Embodied Knowing: The Tacit Dimension in Johnson and Lakoff, and Merleau-Ponty

Kyle Takaki

ABSTRACT Key Words: Being-in-the-world, embodiment, enactive realism, image schema, metaphor, tacit knowing.

Embodiment is a crucial feature of Polanyi's tacit knowing. In the following, I synthesize ideas from Polanyi, Johnson and Lakoff, and Merleau-Ponty to further illuminate the embodied dimensions of tacit knowing. I appropriate two widespread embodied structures, image schemas and metaphor, into a Polanyian framework for embodied knowing. I also briefly indicate some important ways in which Polanyi departs from these three thinkers.

Introduction[1]

The embodied nature of knowing is a prominent theme of Michael Polanyi's works. Mark Johnson and George Lakoff also vigorously explore this theme within the context of cognitive science, and in the phenomenological tradition, Maurice Merleau-Ponty emphasizes the primacy of immediate perception and the body schema. In the following paper I weave together threads from these thinkers—despite their differences of detail and purpose—to further illuminate the embodied dimensions of tacit knowing. In particular, I concentrate on two prominent embodied structures, image schemas and metaphor.

I begin with Polanyi's general outline of tacit knowing. Sections three through six enrich and complement Polanyi's framework by articulating the structures that Johnson and Lakoff provide, and section seven presents Merleau-Ponty's phenomenological contribution. I then offer a synthesis of the overall discussion in section eight, and in the last section I present some important ways in which Polanyi departs from these three thinkers, and the implications this holds for embodied knowing.

Tacit Knowing as Embodied Knowing[2]

Michael Polanyi characterizes tacit knowing as a relationship between a focus and its subsidiaries, a relationship that is Ronald Bontekoeoe says "present in *all* knowing, [since] every *act* of knowing is just that, an action, and all action involves a focal attending toward the end of the action and a subsidiary or tacit awareness of [all else we go through] to achieve that end."[3] Since these actions rely on bodily modes of support, tacit knowing is ultimately an embodied process. Indeed, Polanyi claims that "there is only one single thing in the world we normally know only by relying on our awareness of it for attending to other things. Our own body is this unique thing. We attend to external things by being subsidiarily aware of things happening within our body."[4] It is crucial, though, to distinguish focal attention from the embodied subsidiaries supporting such attention. For just as we cannot use our "spectacles to scrutinize [our] own spectacles," our bodies—as well as their extensions (e.g., tools, language, theories, etc.)—are things that in the process of using them, we "cannot *in this action* be focally aware of" (*M* 37). As soon as we shift our attention to our bodies, the action that we were engaged in breaks off, and a different action ensues—we are no longer subsidiarily dwelling *in* our bodies, but now adopt another level of (focal-subsidiary) awareness *that* we are dwelling in our bodies.

There are four aspects of tacit knowing: the functional, phenomenal, semantic, and ontological aspects. The functional aspect is a *from-to* relation between a focus and its subsidiaries—a durable structural relation (*KB* 146) between proximal particulars as they support a distal object of focal attention (*M* 34, *KB* 140-1). The phenomenal aspect of tacit knowing is a *gestalt* where X is seen in some capacity (of the from-to relation), and where this new structural whole (*TD* 6) is not reducible to the proximal particulars from which it is tacitly created (*M* 35). The semantic (personal) aspect of from-to knowing concerns the "focal target upon which [the subsidiaries] bear, [which] *is the meaning* of the subsidiaries" (*M* 35). Lastly, the ontological aspect of tacit knowing is inferred from the previous three aspects (*TD* 13); it claims that when a subsidiary-focal relation is grasped as a *comprehensive* entity, that entity signifies an enactive reality (*TD* 13, 24).[5] For Polanyi, this four-fold structure of tacit knowing delineates all skillful knowing.

It is important to observe that focal awareness "is always fully conscious, but subsidiary awareness can exist at any level of consciousness, ranging from the subliminal to the fully conscious. What makes awareness subsidiary is its functional character [as it relates to or supports foci]" (*M* 39). Whatever level of consciousness is involved, the subsidiary-focal relation of tacit knowing is fundamentally an embodied process that is open to investigation at different (functional) levels of operation. For example, the use of probes—as when a blind man learns to wield a cane, which in time becomes an extended "appendage"—illustrates not only the embodied nature of knowledge, but also the largely tacit ways in which subsidiaries are continually recast into skillful modes of knowing.[6] Since for Polanyi "*all* knowing is personal knowing—participation through [embodied] indwelling" (*M* 44)—in the following sections I investigate two prominent embodied dimensions of tacit knowing, image schemas and metaphor.

Body in the Mind

Johnson's work *The Body in the Mind* has one fundamental lesson: "*any adequate account of meaning and rationality must give a central place to embodied and imaginative structures of understanding by which we grasp our world.*"[7] Assuming that all knowing is either tacit or rooted in tacit knowing, and that the meaning of subsidiaries stems from the focus upon which they bear, I will argue that this lesson complements Polanyi's position.

Johnson's use of "body" stands as a "generic term for the embodied origins of imaginative structures of understanding, such as image schemas and their metaphorical elaborations" (*B* xv). For Johnson, image schemas are central structures of understanding; they are not literal images but "structures that organize our mental representations at a [more general] level" (*B* 23-4). They have two important features: they are nonpropositional structures, and they have a figurative embodied character (*B* xx).

The first feature is about the tacit dimension of embodiment:

Because of the limitations of our propositional modes of representation, we have a hard time trying to express the full meaning of our experiences. To cite a simple example, my present sense of being balanced upright in space at this moment is surely a nonpropositional awareness that I have, even though all my efforts to communicate its reality to you will involve propositional structures (*B* 4).

Image schemas arise from embodied patterns of interaction that are not reducible to propositional forms. In Polanyian terms, while propositional language communicates one's "present sense of being balanced upright," for example, it would be a mistake to view the linguistic objects of focal awareness as the bodily subsidiaries supporting such knowledge. As Johnson goes on to note "while we must use propositional language to describe these dimensions of experience and understanding, we must not mistake our mode of description for the things described"(*B* 4).

Before articulating the second feature (image schemas have a figurative embodied character), I first characterize image schemas. In general, an image schema is "*a recurrent pattern, shape, and regularity in, or of, those ongoing ordering activities*" (*B* 29). It consists of a "small number of parts and relations, by virtue of which it can structure indefinitely many perceptions, [concrete] images, and events" (*B* 29). These patterns are embodied at a pre-conceptual level (*B* 13), and in turn provide structure to many of our higher-order modes of knowing. Image schemas thus are central to Johnson's tacit dimension, as they support and enable various structures.[8]

To avoid misinterpretations of image schemas, first note that they are dynamic sensorimotor patterns, broadly coincident with Deweyan habits.[9] Secondly, image schemas can be viewed as one aspect of Polanyi's wider (and more "active") conception of embodiment. Since tacit knowing involves a continual (hermeneutic) integration and reintegration of knower and known (see *DHC* Ch. 6), where our transactional being-in-the-world is constantly negotiating the particularities of our historical, social, and physical environments, image schemas can be seen (more narrowly) as dynamically configured-and-configuring (*B* 21, 29-30) subsidiary structures that actively support other structures—they are moments of a dynamic process, and are not isolatable in and of themselves.[10] Thirdly, while image schemas are historically indebted to Kantian schemata, one should keep in mind that Johnson and Lakoff's approach is rooted in "second generation" cognitive science. Image structures are part of a research program that provides abductive and experimental evidence for these non-transcendental sensorimotor patterns:

> In the emergence of second-generation cognitive science, there were no a priori commitments to the existence of prototypes, conceptual metaphors, image schemas, radial categories, embodiment, and so on. There was, however, a *commitment* to make sense of a vast range of phenomena that included polysemy (systematically related linguistic forms), inference, historical change, psychological experiments, poetic extensions of everyday language, gesture, language acquisition, grammar, and iconicity in signed languages. The evidence from these diverse empirical domains *converges*: It is all made sense of by conceptual metaphors, image schemas, and radial categories—and by no other theory of concepts yet proposed. The concrete results about conceptual and inferential structure were empirical discoveries not anticipated in advance. Indeed, they were quite *surprising* [emphases mine] (*PF* 80-1).

Image Schemas

The best way to describe the figurative embodied character of image schemas is to give an example. One deeply entrenched image schema is the IN-OUT schema. Our daily lives are rife with in-out orientations: we get in our cars and step out of them; we fall into a deep sleep and awake; we put food in our mouths and. . .so on. In-out orientations permeate our lives, whether we are aware of them or not, and this general recurring pattern forms an image schema. Moreover, the IN-OUT schema has several subvariations where different levels of

abstraction manifest themselves depending on the type of action involved.[11] For example, the IN-OUT schema underlies the abstract conceptualization of a viewpoint. A viewpoint can be represented diagrammatically as a centered point and an encompassing circle, indicating a reference point directed towards a bounded horizon; the IN-OUT schema maps a person's perspective to the centered point (IN), and maps the view seen to the bounded horizon (OUT). The "assumption of a viewpoint is not typically a matter of entertaining certain concepts or propositions . . . rather, it is simply a point of view that we take up, *because it is part of the structural relations of the relevant schema*" (*B* 36). That is, we dwell in the point of view that we adopt, as it is a recurrent pattern we tacitly appropriate.

Thus in accordance with (three of)[12] Polanyi's features of tacit knowing, an image schema serves a *functional* role in structuring foci—in this case, the role played by the IN-OUT schema as it bears upon a point of view we take up—where this subsidiary schema carries the *personal* meaning it does because we adopt that perspective. Each image schema also involves a *gestalt*, which is "an organized, unified whole within our experience and understanding that manifests a repeatable pattern or structure" (*B* 44); here there are two gestalts: the IN-OUT schema as a patterned whole, and the bounded horizonal aspect of adopting a viewpoint. Gestalt structures also have an internal structure "that connects up with aspects of our experience and leads to inferences in our conceptual system" (*B* 44). There are many types of gestalts, some more prevalent than others. For example, there are a variety of "force gestalts," like BLOCKAGE, that Johnson describes in some detail (*B* 45-53). What is important for our purposes is that gestalts constrain the meaning of subsidiaries, since the way in which they bear upon foci is not arbitrary, but patterned. And more generally, an image schema's functional, semantic, and gestalt aspects highlight patterns upon which further cognitive patterns are constructed.

Embodied Metaphor

Image schemas dynamically support and enable a number of other embodied structures (e.g., higher categories, metonymy, etc.).[13] One structure that Johnson and Lakoff discuss at length is metaphor. Image schemas make possible "metaphorical projections," which extend a "schema from the physical to the nonphysical" (B 34). For example, the expression "tell me your story again, but leave out the minor details" (*B* 34) projects the physically based CONTAINER schema—which arises from embodied patterns such as using a cup, or being a physically bounded organism with "inner stuff"—to the event of telling a story. The CONTAINER schema also utilizes the IN-OUT schema (leave out the minor details, and leave in the relevant content), and conceptualizes the event of telling a story—strictly speaking, a nonphysical, conceptual entity—in terms of this container. The view of metaphor that Johnson and Lakoff defend is one treating "metaphor as a matter of projections and mappings across different domains in the actual structuring of our experience (and not just in our reflection on already existing structures)" (*B* 74). This allows for an account of "dead" metaphors—metaphors that Johnson and Lakoff argue we actually live by—as well as the formation of new metaphors.

Hence metaphors, as experiential and embodied structures, are not merely linguistic figures; this is only one of their manifestations. Generally speaking, "*the essence of metaphor is understanding and experiencing one kind of thing in terms of another*."[14] For Johnson and Lakoff "human *thought processes* are largely metaphorical" (*ML* 6); the main function that metaphor serves is to partially structure our concepts through highlighting—the mapping of select information from one domain to another.

Johnson and Lakoff describe various types of metaphors: orientational, ontological, and structural metaphors, all three of which are conventional metaphors; and new metaphors, which are grounded in our

understanding of conventional metaphors. Briefly, structural metaphors structure one concept in terms of another; orientational metaphors organize "a whole system of concepts with respect to one another" (*ML* 14); and ontological metaphors provide "ways of viewing events, actions, emotions, ideas, etc., as entities and substances" (*ML* 25).

Structural metaphors structure concepts through what they hide and what they highlight. An example of a structural metaphor is the CONDUIT metaphor. For aspects of certain theories of language (e.g., aspects of John Searle's speech-act theory; *B* 58-9), a meta-language is structured by a complex CONDUIT metaphor highlighting the following three ideas: ideas are objects, linguistic expressions are containers, and communication is sending (*ML* 10). An idea's illocutionary meaning is an object stuffed into a container by a speaker (the locutionary act), and then sent off to a hearer where the package is interpreted via a perlocutionary act.

Orientational metaphors orient a web of concepts. Johnson and Lakoff observe that most of our orientational metaphors are spatial in nature, since "we have bodies of the sort we have and that they function as they do in our physical environment" (*ML* 14). For example, the metaphor "GOOD IS UP gives an UP orientation to general well-being, and this orientation is coherent with special cases like HAPPY IS UP, HEALTH IS UP, ALIVE IS UP, CONTROL IS UP" (*ML* 14).

Ontological metaphors "allow us to pick out parts of our experience and treat them as discrete entities or substances of a uniform kind" (*ML* 25). Certain boundaries marking off discrete entities arise naturally from common interactions with the world, whereas others are more artificial and fulfill specific human purposes like "locating mountains, meeting at street corners, [or] trimming hedges"(*ML* 25). Viewing an expanse of land as a container, for example, allows for the ontological metaphor: "there's a lot of land in Kansas" (*ML* 30).

How are new metaphors generated? For Polanyi, a prominent feature of tacit knowing is that new ideas are created from previous ones. If image schemas support further structures of understanding like metaphor, the question remains how novel concepts are generated. Since I've only discussed metaphor, here is an account of how new metaphors are generated from sedimented ones. The primary source of novelty is conventional metaphor, whether structural, orientational, or ontological. Structural metaphors, in particular, are potent sources of new metaphors, since the mappings they establish "allow us to do much more than just orient concepts, refer to them, quantify them, etc., as we do with simple orientational and ontological metaphors; they allow us, in addition, to use one highly structured and clearly delineated concept to structure another" (*ML*, p.61).

All three types of metaphor are grounded in systematic experiential correlations (schematic patterns of bodily interaction) (*ML* 61), which lead to the establishment of domains, and mappings between domains. Correlations that share "enough of the same structural features" (*ML* 84) form categories; metaphors, by contrast, map certain elements from one domain to another. Categorization and metaphor thus are "endpoints on a continuum" (*ML* 85). New concept formation occurs on this continuum when categorization and metaphor interact: the formation of new concepts stems from elements of old categories that are metaphorically projected to a new domain. These new domains in turn are "*multidimensional structural wholes*; structuring our experience in terms of such multidimensional gestalts is what makes our experience *coherent*"(*ML* 81).

There are several related points about such coherence. The first is that metaphors have "entailments," which are the consequences a metaphor affords. For example, an entailment of the metaphor AN ARGUMENT IS A JOURNEY is that "an argument defines a path" (*ML* 91), as a journey defines a path. Entailments "play an

essential role in linking all of the instances of a *single* metaphorical structuring of a concept" (*ML* 96). Secondly, metaphorical entailments "play an essential role in linking *two different* metaphorical structurings of a single concept" (*ML* 96). This allows for the establishment of cross-metaphorical connections, and thereby the generation of new concepts. Structural metaphors are especially good at this, since they can create "hybrid" links that "pick out a range of experiences by highlighting, downplaying, and hiding" (*ML* 152). Thus new metaphors engender new concepts having real cash value. And as they are fixed in discourse, they become dead metaphors, starting anew the ebb and flow of novel concept formation based on established structures.

Polanyi and Metaphor

Thus far I've discussed aspects of metaphor (and image schemas) from an epistemic perspective, highlighting metaphor as (epistemically) understood and placing in the background metaphor's poetic capacity. In order to see how tacit knowing also accommodates poetic experience of metaphor, I need to shift gears and focus on metaphor's phenomenal dimension. I shall utilize selected insights from Bontekoe to link metaphoric structure with metaphoric experience, further indicating how Polanyi's framework encompasses a "continuum" of modes of tacit knowing.

According to Bontekoe, the linguistic essence of metaphor lies in its "resistance to the literally true."[15] More specifically, this tension isn't merely between "what is asserted and what is literally true. It arises rather from our uncertainty as to precisely what it is that is being asserted" (*F* 221). Such uncertainty spurs us on to inquiry and then to interpretational satisfaction, which allows the "metaphor to take on its charge of feeling" (*F* 224). The use of metaphor finds its traditional representative in poetry, where metaphor's "vector-feeling" plays an essential role in contributing to "the musical pattern of meaning which is the poem" (*F* 217). How do these observations fit with the prior discussion of metaphor? Johnson and Lakoff do not have anything explicit to say about poetry's musicality.[16] However Polanyi provides an account of metaphor compatible with such musicality as well as Johnson and Lakoff's insights, thus providing a bridge between poetic metaphor as experienced and metaphor as understood.

Polanyi diagrams the vector-feeling character of metaphor (*M* 78), where felt subsidiaries bear upon a focal metaphor. Metaphoric meaning emerges when "a symbol [the linguistic vehicle] embodying a significant matter has a significance of its own and this is akin to the matter that it embodies [the tenor, or subsidiary structure, which forms the background by which the tension between what is literally true and what is asserted can occur]" (*M* 78). The musicality of poetry is itself a metaphor for understanding skillful employments of poetic metaphor; the projection is from musical experience to poetic disclosure. That is, musical meaning emerges when properly engaging with a fine work of music, where a musical mood (the background tenor) bears on the appearance of a motif (the vehicle, which, if taken literally is just a sequence of sounds). The motif then reintegrates itself with the musical background (forming the metaphor—the symbol embodying the tension between the literal and what is asserted), allowing the motif to acquire meaning through the rapture we feel. As Polanyi writes: "the subsidiary clues—consisting of all those inchoate experiences in our own lives that are related to the two parts of a metaphor [i.e., the tenor and the vehicle]—are integrated into the meaning of a tenor and a vehicle as they are related to each other in a focal object (a metaphor)" (*M* 78-9). Hence metaphor's power to affect us involves two integrative moves: 1) the (integrative) bearing that a subsidiary tenor has on the focal vehicle, both of which comprise the metaphoric figure; and 2) the personal subsidiary clues bearing upon the metaphoric figure, which jointly create interpretive robustness and felt meaning.

At this higher level of refined knowing, the (aesthetic) musicality of metaphor focuses less on the structure of metaphor and metaphoric understanding (the "musical score" and "music theory"), and more on the dynamic qualia of poetic experience (the actual experiencing of the musical performance). For Polanyi, metaphor is a mode of signification—the vector-feeling character of metaphor enacts meaning. The supporting structures that Johnson and Lakoff discuss find their most refined expression in aesthetic, skilled forms of experience. It is in the context of such "consummatory experience"[17] that tacit integration acquires prominence, where emphasis is placed on the phenomenal aspect of tacit knowing. In the following section, I expand on this lived, phenomenological dimension of tacit knowing.

Merleau-Ponty and Embodied Being-in-the-World

What Merleau-Ponty contributes to the dialogue, I propose, is a vocabulary complementing Polanyi's framework. In particular, Merleau-Ponty employs four terms for understanding lived embodiment which blend the physical, metaphoric, and poetic: the "body" (whose referents are physical and perceptual), the "body schema" (connoting perceptual-motor actions), the "phenomenological field/horizon" (a figurative metaphor), and "being-in-the-world" (a term of poetic disclosure). The intertwining of these four notions offers a poetic understanding of the tacit modes of commerce with our physical, social, and historical environments. I conjecture that the use of poetic language is not incidental, since (more generally speaking) poetry is particularly suited for disclosing that which is just beyond the reach of language—for gesturing towards the unarticulated. This conjecture apparently fits with Merleau-Ponty's claim that phenomenology's task is to "reveal the mystery of the world and of reason."[18] For if this unarticulated "mystery" is to be phenomenologically disclosed, it would appear that employing poetic language is a (well-established) way to achieve such a task.[19]

The "mystery" issues from our modes of embodied commerce with the world. First, we cannot properly make any sharp distinction between the body and mental acts, as they always form a functioning whole: "psychological motives and bodily occasions may overlap because there is not a single impulse in a living body which is entirely fortuitous in relation to psychic intentions, not a single mental act which has not found at least its germ or its general outline in physiological tendencies"(*P* 88). Second, these tendencies are patterns through which the body enables significance. The body's ability to acquire habits, though, is not only a source of sedimentation, but like the generation of new metaphors from old, the body can also create new behaviors. Hence thirdly, it is the "open and indefinite power of giving significance—that is, both of apprehending and conveying a meaning—by which man transcends himself toward a new form of behavior" (*P* 194). The "mystery of the world and of reason" lies in this *indefinite* power of giving significance.

The body, as physical and perceiving, can elaborate on its basic, "primary actions [by] moving from their literal to a figurative meaning" (*P* 146) via metaphorical projections and image schemas. Meaningful structures grow in complexity, but always "at all levels [the body] performs the same function, which is to endow the instantaneous expressions of spontaneity [with some seed of meaning]" (*P* 146). This core "mysterious" power is expressed through the body schema, which is "an open system of an infinite number of equivalent positions directed to other ends"(*P* 141). For example, the IN-OUT schema is a facet of the body schema that supports many more elaborate structures, but the spontaneous gestalt power by which new structures are projected remains tacit, and to some extent unarticulable (at least when dynamically performing the relevant act).

Merleau-Ponty observes that language depends on embodied comportments: "When I say that 'an object is on a table', I always mentally put myself either in the table or in the object, and I apply to them a category

which theoretically fits the relationship of my body to external objects. Stripped of this association, the word 'on' is indistinguishable from the word 'under' or the word 'beside'" (*P* 101). Thus our embodied transactions with the world allow for the formation of sedimented habits (e.g., dead metaphors like "I'm beside myself"), as well as new structures (e.g., new metaphors). For just as constructing new metaphors requires a fund of previous structures, so likewise integrating and reintegrating new habits requires a fund of previous skills and capacities. As Merleau-Ponty writes, "the acquisition of habit [is] a rearrangement and renewal of the corporeal schema" (*P* 142).

Such "rearrangement and renewal" highlights that the body is always and already in the mind. How is the (lived) body interwoven with the mind? Through a gestalt, a "wordless logic" in which our own "body-world...[breathes] into it a secret and magic life by exerting here and there forces of distortion, contraction, and expansion" (*P* 49). Consistent with the phenomenal and semantic aspects of tacit knowing, it is the spontaneous power of the body that generates a projective field/horizon of significance populated by integrative "whole[s] charged with immanent meaning" (*P* 58). These wholes, in turn, are irreducible configurations of bodily syntheses—phenomenological qualia focusing an indefinite array of subsidiaries.

The body-world signifies our continual, on-going transactions with particular physical, social, and historical environments—our being-in-the-world (*P* 143). The metaphoric and figurative character of one's "field/horizon" emphasizes that we continually "project" our bodily comportments onto other transactional modes of being-in-the-world. As Merleau-Ponty notes, our horizon is "a system of *possible* actions, a *virtual body* [emphases mine] with its phenomenal 'place' defined by its task and its situation. My body is wherever there is something to be done" (*P* 250). The body is not merely a physico-perceptual thing; rather its various actions configure spatial possibilities that endow embodiment with a figurative character.

Additionally, the virtual body is ensnared with an external world through temporality. On the one hand, "time is the foundation and measure of our spontaneity, and the power of outrunning and of 'nihilating' which dwells within us and is ourselves, is itself given to us with temporality and life" (*P* 428). In Polanyian terms, the from-to structure of tacit knowing (which includes the ability to project one's possibilities (*P* 426), as when a blind man's cane becomes an extended appendage, or when considering future courses of action) stems from the intertwining of time and the lived body. For Merleau-Ponty, the virtual body's horizon of making-and-remaking is both a spatial (*P* 408) and temporal horizon (*P* 69): the intentional (from-to) structure of deliberative action requires both "spatial action" (the spatial horizon of probative, continual from-to cane actions, for example) and "skill acquisition" (the temporal horizon of related trials and errors bearing upon one's present situation—a "from-to" negotiation of elements of one's past bearing upon one's present).

On the other hand, "I am not the creator of time any more than of my heart-beats. I am not the initiator of the process of temporalization; I did not choose to come into the world, yet once I am born, time flows through me, whatever I do" (*P* 427). This is neither a naive realism nor mere empiricism; rather the lived body brings forth a horizon, relative to what the world affords. For Merleau-Ponty there is a pre-conceptual intentionality (a "non-thetic consciousness") bound up with deliberative acts. The primordial quality of being-in-the-world—what Marjorie Grene calls, in her interpretation of Merleau-Ponty's ontology, a philosophy of "presence"[20]— emphasizes this pre-conceptual aspect of intentionality. In Polanyian terms, tacit knowing's phenomenal from-to structure indicates a transactional intentionality situated within a field of deliberative and pre-conceptual acts.

In sum, Merleau-Ponty's "enactive" view serves to remind us that knowing is tacitly anchored in bodily

modes of ontological[21] perception (*P* 242), whose indefinite comportments and spontaneous power together enact various cognitive structures in the ongoing process of being-in-the-world.

A Hermeneutical Synthesis

Thus far I have used Polanyi's general insights on tacit knowing and embodiment to frame two prominent embodied structures, image schemas and metaphor. From a "bottom-up" perspective, these dynamic embodied structures support and enable a wide range of skills; however Polanyi is more radical than this claim indicates. To see how Polanyi differs from Johnson and Lakoff I shall offer an interpretive framework synthesizing Polanyi, Johnson and Lakoff, and Merleau-Ponty. Specifically, I claim that from a broader perspective there is a hermeneutic circle where (1) the lower pole, which includes these dynamic structures, is directed to the upper pole of meaningful knowing, which signifies lived integration; and (2) the upper pole, in turn, is directed back down towards the lower pole, signifying the reintegration of habits as they are comprehended in their capacity as modes of tacit knowing. This hermeneutic circle is a meta-level portrayal of tacit knowing's dimensions. Allow me to unpack these claims.
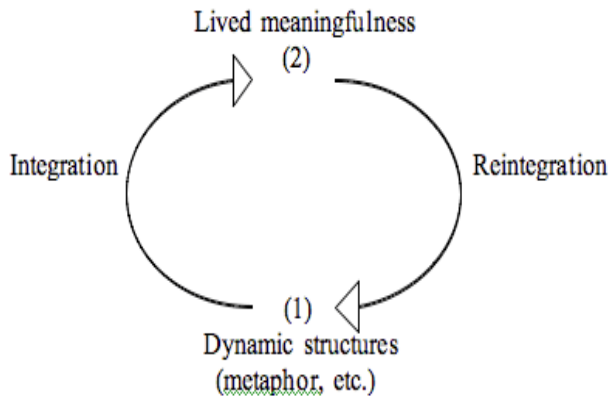
For (1), the claim isn't merely that there are subsidiaries relating to a focus; rather (1) is a meta-claim about tacit knowing itself—that is, the meta-claim reflects generally on the four aspects of tacit knowing (and not their particular character). I claim that just as particular subsidiaries only make sense on Polanyi's account as they relate to a particular focus (where it makes no sense to reify subsidiaries and a focus as things in themselves), so likewise (more generally) dynamic image schemas and metaphor only make sense as they bear upon tacit integrations concerning forms of skillful knowing. From this higher perspective, (1) can be seen as claiming that image schemas and metaphor "support" tacit knowing; and thus tacit knowing, from this momentary perspective (a time-slice, as it were), is a "special case" of what these types of structures afford. Indeed, the general thrust of what Johnson and Lakoff have to say about making sense of a wide range of phenomena (recall the last quote in section three) is that image schemas, conceptual metaphors, and radial categories—three prominent though not exhaustive "generators"—enact and create meanings that appear to encompass the field of tacit knowing. However their dynamic structures, from the above meta-level viewpoint, are interpretable as integrative moments of tacit knowing's broader dynamic, as signified by the upward arc of the hermeneutic circle.

Polanyi is more radical than what (1) suggests, since there is also the downward arc. (2) indicates a wider dynamism marking a significant difference from Johnson and Lakoff's kind of dynamism.[22] From the perspective of (2), it is more appropriate to say that metaphor and image schemas are actually "special cases" of tacit knowing (i.e., they shouldn't be viewed as "generators")—the inverse of (1). (1) highlights the integrative move of tacit knowing, where dynamic structures bear upon tacit integrations; (2) by contrast highlights the reintegrative move of how tacit knowing bears upon the meaning of dynamic structures. To be clear, since the hermeneutic circle is a *meta-level* portrayal of tacit knowing as it relates to structures like image schemas, the meta-level for (1) highlights integration, and for (2) highlights reintegration. Both of these non-separable moves are crucial to understanding the dynamics of embodied tacit knowing. At the *object level*, what (1) refers to are the particular components of tacit knowing, such as particular subsidiaries (e.g. an IN-OUT schema) bearing upon some focus; and what (2) refers to are actual reintegrations of a skill as it is reformed and remade.

In brief, image schemas and metaphors can be seen as moments of knowing-in-action captured by the first integrative arc (a narrower kind of dynamism). Merleau-Ponty's contribution highlights Polanyi's insight that tacit knowing is fundamentally an on-going process, drawing the implication that skillful knowing is always partially obscured (i.e., the "mysterious" spontaneity of the body, and the indefinite space of possibilities it projects); this aspect of knowing-in-action is captured by the second arc (a wider kind of dynamism). What Merleau-Ponty and Polanyi share is the idea that every act of tacit knowing already has present a subsidiary-focal relation that is constantly being cast and recast in concrete circumstances; our being-in-the-world is "always already" ensnared with an indefinite horizon of projective possibilities.

Polanyi and the Ontological Dimension

Where Polanyi goes beyond Johnson and Lakoff and, to a lesser degree, Merleau-Ponty concerns the implications of the ontological aspect of tacit knowing. I will sketch Polanyi's view of how the ontological dimension involves personal commitments which gesture towards a full-blooded (hierarchical) reality. I focus on three of Polanyi's claims that indicate some common ground between Merleau-Ponty and Johnson and Lakoff, although the metaphysical implications Polanyi draws are ultimately quite different from these thinkers. The three interrelated claims are about emergence, ontological hierarchy, and the correspondence between the structures of understanding and what those structures signify (*TD*).

Briefly, Polanyi distinguishes personal knowing—which concerns commitments to discovering the "real"—from mere subjective commitments that depend on tastes and the like.[23] Personal commitments search for a hidden reality that can only be hit upon by making such commitments in the first place.[24] Personal commitments directly relate to the fourth aspect of tacit knowing, the ontological dimension, which holds that when a from-to relation is understood as a comprehensive entity, that entity acquires-and-discloses a kind of reality—there is an emergent aspect to this comprehensive entity. Even stronger, Polanyi claims that the structure of our knowing such an entity maps to what that structure signifies. This may appear to confuse the reality of the referent with the mode of referring. However Polanyi is not claiming that there are two orders between which some traditional correspondence relation holds; this appeal to the "Objectivist" tradition, as Johnson and Lakoff call it (see *B*, *PF*, and *WFD*), is already a non-starter for Polanyi. Nor for similar reasons is Polanyi suggesting a kind of ("Cartesian," non-interactive) parallelism at work. It may appear, then, that Polanyi is claiming that we merely (socially) construct what is real. However this too would be mistaken. To see what Polanyi is saying, I shall contrast him with Johnson and Lakoff and Merleau-Ponty.

Firstly, Johnson and Lakoff are committed to an "embodied realism,"[25] but they don't think that higher-order concepts which image schemas, metaphor, and the like afford discover "the real" (*PF* Ch.8). They would probably view Polanyi as subscribing to an Objectivism of the sort they are arguing against.[26] Rather for Johnson and Lakoff, while there are mid-level engagements with reality (through basic categories, for example; see *WFD*), higher-order concepts are figurative and metaphorical through and through. Of course we can strive to understand "the real" (via mathematical physics, say—which still deeply involve image schemas, etc.), but it remains that since many meaningful structures are constructs of the embodied mind, it would be inappropriate to hold that the metaphors we live by "discover" what's real.

Related to the above is the second point that Polanyi doesn't subscribe to Objectivism; thus the previous objection would misunderstand Polanyi's realism. Polanyi's notion of "discovery" of the real isn't about mere types of existents; rather his emergent hierarchical ontology consists of *achievements* (*KK* 218). A "mere existent" like a cobblestone is of course real for Polanyi, but comparatively speaking it may not be worthy of recognition as an achievement—a rich nexus of meaningful relations, involving an interplay of "knower and known," that constitute an emergent comprehensive entity. Johnson and Lakoff also subscribe to the idea that higher-order concepts and structures are emergent—they are new multidimensional gestalts stemming from central structures like image schemas, radial categories, and metaphor. But in rejecting Objectivism I suspect they would misconstrue Polanyi's non-Objectivist realism, which makes stronger claims than their embodied position. As for Merleau-Ponty, his "realism" about perception (its non-thetic nature; *P* 242) is similar to Johnson and Lakoff's embodied realism, but it too apparently is not as radical as Polanyi's metaphysics (although both Merleau-Ponty and Polanyi endorse a pluralistic ontology).[27] Merleau-Ponty's realism goes back to revealing the tacit modes of being-in-the-world; we are always already entwined with pluralistic levels ontological engagement. Polanyi's realism encompasses both embodied realism and Merleau-Ponty's position; where he differs is in his additional forward-looking realism, where things can be more real depending on their level of significance (or level of achievement). In Peircean fashion, Grene suggests that one "entity is more real than another when it carries the possibility of a greater range of interesting and unexpected consequences" (*KK* 219). Similarly, Phil Mullins, who emphasizes the continuity of ontology and meaning in understanding Polanyi's notion of a comprehensive entity, writes: "Knowing and being are woven inextricably together…the ontological status of entities is not tied largely to 'existence' and tangibility, but to an entity's intelligibility and its prospect for greater intelligibility."[28]

The structural correspondence between understanding a comprehensive entity and what that understanding signifies is an act of commitment—a commitment juxtaposed with the interesting and unexpected consequences of a discovery. In asking and pursing the right questions, the sense that one has hit upon a real problem stems from one's commitment to reality as well as the (hermeneutic) feedback obtained from the ongoing consequences of an investigation. "Fruitfulness works ultimately as a criterion of truth of theories because it is a criterion of *reality*" (*KK* 220); meaningful commitments enact the search for the real and also continually invest reality to that search as the consequential fruits of investigation become integrated (and reintegrated) achievements. Polanyi's "enactive realism," as I have called it, is a fusion of being-in-the-world with consequential commitments that aim at levels of achievement—levels that include emergent comprehensions of the world, and their related commitments to emergent realities yet to be discovered.

This fusion does not just concern the (less controversial) claim that an "entity is *more* real, the more unforeseen consequences could flow from it" (*KK* 221); the true radicalness of Polanyi's enactive realism lies

in making the same claim for ideas (scholars, for example, may continue to generate-and-discover novel, unexpected, and richly meaningful and accurate interpretations of a text, attesting to its status as a classic). Thus the emergence of achievements establishes an (ongoing) ontological hierarchy; that hierarchy is engendered by tacit knowing, as highlighted by the fourth dimension; the correspondence between the comprehensive structure of understanding and what it signifies is itself a hermeneutic arc, enactively creating-and-discovering achievements which acquire greater reality (*TD* 33-4). This is a key difference between Polanyi and the others, since neither Johnson and Lakoff nor Merleau-Ponty entertain the *consequential* emergence of increasing levels of being—"reality" concerns either an embodied realism, or a primordial being-in-the-world.

In sum, Johnson and Lakoff's higher-order concepts are constructs based on embodiment, but there is no sustained inquiry into their possible metaphysical status as achievements; "skillful constructs," grounded in their embodied realism, would probably suffice for their purposes. Thus I suspect that Johnson and Lakoff would misconstrue Polanyi's fourth dimension. A new philosophy of embodiment may want to seriously consider the metaphysical status of embodied, enactive constructs and Polanyi's insights. As for Merleau-Ponty, I suggest similarly that Polanyi's insights present unexplored possibilities: we should not merely go "back" to the primacy of perception, but also look forward to what our commitments demand as we expand tacit knowing's hermeneutic circle.

Endnotes

[1] Thanks to Phil Mullins, Walter Gulick, Paul Lewis and anonymous referees for their rich feedback on earlier versions of this paper.

[2] See also Zhenhua Yu, "Embodiment in Polanyi's Theory of Tacit Knowing," *Philosophy Today*, 52:2, 2008, 126-35; and William Poteat, *Polanyian Meditations: In Search of a Post-Critical Logic* (Durham: Duke University Press, 1985).

[3] Ronald Bontekoe, *Dimensions of the Hermeneutic Circle* (New Jersey: Humanities Press, 1996), 202; referred to as DHC.

[4] Michael Polanyi and Harry Prosch, *Meaning* (Chicago: University of Chicago Press, 1975), 36; referred to as *M*. See also Michael Polanyi, *The Tacit Dimension* (New York: Doubleday & Co., 1966), 15-16 (referred to as *TD*); and Michael Polanyi, *Knowing and Being*, edited by Marjorie Grene (London: Routledge & Kegan Paul, 1969), 147-8 (referred to as *KB*).

[5] I will cash out the fourth aspect's "enactive reality" in the final section, especially concerning Polanyi's discussion of emergence, ontological hierarchy, and the correspondence between the structures of understanding and what those structures signify.

[6] Compare J.E. Tiles' discussion of habit in "On Deafness in the Mind's Ear: John Dewey and Michael Polanyi," *Tradition and Discovery*, 18:3, 1992, 9-16. I assume (but do not argue for the claim) that Polanyi's dynamic structures are compatible with Deweyan habits (see, for example, Polanyi's implicit appeal to James' reflex arc; *KB* 200).

[7] Mark Johnson, *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason* (Chicago: University of Chicago Press, 1987), xiii; referred to as *B*.

[8] Image schemas are still "middle level" structures, and are not to be understood as atomic building blocks (cf. George Lakoff, *Women, Fire, and Dangerous Things* [Chicago: University of Chicago Press, 1987], 267-70; referred to as *WFD*).

[9] See George Lakoff and Mark Johnson, *Philosophy in the Flesh* (New York: Basic Books, 1999), 97; referred to as *PF*.

[10]Image schemas are dynamic patterns that tend to be more stable in comparison to tacit knowing's (hermeneutic) cycle of ongoing integration and reintegration. However it is important to keep in mind that they are still dynamic patterns of sensorimotor activation.

[11]That is, there are subtypes of the general type. Susan Linder documents three basic subtypes of the IN-OUT schema that act as prototypical structures (*B* 32-3).

[12]I leave out the fourth aspect since it marks a significant difference between Polanyi and Johnson and Lakoff; see section nine.

[13]For discussion of these structures, see also *WFD*.

[14]Mark Johnson and George Lakoff, *Metaphors We Live By* (Chicago: University of Chicago Press, 1980), 5; referred to as *ML*.

[15]Ronald Bontekoe, "The Function of Metaphor," *Philosophy and Rhetoric*, 20:4, 1987, 209-26; 220. Referred to as *F*.

[16]Although compare Mark Johnson, *The Meaning of the Body* (Chicago: Chicago University Press, 2007); and George Lakoff and Mark Turner, *More Than Cool Reason: A Field Guide to Poetic Metaphor* (Chicago: Chicago University Press, 1989).

[17]John Dewey, *Art as Experience* (New York: Perigee Books, 1934). I save discussion of Polanyi's resonant notion of ontological "achievement" for section nine.

[18]Maurice Merleau-Ponty, *Phenomenology of Perception*, translated by Colin Smith (New York: Routledge, 1998), xxi; referred to as *P*. Connections between Polanyi and Merleau-Ponty are sympathetically discussed in Yu (op. cit.) and by Marjorie Grene: *A Philosophical Testament* (Chicago: Open Court, 1995); and *The Knower and the Known* (London: Faber and Faber, 1966). Referred to as *PT* and *KK*.

[19]The transition from Johnson and Lakoff's embodied "epistemics" to Merleau-Ponty's phenomeno-logical "poetics" coheres with Polanyi's insight that dwelling in our bodies is a level of ("poetic") awareness different from reflecting ("epistemically") on the fact that we dwell in our bodies.

[20]Marjorie Grene, "Merleau-Ponty and the Renewal of Ontology," T*he Review of Metaphysics*, 29:4, 1976, 605-625; referred to as *MRO*.

[21]I shall discuss the ontological dimensions of Merleau-Ponty and Polanyi in the final section.

[22]Note that this is not intended as a criticism of Johnson and Lakoff. Rather the project in the last two sections is to indicate key differences between Polanyi and the other three thinkers so as to bring forth the immense scope of tacit knowing.

[23]Subjective commitments may also include failures of personal commitments (e.g., the commitment to phlogiston as genuinely explanatory). Also personal commitments may mistakenly be viewed as merely subjective if one fails to take into account the personal investment that commitment requires.

[24]Michael Polanyi, *The Study of Man* (Chicago: University of Chicago Press, 1959), 35; *Personal Knowledge* (Chicago: University of Chicago Press, 1962), Ch.10. See also *PT* 170.

[25]Consistent with Polanyi, Johnson and Lakoff write:

> Because of the multiple levels of our embodiment, there is no one level at which one can express all the truths we can know about a given subject matter...Each different understanding of a situation provides a commitment to what is real about that situation...*What we mean by "real" is what we need to posit conceptually in order to be realistic, that is, in order to function successfully to survive, to achieve ends, and to arrive at workable understandings of the situations we are in.*
>
> When, for example, we say that a construct of cognitive science such as "verb" or "concept" or "image schema" is "real," we mean the same thing as any scientist means: It is an ontological commitment of a scientific theory and therefore can be used to make

predictions and can function in explanations (*PF* 109).

[26]"Objectivism" covers a wide array of positions for Johnson and Lakoff. Generally speaking, it refers to views that have not paid proper attention to the role of embodied dynamic structures mediating self-world relations, and as a result have the tendency to separate knower from known.

[27] Marjorie Grene argues in *MRO* that Merleau-Ponty's pluralistic ontology is not "vertically" hierarchical (unlike Polanyi's hierarchical, pluralistic ontology), and is not consequentialist (being-in-the-world and its temporal structure concern the pre-conceptual present).

[28]Phil Mullins, "Comprehension and the 'Comprehensive Entity': Polanyi's Theory of Tacit Knowing and Its Metaphysical Implications," *Tradition and Discovery*, 33:3, 2007, 37.

Notes on Contributors

John Berkman (profberkman@yahoo.com) is Associate Professor or moral theology at Regis College, University of Toronto. In the fall of 2009 he returned home to his native Canada after 22 wonderful years of education and teaching in the United States. He most recently taught at the Dominican School of Philosophy and Theology and the Graduate Theological Union in Berkeley, CA.

Walter B. Gulick (WGulick@msubillings.edu), Professor Emeritus at Montana State University, Billings, is a frequent contributor to *TAD*. He was for several years the President of the Polanyi Society and for almost twenty years, has has been the Book Review Editor for *TAD*.

Struan Jacobs (struan.jacobs@deakin.edu.au) teaches social theory at Deakin University, Australia. He researches in twentieth century intellectual history, having a particular interest in the thought of Polanyi, Thomas Kuhn, and Karl Popper. He is the author or co-author of several articles and reviews published earlier in *TAD*. With R. T. Allen, he coedited *Emotion, Reason, and Tradition: Essays on the Social, Political, and Economic Thought of Michael Polany*i (2005), and with H. M. D'Cruz and Adrian Schoo he has coedited *Knowledge-in-Practice in the Caring Professions* (2009), both published by Ashgate.

Murray Jardine (jardimu@auburn.edu) is Jane Dickson Lanier Professor of Political Science at Auburn University. His field is political theory. His publications include Speech and Political Practice: Recovering the Place of Human Responsibility and The Making and Unmaking of Technological Society: How Christianity Can Save Modernity From Itself . His current book project, Political Theory, Theology, and Modernity, argues that the issues analyzed by postwar political theory point toward theological reflection for their resolution.

Araminta Stone Johnston (johnston@queens.edu) is an assistant professor of religion at Queens University of Charlotte, North Carolina. Her primary interests are in the area of religion, culture, and ethics. She has published several articles, including a previous one in *TAD* (20:3, 16-28) and her book *And One Was a Priest: The Life and Times of Duncan M. Gray Jr.*, a biography of Gray, will be issued by the University Press of Mississippi in Fall 2010. Gray is the retired seventh Episcopal bishop of Mississippi and was an active force for civil rights in the fifties and sixties.