structure is based upon the possible metaphorical extensions of the most basic image schemata. A physical object may thus be the *center* of my visual attention, while (metaphorically) a key concept may be *central* to my theory. Objects that are *too far away* are hard to see clearly, while ideas that are *too far out* are hard to understand. In this way, it becomes possible for us imaginatively to create an extensive semantic structure on the basis of very modest image-schematic resources.

We can now see why Objectivist semantics misses so much of what is important in human understanding and reasoning. Objectivism treats schematic structure as though it could fit into a traditional Symbol Manipulation model of cognition. In fact, David Rumelhart's early work on schema theory was of this character, defining "schema" as "generalized knowledge about a sequence of events" (1977: 165), as illustrated by Shank and Abselson's notion of a scripted activity (1977). Serious problems with this Symbol Manipulation model of a schema eventually led Rumelhart to view a schema as a property of an entire neural network, and thus not as a fixed thing:

> Schemata are not explicit entities, but rather are implicit in our knowledge and are created by the very environment that they are trying to interpret—as it is interpreting them. (Rumelhart 1986: 20)

Ulrich Neisser (1976) has emphasized the embodied nature of schemata and their intimate connection to sensorimotor programs:

> A schema is that portion of the entire perceptual cycle which is internal to the perceiver, modifiable by experience, and somehow specific to what is being perceived.

> The schema accepts information as it becomes available at sensory surfaces and is changed by that information; it directs movements and exploratory activities that make more information available, by which it is further modified. (54)

Neisser's view is distinctive because it captures the nature of the schema as a malleable structure of perception and motor activity. Such structures do not operate propositionally in the Objectivist sense, even though they may play a role in our propositionally expressed knowledge insofar as they constrain inferences. This use of "schema" is similar to Kant's, who described it as a structure of imagination that connects concepts with percepts. He characterized schemas as "procedures for constructing images" and thus saw them as involving perceptual patterns in bodily experience (Kant [1781] 1965). It is this crucial embodied dimension that has been ignored by recent schema theory.

It should now be more evident how cognitive semantics transforms the notion of meaning considerably in contrast with Objectivist semantics. A theory of meaning is a theory of understanding, and understanding is the totality of the ways in which we experience and make sense of our world in an ever-evolving process. Understanding is not achieved merely by entertaining and reflecting on sentential/propositional structure alone. Rather, from birth we develop an understanding of our world through our bodily encounters, using the sensorimotor capacities available to us, and all of this perceptual input affects our grasp of anything whatever as meaningful.

According to this theory, adequate semantic analysis will involve at least two basic kinds of structures: (1) biologically-based, image-schematic structures tied to our sensorimotor experience within an ever-changing environment, and (2) imaginative structures —metaphors, metonymies, radial categories — (Lakoff 1987) by means of which we make and extend semantic and epistemic connections. There is no rock-bottom literal core that maps onto objective reality, as the theorists of Objectivism maintain. Instead, what appears to fit Objectivist models does so because it is based on sensorimotor experience and imaginative connections to it within relatively stable environments and contexts. What Objectivists treat as the "literal core" is actually only a conventionalized and tentatively stabilized meaning structure that is dependent on our context, interests, purposes, and values; as a result, it is not at all absolute or foundational.

There are, of course, symbols in Cognitive Semantics, but they do not have the characteristics attributed to them by the "Language of Thought" view—they are not finitary and meaningless unstructured symbols that attain meaning solely by being placed in an objective relation to a mind-independent reality. Instead, they have an analog character, they have an internal logic (based on their internal structure), and they are meaningful because of the manner in which they arise in our sensorimotor experience and because of the way in which they can be projected in our understanding of abstract domains.

We began our study with the important question of the relation of perception and meaning. The answer provided by Cognitive Semantics to this question can now be summarized as follows: we are embodied, imaginative animals from our sensory receptors up to our highest forms of logical reasoning.

The contours and structures of our bodily (sensorimotor) experience of our world influence our understanding of the most abstract, nonphysical domains, principally by means of metaphoric projections based on image-schematic structure. Our "bodily" understanding and our "conceptual" or "propositional" understanding are thus intimately related. Linguistic meaning does not exist as an independent entity generated by some language module in our cognitive apparatus. Instead, it is a specification of our general capacity to experience our world, and aspects of it, as meaningful, given the nature of our bodies, our purposes, our goals, and our values. What we perceive as meaningful within our environmental context is very much the basis for what can be meaningful for us at the level of language. And language, in turn, adds even more possibilities for the articulation of meaning, and thereby for a richer experience of our world.[4]

NOTES

1 This article was first presented as a paper at a conference entitled "Meaning and Perception", Université du Québec à Montréal, May 17-20, 1989.

2 Dewey notes that "The brain, the last physical organ of thought, is a part of the same practical machinery for bringing about adaptation of the environment to the life requirements of the organism, to which belong legs and hand and eye" (1981: 214).

3 For an extended treatment of the UNDERSTANDING IS SEEING metaphor, see Eve Sweetser (1989).

4 This essay was written while I was supported by a fellowship from the American Council of Learned Societies for 1989-90. I am grateful to the Council for the opportunity to explore the relation of our bodily experience to meaning and inference.

REFERENCES

CHURCHLAND, Patricia (1986) *Neurophilosophy*. Cambridge, Mass.: The MIT Press.

DEWEY, John (1981) "The Practical Character of Reality." in *The Philosophy of John Dewey*, ed. John McDermott. Chicago: The University of Chicago Press.

FODOR, Jerry A. (1981) *Representations, Philosophical Essays on the Foundations of Cognitive Science*. Cambridge, Mass.: The MIT Press, Bradford Books.

JOHNSON, Mark (1987) *The Body in the Mind, The Bodily Basis of Meaning, Imagination, and Reason*. Chicago: The University of Chicago Press.

KANT, Immanuel (1965 (1781)) *Critique of Pure Reason*, trans. Norman Kemp Smith. New York: St. Martin's Press.

LANGACKER, Ronald W. (1987) *Foundations of Cognitive Grammar, Theoretical Prerequisites*. Stanford: Stanford University Press.

LAKOFF, George (1987) *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind*. Chicago: The University of Chicago Press.

LAKOFF, George and JOHNSON, Mark (1980) *Metaphors We Live By*. Chicago: The University of Chicago Press.

MERLEAU-PONTY, Maurice (1962 (1945)) *The Phenomenology of Perception*, trans. Colin Smith. London: Routlege and Kegan Paul.

NEISSER, Ulrich (1976) *Cognition and Reality*. San Francisco: W. H. Freeman.

RUMELHART, David (1977). *Introduction to Human Information Processing*. New York: John Wiley and Sons.

RUMELHART, David, SMOLENSKY, P., McCLELLAND, J. L. and HINTON, G.E. (1986) "Schemata and Sequential Thought Processes in PDP Models." In *Parallel Distributed Processing*. Cambridge, Mass.: The MIT Press.

SHANK, Roger and ABELSON, Roger (1977) *Scripts, Plans, Goals, and Understanding*. Hillsdale, New Jersey: Earlbaum.

SWEETSER, Eve (1989) *From Etymology to Pragmatics: The Mind-as-Body Metaphor in Semantic Structure and Semantic Change*. Cambridge: Cambridge University Press.

ABSTRACT

According to a new program known as "Cognitive Semantics," there exists an intimate relation between perception and meaning. The allegedly "higher" cognitive functions that construct meaning and make reasoning possible are continuous with and inseparable from our sensorimotor activities. I explore the nature of an "image schema" as the basic imaginative structure that connects our embodied experience with our understanding of abstract domains and acts of inference. This account indicates the ways in which standard objectivist theories of meaning, knowledge, and rationality fail to capture crucial dimensions of our cognitive experience.

RÉSUMÉ

Selon le nouveau programme de recherche connu sous le nom de "sémantique cognitive", il existe un rapport étroit entre la perception et la signification. Les fonctions cognitives dites "supérieures", qui servent à la construction du sens et permettent le raisonnement, sont en continuité avec les activités sensori-motrices, dont elles sont inséparables. Nous présentons et développons, dans cet article, la notion de "schéma d'image" (*image schema*) conçue comme structure imaginative de base connectant notre expérience, ancrée dans le corps, avec notre compréhension des domaines abstraits et nos actes d'inférence. Nous rendons compte ainsi des raisons pour lesquelles les théories objectivistes standard de la signification, de la connaissance et de la rationalité n'arrivent pas à saisir certaines dimensions, essentielles, de notre expérience cognitive.

MARK JOHNSON is associate professor of philosophy at Southern Illinois University (Carbondale). He is the author, with George Lakoff, of *Metaphors We Live By*, and the editor of *Philosophical Perspectives on Metaphor*. His most recent book is *The Body in the Mind; The Bodily Basis of Meaning, Imagination, and Reason*.