On the Metaphorical Connectivity of Cultural Sign Systems

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ABSTRACT

Theories of culture based on signs and systems are found across the interdisciplinary spectrum. There seems to be a growing consensus across disciplines that the forms of culture (linguistic, material, aesthetic, ritualistic, etc.) are connected to each other in some way. With the advent of conceptual metaphor theory, this article claims that the cognitive mechanism (metaphor) connecting the forms can be found in this theoretical framework. It also puts forward the notion of metaform as a nonverbal counterpart to a conceptual metaphor. In this way, it is possible to link signs and systems to each other into a network of distributed meanings that constitute a culture.

Since at least the 1970s, the human sciences have been moving away from considering their objects of study as autonomous phenomena that can be documented, described, and analyzed as isolated bits of information to considering them as phenomena that reveal that the brain is a connecting organ, putting the bits together in a holistic way. Known generally as "connectionism," this movement traces its roots to the origins of "Gestaltism" in 1912, the school of psychology founded by Max Wertheimer and developed by Wolfgang Kohler (1929). Gestaltism emphasized the study of experience as a unified whole, but it was not until research in the neurosciences in the 1970s on so-called parallel distributed processing phenomena suggested that brain networks interconnect with each other in the processing of information (Cohen 1973; Rumelhart and McClelland 1986). One of the offshoots of this movement has been an emphasis on the role of context in the production of

meaning networks in culture (Duranti and Goodwin 1992; Duranti 2010), a movement that has precedents in Victor Turner's (1974) concept of "fields" and Maurice Godelier's (1978) notion of cultural "infrastructures," both of which describe cultural forms as resulting from complex interactions within contextual systems (fields or infrastructures). Connectionism has, however, always been an implicit working principle in semiotics. It was the basis of Charles Peirce's theory of semiosis (1931–58). Peirce called the process of connecting forms to each other "abduction," defining it as a form of inference based on sense, experience, and the creative imagination. Lotman (1990) called the organizational structure of cultures an overarching "text" and recommended that the study of individual texts would lead to an understanding of how the overarching one crystallized. Mertz and Parmentier (1985) used the term *semiotic mediation* to indicate how signs interact to produce meaningful wholes, and Parmentier (1994) subsequently argued that sign systems are structured according to reciprocally mirroring semiotic devices that create a sense of wholeness to people's experience of reality.

In all connectionist frameworks, the objective is to understand how the human brain extracts meanings from disparate information and then organizes these into interconnected sign forms and sign systems. Isolated from each other artificially, these forms and systems can be described and classified in exact terms. But this tells us nothing about the ways in which they coalesce to produce an interconnected structure. What is the unifying mechanism or force that connects them? In the 1980s and 1990s this question was addressed indirectly by work on metaphorical language (Fauconnier 1985, 1997; Langacker 1987, 1990; Fauconnier and Sweetser 1996). As I have also attempted to argue previously (Sebeok and Danesi 2000; Danesi 2004), this kind of research suggests that the connective force is, in fact, metaphor. The point of departure for studying metaphor in this way can be traced to 1977, when Pollio, Barlow, Fine, and Pollio published their watershed investigation of common conversations and discourse texts, finding them to be structured primarily by metaphorical concepts. It became immediately obvious that metaphor could no longer be considered an exceptional use of language, secondary to literal language, but is rather the very core of the language faculty. That pivotal study was followed by Lakoff and Johnson's 1980 study *Metaphors We Live By*, which has since provided a concrete framework for relating language forms to metaphorical concepts. Their notion of "conceptual metaphors" came forward to provide the missing piece of the puzzle of how culture coheres into a cognitive *Gestalt*—a connective system of meaning.

But still missing from this framework is a relatively simple feature—the relation between linguistic and nonlinguistic forms in the connective system. This essay puts forward a concrete proposal of how the various nonlinguistic forms (material, visual, aesthetic, etc.) can be connected to conceptual metaphors and how this connectivity produces the sense of wholeness in a culture.

Background

Arguably, the primary goal of semiotics and other human sciences such as anthropology is to understand how language, rituals, symbols, objects, and other cultural products mirror each other in meaning, to use Parmentier's (1994) term. All previous approaches to the pursuit of this goal lacked a paradigm for investigating the connectivity concretely until the emergence of conceptual metaphor theory. The implications that this paradigm has for various disciplines such as anthropology and psychology were brought out initially in the 1990s by several key works (Fernandez 1991 and Gibbs 1994, among others).

But this paradigm remains a suggestive one to this day, rather than an actual methodology for investigating cultural connectivity. I have previously used the notion of "metaform" as a tool for suggesting how figurative language undergirds the connectivity in specific ways (Danesi 1998, 2003, 2004; Sebeok and Danesi 2000). Interestingly, this very notion has started to produce empirical findings on the nature of connective phenomena, as the work of Neuman and his research associates has been showing and which will be discussed briefly below (Neuman et al. 2008; Neuman and Nave 2009; Turney et al. 2011; Neuman et al. 2012a, 2012b). A "metaform" can be defined as the form that is connected interpretively (semiotically) to a conceptual metaphor as a consequence of the metaphor being distributed throughout the cultural network of meaning. The latter can be called a "distributed sign" (DS), for lack of a better term, which is the meaning extracted of a specific conceptual metaphor that works its way into the interpretation and use of physical forms such as objects, rituals, symbols, and the like. An initial example is the meaning of chocolate as a symbol of love. This is the result of the DS derived from the conceptual metaphor *love is a sweet taste*. The DS works its way into the meanings of material forms (chocolate) and rituals (the giving of sweets at Valentine's Day) that are connected to love. The chocolate and rituals are examples of metaforms.

Lakoff himself has always been aware of the connectivity between figurative language and other cultural sign systems, writing as follows: "metaphors can be

made real in less obvious ways as well, in physical symptoms, social institutions, social practices, laws, and even foreign policy and forms of discourse and of history" (Lakoff 2012, 163–64). But, with few exceptions (Tilley 1999), the study of this "making real" has never been formalized in any specific way. Metaform theory, as it can be called, is one attempt to do so.

The work of the Russian philosopher and literary critic Mikhail Bakhtin (1981, 1986, 1993) hinted at this type of approach to the study of culture. He claimed that the type of language employed in various situations did not merely function to exchange information but, rather, to create a dialogue that involved not only different language forms but also other referential structures, such as the meanings found in novels, popular spectacles, and other forms. Bakhtin focused on discourse as the basis for this connectivity, suggesting many of the ideas that conceptual metaphor theorists started to discover shortly thereafter. This implies that discourse is intertextual or interdiscursive, directly or indirectly impelling interlocutors to cite or allude to previous speech, symbols, rituals, and so on, through some specific strategy (imitation, presupposition, rejoinder, critique, parody). Some forms of discourse are seen as canonical for a certain community: for example, the Bible, Shakespeare, Martin Luther King Jr.'s speeches, and the like, are canonical texts for certain people. Studying cultural systems through discourse and its dialogical and conversational manifestations has opened the way for understanding cognitive connectivity in cultural situations.

Another precursor to connectivity theory is the Estonian semiotician Yuri Lotman (Lotman and Uspenskij 1978; Lotman 1990, 2009). For Lotman, culture has poetic (figurative) structure, which results from *energeia*, a kind of "creative potency" that undergirds the invention of words, artistic texts, and all the other products that emanate from it. This creative force is "the smallest functioning mechanism" (Lotman 1990, 125) that connects all sign systems (language, art, music, etc.) into one huge "text" (377). Paintings, narratives, theories, conversations, and so on are thus interconnected through this mechanism, displaying similarities in structure, signification, and referentiality. This allows people to envision distinct bits of information and real-world phenomena as integrated wholes rather than as disparate elements of reality. The same kind of observation was made by Claude Lévi-Strauss (1962) with his theory of bricolage, which refers to how myths and tribal rituals evoke magical symbolism by virtue of the fact that they form connective forms. The disparate elements become unified in the act of connection itself, each contributing a part of the meaning to the whole. These allow them to think of their world as meaningful.

There are, clearly, hints in such scholars of metaphorical connectivity that produces what has been called here metaforms. But there is no concrete suggestion of how this may come about nor that there is a system of distribution of the meanings through metaphorical signs. Actually, one can already see early traces of this perspective in Bronislaw Malinowski's (1922, 1923, 1929) idea that all cultures share the need to solve similar physical and moral problems and that they do so through connective symbolism. Roman Jakobson (1960) also saw metaphorical meaning as influencing situational, psychological, and other phenomena of human cognition. The internal structures of language are pliable entities that are responsive to external social situations.

All such treatises essentially describe culture as a system of interrelated signs that is activated unconsciously in by the brain's connective cognition. And although notions like *energeia* have been used to pinpoint the creative force that brings about the connectivity, there is really no deep understanding of what this force is ontologically. This is where "conceptual metaphor theory" (CMT) stepped in toward the end of the 1970s to provide a theoretical framework for finally unraveling the cognitive nature of this connectivity.

Conceptual Metaphor Theory: An Overview

Basically, CMT is a movement in the human sciences that focuses on figurative reasoning as the source of abstractions such as *love* (mentioned above). In this framework, *metaphor* is the term used to describe all kinds of abstract concepts (Fauconnier and Turner 2002). Metonymy and irony are the only other tropes that are kept ontologically distinct from metaphor but that still involve connectivity (abduction) of some sort. The CMT movement started out as a reaction to generativism and other literalist-based forms of language study focusing on the figurative basis of linguistic meaning. It has since spread out to the study of all forms of human cognition, from mathematics (Lakoff and Núñez 2000) to the structure of popular culture itself (Danesi 2009).

By thinking of life as a stage, for example, we can gain a concrete understanding of what this concept entails, since we have presumably experience with what takes place on stages. With its characters, plots, and other theatrical accoutrements, the stage is a metaphor for life—concretely. From this blending of life and the stage we gain a unique understanding that manifests itself in derivative metaphors such as "my life is a comedy" or "my life is a farce," from which we can draw real inferences about a person's life. And this suggests that the metaphor is distributed in the network of meanings in the culture. By saying that "life is a stage" we are also implying that "stages are life." They imply

each other—what happens on a stage is construed as telling us what happens in real life, and what happens in real life is suggested to us by the experience of the theater. This is a simplified explanation, of course, of the bidirectionality of metaphor. There is much more implicature involved between the two parts. However, for the present purposes, it is assumed that the two parts of the metaphor are suggestive of each other. Clearly, much more work is needed in this area in order to further justify this assumption.

Conceptual metaphor theory has shown that such expressions are systematic, not exceptional. The view of metaphors as decorative forms of speech or deviations from literal semantics can no longer be held. Several volumes published in the late 1970s and early 1980s (e.g., Ortony 1979; Honeck and Hoffman 1980) set the stage for the emergence of CMT. Lakoff and Johnson (1980) showed that linguistic metaphors were not isolated and exceptional examples of language but, rather, systematic instantiations of more general cognitive forms that they called, simply, "conceptual metaphors." In a metaphorical sentence such as "My friend is a snake," the vehicle (*snake*) chosen to portray the topic (*friend*) could have been any other animal or insect. The result would not have been a new figure of speech but, rather, a different interpretive portrait of the topic: "My friend is a gorilla," "My friend is a weasel," "My friend is a cockroach," and so on. In other words, each one of these linguistic metaphors is a derivative of a general concept, *people are animals*, that connects human personality with perceived animal qualities. It has the same structure of a linguistic metaphor (X *is* Y), but it works at a more general conceptual level. *People* was termed the target domain and *animals* the source domain. The latter is the lexical field of animal concepts that can be employed to deliver the target domain of human personality. Depicting people as animals in the visual and narrative domains is a product of the same conceptual thinking. This is why narratives for children focusing on human personality often involve animal characters or why mythic stories of creatures that are half human and half animal are understandable in identical ways. The conceptual metaphor itself (*people are animals*) is a compressed linguistic analysis of the larger conceptualization of people as animals—a conceptualization that finds its instantiations not just in linguistic metaphors but also in what have been called metaforms here (narratives, paintings, etc.). Source domains are not singular. The domain for conceptualizing personality is not limited to animals. It can be anything that is linked to it in some experiential way: for example, tactility ("My friend is a softie"), electricity ("My friend is always wired"), matter ("My friend is a rock"), and so on. As can be seen, each source domain implies a

different model of personality that finds its way into the system of culture as a DS producing distinct types of metaforms.

The psychological source of conceptual metaphors is traced to a mental mechanism called "image schemata" (Lakoff 1987; Johnson 1987; Lakoff and Johnson 1999). These are mental percepts that convert experiences (like perceived animal behaviors) into source domains for understanding abstractions (like human personality). Whatever their neural substrate, or their cultural source, they manifest themselves systematically in figurative forms. For example, the experience of orientation—up vs. down, back vs. front, near vs. far, and so on—is an image schema underlying how we conceptualize such abstractions as *happiness* ("Lately my spirits are up") and *responsibility* ("You have to face up to your problems"), among many others. The common experience of how containers work and what they allow us to do underlies such concepts as *mind* ("My mind is full of good memories"), *emotions* ("My heart is filled with hope"), and so on. Such image schemata seem to guide the process of abduction and compression of information into metaphors and metaforms. Obviously, it is impossible to determine which came first—the metaphor or the image schema. Perhaps this is a moot question, since the occurrence of a metaphor implies a specific mental image schema and vice versa and a connective force present in the brain itself.

The systematicity of conceptual metaphorical thinking manifests itself not only through the creation of specific metaphors but also in the production of higher-order concepts that link different source domains, which Lakoff and Johnson call "idealized cognitive models" (ICMs). For example, conceptual metaphors delivering the notion of "ideation" (how ideas, theories, and other such abstract constructs are understood) include the following source domains (among others): sight ("I cannot *see* what you are saying"), geometry ("The views of Plato and Descartes are *parallel* in many ways"), plants ("That theory has deep *roots* in philosophy"), buildings ("Your theory is well *constructed*"), food ("That is an *appetizing* idea"), fashion ("His theory went *out of style* years ago"), and commodities ("You must *package* your ideas differently"). The ICM is, clearly, the result of connecting the source domains for producing and comprehending many utterances and metaforms. Some of the source domains seem to cross cultural boundaries; others seem to be culture specific. That is to say, it is likely that languages across the world commonly use source domains such as sight and food in the construction of ICMs for delivering the concept of ideation, but only those cultures that have traditions of Euclidean geometry and marketplace economics are likely to use source domains such as

geometry and commodities. This shows how universal tendencies in the brain interact with specific experiences in situ to produce cognition.

As mentioned, in CMT, there are two other figures of speech that are treated differently from metaphor—metonymy and irony. Without delving into this aspect of the theory here, suffice it to say that metonymy, and its counterpart synecdoche, are viewed as revealing a *pars pro toto* reasoning: "She loves Hemingway" (= the writings of Hemingway). Parallel with the notion of conceptual metaphor, the term *conceptual metonym* can be adopted to refer to generalized metonymic concepts (Danesi 2004). Conceptual metonyms are distributed in nonverbal domains as well, producing their own kinds of metaforms. For example, the *face* is a common metonym for personality ("There are many faces in the audience"; "His face tells it all"). It becomes a DS leading to metaforms of the *face* as a symbol of personality—this can be seen, for example, in the use of theatrical masks, in portraits that focus on the face, and so on. *Irony* is constrained in CMT to designate a strategy whereby words are used to convey a meaning contrary to their literal sense—for example "I love being tortured" would be interpreted as ironic if it is uttered by someone experiencing unwelcome pain. The intent of the speaker, including his or her mode of delivery (tone of voice, accent, etc.), the speaker's relation to the listener, and the context are all factors that establish the ironic meaning of an utterance. Irony is the basis for the construction of satirical and parodic texts and other metaforms that need not concern us here.

There is a sense in some sectors of linguistics that CMT may have oversimplified the psychological complexity in which metaphor reveals or guides cognitive processes and thus the complex differences between the forms within which metaphoricity gets embedded. It is a valid criticism that cannot be broached here because it would lead into a whole area of debate that is well beyond the present discussion. Suffice it so say that the basic premise of CMT that figurative language is a linguistic manifestation of connective thinking is a viable one, supported by numerous empirical studies. This whole line of inquiry, however, requires more validation through more extensive research and theorization.

Metaforms

Already implicit in CMT is the connectivity of sign forms through ICMs. Take, for instance, the "love is a sweet taste" conceptual metaphor mentioned above, which is imprinted in expressions such as "She's my sweetheart," "They went on a honeymoon," and so on. The same metaphorical imprint can be seen, as

briefly pointed out, in the giving of sweets to a loved one on Valentine's Day and the eating of cake at a wedding ceremony. It can also be seen in the naming of the postnuptial ritual of romantic bonding called the *honeymoon*, which connects another metaform (the moon) to itself. These are all symbolic-ritualistic manifestations of the same conceptual metaphor. In effect, CMT has shown how language and culture are intrinsically intertwined. Scientific reasoning too is based on conceptual metaphors. Phenomena such as atoms, gravitational forces, or magnetic fields cannot be seen with the eyes. So, scientists use metaphor to take a look, so to speak, at them (Black 1962; Leatherdale 1974; MacCormac 1976; Gentner 1982). This is why atoms are described as "leaping" from one quantum state to another, electrons as "traveling in circles" around an atomic nucleus, and so on. Physicist Robert Jones (1982, 4) points out, rather appropriately, that for the scientist metaphor serves as "an evocation of the inner connection among things."

The concept of metaform indicates that a ritual, an artifact, and an expression (*chocolate* and *sweet*) are connected semiotically. Conceptual forms (metaphors, metonyms, and ironic statements) are the trace to these cultural sign forms, appearing in various domains of culture through this type of connective reasoning and tradition. Metaforms occur across the spectrum of semiosis, from narrative to mathematics and art—they spring from the same neural source as figurative forms. When the metaform comes into existence, it is available for incorporation into additional metaforms, as we saw with the moon and matrimonial rituals. The claim is that the use of this notion will allow anthropologists and semioticians to investigate more specifically how language, symbolism, artistic practices, social rituals, and all the other forms of meaning making constitute a connective system of meaning through figurative cognition. Consider the meaning of the *rose* as a symbol for *love* in Western culture. The *rose* can be seen readily to interconnect with three conceptual source domains—smell, color, and plants—domains that commonly deliver the concept of love in discourse ("There relation has the odor of romance"; "Their relationship is a rosy one indeed"; "Their love blossomed a while back and now has deep roots"). The rose symbol is a metaform that is connected to these domains through their different distributed signs.

The use of metaform theory can also eliminate the need to distinguish between conceptual metaphors and conceptual metonyms, among other tropes. In Western and other cultures, for instance, the metonym of the face produces metaforms that are understandable in the same way as other figurative forms. The mask is one such example. The original meaning of the word *person*,

actually, reveals this very conceptualization. In ancient Greece, the word *persona* signified a "mask" worn by an actor on stage. Subsequently, it came to have the meaning of "the personality of the mask-wearer." This meaning still exists in the theater term *dramatis personae* 'cast of characters' (literally 'the persons of the drama'). Eventually, the word came to have its present meaning of 'living human being'. This diachronic analysis of *person* brings out perfectly how metaforms emerge and are distributed over connected meaning systems.

An initial attempt to show how metaforms are the connective signs of cultural systems is found in Danesi and Perron (1999), although the term, as such, is not used there. As the two authors suggest, the use of this framework implies connective analysis including a form of investigation into cultural artifacts that is "intertextual." This is consistent with both general ethnographic methodology today as practiced, for instance, by cultural anthropologists and with the interdisciplinarity movement, whereby the findings or techniques of any cognate discipline (anthropology, linguistics, etc.) that are applicable to the situation at hand should be enlisted. Metaforms are distributed throughout the network of meaning pathways that define a culture. Michel Foucault (1971) characterized this network as an endless "interrelated fabric" in which the boundaries of meanings are never clear-cut. Every single metaform is caught up in a system of references to other metaforms, to codes, and to texts; it is a node within a network of distributed signs. As soon as one questions that unity, it loses its self-evidence; it indicates itself. To extract meaning from a sign, code, or text, therefore, one must have knowledge of this network and of the metaforms that constitute it.

As a concrete example of what metaform analysis might entail, Danesi and Perron consider how a single image schema, verticality, becomes a DS diffused throughout the meaning network of one culture—the Anglo-American one. The *up-down* schema produces easily recognizable metaphorical language ("I'm feeling up"; "They're feeling down"; "I'm working my way up the ladder of success"; "His status has gone down considerably"). These utterances derive from the conceptual metaphor "up is better"/"down is worse." This concept then becomes a DS that manifests itself in a whole array of metaforms: for example, in many religious systems, heaven is portrayed as a place that is up from the earth, hell as a place that is down from the earth. This metaform also manifests itself in the design of churches, where ceilings display images of heaven or something similar. In public building design, too, the same metaform can be discerned in the fact that the taller office buildings in a modern

city are the ones that indicate which institutions (and individuals) hold social and economic power. In musical composition, higher tones are metaforms that are typically employed to convey a sensation of happiness, lower ones of sadness. In gesture, the raising of a hand designates notions of amelioration, betterment, growth, and so on, whereas the lowering of the hand designates the opposite notions. In bodily representation and perception, this metaform shows up in the common viewpoint that "taller is more attractive"/"shorter is less attractive." In mathematical and scientific representational practices it can be seen, for instance, in the ways in which graphs are designed—lines that are oriented in an upward direction indicate a growth or an increase of some kind, while those that are slanted in a downward direction indicate a decline or decrease.

This kind of analysis has specific implications for theories of culture and language. The relation between denotation and connotation, for instance, needs to be reexamined in metaformal terms. One can suggest, for instance, that the different parts of a metaphor have denotative value; once they are connected conceptually, they develop connotative value. The connotations that are then distributed as DSs into the cultural order produce metaforms in the sense described here. The framework also suggests that originally metaphorical forms manifest themselves in myths and mythic constructs. This would explain why many semioticians and cultural analysts see latent mythic structure as intrinsic to contemporary cultures. Myths are metaforms. All this suggests that culture is established as a rhetorical-mythic system of connotative meanings and that figurative cognition (abduction) is the originary "conceptual glue" that keeps the whole system together—a view that is traced back to the pioneering work of Neapolitan philosopher Giambattista Vico in the eighteenth century (Vico [1744] 1984). Vico referred to figurative cognition as "poetic logic," defining it as the use of the imagination to connect different referents. All the founding institutions in a culture are grounded on this type of logic. They thus have a poetic-mythical etiology that, over time, gains stability and develops into a more literal or prosaic form of culture. But the poetic form of cognition leaves its residues and becomes part of an unconscious layer of thought that allows us to make sense of the contemporary metaforms in a culture. Clearly, many of the metaforms cross over to other cultures, constituting universals of figuration, which Vico called "imaginative universals" and which Jungian psychologists called "archetypes." There is no need to delve into this topic domain here. Suffice it to say that the network of metaforms in a specific culture has both universal signifying structures within it as well as some that are tied to specific

forms of poetic reasoning. It is the particular connective structure of the metaforms that dictates how these cohere into the system of understanding the world that makes up specific worldviews.

Using the basic insights of metaform theory (based on Danesi 2003), Neuman and his research associates have discovered corroborating empirical evidence of its validity, as mentioned above. In one study (Neuman et al. 2008), the research team used the concept of metaform to investigate how abstraction might occur through phrasal connectivity. Using Peirce's (*CP* 2.84) idea of "hypostatic abstraction," whereby a predicate (*dark*) is transformed into an object or category (*darkness*), the team found that there is a connectivity among signs that enable the abstraction to occur in the first place. Using an algorithm for rating words according to degree of abstractness, they found that people connect the two forms of phraseology because of the distribution of the meaning in various domains of knowledge. In follow-up studies (Neuman and Nave 2009; Turney et al. 2011; Neuman et al. 2012b), the team found that this type of reasoning manifests itself as a connective force in uniting seemingly disparate elements, such as actual clinical depression with metaphorical forms.

Several questions arise from this kind of analysis. One could easily explain the fact that metaforms are products of iconicity (resemblance) and indexicality (relation among referents in terms of spatiotemporal perception) rather than distributed signs. But these are complementary, not contrasting, notions. Indexicality, for example, is not only an intrinsic feature of language or specific (such as a pointing index finger) but also, by connotative DSs, of abstract ones. Take, for example, the following English sentences: "When did you think up that preposterous idea?"; "You should think over carefully what you have just said"; "Think out the entire problem, before coming to a solution"; "I cannot think straight today"; "Go ahead and think that problem through." These expressions are the result of the connectivity of a DS, ideas are objects, that is connected to indexical concepts such as *up*, *over*, and so on. The verb form *think up* elicits a mental image of upward movement, thus portraying an idea as an object seen to be extracted physically from a kind of mental terrain; *think over* evokes the image of scanning ideas with the mind's eye; *think out* elicits an image of extracting an idea so that it can be held up to the scrutiny of the mind's eye; *think straight* produces an image of sequential, and thus logical, movement of an idea from one point to another via a straight linear path; and *think through* generates an image of continuous, unbroken movement through space. This connective indexicality allows speakers to locate and identify abstract ideas in relation to spatiotemporal contexts, although such

contexts are purely imaginary. It transforms the physiology of vision into a "physiology of thinking."

Implications and Future Directions

As Neuman, Turney, and Cohen (2008, 129) have cogently observed, the findings emanating from research on connectivity using metaform theory as a kind of generic framework provide "a broad and integrative theoretical perspective" that will hopefully point to a "promising perspective for addressing long-lasting questions of the field," such as what is culture and why is it so meaningful to those reared in it. The attempt has been to bring together various disciplinary approaches toward the notion of connectivity, which is consistent with the Peircean synechistic universe of semiosis, providing a concrete working hypothesis on the general law of the "metaphorical connectivity" and regulating the two distinct, though parallel, levels: metaphorical thinking (metaphor in the linguistic sense) and metaphorical senses (metaforms, a network of domains such as material, visual, and aesthetic forms).

The line of inquiry suggested here is really part of a growing awareness in anthropology and linguistics of the connectivity between the verbal and the nonverbal domains of semiosis, a line consistent with the emergent linguistic and materialist-semiotic discourse on the mutual categorization of the order of objects and the ordering of objects (e.g., Kockelman 2010). This article suggests that this kind of research consider a level of "ethno-metaforms" as part of the overall system of "ethnometapragmatics" (Silverstein and Urban 1996).

The question that metaform theory raises is consistent with a foundational idea in structural anthropology and linguistics—namely, whether language and culture are really two sides of the same conceptual coin (to use an extended metaphor)—an area of exploration that the late linguist Kenneth Pike raised as far back as 1967. Metaform theory can be employed in order to provide a basis upon which to explore connectivity in a concrete way. One must proceed cautiously, however, in adopting any framework of this type simply because the nature of culture cannot be approached under the rubric of a single theory. The more appropriate goal for culture analysis should be to determine to what extent and in what specific ways language is imprinted in other aspects of culture (material, ritualistic, aesthetic, etc.).

It is instructive to note that metaformal connectivity may be one of the main ways in which we develop worldviews. In Western languages, metaphors of pain reveal that we perceive the body as a machine ("My body is not working today"; "It is shutting down"). These verbal expressions predispose us to ex-

perience pain as a malfunction in the machine. This produces medical meta-forms (actual techniques) that treat pain as "something" that can be controlled and thus eliminated. Much of Western medicine is constructed in this way—to correct defects in the machine. In contrast, speakers of Tagalog have no equivalents of these expressions. Theirs reveal instead that body health is influenced by both spiritual and natural forces. These two different patterns of groupthink produce different responses to pain and disease. People reared in English-speaking cultures are inclined to experience pain as a localized phenomenon, that is, as a malfunction that can be adjusted or corrected apart from the overall state of well being of the individual. Philippine speakers of Tagalog, on the other hand, are inclined to experience it as intertwined holistically with mental states and ecological forces and, therefore, as treatable in tandem with the overall state of well being of the person. But this does not mean that human beings cannot learn from each other or that they are incapable of experiencing the world independent of culture. The conundrum of culture is that it entails worldviews that can easily be exchanged. Connectivity theory does not imply that people are prisoners of their sign systems. The utilization of the systems is constantly subject to the vagaries of human users, who unlike machines are not automaton-like relayers of meanings; they are creative users of these meanings, always searching for new meanings, no matter how conventionalized these may have become. Cultural orders give historical continuity and stability to meanings, but these are not static. This is why cultures are always in flux, always reacting to new ideas and new needs.

The question that the linguist Edward Sapir (1921) sought to answer in his work is what motivates connectionist theorists to this day: how is thought related to language? He was intrigued by the possibility that human ideas, concepts, feelings, and characteristic social behaviors might be mirrored by the categories (verbal and nonverbal) that specific cultures employ to encode them. Sapir suspected that the most direct route to the mind was through language. Due to his tragically early death, Sapir was never able to design and carry out a research program aimed at examining his idea rigorously and systematically. Some of the agenda fell on the shoulders of Sapir's student Benjamin Lee Whorf (1956), but he also died tragically young. Whorf's experimental program for studying the language-thought nexus also was not realized until the advent of CMT. Metaform theory is an attempt to make good on Sapir's agenda for anthropological-semiotic science. The details of its application to the study of cultures will need to be worked out, tested, modified, and (perhaps) reconceptualized. The important thing to note is that this was the re-

search challenge put forward by Sapir, and the time has come to take up his challenge seriously.

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