Analogy and the Semiotic Animal: Reading Marshall McLuhan with John Deely

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Abstract: Thanks to a helpful tetradic diagram found in the expanded fifth edition of John Deely's *Basics of Semiotics*, in which the context and circumstances of a sign's utterance (in addition to the sign-vehicle itself and the immediate object of the sign) is distinguished from all that is explicit in the sign itself *apart from* the context and circumstances of its utterance, it is possible to bring Deely's insights to bear upon the semiotically suggestive work of Marshall McLuhan. McLuhan's implicitly semiotic understanding of analogy is structurally present in his efforts to visually articulate the "laws of media" with his own "tetrad" diagrams. Deely's discussion of the irreducible triadicity of signs therefore illuminates McLuhan's attempt to understand how analogical thought actually works on the most fundamental structural level in the cognition of the semiotic animal. There is a unique cognitive syntax to analogy, which is operative in the animal that Deely has most appropriately identified as "the semiotic animal". This article discusses McLuhan's understanding of analogy in terms of its figure/ground structure, by using the example of the thermometer from Deely's *Basics of Semiotics*. In relating this example to McLuhan's tetrad, it is shown how McLuhan's implicitly semiotic analysis can also increase our semiotic understanding of other technological tools, such as Skype videoconferencing.

Keywords: analogy, tetrad, interpretant, object, sign-vehicle, nature, culture

Twenty-five hundred years of rational culture are in the process of dissolution. Age-old habits of conceptualization will not serve to train observation on the effects of the new man-made forms of energy. Since Plato, philosophers and scientists have attributed constant forms and patterns of action only to the world of "Nature." Both Plato and Aristotle, and their followers, as well as all the other schools of philosophy, have refused to recognize any patterns of energy arising from man-made technologies. Having invented "Nature" as a world of rigorous order and repetition, they studied and observed only "natural" forms as having power to shape and influence psyche and society. The world of man's artifacts was considered neutral until the electric age. As the electric environment increasingly engulfed the old Greek "Nature," it became apparent that "Nature" was a figure abstracted from a ground of existence that was far from "natural."[1]

—Marshall McLuhan

McLuhan on Figure and Ground: Logic within Semiotics

McLuhan's understanding of human experience is founded on this key idea: *we shape our environment, and it shapes us*. Human experience thus consists of an interaction of two realities: the mind-independent *and* the mind-dependent. In other words, there is always an interwoven interaction between what we usually call "nature" and "culture". Now, a Thomist "realism" aims to understand how intellectual cognition is always initially rooted in sensory reality. But what McLuhan brings to this endeavor, and here his innovation comes to the fore, is an effort to recognize how not only *nature* is found at the roots of sensory cognition. What the new technologies make clear, even though it was mostly obscure in the past, is that there is always an undeniable root sensory experience of *culture* that determines human thought as well. For example, if rather than looking out the window to check the weather, you look at an app on your smartphone instead, then clearly, while your intellectual experience may theoretically begin with either nature or culture, in practice you are choosing increasingly to root it more deeply in culture. The ultimate data source of the app, of course, looks out the window at nature somewhere; but it probably does so with robotic eyes, even if they are ones designed by a human, and it certainly gazes at a natural landscape transformed by human culture.

More importantly, within this semiotic web of nature and culture, we tend not to notice how "the medium is the message." As McLuhan also put it, "the user becomes the content." While most people have difficulty grasping what McLuhan means by this, since his mode of expression is paradoxical, deliberately challenging us to make the effort to see what we usually don't

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[1] McLuhan and Nevitt 1972: 7.

see, the point is an elementary one that expresses the most basic action of signification. Signs are irreducibly triadic in structure. Although while we can readily appreciate the difference between form and content (for example, between the television set, and the program shown on the television screen), we find it more difficult to understand how there is a third node involved in the process: namely, the viewer, who is, yes, in a way being somewhat determined by the content being viewed, but who is also being even more profoundly determined by the *form* of the content. It is this latter part of the process to which McLuhan is drawing our attention. Such determination usually resides outside of awareness. We are preoccupied with the figure (the technological form delivering its content: for example, the figure displayed on a television screen). But there is also the hidden ground of the whole process involving a third element: namely, the user of the technology who is, at the same time, being determined and transformed by the whole process.

This irreducibly triadic structure is what semiotics describes. McLuhan's insights into it can be more readily grasped once we realize that the triadic structure of signification (sign-vehicle, object signified, and interpretant) is what he is in fact talking about. What is most illuminating to realize is that what he means by "ground" is the relatively more hidden node of the triadic structure, namely, the interpretant, whereas "figure" refers the relatively more visible part of the triadic structure: either the sign-vehicle or the object signified or both. Semiosis is the technical term for the dynamic action of signs that this triadic structure enables, and John Deely summarizes the crucial semiotic insight that can help us to understand McLuhan better: "Whether a given interpretant be an idea or not, what is essential to it as interpretant is that it be the ground upon which the sign is seen to be related to something else as signified, which signified in turn becomes a sign relative to other elements in the experience of the interpreter, setting in motion the chain of interpretants on which semiosis as a process feeds."[2]

Thus, when McLuhan makes constant recourse to the distinction between figure and ground, he is doing so in order to bring into awareness the interpretant involved in all semiosis. The reason this is so important to be aware of is because without a semiotic understanding of the triadic structure of signification, there is no way to be able to comprehend, along with McLuhan,

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[2] Deely 1990, in Chapter 3: "Semiosis: The Subject Matter of Semiotic Inquiry", 26–27. Technically speaking, as Deely explains, a "sign" is the triadic relation itself connecting the three nodes, although we usually call the mediating sign-vehicle at one of the three nodes the "sign". For convenience of expression, I will use this more colloquial term "sign" when speaking in what follows below, although more technically it should really be termed "sign-vehicle". See Figures 1 and 2 (page 72 below), and also Table 1 (pages 70–71 below).

how technologies mediate between nature and culture. Once we can understand how the interpretant functions, however, we will appreciate how signs are indifferent to nature and culture and move freely between both. Objects signified may be mind-independently real, or mind-dependently unreal; as far as the process of signification is concerned, the ontological status of whatever resides at one of its three nodes is a matter of indifference. Semiotics, rather, is concerned with helping us understand how the whole process unfolds in its unlimited scope. Only later on can we then inquire into the various aspects of nature and culture involved in any semiosic process, if we wish. As Deely has observed: "An interpretant in general is the ground on which an object functions as a sign. Interpretants exist, consequently, at those points in semiosis where objects are transformed into signs or signs are transformed into other signs. Ideas are interpretants, but not all interpretants are ideas: interpretants as such are indifferently physical or even mental. They define the points of innovation in semiosis at the level of objective representation. Logical interpretants define the points of innovation in intellectual semiosis, that is, developing understanding. In logic, of course, the ultimate interpretant is also an interpreter, namely, the one understanding the logical point at issue. But as such the interpreter is obviously dependent on a whole network of signs, objects, and interpretants, dynamically suspending the interpreter as a given moment in the development of understanding. In other words, to be a sign is to be involved in a process whereby the web of sign relationships is constantly changing and, in general, growing".[3]

McLuhan's insight that technologies are not static or neutral, but rather they have transformative environmental effects, is fundamentally a semiotic insight. As Deely puts it: "Symbols do not just exist; they also grow."[4] The symbolic world that McLuhan wanted to understand with the trivium's resources of grammar and rhetoric, since logic alone was not enough in order to move *beyond nature* to a wider grasp of *culture in relation to nature*, is opened up by his semiotic analyses of figure and ground. While the two terms can be misleading, in that the two terms suggest a dualistic process is at work, it is nevertheless of the utmost importance to realize that McLuhan, with his appeals to the hidden "ground" of any cultural process, is unveiling a triadic structure to us. The ground is the interpretant, i.e., the third element involved in semiosis. Once we move beyond dualisms, into this triadic way of thinking, we transcend the static dualism of nature in eternal opposition to culture. Instead, we can move on to appreciate the dynamic movement that

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[3] Deely 1992: 27–28.
[4] Deely 1990: 23.

signification, especially technologically-enhanced signification, makes possible as a constant interweaving of nature and culture continually changing.

Signification shuttles back and forth between nature and culture, a fact that, as McLuhan sensed, makes the dualism of "nature" and "culture" practically useless for trying to understand how technological tools transform their users in the process unleashed by the effects of signification. Deely describes the transcendence of the dualism thus: "A sign, in the context of cognitive life, is strictly defined as anything that makes present in cognition something besides itself, or something which it itself is not. There are three essential points within this definition. First, the sign as such—every sign—consists in a relationship. Second, accordingly (i.e., by virtue of consisting in a relationship ontologically, or 'according to its proper being'), the sign exists as a kind of membrane or interface equally permeable to the influence of nature or culture, of cognitive life and physical being. Third, this relationship constitutive of the sign is, as we shall see, an irreducibly triadic one (in contrast to bare relationships of physical interaction as brute force)."[5]

McLuhan's own transcendence of a merely scientific logic of nature is clarified when we ourselves come to understand better how semiosis works. As Deely makes clear, "Semiosis as a type of activity is distinctive in that it always involves three elements, but it is even more distinctive in that one of these three elements need not be an actual existent thing. In all other types of action, the actors are correlative, and, hence, the action between them, however many there may be, is essentially dyadic and dynamical. For it to occur, both terms must exist. A car cannot hit a tree unless the tree is there to be hit, but a sign can signify an upcoming bridge that is no longer there."[6] This dynamic conception of signification is what McLuhan grasps in his understanding of media. McLuhan has moved, with his semiotic insights, beyond the dyadic world of merely physical interactions between mind-independent natural units. He positions us to grasp the triadic interplay involved in our cultural tools, which function semiotically not in opposition to, but as extensions of nature. The key point to grasp is that this extensionality may be natural in some aspects, or it may be cultural in other aspects: "It may be physical, or it may be psychological. In either case, the action takes place between two subjects of physical existence and is, in a terminology we shall be obliged to both clarify and insist upon along our way, always and irreducibly a subjective interaction. Subjective interactions, whether psychical or physical, are always involved in the action of signs, but they surround the semiosis as its context

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[5] Deely 1992: 25.
[6] Deely 1990: 23.

and condition, while always falling short of the action of signs proper. In other words, while the action of signs always involves dynamical interactions, dynamical interactions need not always involve the action of signs."[7]

To illustrate the whole process, Deely takes an example from Charles S. Peirce. He asks us to consider "the rise of the mercury in a thermometer, which is brought about 'in a purely brute and dyadic way' by the increase of ambient warmth, but which, on being perceived by someone familiar with thermometers, also produces the idea of increasing warmth in the environment. This idea as a mental event belongs entirely to the order of subjective and physical existence, no more and no less than does the rising mercury and the ambient temperature of the thermometer's environs. It is, as Peirce puts it, the 'immediate object' of the thermometer taken as a certain type of sign, namely, one indexical of an environmental condition."[8] This is an excellent example we can now use to further our understanding of McLuhan. Because it uses a technological tool as the sign-vehicle to be considered, it supplies us with a paradigmatic case of how our perception of the environment unavoidably changes whenever we engage in semiosis with that instrument.

Deely describes the process of semiosis involved when we read a thermometer. However, his account is relatively brief and raises too many additional questions. But let us first consider his presentation of the basic triadic structure involved in semiosis, and then afterwards we will supplement his presentation with a further description of our own about how signs, objects, and interpretants change places in ongoing semiosis. First, then, here is Deely's description of the sign-vehicle (or "sign" for short), the object, and the interpretant involved when reading a thermometer; and keep in mind that he is describing the process McLuhan noticed about the user becoming used by the medium whenever semiosis occurs: "The object of the thermometer as a sign is the relative warmth of the surroundings. The object of the idea of the thermometer as a sign is no different. The thermometer, however, prior to being read is involved only in dynamical interactions. On being read a third factor enters in, the factor of interpretation. The thermometer on being seen may not be recognized as a thermometer: in that case, besides being a subject of physical interactions, that is to say, a thing, it becomes also a cognized or known thing, an element of experience or object. But, if it is both seen and recognized as a thermometer, it is not only a thing become object but also an object become sign. As a thing it merely exists, a node of sustenance for a network of physical relations and actions. As an object it also exists for someone

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[7] Deely 1990: 23.
[8] Deely 1990: 23–24.

as an element of experience, differentiating a perceptual field in definite ways related to its being as a thing among other elements of the environment."[9]

This transformation of the perceptual field is obviously what McLuhan noticed about the process of semiosis involved in technological extensions of perception. Notice that the perceptual objects, however, also function as signs. A thermometer can be recognized as an object; "But as a sign it stands not only for itself within experience and in the environment but also for something else as well, something besides itself. It not only exists (thing), it not only stands to someone (object), it also stands to someone for something else (sign). And this 'something else' may or may not be real in the physical sense: what it indicates may be misleading, if, for example, the thermometer is defective."[10] The possibility of a defective reading introduces a fourth element, which I will take up in the next section of this monograph, where I consider McLuhan's tetrad in light of the triadic structure of signification. But for the moment, let us stay with the example and assume that the reading is correct, in order to elucidate first the simply triadic structure involved.

What happens when the thermometer offers a correct reading of the ambient room temperature? "The idea of surrounding temperature produced by the thermometer as sign represents to the interpreter of the thermometer something that itself is neither the idea nor the thermometer, namely, the presumed condition of the environment indexically represented by the ther-mometer. The idea as a mental representation, that is to say, a psychological reality, belongs to the order of subjective existence and is the immediate object of the thermometer as sign. But, within that order, the idea also func-tions to found a relation to something other than itself, namely, a condition of the environment surrounding the thermometer, which condition is both objective (known) and physical (something existent besides being known), presuming the thermometer accurate; or merely objective but deviant from the physical situation rather than coincident with it, presuming the thermometer defective. As founding this relation, in every case objective, in some cases coincidentally physical as well, the idea itself produced by the thermometer has in turn produced 'the proper significate outcome' of the thermometer as sign. This Peirce calls the interpretant, a unique and important notion, the key to understanding the action of signs as a process, a form of becoming, as well as a kind of being, over and above the unique essential structure that makes signification possible in the first place."[11]

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[9] Deely 1990: 24.
[10] Deely 1990: 24.
[11] Deely 1990: 25.

To make all this clearer, consider now the progression of semiosis as it would happen when we first learn about thermometers. Consider what occupies each of the three nodes of the sign relation as the process of semiosis unfolds. First, imagine you are a young child. Someone shows you a picture of what is going to be your new home. You have not been there yet. But the picture communicates to you what it looks like. Before you first walk thorough this new home, you see a picture of one of the rooms in which you will be living. On the wall of the room in the picture, you see some kind of apparatus. You don't know what it is, but you see that it involves plastic and a thin glass pipe. In this first scenario, the *sign* is the picture (which consists of colored pixels printed on a page of paper) and the *object* is the room of the house in which you will soon be living. The *interpretant* is the idea that the picture brings into your awareness, which in this instance includes your puzzlement over the apparatus on the wall. You don't know what the thing on the wall is yet, so the *interpretant* includes your awareness of something unknown, something whose concept could be characterized as an idea of you-know-not-what. The object on the wall is unknown, and so you simply characterize this state of unknowing as either positive, negative, or indifferent. If you are curious about what the thing on the wall is, you would consider it negative that you do not yet know what it is. If you are not curious about what it is, then that would be registered in the generation of the interpretant as having an aspect of the unknown, towards which you are indifferent.

Second, imagine you now arrive at your new home and you enter the room that you had previously known only by way of the sign of the picture. When you point to the physical apparatus on the wall made of glass and plastic, it is an *object* designated by the *sign* consisting of your pointing index finger, or consisting of the words you use to ask what it is. Again, the *interpretant* here is your idea of something unknown, ranked as negative; that is, ranked as something about which you are unhappy to leave unknown and about which are thus curious to learn more.

Third, imagine that your interlocutor replies, naming the object on the wall: "thermometer." This word, whether spoken or written, is now the *sign* that designates the *object* on the wall consisting of a physical apparatus of glass and plastic. The *interpretant* now becomes the idea that you have of "thermometer" as being the name for this object on the wall. Moreover, as your conversation continues, your idea of the object indicated by the sign, your idea acting as the interpretant, will grow and expand as you learn more about the object. Your concept of "thermometer" will progress beyond being a mere name to being a concept that understands how a thermometer works.

To be precise, what will happen is that the *sign* "thermometer" will then become an *object* for other signs (e.g., the word symbols: "a device measuring temperature") that generate further interpretants explaining the meaning of the first interpretant that was generated (i.e., your bare idea of "thermometer" as being the name designating the object) initially in response to you learning the name of the object.

The network of linguistic interpretants generated in the course of your conversation, in which you learn what a thermometer is and how a thermometer works, follows a certain logic. It is the logic that the traditional study of logic has focused on, namely, as a tool describing how discourse makes sense of networks of ideas, as they are inferred through a process of mediate inference of thinking and speaking, by making use of linguistic communication's symbolic signs. But what McLuhan has noticed is that this kind of purely rational logic is only a small part of the purely objective activity of the action of signs, i.e., any kinds of semioses by which things are brought into our awareness, or even those semiosic processes by which things are simply being *prepared* to be brought into our awareness, but about which we are not even yet conscious, let alone rationally conscious in logical reflection.

For example, during the course of your conversation about the physical apparatus on the wall made of glass and plastic, you may notice for the first time that there is mercury inside the glass tube. Your interlocutor may initially bring it to your attention, using words as *signs* ("mercury") to indicate an *object* (mercury) for you to look for. Your sensory powers then bring it into your direct awareness (an *interpretant* consisting of the idea of what you were looking for) of the *object* (the mercury) that the physical icons impressed upon your senses are taken to present (as *signs*). You are then able to enfold the idea that "a rise in the level of the mercury is made in correlation with an increase in ambient room temperature" into the *interpretant* which is generated by the name "thermometer", since this name acts as the primary *sign* designating the physical *object* that consists of the plastic apparatus attached to the wall containing mercury in a thin glass pipe. Again, the *interpretant* is the concept of a thermometer, i.e., as something that measures the ambient temperature of a room, that is generated in this third scenario, in which you learn the name of the thing and develop, through a conversation about it, a concept associated with it of how it works.

Fourth, you can enter another room somewhere in some other house. Imagine you spot, on the wall, a similar type of object, and recognize it to be a thermometer. What is the semiotic logic of what happens here? In this scenario, the physical apparatus on the wall is no longer the *object* of a sign

naming it, nor of the other signs used to develop the idea of what it is (a measure of temperature) and how it works (by correlating to a scale the rise or fall of the mercury). Instead, the physical apparatus itself now becomes a *sign* that evokes the idea (previously developed in an earlier conversation) of the thermometer as an *object*. For example, even if the physical apparatus looks a little bit different, once you recognize the mercury in the glass tube, you will take that mercury in the glass as the *sign* that this whole apparatus, perhaps manufactured with a plastic differently colored and shaped, is a thermometer that you can inspect more closely, to read the scale and find out the temperature. When you make use of the tool in this way, you lose consciousness of the physical apparatus itself relative to the gained consciousness of using it as a sign. This is precisely what McLuhan knew was happening with all the tools that humans use. His greatness lies in recognizing how ubiquitous and profound this transformation of consciousness had become in the "electric age".

Semiotically, we can understand the "logic" of what occurs in the process of semiosis, but only by expanding our consideration of the action of signs, beyond what traditional logic treats in its more restricted analysis of discourse. In this fourth scenario, to fully understand it, what happens is we have to develop an understanding, analogous to logic, which embraces the wider semiosic process unfolding. In this understanding, what happens is that we grasp: The *sign* is the physical apparatus itself now simply recognized as a thermometer, namely, as presenting itself simply as the tool that it is. However, the *object* of this sign is our concept of a thermometer, i.e., the idea we have developed of this tool as an instrument having certain capabilities; namely, as something which is a *measure* of temperature. By contrast, the *interpretant* generated is something distinct: namely, our idea of the ambient room temperature as *being measured*. In other words, the interpretant is *the reading* we make of the temperature (e.g., "twenty degrees Celsius"), by reading it off the thermometer, but the object is our concept of the thermometer as *a tool for measuring*. In other words, the *interpretant* is the ambient temperature *as measured*. But the *object* is our concept of the instrument *as the measure*.

Note that the sign in this scenario is directly perceived with the senses, but because it functions as a sign, it recedes from consciousness. Highlighted instead are the two concepts at either end of the triadic relation: the object and the interpretant, which are purely objective, i.e., totally mind-dependent. We assume that the reading on the thermometer is correct, but if it is not, we will need to develop a semiotic of understanding of why it is not. Such an understanding involves a grasp of the process of reversal in McLuhan's tetrad,

so I will defer discussion of this scenario for the moment, saving it for the next section of this monograph. For the moment, we should simply pause and consider that what I have described in semiotic terms here is precisely what McLuhan was aware of. Namely, that with technological tools and instruments, the semiosic activity of objects and interpretants increasingly constructs a purely mind-dependent experience, even if the process relies on the use of signs by the senses. Because signs taken as signs fall out of awareness, because they function to bring other objects into our awareness, they greatly impact our world of experience whenever they grow more extensive, as is the case with technologies whose impact is global in scope. Further, the situation is even more serious when we consider how the interpretants generated in this experience are elaborate mind-dependent constructions that may stand in a highly problematic relation to anything mind-independently real or natural. The problem presented by an incorrectly functioning thermometer is multiplied on a grander scale by technologies used even more frequently and relied upon with even less effort.

Before we go on to consider McLuhan's tetrad as a semiotic resource for self-reflectively understanding how the activity of signs bridges nature and culture, let us summarize the import of what we have considered in this section. In his analysis of media effects, McLuhan's discussions of figure and ground point to a profoundly semiotic awareness of how interpretants function as ground of an irreducibly triadic process. In this process, "the interpreter is obviously dependent on a whole network of signs, objects, and interpretants, dynamically suspending the interpreter as a given moment in the development of understanding," as John Deely puts it. "Of themselves, the signs produce nothing directly; but their perception is an occasion which triggers actions that do produce changes in the world."[12]

The movement between figure and ground is part of this semiotic spiral, which McLuhan came to recognize with increasing awareness. McLuhan notes in his introduction to *Images from the Film Spiral*: "The structural theme of *Spiral* presents the oscillation of two simultaneously and complementary cones or spirals, constituting the synchronic worlds of birth and death. Spiral is not a diachronic or lineal structure but synchronic and contrapuntal interplay in a resonating structure whose centre is everywhere and circumference nowhere". McLuhan adds: "[Sorel] Etrog comes from a rich audile-tactile background and tradition in iconic art. His imagery is always of stark confrontation and his work is always multi-levelled and multi-sensuous in ways that are not easily

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[12] Deely 1992: 29.

described in conventional literary terminology."[13] It is thus the analogically attuned artist who can help increase our awareness of this dizzying feature of our technological culture. McLuhan counsels us to move "from the habit of data classification" to the analogical habit involving "the mode of pattern recognition", because "instant communication insures that all factors of the environment and of experience co-exist in a state of active interplay", and only a semiotic approach to understanding the spiral of meaning can hope to unravel its analogical patterns.[14]

While Plato may have attacked the mimetic method of "a collective psyche and mind",[15] this sort of purely rational approach is insufficient to understand the new technologies that are creating a technologically constructed collective mind. Drawing upon the successful resources of the classical trivium, McLuhan situates logic within a wider arsenal of resources for understanding the new technological sensorium. That is, he situates logic within semiotics. His constant recourse to the key idea of the hidden ground involved in the semiosic processes unleashed by these technologies is best understood as an expression of a profoundly semiotic consciousness.

The humanistic purpose behind McLuhan's efforts to locate logic within semiotics may be gleaned from his fondness for retelling the story of Edgar Allen Poe's "A Descent into the Maelström": "Poe imagines the situation in which a sailor, who has gone out on a fishing expedition, finds himself caught in a huge maelstrom or whirlpool. He sees that his boat will be sucked down into this thing. He begins to study the action of the *ström*, and observes that some things disappear and some things reappear. By studying those things that reappear and attaching himself to one of them, he saves himself. Pattern recognition in the midst of a huge, overwhelming, destructive force is the way out of the maelstrom. The huge vortices of energy created by our media present us with similar possibilities of evasion of consequences of destruction. By studying the patterns of the effects of this huge vortex of energy in which we are involved, it may be possible to program a strategy of evasion and survival. … The artist's insights or perceptions seem to have been given to mankind as a providential means of bridging the gap between evolution and technology. The artist is able to program, or reprogram, the sensory life in a manner which gives a navigational chart to get out of the maelstrom created by our own ingenuity. The role of the artist in regard to man and the media is simply survival."[16]

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[13] McLuhan and Etrog 1987: 125.
[14] McLuhan, Fiore, and Agel 1967: 63.
[15] Ibid.: 113–114.
[16] McLuhan and Staines 2003: 285.

Now that we have highlighted the necessity of semiotics for survival amidst the semiosic maelstrom unleashed by technology, let us move on to consider how the action of signs can be viewed in a tetradic structure. It is the structure of the tetrad that can be seen as embracing the type of situation in which the thermometer reading, for example, is defective. The great achievement of McLuhan's tetrad, then, is that it provides us with a semiotic resource for understanding the maelstrom, because it provides us with the framework with which we must think in order to recognize the dysfunctional or deleterious effects of technology's enhanced significations. In this regard, the key to understanding the tetrad as an empowering comprehension of semiosis is, as we shall see, this remark of McLuhan: "All metaphors are figure/ground in relation to figure/ground."[17]

McLuhan's Tetrad: A Semiotic Bridge between Nature and Culture

What happens when the thermometer offers an incorrect reading of the ambient room temperature? "In this case, its immediate object, the idea it produces as sign, becomes in its turn a node of sustenance for a network of relations presumed to be physical but that in fact, because of the defective nature of the thermometer being observed, is merely objective."[18] In other words, the *interpretant* from the fourth scenario discussed in the previous section above, i.e., the objective representation of the ambient room temperature *as measured*, now comes to be understood as not actually corresponding with the actual ambient room temperature *as the actual temperature*. What we must therefore consider now is this fifth scenario, in which a fourth element (the actual ambient room temperature of the physical environment) must be placed somewhere on a node in a triadic relation. In the Fifth Edition of *Basics of Semiotics*, John Deely added an "Addendum to Chapter 3" that provided additional discussion to clarify this very example and he also offered a tetradic diagram to illustrate the process.[19] Because Deely's semiotic tetrad may illuminate what McLuhan's tetrad has caught sight of, it is worth making sure we understand, clearly and in detail, the semiosis at work in this final example.

In the fourth scenario, the *sign* was the physical apparatus of the tool taken as an indication of its objective function. That is, the *object* of this sign is the

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[17] Ibid.: 289.
[18] Deely 1990: 24.
[19] Deely 2009: 38–50. The diagram is Figure 2 at 41. It is reproduced as Figure 2 accompanying this monograph.

concept of the thermometer as a *measure* of temperature. In other words, we do not see the tool as an object; we see instead what it can do for us, looking past its merely physical appearance, at least when we grasp its objective function. We see it as signifying a measure. Further, the *interpretant* in this scenario, in which we assume the thermometer is functioning effectively without error, is the concept we have of the ambient room temperature as *measured*, i.e., as it being presented to us by the tool in an objective representation. In other words, the interpretant is *the reading* that the thermometer allows us to make; e.g., "twenty degrees Celsius". In sum, the *sign* is the physical apparatus of the thermometer, taken as presenting the idea of a thermometer as an *object* (something that can measure the ambient room temperature), which therefore generates the effect of an *interpretant*, namely, its significance for us as furnishing an objective representation of the ambient temperature as *measured*, which is what we can thus immediately read off of it.

In the fifth scenario now under consideration, something else will have to be taken as a sign that the thermometer is not functioning correctly, despite the fact that the thermometer reading is still twenty degrees Celsius. The *interpretant* generated will thus be the idea that the thermometer reading is incorrect. The *sign* of this could be the very cold chill we feel upon entering the room, or also our seeing the room's windows as having been left open, with snow observed falling outside. The *object* that any of these signs present to us is thus the *actual* ambient room temperature of the physical environment, i.e., the context and the circumstances in which the sign was previously assumed to be properly functioning, but which was left out of the triadic structure in the previous scenario, because the objective representation of the temperature as measured can only be taken as such when the temperature is read and understood and *interpreted* as being objective, i.e., as something known and understood apart from the context (the physical environment of the room) and the circumstances (whether it is accurate or not, or whether it is broken or not) of the thermometer taken as a sign. This very distinction (between context and circumstances, and the interpretant's objective signification apart from the same context and circumstances) is absolutely crucial, because it is what McLuhan implicitly relies on in order to tetradically arrange his analysis of media effects. It is worth quoting at length how Deely describes it:

> Peirce suggests (c.1906: 5.473) that 'it is very easy to see what the interpretant of a sign is: it is all that is explicit in the sign itself apart from its context and circumstances of utterance'. In the case at hand: the sign is the thermometer; the context and circumstances of its utterance are the ambient warmth producing a certain level of the mercury correlated—accurately or inaccurately, as we have seen—with a scale, the whole of which apparatus is seen and

recognized as a temperature measuring device; and what is explicit in the sign itself apart from this context and these circumstances is representation of something other than the thermometer, namely, the ambient temperature, as being presumably at what the thermometer indicates it to be, although this may be wrong due to defect in the mechanism. In other words, all that is explicit in the sign itself apart from its context and circumstances of utterance is 'its proper significate outcome', the objective element of the situation as involving representation of one by another, irreducible to the dynamical interactions involved, and establishing channels and expectations along which some of the interactions will be diverted in ongoing exchanges.

In our example, the idea of the thermometer enabling the thermometer to function as a sign was in the first instance a mental representation. The interpretant of a sign, however—and this is a very important point—'need not be a mental mode of being', nor, as we have seen, is it as mental mode of being that the idea produced by the thermometer functions as interpretant. Whether a given interpretant be an idea or not, what is essential to it as interpretant is that it be the ground upon which the sign is seen to be related to something else as signified, which signified in turn becomes a sign relative to other elements in the experience of the interpreter, setting in motion the chain of interpretants on which semiosis as a process feeds. In other words, what is essential to the interpretant is that it mediate the difference between objective and physical being, a difference that knows no fixed line. This is the reason why, at the same time, the triadic production of the interpretant is essential to a sign, and the interpretant need not be a mental mode of being, although, considered as founding a determinate relation of signification for some animal, it will be.

We see now with greater clarity the difference between the action of signs and the action of things. The action of signs is purely objective, always at once involving and exceeding the action of things as such, while the action of things as such is purely subjective or, what comes to the same thing, physical or psychic and restricted to the order of what exists here and now.[20]

Because this can be somewhat confusing to follow, a diagram helps, which Deely supplied in the Fifth Edition of his text (see Figure 2, p. 72), and which McLuhan also created with his tetrad (see Figure 1, p. 72). The semiotic function of the tetrad is that it enables "exploration of the 'grammar and syntax' of each artefact, a dynamic tool to describe 'situations that are in process.'"[21] McLuhan uses it to bring the wisdom of the wider approach of the classical trivium to bear upon the problems of media analysis.

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[20] Deely 1990: 26–27.
[21] Library and Archives Canada, "Old Messengers, New Media: The Legacy of Innis and McLuhan": <http://www.collectionscanada.gc.ca/innis-mcluhan/030003-2030-e.html>.

The way the tetrad works is that enhancement and reversal are relatively visible figures, which McLuhan places at the top left and top right of his tetrad, respectively. Below them, he places retrieval and obsolescence in the respective bottom left and bottom right positions. It is a visual stacking of figures, placed upon their hidden grounds, in order to unveil the analogical relationships, which transcend mere logic by virtue of their semiotic dynamism.

In the case of the thermometer, the visible figure on the thermometer of the temperature *as measured* is the *interpretant*. This temperature readout is a technological *enhancement* that we can place at the top left of McLuhan's tetrad.

Below it is its hidden ground, namely, the objective idea of the thermometer *as measure* that the user of this tool has. It is placed at the bottom left of McLuhan's tetrad because it influences cognition by presenting it with a new *immediate object* that pulls along with it aspects of the environment that concomitantly assume greater prominence. For example, it will encourage us to use the tool to take control over the surrounding environment, perhaps by using the measurement of temperature to regulate the production of heat in the room. Then we will have to place a thermometer in every room. The eventual effect will be the retrieval of a uniformly pleasant summertime environment, no matter what the actual season and outside temperature is. The thermometer thus retrieves use of light clothing, which usually only occurs in particular seasonal weather, or else it retrieves the dwelling space and communal habits of a home not centered around a fireplace. In any case, whatever is connected with our idea of a thermometer, including the full range of its possible uses, becomes the hidden ground with respect to our ability to use it and to make temperature readings.

At the bottom right of McLuhan's tetrad we can place the *sign* of thermometer. That is, when we understand the significance of the tool (i.e., as measure and as measured; i.e., as connected triadically to both the idea of what it is used for, and the idea it supplies to us when it is being used), then what was previously taken merely as a physical object as part of environment, now assumes, by being taken as a sign, the ability to generate new grounds of immediate experience rather than older grounds. For example, when we consult the thermometer on the wall (by looking at the mercury in the glass against the affixed scale of measurement), the thermometer as a physical apparatus slips out of our awareness, because in order to consult it as a sign, we have to become aware of its immediate object, i.e., of the thermometer as a measure of ambient temperature. It is this *obsolescence* of the sign itself in its most obvious physical aspects, whenever it supplies to cognition its immediate

object, that subsequently most impacts the environment's semiotic landscape. We begin to look at rooms and ask: does this room have a thermometer? And then, rooms without thermometers eventually become obsolete features of the physical environment.

At the top right of McLuhan's tetrad, unlike the relatively invisible hidden ground beneath it of the sign functioning as a sign (which concomitantly influences, over time, the surrounding landscape by obsolescing certain aspects of it), we can place the relatively more visible figure of the *actual* ambient room temperature of the physical environment. This is what comes into our awareness when a *reversal* happens, i.e., when what we previously understood as the objective representation of the temperature as measured (i.e., the interpretant) ceases to be an enhancement to the environment, because it can now no longer be understood *apart* from the context and circumstances of the actual environment. Instead, the measured temperature is held in contrast with the real ambient temperature of the room, i.e., the actual context and circumstances in which the thermometer is found. Thus, what was the *interpretant* when the thermometer was previously read as a correctly functioning environmental enhancement (i.e., the temperature reading on the thermometer understood as a correct representation of the environmental situation), now becomes overthrown by the *object* of the current semiosis (in which the *interpretant* of a cold chill presents the actual subjective ambient room temperature as *no longer* signified *objectively*), when a *new immediate object* is generated (from the old interpretant, which now becomes an object): namely, the idea that the thermometer is broken. In other words, the current semiosis distinguishes between the reading on the thermometer as incorrect (by moving it from the *interpretant* node of the triadic relation to the "immediate object signified" node) and the actual subjective physical state of the ambient temperature (which a correct objective reading would have to correspond to), by taking the actual temperature now at the *interpretant* end of the triadic relation—and this could either be a conscious interpretive inference that the thermometer is broken, or (because an interpretant need not be mental) it could simply be the cold chill one feels on one's skin even before entertaining the thought that the thermometer is broken.

The *sign* that functions to distinguish between these two things (the idea of the thermometer reading as incorrect and thus purely objective, and the actual physical temperature) is whatever generates in us the interpretant supplying such a semiotic distinction. For example, a cold chill will compel us to think that what we took as an interpretant (the temperature reading) corresponding objectively to the thing (the actual physical temperature) is

now simply to be taken as objectively malfunctioning. The chill is the new interpretant, which can then also be taken as a sign pointing to the actual contrasting physical state. This physical state can be an object signified by the chilly sign. But it can also be pointed to by the new immediate object of semiosis, the idea that the thermometer is broken, if that object is then taken as a sign of something else, i.e., of that state of physical affairs of which the thermometer can no longer objectively represent.

In the earlier semiosis, however, when the *sign* (the thermometer recognized as such) taken as a measure (the thermometer understood as an *objective* tool) generated the effect of the measured (its temperature reading) as the *interpretant*, the state of the actual physical environment was taken to be the same as its objective representation. The temperature reading was taken as a reliable technological interpretation of the ambient environment. It was understandable precisely on the basis of the fact that we understand a thermometer, due to the technological intent of its design, to function in objectively the same way in *any* environment (i.e., it is to be read the *same* way, *apart* from any context or circumstances of its use). Only when the context and circumstances of the use of the tool diverges from its ostensible objective function does that environment re-enter our awareness. Until then, the tool *is* our environment. Or as McLuhan put it, until such a reversal happens, it is the tool that uses *us*.

Notice that the analogical structure of the tetrad thereby consists of its ability to bridge mind-independent nature and mind-dependent culture. On the left side of the thermometer tetrad we have two *mind-dependent* aspects. The temperature reading as the objectively understood *enhancement* is the interpretant *figure* on the top. The *ground* on the bottom is the concept of the thermometer determining its objective use in the environment as a technological object that *retrieves* certain potentialities latent in that surrounding environment.

On the right side of the tetrad, however, we have two *mind-independent* aspects. At the top is the *reversal* of figures, namely, of the *interpretant* of the temperature reading now reversing into the *object* of the real ambient room temperature (i.e., into an *objective* idea that the temperature reading is not correct). At the bottom is the hidden *ground* of the thermometer itself taken as a *sign*, which whenever it is functioning smoothly recedes out of immediate awareness and thus *obsolesces* its visibility in the surrounding environment, and which also obsolesces other features of the environment in its ongoing transformation of the field of semiosic perception. When looking for rooms to live in, for example, we may perhaps stop noticing other features, and instead

are focused on whether or not every room has a thermometer. (If the example seems ridiculous, then change up the technology: surely wireless Internet access is an essential real estate selling feature, whereas absence of Internet access would be a real estate deal-killer.)

McLuhan pursued a wider semiotic orientation for logic within the classical trivium.[22] He was thus able to recognize the dynamism of the semiotic interpretants at play in the interplay of figure and ground for any technology understood as a cultural extension of human nature. Following the deeper logic of metaphor, he was thereby able to bridge nature and culture with the analogical tool of his tetrad. With the example of the thermometer, we have seen how the fundamental structure of the tetrad is semiotic in its visual placement of a figure and ground in analogical relationship to another figure and ground. Because of McLuhan's famous contrast between the visual and the acoustic, the visual nature of the tetrad also itself suggests an intended harmonization with the logical aspirations of that one essential part of the trivium, in which logic focuses on the analysis of pure intelligibility in the linguistic symbolization of discourse, with all of sign-action.

We conclude, therefore, by using the tetrad to consider another example, Skype video-conferencing, in the same way we have considered the thermometer. The salient features of Skype have been noticed by media ecologists: Skype "enhances communication at a distance"; it "retrieves personal contact and direct verbal communications as the means of making decisions"; it "renders obsolete written orders, memos, requests and thank-you letters"; and it "reverses into bullying (the loudest voice wins); confusion (who has the right to talk?); indecision (the talking never stops); [and] misunderstanding (individual memories replace written minutes)."[23]

In this example, the mental *figure* generated by Skype is the enhancement it serves up as its interpretant. This interpretant is the person as seen as at a distance. Because we do not understand the person we are talking to over Skype as being present in the room with us, we are semiotically understanding our computer screen to be serving up the signs (pixels on a screen) that generate this interpretant. Our ability to interpret Skype on our screen this way is shown by the fact that we do *not* think Skype is some kind of magic that conjures the person into being in the room with us, as a technologically illiterate person might. Because we understand Skype as a technological tool, we are able to distinguish the interpretant: i.e., we are able to understand the person on the screen as still being at a distance.

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[22] Cf. McLuhan 1943.

[23] Owen Kelly, "McLuhan's tetrads: what they are and how they work": <http://www.owenkelly.net/984/mcluhans-tetrads/>.

The mental *ground* of this experience, then, is the idea we have of Skype as Skype. While the *interpretant* is our idea of the person on the screen as being still at a distance and not really present, the *immediate object* of the signs (the pixels on the screen, the audio sent via speakers and microphones) is the representation achieved by those very signs of the person as if they were indeed physically present, making us experience personal communication through direct visual and verbal contact, despite the fact that the person is still at a distance. In short, the semiosic *object* is the idea of Skype in its technological function as simulating a person *as presented*, whereas the interpretant is the semiotic idea by which we simultaneously distinguish Skype *as presenting* a person at a distance. Because our technological experience is one of a person in this way being present and yet not being present, only a triadic relation is capable of describing and distinguishing the sign action on Skype screens.

Both the figure and ground just mentioned (the *interpretant* of seeing Skype as a tool and not as magic, and its *object* as our idea of this tool, i.e., an idea by which we grasp its objective function as the hidden ground, according to which we also assess when it is or is not functioning smoothly: e.g., is the screen image and speaker sound adequately objectively representing our friend), both are *mind-dependent* experiences.

But technologies also have a *mind-independent*, physical impact on the *environment* as well.[24] Skype as a sign rises into prominence when it becomes a manifest physical feature; for example, we may notice that it comes to be used everywhere. (Even our parents are using it!) Not only can the sign then pass out of immediate physical awareness (as when everyone is using Skype, and so we come to think nothing of it), it *obsolesces* not only itself as a visible physical object when it assumes ubiquity as a universally functioning sign, but it also obsolesces other signs that used to be more prominent features of the physical environment. For example, phone calls and phone booths and merely verbal communications fade out of the environment as Skype habits take root instead.

All these hidden *grounds*, as they play themselves out in the wider environment that is now being marked by the enhancements of Skype, can thus effectively function to *reverse* the *figure* of video conferencing: i.e., from something first seen as an *enhancement*, to something seen as more environmentally problematic. In short, the new figures that result from the hidden grounds will eventually register, via the causality of semiosis, the wider environmental impact of the new Skype technology as it plays itself out. For

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[24] "Extrinsic formal causality" is the very useful Scholastic term for naming the registration of the impact of the technology's *enhancement* on the rest of the environment. Cf. Deely 1990: 22–31.

example, nobody looks directly at another anymore; they look instead at the screen in the palm of their hand.

Conclusion

McLuhan's tetrad is thus the culmination of what in retrospect may be viewed as an implicitly semiotic approach to understanding the problems generated by the new technologies in our time. Historically, the classical trivium demonstrated that, beyond logic, a kind of analogical thinking was required to understand the action of signs. McLuhan recognized the irreducibly triadic nature of sign action by distinguishing the ground as the interpretant inextricably implicated in the signifying action of any figure. As the culmination of his efforts, his tetrad achieved a visual summation of the analogical structure of the wider logic by which semiotics is able to bridge both nature and culture, i.e., the mind-independent and the mind-dependent. Spiraling clockwise from the bottom right of the tetrad, we start with the mind-independent physical features of signs operating as signs in our environment, proceeding up on the left, from the immediate objects that we understand as the functions of these technological signs, up to the interpretants they generate in a process that transforms our own semiotic consciousness. As semiotic animals, any reversals that happen in this process are not just occasions on which we should call tech support; they ought also to become opportunities for reflection and meditation, for what was previously an interpretant, taken for granted, can now be interrogated as itself a sign of something. An interrogation of the action of signs as the action of formal causality can in fact yield knowledge of those signs as objects, immediate objects which need no longer determine us unawares. By making the analogy of McLuhan—that is, by holding the tetrad's four nodes together in consciousness, in one act of meditatively analogical thinking—we can grow in semiotic awareness and thereby become able to comprehend the inner logic of the maelstrom's patterns. In so doing, we realize our debt to McLuhan for his pioneering application of the basic semiotic operations that Deely has identified within the cognitive life of the semiotic animal.

Table 1: Expanded consideration of the example of a thermometer

Scenario	Sign (*Representamen*)	Immediate Object	Interpretant
1. Someone shows you a picture of what is going to be your new home.	The **picture** (which consists of colored pixels printed on a page of paper)	The **room** of the house in which you will soon be living	The idea that the picture brings into your awareness (+), which in this instance includes your puzzlement over the apparatus on the wall (–); your awareness of **something unknown**: an idea of you-know-not-what (0)
2. You enter the room that you had previously known only by way of the sign of the picture, and you point to the physical apparatus on the wall made of glass and plastic	Your pointing index finger, or the **words** you use to ask what it is	The **physical apparatus** on the wall made of glass and plastic	Your idea of **something unknown,** ranked as negative (–); that is, ranked as something about which you are unhappy (–) to leave unknown (0) and about which you are curious to learn more (+)
3a. Your interlocutor replies, naming the object on the wall: "thermometer"	**"Thermometer"** (spoken or written)	A **physical apparatus** of glass and plastic	Your bare idea of "thermometer" as being **the name for designating this type of object**
3b. As your conversation continues, your idea of the object indicated by the sign, your idea acting as the interpretant, will grow and expand as you learn more about the object	Further word symbols, e.g., **"a device measuring temperature"**	**"Thermometer"** (spoken or written)	Concept of "thermometer" beyond being a mere name; a **concept that understands how a thermometer works,** i.e., as something that measures the ambient temperature of a room

4. You can enter another room somewhere in some other house. You spot, on the wall, a certain type of object, and recognize it to be a thermometer.	The **physical apparatus** itself now becomes a *sign* that evokes the idea previously developed in an earlier conversation; the physical apparatus itself now simply recognized as a thermometer, namely, as presenting itself simply as the tool that it is.	The concept of a thermometer as a measure of ambient room temperature; our concept of a thermometer, i.e., the idea we have developed of this tool as an instrument having certain capabilities; namely, as something which is a *measure* of temperature; our concept of the thermometer as *a tool for measuring*.	Our idea of **the ambient room temperature as *being measured***; i.e., *the reading* we make of the temperature (e.g., "twenty degrees Celsius"), by reading it off the thermometer. The ambient temperature *as measured*; i.e., the *objective* representation of the ambient room temperature *as measured*; e.g., for "the idea of increasing warmth in the environment".
5. The thermometer is broken, because the actual *subjective* ambient room temperature of the physical environment is not *objectively* represented by the thermometer. So, a fourth element (the actual ambient room temperature of the physical environment) must be placed somewhere on a node in a triadic relation.	The **physical apparatus** taken as a *sign*; the physical apparatus itself recognized as an **alleged** thermometer, namely, as presenting itself as the tool that allegedly functions as such a tool.	The idea that the thermometer **reading is incorrect**; e.g., "It's getting cold in here, so the thermometer must be broken." That is, our idea that **the tool is broken**, i.e., that **the ambient room temperature as *not being objectively measured***. That is, the reading is now *interpreted* as being only objective, i.e., as something known and understood apart from the context (the physical environment of the room) and the circumstances (whether it is accurate or not, or whether it is broken or not) of the thermometer taken as a sign. The *subjective* context and circumstances is here recognized as other than the thermometer's *defective* objective representation.	The *actual* ambient room temperature **of the physical environment**, i.e., the *subjective* context and the circumstances in which the sign was previously assumed to be properly functioning, but which was left out of the triadic structure in the previous scenario, because the *objective* representation of the temperature as measured can only be taken *as such* when the temperature is *interpreted* as being *objective*. Example: The very **cold chill** we feel upon entering the room, or also our seeing the room's windows as having been left open, with snow observed falling outside suggests the reading is incorrect; i.e., whatever generates an idea of tool as not working.

ENHANCEMENT	REVERSAL
= Immediate Interpretant • Objective ambient temperature of environment being measured (the reading on the thermometer) • Person you are talking to is understood as being at a distance	= new Immediate Object • Subjective ambient temperature of environment being measured (vs. the reading on the broken tool) • Bullying, indecision, confusion, misunderstanding: vs. real presence
RETRIEVAL	OBSOLESENCE
= Immediate Object • Thermometer seen as a tool for measuring (the concept of a thermometer) • Person being experienced on screen as if being present	= Sign-Vehicle • The physical apparatus of the thermometer (plastic, glass, mercury, scale, etc.) • Physical presence in environment of Skype, FaceTime, etc.

Figure 1: McLuhan's Tetrad Applied to Thermometers and Video Calls

SEMIOSIS: THE SUBJECT MATTER OF SEMIOTIC INQUIRY

Context and Circumstances of Sign's Utterance: Environmental circumstances of the temperature measuring apparatus

The Sign Itself: Temperature apparatus perceived as such, i.e., as a thermometer

All That is Explicit in the Sign Itself apart from Its Context and Circumstances of Utterance, i. e., the **Interpretant**: Objectively represented situation of thermometer's ambient temperature

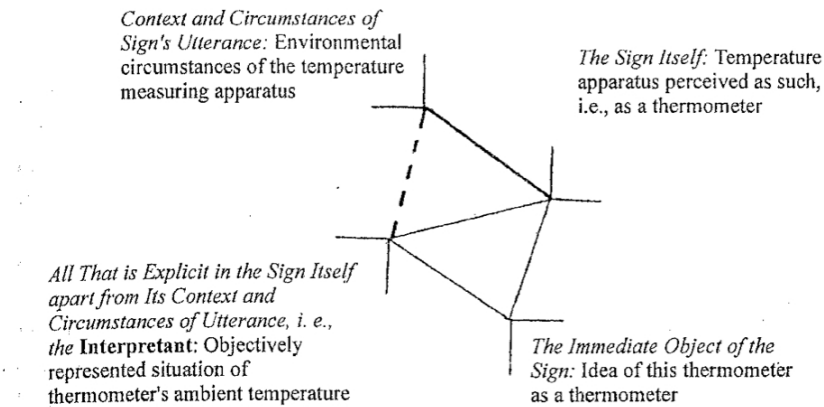*The Immediate Object of the Sign:* Idea of this thermometer as a thermometer

FIGURE 2. The Irreducibility of the Action of Signs

Figure 2—Source: John Deely, "Addendum to Chapter 3", in *Basics of Semiotics: Expanded Fifth Edition* [bilingual Estonian/English edition] (Tartu: Tartu University Press, 2009), pp. 38–50.
The diagram above is Figure 2 at page 41.

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