The philosophical significance of image schemas

Mark Johnson

Abstract

From a philosophical perspective image schemas are important primarily because they help to explain how our intrinsically embodied mind can at the same time be capable of abstract thought. As patterns of sensory-motor experience, image schemas play a crucial role in the emergence of meaning and in our ability to engage in abstract conceptualization and reasoning that is grounded in our bodily engagement with our environment. However, our current accounts of the workings of image-schematic structure do not adequately capture the felt, qualitative aspects of embodied human understanding. To the extent that these accounts remain exclusively structural, they are bound to leave out significant dimensions of human meaning.

Keywords: embodied mind, meaning, metaphor, imagination, reasoning

1.   The problem solved by image schemas

The term "image schema" first appeared simultaneously in 1987 in my book *The Body in the Mind* and in George Lakoff's *Women, Fire, and Dangerous Things.*[1] Our conception of an image schema was a key part of our explanation of the embodied origins of human meaning and thought. At that time, we were grappling (and still are) with a profound philosophical, psychological, and linguistic problem: What makes meaning and reason possible for creatures like us, whose cognitive operations are embodied? If the human mind is embodied – that is, if there is no fundamental ontological separation of "mind" and "body" – then how are we capable of abstract conceptualization and reasoning? In other words, how do meaning, imagination, and reason – the marks of human intelligence – emerge from our organic, bodily interactions with our environment?

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1. Although the term itself was new, the basic idea had been partially anticipated at least in the works of Immanuel Kant, Maurice Merleau-Ponty, William James, and John Dewey.

If, as I do, you reject (on scientific, philosophical and moral grounds) the notion of disembodied mind, then it is incumbent on you to explain how all of our marvelous feats of abstract thought are possible. Scientifically, there is a growing mountain of empirical evidence from the cognitive sciences that there can be no thought without a brain in a body in an environment. Moreover, the nature of our brains, bodies, and environments constrains and shapes what and how we understand and reason. Philosophically, thinkers as diverse in their orientation as John Dewey ([1925] 1958), Maurice Merleau-Ponty ([1945] 1962), and Patricia Churchland (2002) have lambasted all of the ontological and epistemological dualisms (such as mind/body, subject/object, cognition/emotion, and knowledge/imagination) that characterize large parts of Western philosophy of mind and language. Finally, from a moral perspective, the legacy of disembodied mind has generated ethical theories that are incompatible with what psychology tells us about mind, motivation, value, and reason. We thus need to replace disembodied accounts of meaning, thought and reason with an alternative general theory of embodied cognition capable of explaining where our concepts come from, and capable of explaining the syntax, semantics, and pragmatics of natural languages. Obviously, this is not just a question about language. It is a question about the possibility of human cognition, and it applies to all forms of symbolic human interaction and expression. It is a question about where meaning comes from and how thought is possible.

The basic form of the answer to this embodiment problem appears to be this: Structures of *perceiving* and *doing* must be appropriated to shape our acts of *understanding* and *knowing*. Our sensory-motor capacities must be recruited for abstract thinking. If you approach this problem at the level of concepts, then you want to know where conceptual structure comes from for both concrete (e.g., 'tree', 'house', 'on', 'in front of') and abstract concepts (e.g., 'mind', 'ideas', 'knowledge', 'justice') and how relations of concepts support inferences. Answering this question leads you to focus on *structure*. That is, you must identify structures of sensory-motor experience – image schemas – which can be used to understand abstract concepts and to perform abstract reasoning.

Historically, Immanuel Kant was one of the first to deal extensively with a similar problem, the problem of how concepts, which he thought of as formal structures, could ever be applied to the "matter" of sensory perception. In his *Critique of Pure Reason* ([1781] 1968), in the famous chapter on "The Schematism of the Pure Concepts of Understanding," Kant tried to find a connecting link, a "third thing," that would bind the concept, which he

thought of as *formal,* to the *matter* of sensation. That necessary connecting link, he claimed, was the "schema" of a concept, by which he meant a procedure of imagination for structuring images in accordance with concepts. Consider Kant's example of the schema for the concept *dog*. The schema is neither the *concept* dog, nor a particular *image* of a dog, nor the actual furry creature that wags its tail and looks cheerfully up at you. Instead, Kant asserted that the schema for *dog* is a procedure of imagination for constructing an image of a certain kind of four-footed furry animal, so that the image manifests all of the features that are specified by the concept one has of a dog. To cite another of Kant's examples, the schema for the concept *triangle* would be a specific "rule of synthesis of the imagination, in respect to pure figures in space" (Kant 1968: A141/B180), in this case, it would be a rule of imagination for constructing an image of a three-sided closed plane figure.

The chief problem with Kant's account is that it is based on an absolute dichotomy between form and matter. He thought there could be "pure" form – form without empirical content – and his problem was to explain how this form could get connected to the material aspects of experience. But if you define form as radically distinguished from matter, then it is hard to see how there could be some "third thing", something that is *both* formal *and* material, that could bridge the alleged gap between the formal and the material aspects of cognition. Kant's candidate for this bridging function was imagination, which he thought of as a formal, structure-giving capacity to order material sensations into unified wholes of experience.

I have no interest in defending Kant's general metaphysical system, which seems to me to be too laden with a disastrous set of fundamental ontological and epistemological dichotomies, such as form vs. matter, mental vs. physical, pure vs. empirical, and cognition vs. emotion. Once such dichotomies are assumed, they create absolute unbridgeable gaps that cannot capture the continuous and multi-dimensional character of our experience and understanding. However, what *is* worth salvaging from Kant's account is his recognition of imagination as the locus of human meaning, thought, and judgment. Kant correctly recognized the schematizing, form-giving function of human imagination. Imagination is not an activity of alleged pure understanding or reason, but rather is an embodied process of human meaning-making that is responsible for the order, quality, and significance in terms of which we are able to make sense of our experience. What Kant called the "faculty of imagination" is not a discrete *faculty,* but rather multiple processes for discerning and utilizing structure within our experience.

Moreover, we must not think of imagination as merely a subjective, idio-syncratic private "mental" operation to be contrasted with objective thought and reason. Imaginative activity occurs, instead, in the ongoing flow of our everyday experience that is neither merely mental nor merely bodily, neither merely cognitive nor emotional, and neither thought alone nor feeling alone. All of these dimensions are inextricably tied up together in the perceptual and motor patterns of organism-environment interaction, which provide the basis for our patterns of understanding and thought. What we identify as the "mental" and then contrast with the "bodily" dimensions of our experience are really just abstractions from the embodied patterns and activities that make up that experience. What we call "mind" and "body" are not separate things. Rather, we use these terms to make sense of various aspects of the flow of our experience. *Image schemas are some of the basic patterns of that flow.*

2. Where do image schemas come from?

The correct part of Kant's view is his understanding of the pervasive imagi-native structuring of all experience. Unfortunately, because Kant believed in the existence of pure (non-empirical) autonomous reason, he did not recog-nize the crucial role of imagination in *all thought*. Subsequently, it took the non-dualistic philosophies of people such as William James (1890), John Dewey (1958), and Maurice Merleau-Ponty (1962) – and, later, the bur-geoning work of neonate cognitive neuroscience – to articulate a richer em-bodied view of imagination, meaning, and thought. James, Dewey, and Mer-leau-Ponty all shared the fundamental insight that mind and body are not two things or substances somehow yoked together, but rather that what we *call* "mind" and "body" are aspects of an ongoing sequence of organism-environment interactions that are at once both physical *and* mental. They recognized that the human mind is embodied – that all of our meaning, thought, and symbolic expressions are grounded in patterns of perception and bodily movement. George Lakoff and I (Johnson 1987; Lakoff 1987) coined the term "*image* schema" primarily to emphasize the bodily, sensory-motor nature of various structures of our conceptualization and reasoning. We wanted to stress that image schemas are not archetypes of some alleg-edly pure form-making capacity (as Kant had held), nor are they merely abstract knowledge structures (such as Schank and Abelson's (1977) notion of a "script"). Instead, image schemas are the recurring patterns of our sen-

sory-motor experience by means of which we can make sense of that experience and reason about it, and that can also be recruited to structure abstract concepts and to carry out inferences about abstract domains of thought.

In the terms of contemporary cognitive neuroscience, we would say that image schemas are not the products of some (non-existent) autonomous neural modules for producing form, but rather are patterns characterizing invariant structures within topological neural maps for various sensory and motor areas of the brain. In his book *The Human Semantic Potential* (1996) Terry Regier has developed what he calls "constrained connectionist" models that are able to compute the image-schematic structures of a range of selected spatial terms. The built-in constraints of such connectionist networks are intended to represent known neural architectures, such as motion detectors, spreading activation, orientation-sensitive cells, and center-surround structures. These networks can learn to correctly apply terms for spatial relations and motions (such as *on, above, below, outside, to the right (left) of, across,* and *into*) to movies of static and moving objects.

In speaking of image schemas as invariant topological structures in various perceptual and motor maps, however, we must not think of image schemas as existing merely in the brain apart from the bodily perceptions, feelings, and actions in which that brain plays a central role. We must always remember that image schemas exist only for organisms that have certain kinds of brain architecture, operating within bodies of a particular physiological makeup, interacting with environments that offer very specific "affordances" (Gibson 1979) for creatures like us.[2]

3. Identifying image schemas

Since an image schema is a dynamic recurring pattern of organism-environment interactions, it will often reveal itself in the contours of our basic sensory-motor experience. Consequently, one way to begin to survey the range of image schemas is via a phenomenological description of the most basic structural features of all human bodily experience. When I speak

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2. A Gibsonian "affordance" is a pattern of potential engagement and interaction with parts of our environment. A chair "affords" sit-on-ability for human beings, but not for elephants. A cup "affords" grasp-ability for human beings, but not for a sea slug. An affordance is thus relative to the makeup of the organism, and yet it is an objective feature of the environment *for that organism with its particular embodiment and perceptual and motor capacities.*

of a phenomenological survey of image schemas, I do not mean the use of anything like a formal Husserlian method of "transcendental reduction,"[3] but rather only a reflective interrogation of recurring patterns of our embodied experience. Ask yourself what the most fundamental structures of your perception, object manipulation, and bodily movement are, given that human bodies share several quite specific sensory-motor capacities keyed to the size and constitution of our bodies and to the common characteristics of the different environments we inhabit. Certain obvious patterns immediately jump out at you. For example, given the relative bilateral symmetry of our bodies, we have an intimate acquaintance with right-left symmetry. As Mark Turner (1991) observes, if we were non-symmetric creatures floating in a liquid medium with no up or down, no right or left, no front or back, the meaning of our bodily experience would be quite different from the ways we *actually* do make sense of things. Because of our particular embodiment, we project RIGHT and LEFT, FRONT and BACK, NEAR and FAR, throughout the horizon of our perceptual interactions. In fact, the very concept HORIZON is image-schematic. Our perceptual fields have focal areas that fade off into a vague horizon of possible experiences that are not currently at the center of our conscious awareness. Hence, it comes as no surprise that we have a CENTER-PERIPHERY image schema. Because of our ongoing bodily encounter with physical forces that push and pull us, we experience the image-schematic structures of COMPULSION, ATTRACTION, and BLOCKAGE OF MOVEMENT, to name but a few aspects of what Leonard Talmy (1983) calls "force dynamics." The bodily logic of such force schemas will involve inferences about speed of movement, the rhythmic flow of movement, whether a moving object starts and stops, and so on.

There are quite distinctive patterns and logics to these dimensions of our perception of moving objects and of our kinesthetic sense of our own motion. Because we exist within a gravitational field at the earth's surface, and due to our ability to stand erect, we give great significance to standing up, rising, and falling down. Our understanding of these bodily experiences is organized by a VERTICALITY schema. We experience and draw inferences about RECTILINEAR MOTION (Cienki 1998) and draw different inferences about curved motions or deviating motions that have no obvious goal (relative to a SOURCE-PATH-GOAL schema). Because we must continually monitor our

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3. Husserl ([1913] 1931) proposed a method of "suspending" one's practical engagement with everyday experience in order to supposedly allow the fundamental structures of experience to reveal themselves.

own changing bodily states, we are exquisitely attuned to changes in degree, intensity, and quality of feelings, which is the basis for our sense of scales of intensity of a quality (the SCALARITY schema). Because we must constantly interact with containers of all shapes and sizes, we naturally learn the "logic" of containment (for the CONTAINER schema).

Through this type of informal phenomenological analysis of the structural dimensions of our sensory-motor experience, most of the basic image schemas will show themselves. However, we must keep in mind that phenomenological analysis alone is never enough, because image schemas typically operate beneath the level of conscious awareness. That is why we must go beyond phenomenology to employ standard explanatory methods of linguistics, psychology, and neuroscience that allow us to probe structures within our unconscious thought processes. A great deal of our current knowledge of image schemas comes from linguistic analyses of their role in the semantics of spatial terms and bodily operations and of their role in conceptualizing and reasoning about abstract domains. Originally, Lakoff and I hypothesized the existence of various image schemas, in order to frame explanatory generalizations concerning syntactic, semantic, and pragmatic aspects of language and other forms of symbolic interaction. Over the past two decades a burgeoning body of empirical linguistic research has explored the role of image-schematic structures in a vast array of syntactic and semantic phenomena in languages around the world. Raymond Gibbs and Herbert Colston (1995) have described the main types of empirical evidence currently available for image schemas (see also Gibbs, *this volume*). And there is considerable evidence concerning the role of image schemas in inference (Lakoff 1987; Lakoff and Johnson 1999; Lakoff and Nunez 2000).

Alan Cienki (1997) has compiled a list of basic image schemas, although he recognizes that it is probably not exhaustive. Many complex image schemas are built up from the basic ones through processes of combination, superimposition, and further elaboration or specification. Lakoff and Nunez (2000), for instance, have shown how the meanings of *into* and *out of* involve the superimposition of a SOURCE-PATH-GOAL image schema onto a CONTAINER schema. For example, *into* is based on a CONTAINER schema with the interior profiled and with the goal of the SOURCE-PATH-GOAL schema located within the interior of the container, thus capturing the motion of an object from a starting location outside the container to an endpoint within the container.

Three important aspects of image schemas can now be emphasized. First, image schemas are an important part of what makes it possible for our bod-

ily experiences to have meaning for us. The meaning is that of the recurring structures and patterns of our sensory-motor experience. As such, it typically operates beneath the level of our conscious awareness, although it also plays a role in our discrimination of the contours of our bodily orientation and experience. Meaning structures of this sort are part of what Lakoff and I (1999) call the "Cognitive Unconscious". For example, humans will share certain general understandings of what it means for something to be located within a container, and will understand at least part of this without having to reflect upon it or think about it. Seeing a container, or hearing or reading the word *in* will activate a CONTAINER image schema as crucial to our understanding of a particular scene. Certain types and sizes of containers will offer different specific affordances for a being with our type of body, brain, and environments.

Second, there is a *logic* of image-schematic structure. Consider a case in which you are moving along a linear path toward a destination and at time T1 you are halfway to the destination. If you then travel farther along the path at time T2, you will be closer to your destination at T2 than you were at T1. This is part of the spatial logic of the SOURCE-PATH-GOAL schema. Or, consider what follows if your car keys are *in* your hand and you then place your hand *in* your pocket. Via the transitive logic of CONTAINMENT, the car keys end up *in* your pocket. Such apparently trivial spatial logic is *not* trivial. On the contrary, it is just such spatial and bodily logic that makes it possible for us to make sense of, and to act intelligently within, our ordinary experience.

The third moral is that image schemas are not to be understood either as merely "mental" or merely "bodily", but rather as contours of what Dewey (1958) called the "body-mind." Dewey recognized the underlying continuity that connects our physical interactions in the world with our activities of imagining and thinking. He summarized the body-mind continuity as follows:

> But body-mind simply designates what actually takes place when a living body is implicated in situations of discourse, communication, and participation. In the hyphenated phrase body-mind, "body" designates the continued and conserved, the registered and cumulative operation of factors continuous with the rest of nature, inanimate as well as animate; while "mind" designates the characters and consequences which are differential, indicative of features which emerge when "body" is engaged in a wider, more complex and interdependent situation. (Dewey 1958: 285).

If we could only disabuse ourselves of the mistaken idea that "thought" must somehow be a type of activity metaphysically different in nature from our other bodily engagements (like seeing, hearing, holding things, and walking), then our entire understanding of the so-called "mind-body problem" would be transformed. Instead of interpreting the problem as how two completely different kinds of things (body and mind) can be united in interaction, we would re-phrase the problem as being about the conditions of experience that make it possible for us to engage in inquiry, reason about things, and coordinate our social interactions with others through communication.

I am suggesting that the very possibility of abstract conceptualization and reasoning depends directly on the fact that "body" and "mind" are not two separate things, but only abstractions from our ongoing continuous interactive experience. Although Dewey did not have the benefit of the elaborate analyses from today's cognitive science showing how meaning and thought are based on patterns of sensory-motor experience, he understood that what we think of as "higher" cognitive activities are grounded in, and shaped by, activities of bodily perception and movement:

> Just as when men start to talk they must use sounds and gestures antecedent to speech, and as when they begin to hunt animals, catch fish or make baskets, they must employ materials and processes that exist antecedently to these operations, so when men begin to observe and think they must use the nervous system and other organic structures which existed independently and antecedently. That the use reshapes the prior materials so as to adapt them more efficiently and freely to the uses to which they are put, is not a problem to be solved: it is an expression of the common fact that anything changes according to the interacting field it enters. (Dewey 1958: 285).

If you treat an image schema as merely an abstract formal cognitive structure, then you leave out its embodied origin and its arena of operation. On the other hand, if you treat the image schema as nothing but a structure of a bodily (sensory-motor) process, you cannot explain abstract conceptualization and thought. Only when image schemas are seen as structures of sensory-motor experience that can be recruited for abstract conceptualization and reasoning does it become possible to answer the key question: How can meaning emerge from embodied experience to play a crucial role in abstract concepts and in our reasoning with them, without calling upon disembodied mind, autonomous language modules, or pure reason? Failure to recognize the non-dualistic mental-bodily reality of image schemas would cause the

collapse of the whole project of utilizing image-schematic logic to explain abstract thought.

4. How image schemas help to solve the embodied meaning problem

We are now in a position to address this problem of the bodily grounding of meaning and the nature of abstract thought. The principal philosophical reason why image schemas are important is that they make it possible for us to use the structure of sensory and motor operations to understand abstract concepts and to draw inferences about them. The central idea is that image schemas, which arise recurrently in our perception and bodily movement, have their own logic, which can be applied to abstract conceptual domains. Image-schematic logic then serves as the basis for inferences about abstract entities and operations.[4] From a neural perspective, this means that certain connections to sensory-motor areas are inhibited, while the image-schematic structure remains activated and is appropriated for abstract thinking. According to this view, we do not have two kinds of logic, one for spatial-bodily concepts and a wholly different one for abstract concepts. There is no disembodied logic at all. Instead, we recruit body-based image-schematic logic to perform abstract reasoning.[5]

Excellent examples of this use of image-schematic structure in abstract reasoning come from mathematics. In *Where Mathematics Comes From: How the Embodied Mind Brings Mathematics Into Being*, George Lakoff and Rafael Nunez (2000) provide detailed analyses of scores of image schemas operating within conceptual metaphors that define the basic concepts and operations across a broad range of mathematical fields. To cite just a couple of elementary examples, consider two of the basic metaphors by which we understand the operations of arithmetic, such as addition, subtraction, multiplication, and division. Let's begin with the COLLECTION image schema, which involves the pattern of adding objects to a group or pile, or taking them away. We experience correlations between addition and the

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4. I am not claiming that an image schema analysis is sufficient to tell the whole story of human reasoning. A complete account would include the role of emotions, qualities, social interaction, speech-act conditions, and patterns of inquiry. However, the structural aspects of concepts and inference would appear to be primarily a matter of image schema logic.

5. See Dodge and Lakoff (*this volume*) for a theory of the neural basis of image schemas.

action of adding objects to a collection and between subtraction and taking objects away from a collection. Such correlations are the basis for a "conceptual metaphor" (Lakoff and Johnson 1980; Lakoff and Johnson 1999), in this case, a conceptual metaphor whose source domain is object collection and whose target domain is arithmetic. The metaphor ARITHMETIC IS OBJECT COLLECTION is a mapping of entities and operations from the source domain (object collection) onto the target domain (mathematical addition).

ARITHMETIC IS OBJECT COLLECTION

Source Domain (OBJECT COLLECTION)		*Target Domain* (ARITHMETIC)
Collections of objects of the same size	>>>>	Numbers
The size of the collection	>>>>	The size of the number
Bigger	>>>>	Greater
Smaller	>>>>	Less
The smallest collection	>>>>	The unit (One)
Putting collections together	>>>>	Addition
Taking a smaller collection from a larger collection	>>>>	Subtraction

Lakoff and Nunez show how several key entailments of this metaphor, which involves the COLLECTION schema, generate various laws of arithmetic:

> Take the basic truths about collections of physical objects. Map them onto statements about numbers, using the metaphorical mapping. The result is a set of "truths" about natural numbers under the operations of addition and subtraction.
>
> For example, suppose we have two collections, *A* and *B*, of physical objects with *A* bigger than *B*. Now suppose we add the same collection *C* to each. Then *A* plus *C* will be a bigger collection of physical objects than *B* plus *C*. This is a fact about collections of physical objects of the same size. Using the mapping Numbers Are Collections of Objects, this physical truth that we experience in grouping objects becomes a mathematical truth about numbers: If *A* is greater than *B*, then *A+C* is greater than *B+C*. (Lakoff and Nunez 2000: 56).

This simple analysis may seem pedestrian, but Lakoff and Nunez go on to show how the analysis explains many important properties of natural numbers, such as magnitude, stability results for addition and subtraction, inverse operations, uniform ontology, closure for addition, unlimited iteration for addition, limited iteration for subtraction, sequential operations, equality

of result, preservation of equality, commutativity, associativity, and on and on.

A second fundamental metaphor for arithmetic is based on a SOURCE-PATH-GOAL schema. The SOURCE-PATH-GOAL schema underlies our understanding of bodily motion along a path, where there is a starting point (Source), a continuous set of steps (Path), taken toward the destination (Goal). The SOURCE-PATH-GOAL schema is the foundation for our common understanding of arithmetical operations as motions along a linear path, according to the following mapping:

ARITHMETIC IS MOTION ALONG A PATH

Source Domain (MOTION ALONG A PATH)		*Target Domain* (ARITHMETIC OPERATIONS)
Motions along the path	>>>>	Arithmetic operations
Point-location on the path	>>>>	Result of an arithmetic operation
Origin point	>>>>	Zero
A point-location	>>>>	One
Further from the origin than	>>>>	Greater than
Closer to the origin than	>>>>	Less than
Moving from a point-location *A* away from the origin, a distance that is the same as the distance from the origin to the point-location *B*	>>>>	Addition of *B* to *A*
Moving toward the origin from *A*, a distance that is the same as the distance from the origin to *B*	>>>>	Subtraction of *B* from A

Based on this important metaphor mapping, we thus utilize the structure of the SOURCE-PATH-GOAL schema plus our knowledge of the "logic" of motion along a path, in order to understand and to reason about arithmetical operations in abstract domains and fields. Lakoff and Nunez explore the pervasive use of this foundational metaphor to conceptualize iterative processes like multiplication and the calculation of fractions. They also provide an extensive analysis of the mathematics and geometry of the number line and of the Cartesian coordinate system, as it employs the SOURCE-PATH-GOAL schema.

In short, image schemas (operating within conceptual metaphors) make it possible for us to employ the logic of our sensory-motor experience to perform high-level cognitive operations for abstract entities and domains. The resources of our bodily experience are appropriated for abstract thinking.

This process of image-schematic and metaphor-based understanding has been demonstrated for concepts in mathematics (Lakoff and Nunez 2000), law (Winter 2001), morality (Johnson 1993), analogical problem-solving (Craig, Nersessian and Catrambone 2002), scientific causality (Lakoff and Johnson 1999), psychology (Gibbs and Colston 1995; Fernandez-Duque and Johnson 1999), and other areas of abstract reasoning and theorizing.

5.   Putting flesh on image-schematic skeletons

However, there is a "down side" to our standard way of describing image schemas. The character of image-schematic analysis that has always worried me since its inception is its exclusive focus on recurring *structures or patterns* of organism-environment sensory-motor interactions. In short, if you attend only to *structure*, you necessarily ignore the nonstructural, more qualitative aspects of meaning and thought. You are left with a skeletal structure without the flesh and blood of embodied understanding. You lose, or at least overlook, the very thing that gives image schemas their life, motivating force, and relevance to human meaning, namely, their embeddedness within affect-laden and value-laden experience. There may be no way around this problem, but we can at least recognize what is left out of our theory, without which image schemas could not play their crucial role in conceptualization and reasoning.

   Before I address the depth of this problem, let me say unequivocally that the great value of image schema analysis, as mentioned above, is its contribution to a developing theory of the bodily basis of conceptualization and reasoning. The most striking and significant successes so far have come in the areas of lexical semantics and the theory of inference structure. Over the past seventeen years a growing number of outstanding studies have revealed the crucial role of image-schematic structure in a broad range of concepts extending from spatial relations and motion concepts all the way up to our most abstract conceptualizations of reason, mind, knowledge, justice, rights, and values. These latter concepts draw on image-schematic structure in the source domains of conceptual metaphors. Image schema analysis gives us some of the most important *precise details* of the semantics of terms and expressions in natural languages. And, when coupled with metaphor analysis, it takes us a long way toward understanding abstract inferential structure.

This being granted, I still cannot shake off the nagging sense that the limitations of our exclusively structural analysis of image schemas leave out something of great importance. Conscious life is very much an affair of felt qualities of situations. The human experience of meaning concerns *both* structure *and* quality. However, beyond phenomenological description, there appear to be no philosophical or scientific ways to talk adequately about the fundamental role of quality in *what* is meaningful and *how* things are meaningful. We can name the qualities, but we cannot even describe them adequately. When we describe the image-schematic structure alone, we never capture fully the qualities that are the flesh and blood of our experience.

This problem can be illustrated with an example of a SOURCE-PATH-GOAL image schema. When we experience motion along a path there are always qualitative differences for different types of motion. There is a quality of rapid acceleration that differs markedly from gradual starting up. There is a particular quality of motion of the pulses one feels in a movement that consists of repeatedly starting and stopping a particular movement. There is a felt sense of completion as you gradually roll to a stop. Another example comes from numerous instantiations of the CONTAINER schema. There are felt qualities that you experience if you are held tightly in someone's arms, or are constrained within the confines of a small room. There are various ways it feels to leave a closed area and to enter an open expanse. Not only are there distinctive *qualities* for each of these experiences, but there are also possibly several layers of *values* and *norms* that characterize our interest and depth of engagement in these experiences. These values cannot be reduced to image-schematic structure. As a third example, consider any of the various manifestations of the SCALARITY schema that populate our daily lives. There is the distinctive crescendo of a rush of adrenaline, of rapidly turning up the lights with a rheostat, or feeling a hotflash wash over your body. There is much felt meaning here, but it cannot be reduced to discrete structural relations alone.

We are easily seduced into the habit of thinking only about the structural aspects of meaning and thought. This is not at all surprising, since it is principally the identification of discrete structures that allows us to discriminate features, to find meaningful gestalts, and to trace out relations among elements. But we must not mislead ourselves into thinking that this is the total content of meaning. Meaning is a matter concerning how we understand situations, people, things, and events, and this is as much a matter of values, felt qualities, and motivations as it is about structures of experience. Eugene Gendlin has made a life-long project of reminding us of the fundamental

importance of this fact that there is much more to meaning than that which can be articulated via forms, patterns, and plans. He argues that

> We can develop a new mode of language and thinking which enters, and speaks from, what is *more than* conceptual patterns (distinctions, differences, comparisons, similarities, generalities, schemes, figures, categories, cognitions, cultural and social forms), although these are always inseparably at work as well. For example, "more than" is a pattern, but here it says more than the pattern. (Gendlin 1997: 3).

Gendlin's central point is that what we can formulate as articulate structure is always part of, and is interdependent with, *something more* – the felt experience of meaning that constitutes a dynamic process of organism-environment interaction. There are not two independent paths, one of symbolic structure and form and the other of felt qualities and tendencies of a situation. The structural cannot fully "represent" the non-formal, but the felt experience is never completely divorced from our structural understanding of it. As Gendlin says, that which exceeds the conceptual is precisely that which carries meaning and thought forward within a situation.

Some psychologists, linguists, and philosophers might wish to restrict the term "meaning" only to that which can be structurally articulated. However useful this might be as a strategy for formalizing aspects of our thought and language, it is far too restrictive to capture the fully embodied expanse of human meaning. To consider only the image schema skeletons of understanding and thought is to miss the flesh and blood meaning and value that makes the skeleton into a living organism.

I cannot imagine a method of linguistic or conceptual analysis that could ever adequately capture such qualitative aspects of meaning. I do not envision a different way of speaking about image schemas that would someday successfully incorporate qualities of experience. And yet, if image schemas are a principal key to the way all meaning grows from bodily experience, then the qualitative dimension is surely a crucial part of the process. The least we can do is to keep in mind that image schemas are not abstract imagistic skeletons. Rather, they are patterned, embodied interactions that are at once structural, qualitative, and dynamic.

William James and John Dewey famously tried to remedy this defect in our methods for explaining meaning, imagination, and thinking, but both were unsuccessful in convincing people to follow their lead. Neither of them could offer anything methodologically useful to linguists or psychologists. In his famous account of the "stream of thought" in *The Principles of Psychology* (1890), James reminded us that our inferences depend on the felt con-

nections among our thoughts. These felt connections and transitions among thoughts are not merely formal structures, but are, instead, the contours of the flow of consciousness from one thought to another.

> If there be such things as feelings at all, then so surely as relations between objects exist in rerum natura, so surely, and more surely, do feelings exist to which these relations are known. There is not a conjunction or a preposition, and hardly an adverbial phrase, syntactic form, or inflection of voice, in human speech, that does not express some shading or other of relation which we at some moment actually feel to exist between the larger objects of our thought. If we speak objectively, it is the real relations that appear revealed; if we speak subjectively, it is the stream of consciousness that matches each of them by an inward coloring of its own. In either case the relations are numberless, and no existing language is capable of doing justice to all their relations. (James 1890, vol. I: 245).

James offered no explicit account of anything like an image schema, but he did understand that thinking involves patterns of relation and connection, and he argued that we *feel* these patterns as transitions in our thinking:

> The truth is that large tracts of human speech are nothing but *signs of direction* in thought, of which direction we nevertheless have an acutely discriminative sense, though no definite sensorial image plays any part in it whatsoever. (James 1890, vol. I: 252-53).

James even went so far as to claim that we "feel" logical relations, such as those indicated by *if...then, and, but,* and *or* (James 1890, vol. I: 245). In spite of James's remarkably rich account of the range of felt relations and qualities that populate our sentient experience, he never succeeded in convincing people to take seriously the role of feeling in thought. Only now, a century or more later, are cognitive neuroscientists returning to some of James's insights about the quality of thought and the role of emotion in reasoning (Damasio 1994, 1999, 2003).

The principal problem with this way of thinking about the nature of thinking is that it doesn't really seem to feed into syntactic or semantic explanations of the sort in which image schemas play a key role. I do not know how to account for the role of feeling in, and the qualitative dimensions of, image-schematic understanding. The chief issue is to determine whether feeling merely *accompanies* image-schematic structures, or whether it plays a more constitutive and constructive role in meaning. No one, as far as I know, has succeeded in making a strong case for the constitutive role, but I

cannot ignore my intuition that image schemas have qualitative dimensions that are crucial to how they work in our conceptualization and reasoning.

One might protest that I seem to be asking too much of image schema analysis – trying to make it responsible for all dimensions of meaning. Perhaps image schemas only play a role in some of the most basic structural aspects of meaning, and we then need to analyze various additional strata of meaning, such as the social and affective dimensions, to flesh out the full story of meaning and thought. I wouldn't deny that this might be one possible strategy for at least identifying the full range of relevant phenomena for a theory of meaning and thought. However, I have suggested that the image schemas themselves have qualitative and normative dimensions. It strikes me that abstracting out these dimensions is, at best, an artificial after-the-fact reflective move that fails to do justice to the ways we construct and experience meaning.

Perhaps there is no way to return this important qualitative flesh and blood to our image-schematic skeletons. But let us not forget that the truly significant philosophical work done by image schemas is tied to the fact that they are not merely skeletons or abstractions. They are recurring patterns of organism-environment interactions that exist *in* the felt qualities of our experience, understanding, and thought. Image schemas are the sort of structures that demarcate the basic contours of our experience as embodied creatures. They depend on how our brains work, what our physiology is like, and the kinds of environments we inhabit. They are one of the most basic means we have for discrimination, differentiation, and determination within our experience. Their philosophical significance, in other words, lies in the way they bind together body and mind, inner and outer, and thought and feeling. They are an essential part of embodied meaning and provide the basis for much of our abstract inference.

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