

Polanyi and Langer: Toward a Reconfigured Theory of Knowing and Meaning

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This article is intended to advance a comprehensive understanding of knowing and meaning that is sensitive to biological and psychological evidence as well as to ethical and religious concerns. It proceeds by integrating Michael Polanyi's theories of the evolutionary emergence of centered beings, tacit knowing, and the from-[via]-to structure of consciousness with a revised version of Susanne Langer's theory of symbolization. The revision stresses the importance of signals in all human and other animal attunement to reality and argues for dividing Langer's notion of presentational symbolism into a component shared by the more developed animals and one unique to humans. It details autonomic, receptor, learned tacit, and conceptual contributions to personal meaning.

Introduction

Arguably the most important challenge that confronts epistemology today, and certainly one of the most important for philosophy as a whole, is coming to a clearer, more comprehensive understanding of the nature of meaning. The key term here is "comprehensive," for vast amounts of thought have been devoted to the exposition of linguistic and logical meaning, but comparatively little has been devoted to the biological underpinnings of the making of meaning or to an exposition of the linkage between meaning and significance. This essay is part of my long range goal of making some progress toward establishing a useful framework for a comprehensive theory of meaning attentive to our embodied state and our longing for significance as well as to its semiotic and psychological status.

Among the many disciplines or subdisciplines that have an ongoing interest in the topic of meaning are, in addition to philosophy, microbiology, sociology, information technology, psychology, neuroscience, religion, anthropology, complexity theory, ecology, linguistics, and ethology. Two philosophers who have devoted themselves to a rich, comprehensive approach incorporating many of these areas of study are Susanne Langer and Michael Polanyi. Much new information pertinent to understanding meaning has come to light in the nearly 35 years since each philosopher stopped writing. While I try to be alert and responsive to new developments in the interpretation of meaning, in this essay I am focusing my efforts on mining the still very provocative ideas of Langer and Polanyi, seeking a creative integration of their most fruitful insights into the nature of meaning.

The Evolutionary Rise of Centered Personhood

If one is to develop a theory of meaning that is sensitive to our biological heritage and respects the embodied nature of thought, where might it be best to begin? Polanyi's answer, which I affirm, is to ground epistemology in a theory of evolutionary emergence. For the purpose of understanding knowing and meaning,

it is not necessary to be sidetracked into a discussion of how living beings differ from the non-living. It is more productive to examine what novel ontological structures arise with the advent of living beings.

The laws of physics and chemistry rule in the lifeless world. Apart, perhaps, from the big bang, there is no center to which matter and energy are subject.¹ With the advent of life, a new dynamic, at first barely noticeable, arises. The activity of the bacterium or plant or animal is not just the resultant of impinging forces upon it. Rather each living being has what Polanyi calls an active center that both uses and repels outside forces.² “Our existing knowledge of physics and chemistry can certainly not suffice to account for our experience of active, resourceful living beings, for their activities are often accompanied by conscious efforts and feelings of which our physics and chemistry know nothing” (*PK* 336).³ Obtaining nutrition, avoiding enemies, and reproducing must be coordinated and prioritized by some center if the living being, and by implication, the species, is going to survive. Survival is a purpose-laden standard of success; there is a telic dimension intrinsic to the process of living.⁴

Moreover, when one looks at the development of more and more complex species in historical perspective, it is evident that evolutionary advance occurs incrementally. It has much in common with the development of a town. The first houses necessitate a certain pattern of roads and open up lots where successive houses may most logically be built. While some poorly constructed early buildings are replaced, most livable houses are retained as the town grows. Gradually wider streets, new utilities, and other infrastructure improvements are put in place.

Evolutionary advances also build upon existent structures or components that have proven successful. Primitive cellular functions that work in a simple species, for instance, are retained by more complex living beings even as new functional structures are selected for in the colonization of untapped environmental niches. This idea is salient for seeing how human knowing is the culmination of a long process in which humans share with much less highly developed animals many of the same cellular and neural functions that proved successful in early stages of evolution.⁵ The brain stem is the oldest part of our brain, and more and more regions of activity have been built upon it in evolutionary development. For humans, the process has culminated in the emergence of the cerebral cortex, itself the center of specialized lobes for initiating action, reasoning, and processing sensation. The point is, though, that relatively little is discarded in the process of the evolution of the brain, as is indicated by the fact that humans have much the same DNA as not only chimpanzees, but even birds and worms. If little is discarded, then humans share with other animals certain procedures, perhaps quite primitive, for responding meaningfully to their environment. As we will see, in animal learning Polanyi sees exemplifications of meaningful adaptation to and increasing control of the animal’s environment. Humans retain many of these pre-linguistic patterns of learning. If it can be shown that we are conscious to some extent of these intellectual but pre-linguistic patterns, this would constitute a solid basis for critiquing those who claim humans are trapped in and cannot surmount webs of language. And Polanyi’s theory that includes non-linguistic subsidiary awareness as part of the structure of consciousness provides such a basis for critique.

If in the process of evolutionary growth successful functions are assimilated by increasingly complex living beings, and these are functions crucial to the survival of their centered hosts, does this imply that complex beings incorporate a jumble of more and more competing functional centers? In recent years the modular view of the mind has attracted a number of adherents. Langer is dubious about the usefulness of speaking of multitudinous centers. “[T]he chains of ‘centers,’ each performing a phase of the response and leading to a lower and more rigidly automatic ‘center,’ have not been found; not even any areas permanently related to a particular

action have been identified” (*M II* 20).⁶ Elsewhere Langer disputes the appropriateness of assigning any center to simple organisms like the amoeba or to plants (*M I* 298). Her concern seems to be an empirical one: that a specific site where messages are received and “decisions” made often cannot be identified. However, in terms of Polanyi’s evolutionary perspective, a center need not be physically located at some particular region or in terms of a particular purpose or function. Rather it has a transcendent identity; it expresses the fact that for the organism to survive its various functions must be at least roughly coordinated and prioritized, that is, centered. In this sense, no living being can be reduced solely to the laws of physics and chemistry.⁷ Nor can it be seen, as Langer indicates, simply as an aggregate of assimilated centers.

The establishment of organisms as centered beings has two important corollaries. First, the organism exists in the world in a dichotomous manner, as from a phenomenological point of view there is a split between its own interest-laden centeredness and otherness. Dualistic thinking, self-interest, and anxiety about otherness thus are rooted in the ontological structure of a centered self standing over against the enveloping world; they are not simply psychological dysfunctions or arbitrarily imposed habits of thought. Furthermore, the difference between the active center and the otherness of the world supports the ontological distinction between subject and the world of objects. The problem of Descartes’ mind-matter split is not that it is expressed in terms of subject and object, but that subject and object, mind and matter, are treated as separate substances. The disjunction between incommensurable substances creates the massive problem of how mind is related to matter, a problem that Polanyi’s understanding of emergent stratified realities helps resolve.

A second corollary relates to the issue of the respect in which humans are centered beings. With what in human experience is this center to be identified? A traditional answer, identified with our Greek heritage, is to identify the center of human existence with reason. Freud’s ego is a recent version of the rationalistic heritage. But such an identification makes non-rational human behavior unintelligible and mysterious and sets up conflict between reason and such things as feelings, emotion, biological drives, and social pressure. Just as it may not be helpful to look for the center of an animal’s being at a specific site, so it is problematic to define the center of human existence too narrowly. My suggestion is that it is most fruitful to adopt a transcendent view of human centeredness that incorporates reason, but also feelings, emotions, biological drives, and social responsiveness.

In postulating the existence of a transcendent human center, I do not mean to be taken to be formulating some perspective from which all the internal conflicts and messiness of life are resolved. Instincts, social pressures, personal aims, and the like are tangled together in knots of rationally irresolvable complexity. For human beings, the notion of a biological center oriented toward survival needs to be supplemented with notions acknowledging the impact upon behavior of various linguistic, social, and cultural forces that are dependent upon the power of symbolization to open up alternatives and develop cultural worlds in which we dwell. Polanyi and Langer are both adept at probing the “logic” of these complexifying factors. Polanyi’s provocative thesis is that the notion of God provides a transcendent center beyond our biological center (and our psychological center, or ego) that integrates the incompatibilities of ordinary life (*M* 156). This is a self-transcendent center one participates in via a stance of worship. It also seems possible to adopt a morally delineated transcendent center defined by Polanyi’s “firmament of standards” (*TD* 51) which would involve a radical responsibility to these standards. Yet another transcendent center can be correlated with Kant’s notion of the transcendental idea of the thinking subject, except that any Polanyian center would be embodied rather than being at core a metaphysical principle. These are intriguing and tantalizing possible ways of conceptualizing personhood worthy of extended consideration in some other context.

Correlating Latent Knowing with Langer's Signals and Symbols

What does this cursory glance at evolutionary history from bacteria to persons have to do with the nature of human knowing? For both Langer and Polanyi, the answer is “plenty.” Polanyi appreciates that the psychic processes issuing in the intelligent behavior of rats, bats, and cats have been retained in human knowing, although not at the center of consciousness. Rather their intellectual abilities underlie and support the more noticeable activities of that most vociferous of the cerebral newcomers – language. While genetically endowed instincts and dispositions play a role in animal behavior, animals are hardly robotic in their environments. They have the ability to adapt to their circumstances through trick, sign and latent learning (see *PK* 71-77). Two of the most significant characteristics of Polanyi's epistemology are embedded in these three types of animal learning: (1) the heuristic character of human knowing, most clearly exemplified in the scientist's act of discovery, and (2) the contribution of these types of animal learning to the tacit activity that underlies and supports all human knowing.

The roles that trick, sign and latent learning play in a comprehensive theory of knowledge are so significant that further elaboration is called for.

Trick learning is based upon the discovery of useful means-ends relations, manipulations that advance an animal's interests. Trick learning thus underlies the development of skills, of knowing how. Most skills cannot be learned through verbal instructions alone; they arise primarily through experimentation, imitation, and practice. Polanyi thinks the roles of apprenticeship and traditions have been underemphasized in the examination of how we know. “To learn by example is to submit to authority. You follow your master because you trust his manner of doing things even when you cannot analyse and account in detail for its effectiveness” (*PK* 53). The successful contrivances of trick learning eventuate in embodied skills, types of tacit knowing. For Polanyi, all knowing arises out of embodied acts, and these embodied acts can lead either to theoretical knowledge or purposeful action. I find the way his thought consistently shows how thought and action are of a piece to be one of his most important contributions to an inclusive theory of knowing.

Polanyi says that “in sign-learning the animal is taught to expect an event by recognizing a sign foretelling the event” (*PK* 72). It is Langer, rather than Polanyi, who most effectively describes the significance of sign learning. Polanyi's interest in this sort of learning is motivated primarily by his attempts to understand the heuristic nature of knowing, and especially to understand how environmental signs might foster scientific discovery. Langer, too, appreciates how signs (or what she comes to call “signals,” a usage followed in this paper) foretell future events. But her notion of a signal is much more fully developed than Polanyi's. She says that a signal “indicates the existence – past, present, or future – of a thing, event, or function. Wet streets are a sign[al] that it has rained. A patter on the roof is a sign[al] that it is raining. A fall of the barometer or a ring around the moon is a sign[al] that it is going to rain” (*PNK* 57). Signal learning, then, is tied to perceptual significance, the meanings of what we perceive. But Langer goes on to offer an even broader understanding of the significance of signals. The term “signal” covers “not only explicitly recognized signals – red lights, bells, et cetera – but also those phenomena which we tacitly respect as signals to our sense, e.g. the sight of objects and windows whereby we are oriented in a room, the sensation evoked by a fork in a person's hand that guides him in raising it to his mouth . . .” (*PNK* x). This broad notion of a signal thus indicates that at both a tacit and explicit level we are aware of and oriented in the world about us through our sensations and perceptions. Signals are tutors of reality. The most significant signals evoke active responses. Signals, then, are key “players” in tacit knowing.⁸

Latent learning, the third type of inarticulate learning identified by Polanyi, “is achieved not by a particular act of contriving or observing, but by achieving a *true understanding of a situation which had been open to inspection almost entirely from the start*” (PK 74). It is a kind of mental map which allows for strategic interpretation and a sort of planning. Relying on their latent learning, rats can learn the spatial structure of a maze so as to simplify their efforts in reaching the food available via one route only.

While the correlation is not exact, I see some commonalities between Polanyi’s notion of latent learning and Langer’s notion of presentational symbolism. Langer contrasts “presentational symbolism,” which refers to spatial images lacking vocabulary and syntax, with discursive symbolism, which unfolds in time, with language as its dominant form. She refers to items like pictures, maps and graphs as presentational symbols, and here it is quite clear that these items have referential meanings that are not comprehended by animals. This point is crucial, for Langer insists that everything she labels a “symbol” has a meaning for humans alone. We humans are the symbolizing animals, by which she means we have the capacity to conceive what is symbolized apart from any pragmatic need to respond to it. In contrast, nonhuman animals are immersed in a world of signals.⁹ She emphasizes the functional difference between signals and symbols: “signs [signals] announce their objects to [a subject], whereas symbols lead him to conceive their objects” (PNK 61).

But here is the confusing issue. Isn’t there a significant difference between an image of which we (or any sufficiently developed animal) are conscious and humanly constructed maps or graphs? Surely all the more developed animals must schematize the flow of sensations into recognizable images in order to identify their surroundings, to know when fight or flight is appropriate. Yet Langer wants to restrict the use of all symbols, including images, to humans. How does she understand animal behavior to come about if nonhuman animals cannot arrest the flow of sensory input by fixing it in the form of images?

The reason why animals, operating without concepts or symbols, can function as effectively as men might do in similar situations, and sometimes more effectively than men could, is that their major instinctive acts are highly articulated, phylogenetically developed units, unconfused by any awareness of merely possible exigencies, possible errors, or thoughts of other possible acts (M II 77).

Clearly Langer has never observed my dog, Morgan, when my wife and I go in different directions and he is confused about which person to follow. In starting first one way, then another, he certainly betrays an awareness of two possible acts.

I do not doubt that animals inhabit quite different worlds than ours. And Langer, relying on an impressive array of research by animal psychologists, makes a good case for the proposition that “animal perception is more intimately bound to overt action than ours” (M II 54). However, if animals do not perceive things as objects or images, how do they gather information about the world in order to respond appropriately to its opportunities and dangers?

Percepts are often very indirect deliverances of interacting sense impressions of mingled sorts. The principle of their formation is selection, among all the elements in the external aspect of a situation, of those that will implement whatever acts are in progress. . . . In other words, the primary characteristics which animals see are values, and all the qualities of form, color, shape, sound, warmth, and even smell, by which we would naturally expect them to recognize things,

enter into their perceptual acts only as they enter into their overt behavior as values for action (*MII* 54-55).

I find it difficult to be clear about exactly what view of animal perception Langer supports, for she strongly rejects the idea that animal behavior is to be understood in terms of stimulus and response (*M II* 76), whereas the immediately preceding quotation certainly suggests a sophisticated form of stimulus and response.

To become clearer about the differences between nonhuman and human animal consciousness, let us rely on the principle that human consciousness incorporates elements from our evolutionary past, much like ontogeny recapitulates phylogeny, and turn within to excavate our responsiveness at pre-linguistic levels. In suggesting an introspective turn be utilized, I also recognize it is no easy task to get reliable results when plunging into subjectivity.

Perhaps our introspective excavation can best be facilitated by examining multi-tasking, for in simultaneously performing tasks at two or more levels, we are often conscious of our involvement at each level, although conscious in different ways and to different degrees. Some of us – shame, shame – carry on intense conversations on our cellphones while driving. Our focal thoughts are absorbed in what is being communicated to us and how we should respond. Yet at the same time we are observing road conditions and steering, braking, and shifting accordingly. Is this because we keep switching our attention from the conversation to the act of driving? Experientially this does not seem to be the case on the whole. We often dwell in several levels of attention at once, a view convincingly illustrated by Polanyi's discussion of the difference between our simultaneous awareness of subsidiaries and our awareness of what we are focally attending to. Our act of driving while conversing is an example of our being-in-the-world, to cite Heidegger. Our vision of the road does not seem to be encapsulated by language; rather we are involved in a skillful performance that is meaningfully engaged with the signals provided by the environment. We do not think "road" or "curve" as we maneuver our car along a hilly highway, but neither are we immersed in an ever changing display of unconnected sense data. We are, I will contend, responding to sensations that have been schematized so that we know tacitly that we are traversing a road without being focally aware of it as such. The schematized percepts being relied upon seem to be what Langer calls images (see *PNK* 144). My strong suspicion is that the higher mammals interact with their environments in a similar way to how we maneuver a car while our focal attention is otherwise occupied. This sort of consciousness seems to fall somewhere between the values for action Langer posits for animals and the presentational symbols found in pictures, maps, musical compositions, etc. I will proceed in accordance with this supposition.

To sum up, the evidence suggests to me that nonhuman animals experience a limited type of presentational symbolism in which images, including those responded to as signals, are not "contaminated" by discursive symbolism. That is, animals experience a primitive form of unself-conscious conception expressed through sense images as exemplifications of the schemas of latent learning. The rapid eye movements and twitches of sleeping dogs, comparable to human REMs and movements when asleep, suggests that dogs experience images in dreams much as humans do. In human imagination, on the other hand, concept and percept are generally fused. In the fullest sense of presentational symbols represented by maps, pictures, and graphs, the reliance of the images on language is evident. One could not make use of a map, for instance, apart from a linguistically shaped worldview including linguistic instruction about how to read and interpret maps. In short, I believe Langer's notion of presentational symbolism ought to be divided into two parts: (1) the primitive, imagistic aspect found in dreams and signal identification, and shared by the more complex animals including

humans, and (2) the realm of culturally supported, non-discursive symbols like pictures, maps and graphs that is understood by humans alone.¹⁰

The Construction of Personal Meaning

Based on the foregoing discussion, I will next propose a theory of meaning derived from selected aspects of the thought of Polanyi and Langer. The basic framework to be utilized arises from discrimination concerning types and processes of consciousness. It is my aim not to limit discussion to an exploration of the structures of meaning, but also to consider meaning in its temporal dimension. What happens to meaning once it has bloomed? Finally, how does meaning relate to significance?

A place to begin is the structure of tacit knowing as it is spelled out by Polanyi. He speaks of what he terms “the triad of tacit knowing” in these terms: “A person A may make the word B mean the object C” (*KB* 181). Two important things may be noticed in Polanyi’s phraseology.

First, he says that a) a person endows a word with meaning. This way of speaking reinforces Polanyi’s emphasis on the activism of the knowing subject. But it also tends to obscure the fact that b) words and indeed all cultural symbols have conventional meanings of which a subject makes use. “Endowing a word with meaning” thus seems to overstate what a person speaking does when accepting, as an elicited gift, words to express what the person wants to say. The person is responsible for the words settled upon, but meaning is not projected upon the words by an all-controlling subject. Rather pre-existing conventional symbols are seen as fitting to clarify what are often the vaguely felt schemas that one seeks to express within the communicative constraints provided by conventional syntax in mundane (non-poetic) language.

Furthermore, c) within scientific investigation and ordinary experience there have arisen processes, structures, and relations that are isomorphic with cosmic structures and processes. This is hardly surprising, since survival would seem to be dependent upon veridical assessment of environmental realities. To extend instinctual capacities arising from our evolutionary past, some of the most salient cosmic forms have been indwelt by humans as they have learned how to cope with the threats and opportunities of living. So it is that two standards for judging the adequacy of speaking may be identified: (1) how well language can express indwelt prelinguistic tacit knowledge – the wisdom of the body – and (2) how accurately language can articulate the processes, structures, and relations of the reality in which we dwell.

Based on the points just made under rubrics a), b), and c), it makes sense to distinguish three general realms of meaning: a) *personal meaning* that is the product of an individual’s activity as a creative interpreter, b) *conventional meaning* that is manifest in language and culture, and c) *cosmic meaning* as the processes, structures, and relations that make possible order, purpose, and achievement in the cosmos rather than chaos and perpetual arbitrariness.¹¹ My primary focus in this paper is upon personal meaning.

Polanyi generally acknowledges the impact that is made on an individual’s thought by convivial communities and civic society. Culture acts like a storehouse of shared conventional symbols, playing much the role that long-term memory plays for an individual. Cultural symbols are stored in artifacts like dictionaries, films, libraries, and the internet plus in social practices into which individuals are socialized – most obviously in the guidance of children as they learn to speak. They are taught not only a vocabulary and proper usage, but a whole worldview by the way words and their uses divide up and organize the natural and social worlds. So long as the

role of cultural symbols and conventional meanings is acknowledged and honored, I would agree with Polanyi that such symbols only take on life insofar as they are used in some way by persons. The endowment of meaning is then not *de nova*, but rather an application of agreed upon units of meaning within a social context in which standards of ordinary or proper usage are immanent.

Second, Polanyi's triad sets forth three related terms: subject, word, and object. He is by implication speaking of a person using language to designate a mental or physical object. This is an example of denotation. But Langer persuasively argues that denotation includes four terms: subject, symbol, conception (connotation), and denoted object. She recognizes that usage of a symbol always generates a conception; this is the defining characteristic of symbols (*PNK* 60-61). A thing that directly indicates an object is a signal; no conception is involved here. The relation between a symbol and its associated conception is connotation. "Because the connotation remains with the symbol when the object of its denotation is neither present nor looked for, we are able to *think about* the object without reacting to it overtly at all" (*PNK* 64). Such reflective autonomy is the emancipation from practicality that is distinctive of human consciousness.

Langer identifies four types of meaningful relationships: signal relationship, presentational symbolism, and the two aspects of discursive symbolism: connotation and denotation. Polanyi's thought would be enhanced by these Langerian distinctions; they ought to be included in any comprehensive theory of meaning. But Polanyi's emphasis on the embodied, skillful nature of meaning, with its tacit roots, also contributes much to a comprehensive theory. Implicated in the tacit triad is another notion that makes a significant contribution to a theory of meaning. This is Polanyi's notion, derived from Gestalt theory, of *subsidiaries* that are integrated to bear on a *focal* meaning. The fusion of two stereo images into three dimensional sight is a good example of Polanyi's subsidiary-focal or *from-to* theory of meaning creation.

[W]e are *focally aware* of the stereo-image, by being *subsidiarily aware* of the two separate pictures. And we may add that the characteristic feature of subsidiary awareness is to have a function, the function of bearing on something at the focus of our attention. Next we may observe that the focal image, into which the two subsidiary pictures are fused, *brings out their joint meaning*; and thirdly, that this fusion *brings about a quality* not present in the appearance of the subsidiaries. . . . The fusion of the clues to the image on which they bear is *not a deduction* but an *integration* (*KB* 212).

The subsidiaries may be subject to any degree of consciousness as long as they carry out the function of jointly creating a focal object.

Polanyi's notion that a person integrates subsidiaries to form a focal whole that is more than the sum of its parts is analogous to his view of the evolutionary emergence of new species that are discontinuous with their ancestors. It is a comprehensive view of meaning creation that he uses to explain perception, discovery, use of skills, empathy, and indeed all aspects of human practical and theoretical knowing. Embedded in his view is the notion that items arising at an earlier point in evolutionary history may be combined to create a new entity at a higher level in the many layered advance of awareness. For the purpose of better understanding the nature of meaning, four distinct embodied epistemological dimensions of meaning-construction may be distinguished.

First, there is the dimension of the vast number of autonomic transactions that usually occur below the threshold of possible awareness, although in a broad sense of the word "meaning," as implying purposeful

functions, these transactions are meaningful. The many autonomic response systems regulate breathing, arousal states, motor readiness and activity, and many other visceral behaviors. In Langer's language, the innate systems of signal responsiveness involve endosomatic (self-generated) participation in tacit meaning-making. If these transactions were accessible to feeling, they would be felt as action (*MI 31*). These various functions make possible and indeed are involved in many higher level states of awareness and responsiveness, but since they operate automatically, we need not consider them explicitly further.

The second dimension to be considered involves the ongoing reports of our many embodied receptors and sensors. Most of these reports, although they have the potential to be the subject of conscious attention, exist below the level of awareness. They may well serve as unconscious signals for autonomic responses, for instance, by helping us keep our balance. Such signals seem to emerge into awareness either because higher level conscious concern singles them out or because some reports exceed default levels of intensity that call for awareness (as of some internal pain). A loud noise, for example, may break off our reverie and demand attention to possible danger. The second dimension of meaning-making, then, is exosomatic in Langer's terminology; it acknowledges the importance of world-reporting content that is shaped by us even as it is given to us. It would be felt as impact (*MI 31*).

Thirdly, there is the dimension of tacit learning that Polanyi detailed in non-human animals. Trick, signal, and latent learning are intelligent responses to the information reported via the second dimension of meaning-making. The consensus of animal psychologists seems to be that the more complex animals are conscious and calculating beings, although they have the capacity for making use of discursive symbols only to a very attenuated degree if at all.¹² One variety of Langer's four types of meaning, learned signal *responsiveness*, occurs in this dimension, whether or not the response is made at a conscious level. The example given earlier of driving a car while otherwise occupied describes how humans make use of the skills internalized at this level of learning. I also see this as the dimension within which Langer's sense-images belong; they represent the information provided by sensory receptors transformed into recognizable objects. When disconnected from the realism provided by awareness of new sensory input or the control provided by conscious purpose, sense-images may take off into the strange world of dreams, a sort of quasi-conception. Most generally, though, the third dimension is the home of learned schemas.

The fourth and most richly complex dimension of meaning-construction features conception. As Langer insists, conception requires symbolization, whether of the discursive or presentational form. Here Langer's sense-images have been extended beyond being mere appearances and have become either culturally influenced presentational objects or subject to a degree of conscious manipulation in the form of imagination. Important as imagination is in the life of the mind, my special focus will be upon the role of language in bringing about conception in its discursive forms of connotation and denotation. It is now time to examine language and the psychic forces that produce coherent discursive conception.

Pattern Recognition, Integration, and Evocation

Polanyi essentially considers words and other symbols to be one kind of a whole nest of subsidiaries. In doing so, I think he obscures the indispensable role that language has in creating uniquely human conception, a state of consciousness no other subsidiary entities can accomplish. To be sure, a certain sort of mind is required to carry out the function of transforming psychic material into symbols, because without this transformative process, even words are but objects, sounds or a collection of letters. Humans alone seem to have this sort of

mind naturally. Humans can impute to certain rocks, animals, or colors all sorts of powers. Then the rocks, animals, and colors take on a symbolic function beyond mere recognition, which reminds us that to function as a symbol does not necessarily mean to function rationally.

Symbols become the means of communication and the stuff of civilization when they acquire a meaning accepted by a community. Language is founded through common usage implying communal agreement concerning vocabulary and grammar. Words may be regarded as conventional symbols. They operate in the functional space between dimensions three and four, mediating between learned but inarticulate schemas and the articulate world of thought.¹³ I would argue that there are many advantages to expanding Polanyi's from-to structure of consciousness to accentuate the unique role of language. A from-*via*-to structure more adequately portrays the structure of ordinary, language-infused human consciousness than just the from-to structure.¹⁴ While the *via* might stand for any sort of symbol in creating conception, for the sake of clarity I will in the following discussion restrict it to a particular language. Thus the formula is to be understood as follows: our consciousness starts *from* some set of subsidiaries, is integrated *via* concepts linked to words or phrases, and is directed *to* meaningful conception. Here is an alternative version: *from* diversity *via* discursive symbols *to* unified thought about x .

In "Sense-Giving and Sense-Reading," Polanyi describes four examples of tacit knowing: the use of a skill, the reading of a physiognomy, probing with a stick, and playing chess. What sort of meaning does each have, and how is the from-via-to structure employed? A well developed skill in use will likely be a routine performance that does not require the attention needed to decipher something new or uncertain. Our multi-tasking driver might decide to put in a CD to play some music while still talking to a friend on the cellphone. The conversation would presumably require the most focal attention and be carried out within the from-via-to structure. The driver would undoubtedly direct occasional bursts of focal attention to the process of driving, but it is likely that as a whole the acts of driving and putting in the CD are best analyzed as routinized, two-term skills: for example, *from* subsidiary attention to internal embodied signals and perceptual signals *to* the skill of driving or putting in the CD.

With respect to Polanyi's example of the chess player, one could say knowledge of the possible moves of the chess pieces plus knowledge of chess strategy are dwelt in as conceptual subsidiaries to the planning of subsequent moves with interest/intention centered on winning the game. The chess player acts *from* relatively unimportant embodied skills (except as they underlie and support thinking) and *from* the intention to win *via* a rich array of symbol-based conception *to* meaningful moves of the chess pieces. This example suggests that where one's interest lies helps direct the direction and course of thought. The importance of interest to the shape of meaning is made especially clear in Polanyi and Prosch's *Meaning* through the discussion of symbol, metaphor, and works of art.

An expression on a person's face might well be read as a signal to the interesting but unperceivable state of a person's mind. A signal response per se requires no conception and has a twofold structure: *from* recognition of a known pattern (a schema) *to* identification of a state of affairs. However, the reading of a physiognomy, a signaling function involving a subject of interest, would likely be followed quickly by speculation – linguistic probing is not excluded from items of interest for long. The reading of a face to interpret a state of mind thus has a more heuristic nature than the routine identification of a known person.

The mentioning of face recognition calls attention to the rather different ways in which Polanyi and

Langer make use of Gestalt psychology. Polanyi emphasizes integration of parts to a whole, while the key terms for Langer are abstraction and form – to which I would add pattern recognition.

Polanyi does not devote attention to animal psychology and the sources of symbols, language in particular, to nearly the degree that Langer does. His inspiration comes primarily from two related models: the Gestalt understanding of perception and his experience of scientific discovery. “Gestalt psychology has demonstrated that we may know a physiognomy by integrating our awareness of its particulars without being able to identify these particulars, and my analysis of knowledge is closely linked to this discovery of Gestalt psychology” (*TD 6*). He speaks of integration of subsidiaries as producing comprehensive entities not reducible to a summation of their parts. “*The higher principles which characterize a comprehensive entity cannot be defined in terms of the laws that apply to its parts in themselves*” (*KB 217*). When one shifts one’s focal attention from a whole to the parts, one loses a grasp on the whole they jointly create. However, one can, as it were, project an imaginative coherence unsupported by known subsidiaries, and, through a process of imaginative evocation, identify the parts that comprise a rightly imagined whole. Such evocation and subsequent integration through intuition underlie his view of scientific discovery.

Langer writes, “The abstraction inherent in perception as such results (if our current theories are right) from the elimination of countless possible stimuli; so the simplification is effected as in a lithograph, by eliminating everything but the features that will be left to function” (*PS 71*). I would add to what Langer says that in order for an animal to survive, it must recognize the same patterns again and again – the “face” of enemies, food sources, etc. – and the process of storing patterns is what is meant by schematization, occurring at the third level identified earlier. Langer suggests that concept formation occurs by a process rather different than is involved in perception. She speculates that concepts first arose out of what she calls “physiognomic” images (*M II 284*) that have airs of non-pragmatic values, of mystery that lures imaginative conception, as in the primitive symbolic form of dreams.

The several characteristics that make the mental image prone to become symbolic are, in the first place, this spontaneous, quasi-automatic production; secondly, a tendency of image-making processes to mesh, and pool their results; then their origin in actual perception which gives images an obvious relation to the sources of perception – things perceived – a relation we call “representation”; furthermore, the very important fact that an image, once formed, can be reactivated in many ways, by all sorts of external and internal stimulations; and finally, its involvement with emotion. (*PS 43-44*)

Are Langer’s emphasis on abstraction and Polanyi’s language of integration and evocation compatible? Yes, in these ways: Langer’s emphasis on pattern recognition seems fundamental in perception. A schema is essentially a pattern. But a pattern has details or parts that tend to be ignored in perceiving the whole pattern. If they are examined in detail, the sense of the whole is lost from consciousness, just as Polanyi emphasizes. The fact that in Gestalt perception one cannot necessarily identify the parts being integrated seems quite likely to be because the holism of pattern recognition takes precedence over the integration of parts. The pattern includes the parts without the need to focus on them first. Pattern matching and recognition seem particularly dominant in signal responsiveness. That is, pattern recognition prevails in what Polanyi calls routine thought taking place in a fixed framework. On the other hand, the learning involved in trick, sign and latent learning requires integration in the construction of some pattern or embodied schema in a heuristic performance. Even concepts – to which words and phrases are often connected – have a schematized pattern.

Note, however, that Polanyi's notion of indwelling, exemplified in his example of using a probe to understand the shape of a cavity, provides an embodied use of integration not directly reducible to pattern recognition. Neither are the earlier example of stereoscopic seeing and many other examples. Furthermore, Langer's speculations about the rise of symbolism in general and language in particular supplement rather than contradict anything Polanyi writes. Langer's views on pattern construction as resident within perceptual organs are valuable inquiries into the origins of schemas (even though Langer does not use the language of schemas, but rather sometimes speaks of memory storage – which I see as involving schematization).

Polanyi's use of integration and evocation as basic psychic acts illuminates well embodied actions and language usage. It is useful to note that, insofar as integration creates wholes that are more than the sum of their parts it is a non-linear process. In his language, the process of integration can cross logical gaps. Similarly, when in evocation supporting parts of a whole are called forth, a non-linear process that is something other than simple logical analysis is involved. Analysis is a logical function taking place at the level of explicit thought, whereas evocation may be seen as undoing the creative non-linear integration of subsidiaries that originally created the whole or pattern. One cannot recall a person's name by simply analyzing the thought one has of the individual; the name may emerge in a sudden manner outside of one's conscious control. The larger implication suggested by the distinction between analysis and evocation is that logical analysis is of very limited usefulness in thinking through epistemological processes.¹⁵ All too often this shortcoming of logic has not been recognized. I conclude that pattern reading, integration, and evocation are primary mental functions essential to any theory of personal meaning, and that the notion of interest is basic to an understanding of the course meaning takes.

Embodied Significance: Purpose, Standards, Responsibility, and the Integrative Vision

Neither Polanyi nor Langer spends much time examining personal meaning in longitudinal terms. What happens to a meaningful conception once it is achieved? In brief, it is either remembered or forgotten. Those insights with a significant emotional charge tend to be internalized within long-term memory. The great majority of meanings arise within working memory, but quickly fade away, replaced by new meanings. However, through associations, by their placement in narrative, because of their part in an ongoing project, as moments in reflection, and so on, even rather trivial meanings often are indwelt and function as subsidiaries for subsequent meanings. That is, conceptual meanings are first experienced and then may be internalized for later employment. Notice that an important transformation occurs in this process. Meanings arise as dependent upon their subsidiaries, but then in the process of being experienced and indwelt they are sundered from their subsidiary roots and themselves become objects of thought or skills available to serve as subsidiaries. Most do not survive their window of availability, whether or not they form part of a chain of thought, but really interesting meanings are schematized within long-term memory, forming objects for recall, reflection, or construction. As lessons learned, they may be schematized within linguistic webs, or they may contribute to the inarticulate realm in the form of trick, signal or latent learning.

Often the flow of thought is fragmented, interrupted by intrusive signals, dying because of lack of interest, diverted by a nest of competing interests. Beyond the inevitable churning of meaning within daily life, though, looms the weighty question raised by thinking about how the notion of meaning applies to one's whole life, or perhaps better, is of experienced positive significance in one's life journey. Here we broach the issue, implied in the emotions accompanying meaning-making, of significance. In speaking of significance, one must go beyond the considerations addressed so far in this essay. Significance often has to do with an explicit or implicit assessment of how well one's thoughts and actions measure against the internalized beliefs, standards, and

values a person accepts. Significance is found wherever purposes, goals, and achievements are at stake. It is thus at heart a biologically-based type of felt measurement.

Significance is rooted deeply in our body as these comments suggest, for pursuing significance in life is a fundamental motivating factor. The transcendent values Polanyi often mentions are more than intellectual Platonic ideals. We respect the transcendent values because their significance grasps us within the course of an impassioned life; their power is not based on the weakness of subjective choice.

The deliberate aim of scientific enquiry is to solve a problem, but our intuition may respond to our efforts with a solution entailing new standards of coherence, new values. In the solution, we tacitly obey these new values and thus recognize their authority over ourselves, over us who tacitly conceived them. This is indeed how new values are introduced, whether in science, or the arts, or in human relations. They appear subsidiarily, embodied in creative action. Only after this can they be spelled out and professed in abstract terms and this makes them appear then to have been deliberately chosen, which is absurd. The actual grounds of a value, and its very meaning, will ever lie hidden in the commitment which originally bore witness to that value (Polanyi, "Creative Imagination," in R. T. Allen, ed., *Society, Economics, and Philosophy* [New Brunswick, NJ: Transaction Publishers, 1997], p. 263).

The degree of emotional involvement we feel with respect to the meanings we participate in offers a measure of the significance those meanings have for us. Langer appreciates the degree to which our inner life is imbued with an emotional tint. "[I]n human life practically every detail of memory or current impression has its own emotional charge . . ." (PS 72). However Polanyi moves beyond Langer's legitimate stress on the importance of emotional life, beyond her analysis of art as an expression of the forms of feeling, and in his discussion of ethics or more especially in reflecting on the nature of religion and myth, he addresses the issue of significance in life in its cultural setting.¹⁶

In the first section of this paper, it was suggested that a person may be seen as the center of radical responsibility. Polanyi's notion of ethics builds on this comprehensive sense of personhood, which underlies his whole program of personal knowledge. "Accordingly," he says, "moral rules control our whole selves rather than the exercise of our faculties, and to comply with a code of morality, custom and law, is to live by it in a far more comprehensive sense than is involved in observing certain scientific and artistic standards" (PK 215). We are responsible for the frameworks we indwell, for the standards we accept, for the models we emulate, for the values we affirm – even though these cannot be traced back to some free, rational choice we have made, even though our thought and action arises out of parochial sources and mixed motives. "Believing as I do in the justification of deliberate intellectual commitments, I accept these accidents of personal existence as the concrete opportunities for exercising our personal responsibility. *This acceptance is the sense of my calling*" (PK 322). Thus, like Langer, Polanyi does not fall prey to a voluntaristic theory of ethics. Nor does he have any illusion that a person can fulfill the high ideals the person finds herself committed to. For solace and support, Polanyi turns primarily to two sources: the good society and religion.

To outline the ways in which Polanyi believes society can work for and against an individual would take us far beyond the consideration of meaning enjoined in this essay. Both he and Langer appreciate the role that culture, with its many conventional symbols, plays in highlighting different sorts of significance. Let the following quotation from Polanyi serve as a reminder that epistemology, ethics, and finally meaning itself have an

unavoidable social dimension.

The ideal of a good society is in the first place to be a *good* society; a body of men who respect truth, desire justice and love their fellows. . . . It is misleading to describe a society thus constituted, which is an instrument of our consciences, as established for the sake of our individual selves; for it protects our conscience from our own greed, ambition, etc., as much as it protects it against corruption by others. Morally, men live by what they sacrifice to their conscience; therefore the citizen of a free society, much of whose moral life is organized through his civic contacts, largely depends on society for his moral existence. His social responsibilities give him occasion to a moral life from which men not living in freedom are debarred (*LL* 36).

For Polanyi, religious belief offers a suggestive intellectual solution to life's enigmatic character, and religious ritual and worship support that belief in embodied practices respectful of the wholeness of personal identity. His religious vision is basically a rather idiosyncratic version of Christianity in which the notion of God is what brings focal meaning to fragmented lives.

It is therefore only through participation in acts of worship – through dwelling in these – that we see God. God is thus not a being whose existence can be established in some logical, scientific, or rational way before we engage in worship of him. God is a commitment involved in our rites and myths. Through our integrative, imaginative efforts we see him as the focal point that fuses into meaning all the incompatibles involved in the practice of religion. But, as in art – only in a more whole and complete way – God also becomes the integration of all the incompatibles in our own lives (*Meaning* 156).

Does such a grand, integrative vision, one which is almost an apotheosis of meaning, make any sense? From a purely empirical point of view, probably not. But the meanings in which we dwell are always more than empirical or materialistic, as Polanyi insists in his ongoing battle against what he calls the absurdity of positivism and scientism. Both Langer and Polanyi honor the life of personal meaning making, even though it all too easily leads to yearnings that cannot be appeased. For when meanings are cloaked with ongoing significance stretching toward infinity, they shelter us from the stormy weather of daily life. Let the last word on this topic be Polanyi's:

Men need a purpose which bears on eternity. Truth does that; our ideals do it; and this might be enough, if we could ever be satisfied with our manifest moral shortcomings and with a society which has such shortcomings fatally involved in its workings.

Perhaps this problem cannot be resolved on secular grounds alone. But its religious solution should become more feasible once religious faith is released from pressure by an absurd vision of the universe, and so there will open up instead a meaningful world which could resound to religion (*TD* 92).

Endnotes

¹A notion of God may also, of course, be regarded as a center of the physical world, but a person accepting such a view would move beyond the naturalistic view that is responsible for the great advances in

scientific knowledge and technological prowess over recent centuries. To understand what occurs in the physical world, one need only take into account the various forces and properties comprising physics and chemistry or emergent from them. The introduction of any center governing these forces and properties not only violates Occam's Razor, it introduces emotionally tinged motives into cosmology that are other than an evidence-based quest to *understand* world processes.

²I am focusing this discussion on Polanyi's views, but Langer's thought also could be drawn upon to similar effect. For instance, she says that "living things exist by a cumulative process; they assimilate elements of their surroundings to themselves, and these elements fall under the law of change that is the organic form of 'life.' This assimilation of factors not originally belonging to the organism, whereby they enter into its life, is the principle of growth" (*FF* 66).

³The standard abbreviations are used for citations from Polanyi's work; see the bibliography for abbreviations for Langer's works that are cited..

⁴In biology, telic processes are tied to the good of the individual center, not to the functioning of the cosmic whole. Only in the most complex species does purpose take on a conscious, intentional dimension.

⁵Two quotations from Nobel Prize winning neurobiologist Eric Kandel (*In Search of Memory: The Emergence of a New Science of Mind* [New York: Norton, 2006]) may serve to represent the current findings of the many who have investigated the evolution of the brain and the rise of consciousness. "[S]pecific signaling molecules have been conserved – retained as it were – through millions of years of evolution. Some of them were present in the cells of our most ancient ancestors and can be found today in our most distant and primitive evolutionary relatives: single-celled organisms such as bacteria and yeast and simple multicellular organisms such as worms, flies, and snails. These creatures use the same molecules to organize their maneuvering through their environments that we use to govern our daily lives and adjust to our environment" (xii-xiii). Kandel denies that evolution works like an engineer (or the creator Paley postulates to explain the order of the earth): "evolution is not an original designer that sets out to solve new problems with completely new sets of solutions. Evolution is a tinkerer. It uses the same collection of genes time and again in slightly different ways" (235).

⁶Subsequent study of the brain's development tends to confirm Langer's suspicion of any piecemeal, structure by structure evolution of the brain. Terrence Deacon notes that, given the complexity of the brain's "wiring," it would be virtually impossible for a new structure to be added without disrupting the complex whole. However, the neurons of the brain can reach such distances via their axons and dendrites that a systemic approach to brain evolution makes sense. "Because axonal extension allows populations of cells located distant from one another in the brain directly to interact and influence one another, it superimposes a nonlocal developmental logic on top of the local regional differentiation that preceded it" (*The Symbolic Species: The Co-evolution of Language and the Brain*, [New York: Norton, 1998], 195).

⁷For those living beings having a central nervous system, Langer does acknowledge the usefulness of the concept of the being's Act Center – see *MI* 293.

⁸Psychologists have shown that there is a complexity to signals that Langer and Polanyi do not discuss. Classical conditioning involves a double-edged connection between a recognized input and a predictable result. The signal is seen as an expected causal agent or a revealer of reality, the point emphasized by Polanyi and Langer. The salivation of Pavlov's dogs is caused by their learned anticipation that food is consistently available following a bell. In contrast, sensitization and habituation are simpler sorts of signals not linked to any specific outcome; these sorts of signals alert one to pay attention to or instruct one to ignore what is signaled respectively. Sensitization is a psychological source of significance; habituation is a mechanism of forgetting, which frees the mind to focus on issues of significance. See Kandel, *In Search of Memory*, pp. 40-41.

⁹This is my view, one consistent with Polanyi. For reasons not entirely clear to me, Langer in her later thought denies that signals play an important role in the active response of animals to their environments (or

what she, following von Uexküll, terms their ambients – the species-specific affordances that make up the animal’s surroundings – see *MI* 282-283). She writes, “I am inclined to believe that signals, and especially communicative – intended and interpreted – signals, play a very minor part among even the highest non-human beings, if such devices occur at all; and that directly felt inward and outward acts, springing from impulse and ambient pressions and opportunities, are sufficient for all animal needs” (*MII* 137-138). This claim seems inconsistent with Langer’s view of signals in their broad sense as those signs that orient us to reality. Indeed, in her earlier thought she states that animal behavior rests on signal perception (*PNK* 267), the view assumed in this paper.

¹⁰In suggesting this alteration of Langer’s notion of presentational symbolism, I am essentially following Polanyi’s lead in claiming that “language should be taken from the start to include writing, mathematics, graphs and maps, diagrams and pictures . . .” (*PK* 78).

¹¹Polanyi’s notion of existential meaning is a human scale expression of what I am calling cosmic meaning. “All kinds of order, whether contrived or natural, have existential meaning. . .” (*PK* 58).

¹²“All animals engage in purposeful action . . . seeking food, mates, and the company of others. . . . Animals investigate novel and biologically significant stimuli as we do, ignore old and uninteresting events just as we do, and share our limited capacity for incoming information. . . . Do animals show all the observable aspects of consciousness? The biological evidence points to a clear yes.” (B. J. Baars, *In the Theater of Consciousness: The Workspace of the Mind* [New York: Oxford University Press, 1997], 33, quoted in Donald R. Griffen, *Animal Minds: Beyond Cognition to Consciousness* [Chicago: University of Chicago Press, 2001], 284-285)

¹³Here I use “articulation” in a narrower sense than that employed by Robert Innis in the accompanying article. He understands any combinatory or ordering acts as forms of articulation. Hence he views tacit, non-linguistic acts as examples of articulation, whereas I, following Polanyi, use the term “articulation” only for those conceptions and acts informed by language. Articulation is thus on my reading a distinctively human achievement.

¹⁴I have argued for the from-via-to schema in many settings, originally in “Polanyi’s Theory of Meaning: Exposition, Elaboration, and Reconstruction,” *Polanyiana* 2:4 & 3:1 (1992-93), 32-40.

¹⁵Polanyi calls his philosophy “post-critical” primarily because it aims to rescue such personal acts as believing and commitment from being regarded as merely subjective in contrast to the alleged superiority of critical (rational) objectivism (see *PK* 265-266). There is a second reason to call his thought post-critical that he does not articulate but is suggested by the difference between Kantian synthesis and analysis and Polanyian integration and evocation. In grounding his critical thought on pure reason and logic, Kant seeks to build his thought on indubitable foundations much as Descartes did. The grand themes of his architectonic – transcendental logic, the analytic of concepts, the analytic of principles, and his governing notion of the possibility of experience – all occur on the explicit level of focal rationality. Critical thought does not deal comfortably with the implicit or tacit dimension of thought; post-critical philosophy takes tacit processes seriously. Let me be clear: the culprit I am singling out is formal logic, not reason, for only through the level-crossing symbolism inherent in reasoning can the stratified nature of the cosmos be identified and different strata be indwelt. Classical logic and the criticism that flows from it exists on one plane only. Consciousness exists at several levels that are not encompassed successfully by Aristotelian logic – the awareness of which Kant begins to sense in his third *Critique*.

¹⁶Throughout his informative exposition of Langer’s thought, *Susanne Langer in Focus: The Symbolic Mind* (Bloomington: Indiana University Press, 2009), Robert Innis underscores the important role that the arts play for Langer in illuminating and supporting the feelings that embody significant living – see, for instance, pp. 154-155. For Polanyi, religion, ethics and the great hero (*SM* 95-97) play something of the role that the arts do for Langer.

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