

# Cultures, timespace, and the border of borders: Posing as a theory of semiotic processes

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## *Abstract*

*This multifaceted essay emerges from a host of sources within diverse academic settings. Its central thesis is guided by physicist John A. Wheeler's thoughts on the quantum enigma. Wheeler concludes, following Niels Bohr, that we are co-participants within the universal self-organizing process. This notion merges with concepts from Peirce's process philosophy, Eastern thought, issues of topology, and border theory in cultural studies and social science, while surrounding itself with such key terms as complementarity, interdependence, interrelatedness, vagueness, generality, incompleteness, inconsistency, and mestizaje. Ultimately, a sense of semiotic process pervades in light of combined homogenous and heterogenous tendencies.*

## 1. Qualifying the quest

Caught up in the cloudy manifold of multiply variegated cultural flows, we find ourselves gravitating toward that faddish concept in what goes as cultural studies: *borders*. There, we would like to think, we might be able bring some form or fashion of clarity to our confusion. But to no avail. The customary treatment of 'borders' in cultural studies all too often falls prey to *this side/that side, local/global, us/other*, and comparable modes of thinking.

One particularly perplexing day we happen to run across physicist John Archibald Wheeler's allusion to Minerva's counsel: 'The secret of the grip lies in the boundary of the boundary' (1990: 1). Boundary? Border? Perhaps they are of some common nature. We read on: a line, like the boundary or border of Nicholas of Cusa's limit of the universe, in its ultimate extension ultimately doubles back and meets itself. It is a

one-dimensional manifold whose starting point — of zero dimensions — and whose end point is one and the same. No easy answer here. Perplexity grows. Then a clue presents itself. Common sense would seem to tell us that the end point of a line is a positive ‘payoff’ and the beginning is a negative ‘incurred debt’. When they meet they cancel each other out, and we are left with nothing. It’s a ‘no pain, no gain’ situation, we would wish to conclude. Not so, however. After the pain, with expectations high, and after traveling the long road promising unlimited gain, we’re left with nothing but a handful of nothing. There are no winners, no prizes, no euphoria. There’s just nothing.

After all, what is a boundary, a border? Nothing more than a line of demarcation describing a two-dimensional area. The line begins with a point that stretches itself out, thus forming a line that doubles back on itself to end where it began. It is a dimensionless point within a one-dimensional line forming a two-dimensional area within three-dimensional space that can be contemplated from within what appears to be a flowing dimension of time. The line ends by meeting itself at its extremities and eating itself. The yield? Zero! Taken as a whole, everything collapses into nothing, emptiness, zilch.<sup>1</sup>

Take, for instance, the symbol for infinity (Figure 1).

A simple self-returning line, it would appear. Not so simple, however. The line is a mere dimension, infinitesimal in thickness. But it crosses itself. Such crossing promises the becoming of something very slightly more than mere infinitesimality: it is the bare beginning of two-dimensional space, metaphorically speaking, or literally speaking if we are thinking of *fractals*. Does the line go over itself or under itself when completing the act of crossing? Both and neither, we might wish to say. That is, it is impossible to say with certainty. The image is ambiguous. The line can be either over or under itself, depending on the way it is contemplated. We move our contemplation up a notch, spatially speaking. And what do we have here? The enigmatic Möbius band (Figure 2), a sort of two-dimensional rendition of the infinity symbol.

The band can be easily constructed by taking an elongated two-dimensional strip, twisting one end of it in three-dimensional space, and

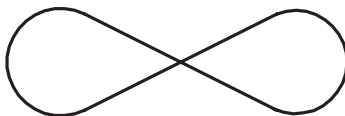


Figure 1.

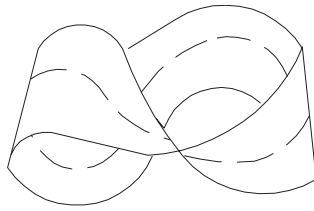


Figure 2.

connecting the extremities. If we place a point anywhere on the band, is that point inside the band or outside? Both, and neither, however we wish. The band has no simple inside or outside. It did when it was a simple two-dimensional object. But no longer. The twist in three-dimensional space unified inside and outside. Actually, did we not create the same phenomenon upon connecting the line to create the infinity symbol? The line of crossing is either over or under, according to our classifying the phenomenon and saying it. For, just as the Möbius band is two-dimensionality in three-dimensional space, so also the infinity symbol is one-dimensionality in two-dimensional space.

Suddenly an idea pops up. What if we squash the Möbius band? We do so (Figure 3). And what do we now have? It is what can be taken as a two dimensional area, that is, if we disregard the interior lines of demarcation.

The problem is that those very lines of demarcation belie our effort to conceive the object as mere two-dimensionality. Well then, what if we stack up layer after layer of this apparently two-dimensional object? After an infinity of such stackings, we could be left with a 'Penrose triangle' (Figure 4), so named after physicist Roger Penrose, its creator.

This object is a sort of three-dimensional rendition of the Möbius band. A point on the triangle is both inside or outside, according to how we

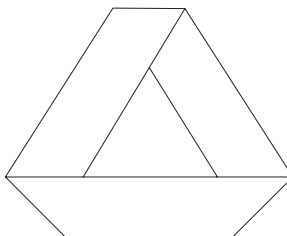


Figure 3.

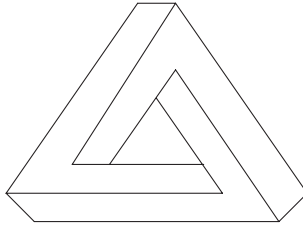


Figure 4.

take it. And how do we take it? In what would appear to be the blink of an eye, in an instant. But before the taking and after the taking the flow of consciousness has occurred. There was no instantaneous grasp of what was there for our taking and our classification and enunciation of a particular piece of our world. For, we are in the flow, where there is neither upside nor downside nor inside nor outside until we perceive it and conceive it and say it is so. It is we who pull the objectivity of our world into apparent existence through the diverse ways of our taking our world.

That much considered, during a few moments of idle speculation, we happen unthinkingly to doodle out a Necker cube (Figure 5).

Ah, yes, that must be it! We have either a cube with the face up or down, or both, or neither. We might see it first as one of the cube's two possible ambiguous forms, then as the other form, apparently in the blink of an eye. But wait a minute! Between the first seeing and the next seeing what is there? A lapse, an increment. Time enters the scene. Time: that elusive old customer that just keeps flowing along. If between the two seeings there is a temporal pulse, commonsense would seem to tell us that the seeings are in the flow. First we see it. Then we select the image before

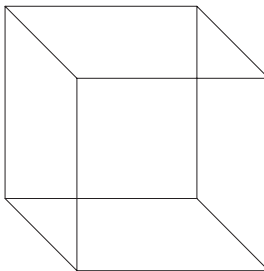


Figure 5.

us as a foregrounded object from its background and we see it as something or other. Then, and only then, do we categorize it as something that is what it is because it reveals certain characteristics to us that are typical of the class of something to which we assume it belongs. Well and good, it would seem.

## **2. Time takes on a complex countenance**

Then consternation overtakes us. We discontinuously flash from one Necker cube rendition to the other within time. But how do these discontinuous time increments jibe with the notion of process?

We perchance recall a study by H. A. C. Dobbs (1972). He uses the Necker cube to illustrate his hypothesis that transformation, in the mind, from one of the possible cubes to the other one and back again, is possible only within a fourth, static dimension. When combining this ‘imaginary time’ dimension with the ‘real’ dynamic (psychological) time dimension to produce a complex timespace manifold within which the flip-flops of the Necker cube can come about. Symmetrical, reversible, intransitive, nonlinear time combines with symmetrical, irreversible, transitive, linear time to yield a dynamic, dyadic, pulsational *this-that* which is neither appropriately symmetrical nor asymmetrical, neither reversible nor irreversible, neither intransitive nor transitive, neither nonlinear nor linear. In other words, there is neither discontinuity nor continuity, strictly speaking, and there is both discontinuity and continuity, generally speaking (Kauffman 1986; Matte Blanco 1975). What we have here is tantamount to Möbius band vacillation between ‘inside’ and ‘outside’, continuity and discontinuity, identity and difference.

Here, perhaps, is a clue, we surmise. Dobbs demonstrates how continuous changes between incongruous three-dimensional counterparts — the Necker cue or our now familiar Möbius-band — are mathematically possible within the four-dimensional manifold. Such changes require rotation of an entire plane, not merely a line within a plane. This calls for an extra dimension. For example, along a line, no rotation can occur. Within a plane, rotation can occur about a point in mathematical or ‘imaginary’ time (thus we have two dimensions of space plus one dimension of time). Also within that plane, successive increments along the rotation can be experienced in ‘real’, psychological, or personal time (two dimensions of space plus one dimension of imaginary time). Within a cube, then, rotation must occur about a line in mathematical time, requiring a fourth dimension (three dimensions of space plus one dimension of ‘imaginary’

time). And the inclusion of consciousness calls forth 'real' or psychological time.

We continue speculating. These rotations must surely demand 'complex numbers' — the combination of 'imaginary' and 'real' numbers. The problem with 'complex numbers' is that they have no simple order. Nor is there any meaning in saying of 'complex numbers' that they are either positive or negative, or that they are larger or smaller than other complex numbers. They are all there all at once; they are *superposed* to form a complex bundle of *possibilities*. As such, if no value has (yet) been assigned to them, they are by their very nature as sheer possibilities valueless. 'Complex numbers' oscillate, vibrate, undulate, as if in a static wave pattern. They dwell in an enchanted mathematical realm. Their dancing back and forth as points along a real line or in a phase-space on a two-dimensional plane can produce a dynamic wave form such as a hypercircle or a hypersphere (a circle requiring a third dimension within a sphere requiring a fourth dimension, plus a dimension of time, for their becoming 'hyper').

Where can this possibly be taking us?

### 3. Dark clouds continue to loom

The 'real' psychological time element must have entered with our becoming *conscious of* and *categorizing* the image, which, as an event within the four-dimensional manifold, contains the complex 'imaginary' time element. In other words, first we *see* the image. Then we *see it as* a sign of something or other. A split second later we become aware *that* it is something with some set of characteristics; thus we are able to qualify it as a sign belonging to a general class of signs. This three-tiered process, we conjecture, might be of the nature of C. S. Peirce's triadic concept of the sign.

Following our instincts, we press on. First we have Peirce's most basic type of sign, a mere image: *rhetic iconic qualisign* consisting of the (a) Firstness of the representamen (or sign), (b) Firstness of the sign's object, and (c) Firstness of the interpretant (roughly, meaning engendered by the interrelatedness between sign and interpretant. We depict this sign  $R_1O_1I_1$ , with the subscripts illustrating which of Peirce's three *categories* belong to each of the three sign components. This is the raw beginning of the sign process.<sup>2</sup> We find ourselves compelled to continue.

Within the semiotic agent's consciousness, the sign takes on the nature of a *rhetic iconic sinsign* (Secondness of representamen, Firstness of

the object, and Firstness of the interpretant, or  $R_2O_1I_1$ ), and a *rhetic iconic legisign* (Thirdness of the representamen, Firstness of the object, and Firstness of the interpretant, or  $R_3O_1I_1$ ). During these three stages, the sign's process, for the most part, takes on the characteristics of *iconicity*. As a sign chiefly of the nature of iconicity, we take it as a sign, without fully acknowledging the nature of that with which it enters into relation (the sign's object [O] is still at the level of Firstness) or its signification that is motivated by the combination of the sign and something other (the sign's interpretant [I] is still at the level of Firstness).

Yet, we are becoming conscious of the sign as such. Booting our consciousness up to the next stage we perceive (*see*) the sign as an image of so-and-so, without (yet) placing it within a general class of signs. This is part of the process of the sign's become a full-blown sign. The process involves four sign types that are principally of the nature of *indexicality*. During this process, our sign takes on the characteristics of a *rhetic indexical sinsign* ( $R_2O_2I_1$ ), a *dicent indexical sinsign* ( $R_2O_2I_2$ ), a *rhetic indexical legisign* ( $R_3O_2I_1$ ), and a *dicent indexical legisign* ( $R_3O_2I_2$ ). So far so good.

Then, we *say* the image as we have *seen it*, for we now tell ourselves we see that it is a sign of a particular sort with a particular set of characteristics common to all signs of the same sort. We are now in the process of interpreting the sign. This process makes up the sign's characteristic *symbolicity*. It is now becoming a *rhetic symbolic legisign* ( $R_3O_3I_1$ ), a *dicent symbolic legisign* ( $R_3O_3I_2$ ), and an *argument symbolic legisign* ( $R_3O_3I_3$ ) (for further regarding the ten sign types, see Farias and Queiroz 2003; Merrell 1995).

So we have three steps: *iconicity*, *indexicality*, and *symbolicity*. One, two, and three, within three dimensions of space coupled with 'real' and 'imaginary' time to make up the continuous timespace manifold. There is neither exactly discontinuity nor continuity and there is both discontinuity and continuity, according to our perspective. Quite simple. No? Well, no, not really. For, each step occurred within the flow of time, as we were in the process of consciousness becoming. How can we more adequately account for our severing and mutilating this becoming by way of our obsession for classifying our world by means of our signs as we have so classified them? Our viciously cutting the world up into joints and fractures plays havoc with continuity. It does violence to our smooth, continuous Möbius band transformations.

Continuing to grope, we return to the idea of borders. If a border is in the final analysis zilch, then what is this zilch, this zero, nothingness, emptiness. For lack of a better epithet we decide to call it the *border of borders*, following J. A. Wheeler once again (the concept, by the way, is quite

comparable to the ancient Nahuatl term, *nepantla*, from the ancient Aztecs [Mignolo 2000]). The *border of borders*: it has a certain rhythm to it, does it not? As if it were undulatory or wave-like, which is to say, it is nothing concrete, for it is nothing at all. That is to say, geometrically speaking, a line of demarcation is no more than an imaginary, infinitesimal somethingness. The reason the geometer draws a line is to render it visible to the eye so she can get on with her computations and diagrams.

Now, a line is at least a one-dimensional something. With this in mind, we speculate. If a border is a one-dimensional line tracing out a two-dimensional area within three-dimensional space that as self-returning gives us the sum of zero, then the *border of borders* must be zero itself. It must be emptiness before there was anything. It is like the mathematical zero at midpoint separating the infinite string of positive integers from the opposite and equally infinite string of negative integers. But zero is actually no integer at all; it is not a number, for it is pure emptiness; yet, as emptiness, it contains, within itself, the possibility for engendering all numbers. In a flicker of light, zero becomes one, then in another flicker it becomes two, then three, then many, infinitely many. Zero, or the *border of borders* is at once nothing and everything; that is to say, it is emptiness.

But to our dismay, uncertainty sets in. Our basic problem remains. What about time in this grand scheme of things? We contemplate the broken line along the never-ending surface of the Möbius band. What can we make of it? We place a pencil at any point in the line and we trace out a path, on and on, until we reach our point of departure (see the broken line on the Möbius band of Figure 2). In the process we passed from inside to outside within three-dimensional space. Did we not? We must have, since any two-dimensional object must have one side and the other side. But where is the border separating inside from outside on the band? Why, it can be anywhere! It can be in an infinity of places. Wherever we decide it is, that's where it is, at least for us. For a virtual infinity of other observers, it could be in an infinity of other places. Where is the ultimate border, the *border of borders*? It must be in all places, and at no place as the *pure possibility* for any and all borders. It must be everywhere and nowhere.

So that's it! The *border of borders* must be the absolute zero sign or emptiness, the fountainhead for any and all signs, from  $R_1O_1I_1$  to  $R_3O_3I_3$ , for anybody and everybody anywhere and anywhen (Rotman 1987). And as pure possibility, emptiness, it must be atemporal. Then once again, where does time come in? Semiotically speaking, it must emerge with consciousness becoming in complementarity with the



becomingness of signs within consciousness from  $R_1O_1I_1$  to  $R_3O_3I_3$ . The *border of borders* makes up the grand continuity holding all that is possible. The consciously becoming semiotic agent becomes the author of breaks and fissures in the continuity giving rise to some particular selection from the continuous, nonselected universe of possibilities.

So continuity there always is. Discontinuity is the result of artificial samplings from the continuous whole by some observer. Continuity is the range of all possibilities for cuts and joints making up semiotic worlds; discontinuity defines particulars within those worlds. Continuity is always there for selection; discontinuity is selected from the non-selected. From continuity, particulars are actualized; actualization of particulars over and over again forms collections of particulars into general wholes that are discontinuous with respect to one another. From the continuous range of possibilities come basically self-contained signs of *iconicity* ( $R_1O_1I_1$ ,  $R_2O_1I_1$ ,  $R_3O_1I_1$ ). These signs become interrelated with their respective makers and takers 'out there' to become signs of *indexicality* ( $R_2O_2I_1$ ,  $R_2O_2I_2$ ,  $R_3O_2I_1$ ,  $R_3O_2I_2$ ). And those signs in turn take on articulation, especially within communities of human semiotic agents, as signs of *symbolicity* ( $R_3O_3I_1$ ,  $R_3O_3I_2$ ,  $R_3O_3I_3$ ). Perhaps it's all beginning to make sense. Perhaps. But, . . .

#### 4. How can the whole concoction be 'many' and at the same time 'one'?

The question remains to haunt us. Our ruminations eventually veer toward Wheeler once again. He visualizes the three-dimensional border of a four-dimensional region (Wheeler 1990; see Figure 6).

What do we have here that may help us out?

We ponder the set of cubes. There are eight cubes that flash back and forth and in and out, in a gleaming, scintillating, oscillating flux of virtual possibilities. Why, this must be the makings of Peirce's Firstness. The eight possible cubes have exploded from the central point and the hypercube of possibilities, giving us  $8^3$ , and on and on: virtually countless possibilities for sensing the world, perceiving the objects, acts, and events of the world *as so-and-so*, and conceiving that they are what they are for they are conceived in terms of their evincing such-and-such a set of qualities.

These possibilities involve the becomingness of three-dimensional signs within a four-dimensional timespace manifold. But what's important in Figure 6 as far as we three-dimensional semiotic agents are concerned? We squint our eyes in an attempt to make it out. The implication seems to

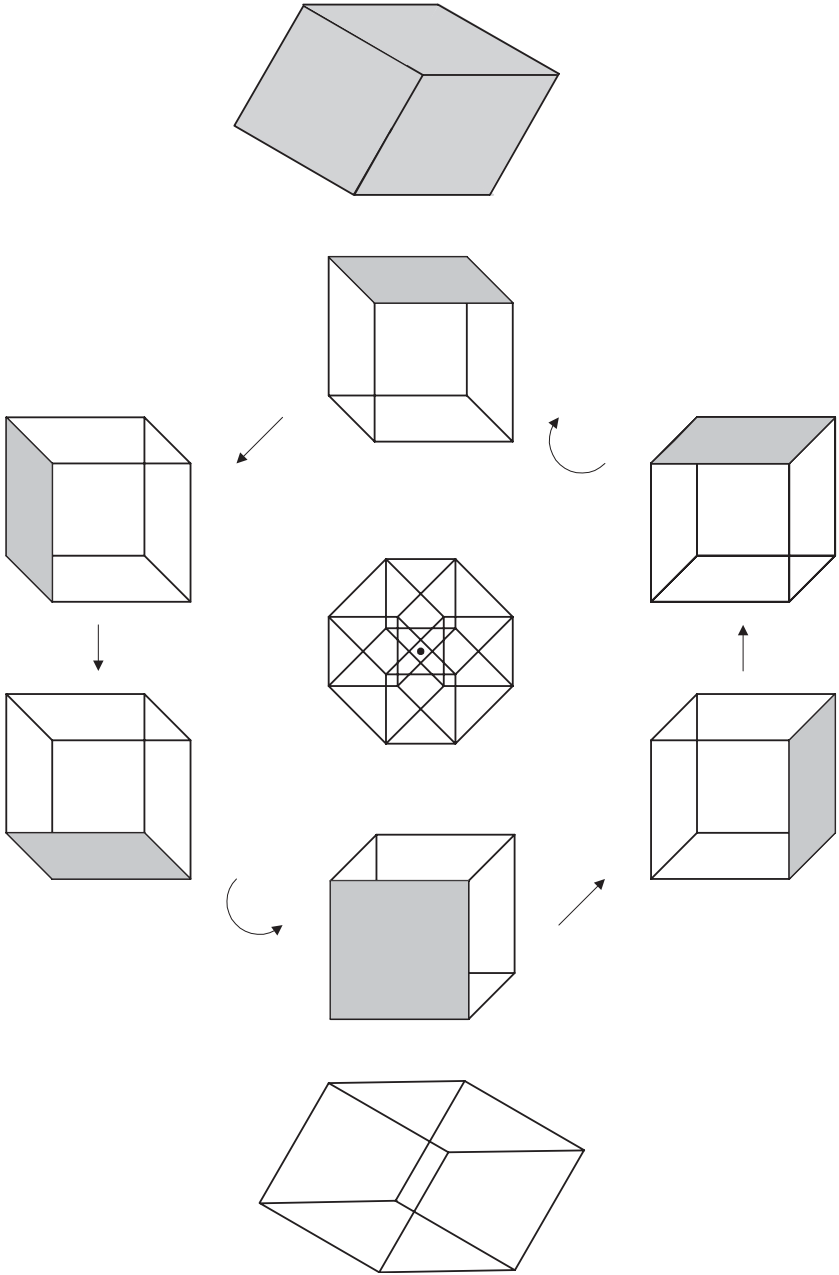


Figure 6.

be this: we exist within our customary three dimensions of space, and to boot, a dimension of 'imaginary' time that becomes within our consciousness 'real' psychological time. The trajectory of our consciousness within this four-dimensional timespace manifold traces a 'world-line' or 'life-line', as we carry on with our daily affairs. The entire timespace manifold is one, including ourselves. It is self-contained, and it contains the range of all semiotic worlds constructed by all semiotic agents within their respective cultures. So there is One: the continuous range of possibilities. And there are Many: selected particulars from the continuous range of possibilities.

But surely that is not all. The importance of Figure 6 must be even more basically this: Wheeler tells that two-dimensions are *where the action is*. Two dimensions? How so? We are of three dimensions, not mere Flatlanders living out their life on a plane (Abbott 1952). But do we not present ourselves as a two-dimensional wrapping within three-dimensional space? Do we not look out into our world, and we basically see two-dimensional surfaces that our parallax vision allows us to three-dimensionalize? Do we not listen to linear streams of compact and diffuse pockets of air? Do we not smell and taste essential the chemical yield of two-dimensional surfaces? Is not our sense of touch that of contoured surfaces? Only our kinesthetic and proprioceptive senses involve our moving about in three-dimensional space. What does all this sensing and perceiving consist of? Reception through the sensory channels within the one-dimensional temporal stream. And what is our role in all this as proud, imperious semiotic agents? Why, it must be *co-participation*. We aren't outside, neutral observing agents at all. We are in *co-participation* with our world in the process of its becoming. How can we account for this *co-participation*?

That story must be mind-bogglingly complex. Why bother? Our stubbornness compels us, however. We decide to forget about space and time for the moment and attend to our *co-participatory* nature. Fortunately, Wheeler gives us two remarkably down-to-earth examples: (1) a variation of the parlor game, '20 Questions', and (2) a joke about three baseball umpires comparing notes in the local bar. In the latter example, the first umpire confidently proclaims, 'I calls 'em the way they is'. The second one counters, 'I calls 'em the way I sees 'em'. The third umpire brashly claims, 'Hell, they ain't nothing 'till I calls 'em'.

The moral to the story falls in line with Wheeler's quantum theoretical concept of the world. It is *co-participatory* through and through. Following his wise master Niels Bohr, Wheeler puts forth the idea that no aspect of 'reality' exists *for* someone until it has come into *interdependent, interrelated interaction* with that someone and with some other aspect

of ‘reality’ — from within the four dimensional timespace manifold, of course.

Therein, we conjecture, must lie part of our answer. We are like the third ump. We *co-participatingly* collaborate with our universe in the process of its becoming, in our process of becoming, in signs’ process of becoming. Wheeler’s quantum universe to the universe of signs becoming signs, that is, to the universe of semiosis (see Wheeler 1980a, 1980b, 1990, 1994; Skolimowski 1987). The watchwords are: *interaction* — between semiotic agents and their world — which implies the *interdependence* and *interrelatedness* of everything the universe has to offer, including ourselves (for more on the three italicized terms, see Merrell 2003a, 2004a, 2004b). We *co-participate* with this ‘semiotic reality’ and pull it into existence, and without us, ‘reality’ remains ‘dormant’, we remain ‘dormant’. The first umpire thinks what he sees is what there is. The second umpire thinks what there is, is what it is, whether he sees it or not; but when he sees it he sees it just as it is. The third umpire is more elusive. She discounts the notion that there is something ‘out there’ to be determinately seen by the knowing subject set apart from the known. She is aware of her collaboration with her world to bring some particular aspect of it into existence by her act of *co-participating* with it.

Is she simply creating an illusion and interpolating it into the world? Yes, and No, at least for her. Yes, because what she sees, she sees. What she sees, she has created, and it becomes that particular aspect of the world as she has so created it. Her world is more fabricated than merely found. At another time and place she might have seen her world in a slightly different way. Or, at the same time and place, perhaps somebody else might have created a slightly to radically different aspect of the world. But at the same time the answer to the question is No, because her creation of her world is not from some supreme, detached ‘view from nowhere’. She *co-participates* with the world just as the world *co-participates* with her. They are *interdependently*, *interrelatedly*, *interactively* intertwined. The upshot is that the world is a *co-participatory creation*, and a *co-participatory creation* is just that: something that could always have been becoming something other than what it was becoming — from within the sphere of Firstness.<sup>3</sup>

In the ‘20 Questions’ example, we have a ‘surprise version’. Physicist Richard Feynman fell victim to this variation of the game when he was a graduate student, and his thesis advisor, J. A. Wheeler remained fascinated by it since that time. According to the normal procedure for ‘20 Questions’, one person leaves the room while everybody else decides on a particular person, place, or thing in the room. Then the person is invited to enter, and she has a total of twenty questions she can ask those

present in order to ascertain what that person, place or thing is by their responses. She can ask only questions that can be answered with a 'Yes' or a 'No'. It's a simple affair.

In the 'surprise version' you are the person chosen to leave the room. At the proper moment you enter, and begin asking questions. At first the 'Yesses' and 'Noes' come quickly, but as the game proceeds the pauses between questions and responses become more prolonged. There seems to be neither rhyme nor reason to the responses; they are to all appearances random. Finally, you have reached your twentieth question, and if you don't come up with the right response you will have to leave the room, embarrassed, and begin anew. You ask a question, for example, 'Is it that a Don Quixote bust on the piano?', with no expectation of solving the enigma, since there is apparently no logic to your question. The respondent gives you a 'Yes', and in chorus the entire group bursts out laughing.

What was going on here? While you were out of the room, the group picked nothing as the object of your questions. The only rule was that the person responding to a particular question must have some person, place, or thing in mind when giving up her response, and that person, place, or thing cannot be the object of any of your previous questions. Thus it is the responders, not you, who must keep all previous questions and responses in mind, and hence the increasing length of the pauses as the game was proceeding. And thus the person, place, or thing that was to be the object of the game could not be determined until the final question had been asked. Assuming at the outset there was nothing at all as the game's object, but that everything was there as a set of possibilities, the gamers began with emptiness, zero, an utter void. Then as the game proceeded they all gradually teased the future object into the room.

They were all, in a word, co-participants bringing a world into its becoming, and that world as a vast repertoire of possibilities all of which were in interdependent interrelatedness with one another and with all others awaited the moment when they might be fortunate enough to have been selected as the future object in interaction with everything else. The gamers were thus co-participants on an equal level with all the possible objects, in interdependent, interrelated interaction. Without the co-participants the object could not have emerged to see the light of day, nor could it have emerged without all the other possible objects in the room, whether mentioned or not during the game.

This, in short, is how Wheeler's conception of the Copenhagen interpretation of the quantum world works. Paraphrasing Wheeler, regarding the quantum world, *no phenomenon is a phenomenon until it is a*

*signified phenomenon*. In this sense, the becoming of a particular phenomenon must be put in the future conditional: whichever ‘quantum reality’ happens to pop up it is what *will have been* realized due to the co-participatory collaboration of the physicist. In comparable fashion, in the twenty questions variation, the object of the game cannot already be in the minds of the responders, but rather, it *will have been* becoming if and when the co-participants pull it into its world. This is the case of our third baseball umpire for whom the ball flying toward the catcher’s mitt is neither a ‘Strike’ nor a ‘Ball’ until it is seen, seen as either the one or the other, and called either one way or the other because the ump saw that it was a so-and-so sort.

Our obstinate quest might be ready to pay a few dividends. We continue along the misty path.

## 5. The nature of our co-participatory universe

In the ‘20 Questions’ variation, the object was in the room all along, as possibility. After all, the third ump sees a ball, which, as yet, is of neither of the two pitched ball characteristics. At this juncture, it just is, as a sign of chiefly Firstness. In a split second she sees it *as* either a ‘Strike’ or a ‘Ball’ — *as* a particularity of the nature of Secondness — but she hasn’t yet said it; that is, she hasn’t properly qualified in *as* such-and-such for the other co-participating semiotic agents on the diamond, in the pit, and in the stadium. It hasn’t yet emerged to become one with the other signs in the process of the game’s becoming. As quick as a rattlesnake’s strike she calls it: ‘Ball!’ Now it has gained entry into Thirdness, and the ball’s role as an interdependent, interrelated interacting sign is in the process of being unfolded.

But surely there is more to the process, we would like to think. We go back to the beginning. The ump first saw the ball streaking toward her, and, predisposed as she is, given her past performances, her particular liking to this stadium, her having taken a liking — in spite of herself — to the home team and this particular player at bat, she was already primed to make the judgment she made. Then after she saw the ball as either ‘Strike’ or ‘Ball’, and before she dictated her call, the cards were dealt. So actually, at the moment she made her decision known, the ball was already a ‘Ball’. In other words, she sees it and sees it *as* such-and-such, and at that point for certain we can say that the ball will have been a ‘Ball’, before it actually became qualified and announced *as* such.

This situation is a practical world example of what J. A. Wheeler terms ‘delayed choice’ according to a ‘thought experiment’ he designed for the quantum world — and I would hope I’ve not wrought rhetorical violence to his sophisticated formulation. In practical physical world language it would go something like this: our ump *saw* the ball, *saw* it *as* a Ball, and called it a ‘Ball’ because she judged *that* it was of such-and-such a set of characteristics. But had she had a bad night, or were she suffering from a hangover, or whatever, she might conceivably have seen it as a ‘Strike’. In other words, it is as if the spinning projectile had shot through both possibilities, ‘Strike’ and ‘Ball’, and it could just as easily have been the one or the other. But after it flew by her, she saw it and judged it and said it. For that reason she could confidently say: ‘Hell, it wasn’t nothing ‘till I called it’. She pulled ‘Ball’ into existence before her audience after the fact, after it had passed through both possibilities, ‘Strike’ and ‘Ball’. Her delayed choice and qualification and pronouncement created what will have been, after the fact of the matter.

This is indeed amazing. We become enchanted with our world of signs — including ourselves. Firstness as possibility is always everywhere and everywhen. Secondness as an actualized singularity, a particularity, is what it is here and now and nowhere and nowhen else. Thirdness places the sign of Secondness within a general category, and it can now be interpreted and known. But Thirdness comes only after the fact. It retroactively creates what will have been in the process of becoming while interdependently, interrelatedly, interactively becoming its becoming — hence my above use of the future conditional, *will have been*.

We recall that this is the sort of situation that drove Albert Einstein to fits in his metaphysical battles with Niels Bohr. How could a subatomic particle (baseball, sign) travel along one route and along two routes at the same time? Or how could it travel along both routes and at the same time one route? It plays havoc with a logical, harmonious, orderly universe. It simply couldn’t be correct, because ‘God doesn’t play dice’, as Einstein occasionally told his friend and antagonist. To which Bohr is said on one occasion to have replied: ‘Don’t tell God what to do!’ Wheeler responds — if I might be allowed to keep my language in line with physical world happenings — that actually there are two complementary situations: (1) the ball is seen, seen *as*, seen *that*, and reported ‘Ball!’, and (2) the possible ‘Strike’ and possible ‘Ball’ are both there, but they have not yet entered into interaction with everything else. Both situations do not exist in simultaneity. Situation (1) includes the stream of time, and conscious semiotic agents, while situation (2) is timeless; (1) ends in Thirdness, but (2) remains in Firstness; (1) brings a particular

possibility from (2) into the temporal process, in contrast, (2) remains what it is, for it hasn't yet become a registered ball-sign.

The obvious question arises: What has all this to do with borders anyway?

## 6. The line with which we sever and mutilate

We tap our memory bank. We should be able to find some sort of response. For, after all, during our semiotic meanderings over the years we have sifted through text after text dealing with Latin American acculturation, transculturation, syncretism, hybridism, and polyculturalism, multiculturalism, neoliberalism, international globalization, many of them presumably within the purview of poststructuralism, neocolonialism, postmodernism, postcolonialism and cultural studies. But we found no answers that could satisfy us. The problem is that what we found was words, words, words, that left us with no more than a blur in memory's vast undulating ocean.

Caught up once again in increasing hopelessness, we happen to stumble upon Serge Gruzinski's (2001) work.<sup>4</sup> Here, we reflect, there might lurk some plausible solution to our many puzzles. We go over some of our now familiar paths. We summon up, recapitulate, and reformulate thusly:

1. A two-dimensional boundary delineated by a one-dimensional line of demarcation is where the action is: the line, engendered by an infinity of points each of which is a possible juncture from which departure may be forthcoming. The line, convoluted and involuted, doubling back on itself to compose the infinity sign, is a myriad collection of possibilities all in interdependency with all others. Each and every possibility — of the nature of Firstness — is a *might be* without anything (yet) having been selected, actualized, and manifested in linear sequence along with everything else in some world that was more fashioned by creative minds than found by some metaphysical explorer.
2. The plane, stretching out, contorting itself and doubling back upon itself, flowing into a Möbius band, is always perceived in terms of two dimensions — up and down and to the right and to the left. It is of the nature of Secondness. In other words, everything actualized, *is*. But things are never so simple. What *is*, is no individual, autonomous, self-sufficient entity. In a flash it enters into interaction with everything else that *is*.



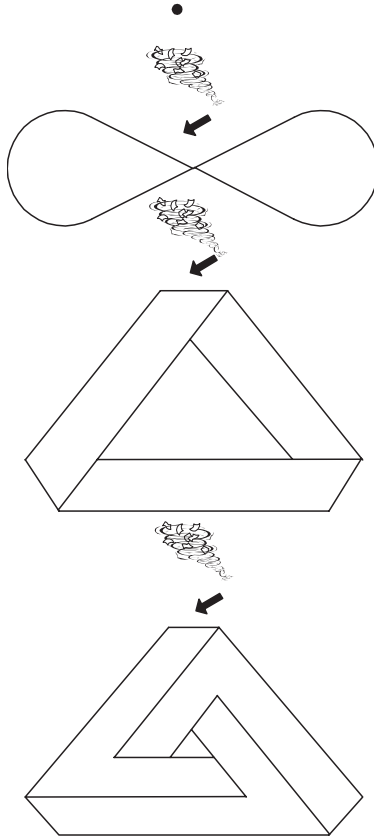


Figure 7.

3. The Möbius band is flattened, and an infinity of bands is enveloped onto-into the band to form a Penrose triangle (Figure 7). This image seems so natural to the eye on a two dimensional plane. But is an utterly impossible in three dimensions, for it needs a fourth dimension in order to distort itself and become itself. In other words, in its three-dimensional manifestation it is a nonlinear actuality that makes up an ambiguous set of probabilities that *would be*, *could be*, or *should be* the case, given the incumbent conditions.

What are the incumbent conditions? A three-dimensional object within a four-dimensional manifold that includes ‘imaginary’ and ‘real’ time for its interpretation by some semiotic agent in three-dimensional space. We are now within the sphere of Thirdness (for further along these lines, see Merrell 2003a, 2004b).

These three principles send us along a path to three more:

1. Signs of possibility that are in the process of emerging as full-blown signs, but they have not (yet) entered the self-reflexive consciousness of the semiotic agent are signs chiefly of Firstness ( $R_1O_1I_1$ ,  $R_2O_1I_1$ ,  $R_3O_1I_1$ ) qualified by their interdependency with all other possibilities. These are signs of one-dimensionality, of non-conscious, mindless, selfless, tacit awareness.
2. Actualized signs that have entered into interaction with all other actualized signs but have not (yet) become enshrouded with mediated interpretation are chiefly of Secondness ( $R_2O_2I_1$ ,  $R_2O_2I_2$ ,  $R_3O_2I_1$ ,  $R_3O_2I_2$ ). These are signs of two-dimensionality, such dimensionality having been linearly engendered by way of a self-enclosing line of Firstness.
3. Signs having been endowed with various stages of meaning by their respective semiotic agents ( $R_3O_3I_1$ ,  $R_3O_3I_2$ ,  $R_3O_3I_3$ ), bask in the glory of full-fledged symbols. They are three-dimensional signs chiefly of Thirdness. However, although these signs may approach ultimate meaning — and truth, if you will — they are always to a greater or lesser degree incomplete, having been fashioned by fallible, finite interpreting organisms. In this manner, there is always room for more — and hopefully improved — meaning. Thus these signs, through multiple, nonlinear channels, offer at least a glimpse of other alternatives of meaning. Such signs, then, are for the most part ‘just talk’, along with other nonlinguistic symbolic signs (mathematical, logical, musical scores, choreography, and so on), eventually give way to some alternative of one sort or another (for further along these lines, see Merrell 1991, 1997, 2000, 2003a).

The triad of qualifications continues:

1. Signs of possibility, of Firstness, make up a fluctuating, undulating, scintillating sea of possible nonlinear paths many of which are self-contradictory and inconsistent, or they contradict with others. Consequently both one possible sign and its contrary, or contradictory, can emerge, given the particular timespace context. Given the eminent possibility of contradictions between what are taken as the most viable responses to questions regarding one’s self, one’s society, and one’s physical world with different timespace contexts, and given that the range of possibilities of Firstness knows no time, within that range of possibilities, the standard logical Principle of Non-Contradiction wanes, and vagueness and ambiguity pervade. (A scientific case in point: ‘The center of the universe’ is possibly the

- 'Earth', the 'Sun', some other point in the firmament, or all points, given relative frames of reference; all possibilities can be deemed viable, given the virtually uncountable number of cultural perspectives — scientific views are 'overdetermined' [Bloor 1976, 1983; Hanson 1958, 1969; Polanyi 1958]. A cultural case in point: a numbing variety of cultural perspectives is possible, given all possible cultural settings emerging out of different sensibilities [Abram 1996; Chernoff 1979; Classen 1993; Howes 1991; Merrell 2004a, 2004b; Stoller 1989, 1997]).
2. Two-dimensionally linear instantiations of Secondness, that which has been selected and pulled into the attention of some potential semiotic agent and interpreter, consist of singularities, particularities, the succession of which compose strings of sensed and perceived interactive phenomena, whether mental or 'out there' in the physical world. They make up what as far as their interpreter is concerned what is, or at least what appears to be what *is*. What *is*, is ordinarily taken to be just that: it *is* what it *is* and it can't be anything other than what it *is*; anything else is what it *is not*. Here, the standard logical Principles of Identity, Non-Contradiction, and Excluded-Middle hold strong, as binary either/or distinctions reign supreme. (A scientific case in point: once a scientific view of the world has been adopted within a particular cultural context, it is intractably held as the one and only 'true' view, and defended tooth-and-nail against any and all oncomers [Duhem 1954; Feyerabend 1975; Kuhn 1970; Polanyi 1958; Zajonc 1993]. A cultural case in point: the meeting of cultures is inevitably a 'clash', emerging from radically distinct and virtually mutually exclusive views; such 'clash' is from each cultural perspective well-nigh intransigent [Bonfil Batalla 1996; Hanke 1949, 1959; Hobsbawm and Ranger 1983; Huntington 1996; Mignolo 1997; Rosaldo 1993; Spivak 1988; Todorov 1984]. Consequently, varying degrees of flexible to fixed 'hegemony' can eventually prevail [Butler et al. 2000; Fontana 1993; Laclau and Mouffe 1985; Merrell 2004a, 2004b]).
  3. Three-dimensional nonlinear Thirdness pushes its way onto the stage of our attention. What *is*, is now conceived in terms of its interrelations with any and all other such phenomena, whether in the past, the present, or the expected future. Now, anything and everything is taken in terms of a generality with a set of qualifying properties it shares with all kindred phenomena. The problem is that generalities are always incomplete, since there is no knowing with absolute certainty what the future holds in store. What was yesterday taken as a rock solid and unshakeable generality might today be a fallacy, and

what today is presumably a firmly grounded generality might tomorrow be deemed the product of simple minds. Thus between either/or dichotomies some hitherto unforeseen alternative might be seriously courted and embraced — and the Principle of Excluded-Middle no longer continues to hold sway (A scientific case in point: when a given scientific view is embraced within a community as ‘true’ [for example, the ‘Sun’ rather than the ‘Earth’ as the ‘center of the universe] the possibility always exists for some hitherto unknown possibility to emerge and gain acceptance — i.e., scientific views are ‘underdetermined’ — such newly emergent view coming from the myriad range of possibilities, can now come into ‘clash’ with any and all alternatives [Duhem 1954; Goodman 1978; Poincaré 1952; Quine 1953, 1969]. A cultural case in point: a ‘clash’ of cultures always stands a chance of ending in a mixed or *mestizo* ethnicity, after the mix has given rise to some novel cultural expression [Bartra 1992; Benitez-Rojo 1994; Cevallos-Candau et al. 1994; DaMatta 1991; García Canclini 1995; Lafaye 1976; Magasich-Airola and de Beer 2000; Merrell 2004a, 2004b; Ortiz 1995; Parker 1992; Pratt 1992; Rabassa 1993; Rama 1982; Serra 1995; Vianna 1999]).<sup>5</sup>

And finally, we end up with:

1. When there is no action, when things just flow along and the semiotic agent is not interactively in interdependent, interrelated participation with herself, her social world, or her physical environment, she is just there, as a range of possibilities for sign making, sign taking, and sign interpreting. She is in a latent stage of tacit acknowledgment regarding what she can do. The watchword is not What? or Why?, but How? How will she at some future moment interdependently, interrelatedly interact?
2. When she enters into interaction with what there is, or at least what appears to be what is, the What? question comes to the fore. What there *is*, is not simply what is in the essentialist sense. Rather, it *is* what *is*, here and now, ready for interaction before it has been classified and placed in the pigeonhole with all other like items and elevated to the category of generality. What *is* just *is*, here and now, and it is nothing other than what it *is*.
3. Then mind exercises its force. What *is*, is presumably put in its proper place, for within a given social timespace context there is a place for virtually everything and everything must be put in its place. Eventually, however, something emerges that provokes a Why? Why are things the way they are? In the face of some unexpected event, why is it that that which was taken to be the case doesn’t seem to fill

expectations? Something is awry, but why? We recall Peirce's 'Pragmatic Maxim'. It entails the future conditional. We are to create some imaginary situation, place our apparently anomalous phenomenon in it, devise some hypothetical explanation, and give things a try once again. This is what would be, could be, or in the best of all worlds what should be the case according to the consequences ensuing from our conjectured set of conditions. Thus it is that what *might be* becomes what *is*, but it *is not* what was expected, so we create what *would be, could be, or should be* in our attempt to account for the unexpected turn of events and get on with everyday living.<sup>6</sup>

But wait a minute! Something important seems to have been left out. We still have that enigmatic dimensionless point from our set of figures.

The point, the emptiness lurking within each and every possible juncture along the composite of lines making up all the images. The supreme nomadic, deterritorialized, solitary point as pure possibility for engendering anything and everything. The eye of every vortex, every hurricane of interaction. The absolutely silent, motionless point that is everywhere and nowhere, possibly everything and nothing. The point is in the most absolute sense where the action isn't: it is the *border of borders*. For, nothing yet is as a possibility in interdependent individual or collective memory or expectation for the future; nothing is as some actualized singularity in interaction with other singularities; nothing is as a generality in interrelatedness with all other generalities.

How can we more adequately account for this confounding yet enticing nothing? That is, if we can account for it at all. It's back to Wheeler for a spell.

## **7. From zero it all emerges and to zero it always returns**

Wheeler offers another 'thought experiment', a variation of which I'll outline here. We image we are in a dugout canoe powered by a small outboard 2-cylinder motor in a reservoir recently created on a river in the interior of Brazil. The tops of the densely packed trees close to the bank jut up from the water's surface. The trunks of the trees were only recently submerged, leaving most of the branches above the water, with leaves intact. It's beautiful, in spite of the ecological disaster the scene poses. We maneuver our craft in and out and to the right and to the left, enjoying the panorama.

And suddenly, without foreseeing the consequences of our naively navigated meanderings, we find ourselves in a blind alley nature put before

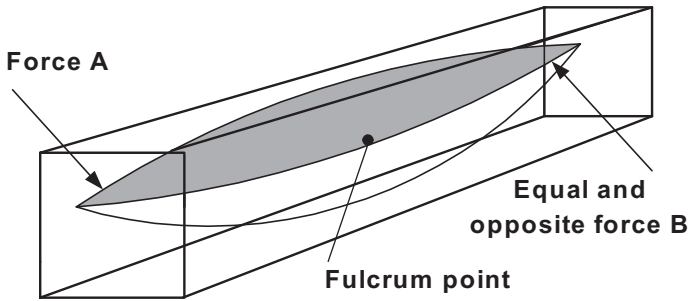


Figure 8.

us. We can't proceed, since the outboard motor points only forward, and to paddle our way backward with our hands would be an arduous task. How can we get out of this mess? — the How? question following our encounter with the unexpected. What can possibly be the answer? Elementary, we declare after some deliberation: (1) we slowly navigate our craft to a fairly open spot; (2) we take the center of the dugout as a fulcrum point; (3) with my hands I paddle away from the craft and you do the same on the other side; and, (4) with luck, we might be able to maneuver the dugout around while the fulcrum point remains relatively static. More easily said than done, however. With more time and effort than we bargained for, we finally accomplish our task.

Figure 8 gives us an image of the scheme of things.

The canoe is contained within an elongated version of the Necker cube. The edge of your side of the dugout is one face of the rectangular prism; the adjacent face makes up my side of the dugout. I create a slight force on my side; you create an equal but opposite force on your side. I rotate my face; you rotate your face. Little by little we turn the object 180 degrees. But actually, if we place the dugout within the framework of an eight-sided rectangular prism (as in Figure 6), we have brought about the equivalent of six rotations of the prism, one for each side of its six sides. Now we add up the rotations. The sum? Zero!

In other words, the fulcrum point, that motionless point was the source engendering all the action while it remained actionless. The sum of all our time and effort rendered us zilch! Whether we were paddling outward at the end of our side of the dugout or close to the middle, where the motionless fulcrum point set itself down, as long as our opposite forces were equal, the end product would have invariably been zero. Energy exerted on one side and energy exerted on the other side cancel each other out

to leave emptiness at fulcrum point. Things changed, yet they stayed the same. What's going on here? Something must be wrong. Surely our frantic movement was not for naught? Not at all. From emptiness everything emerges and to emptiness everything returns. Between the moment of emergence and the moment of submersion there is interdependent, inter-related interactivity.

Where is all this coming and going, all this movement? In the beginning, at the two-dimensional surfaces, where the action is, within bounded areas. The boundaries, the borders, that separate everything from everything else. Separation, dichotomization, rampant dualisms all! Is that all there is? Of course not. There would be no either/ors at all without the both-and within Firstness, where the Non-Contradiction Principle dangles its impotence. Nor would there be any neither-nors within Thirdness, where some alternative always stands at least a ghost of a chance of emerging from erstwhile Excluded-Middles, that no longer wield their vicious axe with which to chop the world into either/ors. We have emptiness — pure possibility — we have the Firstness of possibilities, we have distinguished particulars (Secondness) where the action is, and we have perpetually incomplete generalities (Thirdness). We have (1) timeless dimensionlessness, (2) one-dimensionality plus a dimension of time (or 1-t), (3) two-dimensionality plus 1-t, and (4) three-dimensionality plus 1-t making up the four-dimensional manifold.

Why this, we observe, must somehow be tantamount to *Yin-Yang* complementarity. Astonishing! More than that. Enchanting! *Yin* is one vectorial force:  $\Leftarrow$ . *Yang* is the complementary vectorial force:  $\Rightarrow$ . Put the two together and you have the whole package:  $\Rightarrow\Leftarrow$ . But it is hardly any package we can call a package at all. For, what do we end up with? Emptiness, the emptiness of anything and everything. And where this meeting place? At the border, or better, the *border of borders*, the line separating *Yin* from *Yang*. The line, which can be expressed as both *Yin* and *Yang* or neither *Yin* nor *Yang*, according to whatever is our piece of cake. *Yin* and *Yang* collapse into the line, into a point. The point, the fulcrum point, the eye of the hurricane: Zero!

There is, ultimately, no more than one principle of organization, that is actually no principle at all. The principle is 'that the boundary of a boundary is zero. Moreover, this principle occupies a central place in all three of today's great field theories. To this extent almost all of physics founds itself on almost nothing' (Wheeler 1990: 121).

'Far-seeing Gottfried Wilhelm Leibniz advocated a still greater vision of existence: "For deriving everything out of nothing one principle suffices." Was he right? Underneath the workings of the world will someday a humble, thoughtful, gifted knot of searchers lay open to view the great

unifying principle? Noble work for man! Rich gift to mankind!’ (Wheeler 1990: 121).

The breadth and depth of the austerity-clad principle, the border of borders, is actually comforting. For, ‘nowhere will we find that principle operating more beautifully, more simply, and with more direct ties to everyday experience than in the [metaphorical] warping of space — and of timespace — around a spherically symmetric sphere of attraction’ — the point, emptiness, zero. (Wheeler 1990: 121)

But to our chagrin, enigmas remain. There are too many loose ends that lead to too many questions. How can we get a more genuine feeling for our capacity to understand our world and ourselves such that we can muddle along as effectively as we do? Given that (1) the mind-numbing complexity of it all is so vast, and (2) the minuscule islands of order are so few and far between in the overriding ocean of chaos, (3) one would expect our muddling would in all probability lead to naught. So, how is it that we manage to get along at all? — the How? question again.

By happenstance, it would appear, we find ourselves once again on Peirce’s home grounds. But now Peirce shows us an entirely different face; it seems somehow to hold promise. We become enchanted with this new, hitherto unknown Peirce. He mesmerizes us. He is like the Pied Piper; we can’t resist his charm. We’re compelled to follow him. We do so, but now with the notion of dimensionalities and Serge Gruzinski and the Latin American scene lingering in the back of our mind.

## 8. Another side of Peirce?

We find Peirce’s allusions to what he termed a ‘logic of vagueness’ (i.e., of ‘possibility’ or ‘continuity’), a ‘logic’ in ‘the broadest possible sense’, a ‘logic’ fit for all seasons and all reasons. To our dismay, Peirce never quite made good on his promise to construct a ‘logic of vagueness’.<sup>7</sup> Yet, if we take a few ideas from Peirce and place them within the context of the topic at hand, we might be on the right track. At least that is our hope.

We read that in 1908 Peirce outlined the makings of a ‘triadic logic’ of sorts based on ‘real possibility’, ‘actuality’, and ‘real necessity’. He pointed out that a proposition asserting actual *existents* (Seconds) lies at a sort of halfway house between the poles of assertion of *possibility* (Firstness) and those of *necessity* (Thirdness). We read that while assertions regarding *actuals* follow the tenets of classical logic, assertions of *possibility* and *necessity* do not. In Peirce’s words:



that which characterizes and defines an assertion of Possibility is its emancipation from the Principle of Contradiction, while it remains subject to the Principle of Excluded Third; while that which characterizes and defines an assertion of Necessity is that it remains subject to the Principle of Contradiction, but throws off the yoke of the Principle of Excluded Third; and what characterizes and defines an assertion of Actuality, or simple Existence, is that it acknowledges allegiance to both formulae, and is thus just midway between the two rational 'Modals', as the modified forms are called by all the old logicians. (*MS 678*: 34–35)

We struggle with Peirce's words, eventually arriving at the tenderly tenuous feeling that would seem to support our prior meditations. We hesitate. Then plucking up a little courage, and as if apologizing for our assertions, we attempt to get our ideas out in the open with the following suggestions. What lies within the sphere of *possibility* (Firstness) by and large violates the *Principle of Non-Contradiction*, which reigns in the 'semiotically real' world of Secondness and classical logical principles. Within this sphere of pure Firstness, contradictories can quite comfortably exist side by side. For, given the nature of unactualized Firstness as a *superposed* set of *possibilities*, everything is there. It composes an unimaginably massive, continuous collage of compatible and incompatible, consistent and inconsistent, and complementary and contradictory, *nonessences*.

In this sphere of pure chance, spontaneity, and infinitely diluted *vagueness*, nothing is (yet) specified and everything is at one with everything else: there are as yet no distinctions, no borders, no taxonomies. There is no static *plenum, per se*, but rather, effervescent, fluctuating, flickering, *superposed possibilities* in expectancy of their *actualization* into some 'semiotically real' domain or other. Thus *vagueness* is thoroughly *over-determined*. There is no knowing whether what would otherwise be considered contradictory terms might not be considered equally 'true' at different times and places. (We have our example of the 'Earth' as center of the universe before Copernicus, the 'Sun' as center of the universe after Copernicus, and especially after Einstein neither the 'Earth' nor the 'Sun' is center but every place is its own center. Or, within a cultural framework we have on the one hand the Mexican Guadalupe image as the legitimate representation of the Virgin Mary within the Spanish Catholic tradition, and on the other hand we have Guadalupe fused with Tonantzin of the Aztec tradition to yield what we might dub 'Guadantzin' [along the lines of Goodman 1978; see also, Merrell 2004a, 2004b]).

The realm of *necessity* (Thirdness) includes mediary term after mediary term, with no end in sight. Since any and all collections of signs remain invariably *incomplete*, something more can always be added. Hence,

unlike the *eithers* and the *ors* of Secondness, within Thirdness the *Excluded-Middle Principle* threatens to collapse. Between any two signs, given sufficient time and change of context and complexity, the potential always exists for other signs and their meanings, or the same signs and other meanings, to emerge. (In other words, it is not a matter of the ‘center’ of the universe *either* as the Earth [Ptolemy] *or* the Sun [Copernicus], but *neither* the one *nor* the other. That is, the ‘center’ for Ptolemy and the ‘center’ for Copernicus is not simply a matter of *either-or* alternatives: with the demise of classical physics, the ‘center’ is now conceived to be something else altogether [i.e., something entered the gap between the erstwhile *either/or* categories to render them *neither-nor*]. Yet since at any given point in time the ‘center’ cannot be construed as *both* the Earth *and* not the Earth, the *Principle of Non-Contradiction* remains in force — albeit tenuously at best. Consequently, at a given point in time, any and all conceptual schemes are destined to *incompleteness*, since no matter how replete the previously considered gap between the *either* and the *or* is filled, there will always be room for something else. Due to this persistence of *incompleteness*, *underdetermination* necessarily prevails.)

Now we attempt tenuously to wrap things up. *Overdetermination*, it might seem, includes the sphere within which a sign is not yet definitely or authoritatively decided, settled, or fixed — though according to the circumstances it presumably can be — and as such it is unbounded by definite limits or restrictions. We venture to suggest that *overdetermination* is related to the Peircean category of Firstness, as well as to the concepts of *vagueness* and *inconsistency*. However, *overdetermination* in the purest sense actually appears tantamount to what we might label pre-Firstness, before there is or can be consciousness *of* a sign (Baer 1988). Consciousness *of* a sign, during the very moment it is emerging into the light of day, remains *vague*, to be sure. As consciousness *of* the sign becomes more pronounced and *vagueness* gives way to increasing precision, a small number of the indeterminate range of possible specifications of the sign can become *actualized* as Seconds to take their place in what is perceived and conceived to be the ‘semiotically real’ world. But whatever specification might have been *actualized*, others remain as *possibilities*, some of them contradictory with respect to other *possibilities* and to that which was *actualized*. In other words, regarding the Secondness and Thirdness of signs *of* which there is consciousness and regarding which specification of meaning can be made more precise, *underdetermination* (related, we would like to think, to *generality* and *incompleteness*) makes its presence known here and there.

Wrapping things up, we venture forth with the suggestion that within the sphere of *overdetermination*, mutually incompatible *possibilities* of

meaning can cohabit without undue conflict (and as a result, the *Principle of Non-Contradiction* loses some of its sting). In contrast, within the sphere of *underdetermination*, an actualized meaning within one space-time slice can become something slightly to radically different within another space-time slice (hence the *Excluded-Middle Principle* is abrogated).<sup>8</sup>

But, . . . Good Lord! All this seems to be too much too quickly. What is the import of our preliminary conclusions and the notion of culture? Why do we need these apparently convoluted concepts and their attendant meanings at all? Doubt enters. But having taken a plunge into Peirce's *vagueness* and *incompleteness*, we doggedly continue hacking our way into the semantic jungle before us.

## 9. Playing one side against the other

Eventually, we become more confident regarding one of our conjectures at least: that the sphere of vagueness, of possibilities (Firstness), is timeless, while that of generality (actuals developing toward the fullness of Thirdness) is time-bound. We begin anew, tenderly.

By the very nature of their interdependent, interrelated interaction, signs of generality are destined, in the long run of things, to suffer a fate complementary with that of signs of vagueness. Time, again. Yes! Our thoughts on timespace come into view.

Peirce wrote that '[n]otwithstanding their contrariety, generality and vagueness are, from a formal point of view, seen to be on a par' (*CP*: 5.447). Vague signs cannot be construed as vague unless endowed with at least a tinge of generality, and general signs, given their inevitable degree of incompleteness, are invariably somewhat vague. Peirce readily conceded that no sign can be vague and general from the same perspective and from within the same space-time slice, since insofar as the determination of a sign is extended to the interpreter — i.e., the case of generality — it is by and large denied to the utterer, and insofar as it is extended to the utterer — i.e., the case of vagueness — it lies largely beyond the grasp of the interpreter (*CP*: 1.463–1.469, 5.447–5.457). By no means, however, do we garner the hope that Firstness has a monopoly on vagueness, but rather, vagueness to a greater or lesser degree pervades any and all signs. This seems to be in keeping with Peirce's abolition of clear and distinct, and precisely demarcated, boundaries. We also take the reins between our teeth and add that the interdependent, interrelated interaction herein implied between vagueness and generality — and

overdetermination and underdetermination — is not usually forthcoming in twentieth-century philosophical discourse.

We remind ourselves that Bertrand Russell (1923) relates the Principle of Excluded-Middle exclusively to vagueness. Williard V. O. Quine (1953) focuses almost obsessively on underdetermination with respect to scientific theories, and by extension, natural language (Føllesdal 1975). More recently, Donald Davidson (1984) throws vagueness into the same bag with generality and incompleteness without showing how they are agonistically set apart and at the same time intricately intertwined (Ervine 1991: 105–14).

We become aware that every sign is in the Peircean sense at least partially determined, and its partial determination is contingent upon its varying degrees of context-dependent vagueness and generality:

A sign (under which designation I place every kind of thought, and not alone external signs), that is in any respect objectively indeterminate (i.e. whose object is undetermined by the sign itself) is objectively *general* in so far as it extends to the interpreter the privilege of carrying its determination further. *Example*: ‘Man is mortal’. To the question, What man? the reply is that the proposition explicitly leaves it to you to apply its assertion to what man or men you will. A sign that is objectively indeterminate in any respect is objectively *vague* in so far as it reserves further determination to be made in some other conceivable signs, or at least does not appoint the interpreter as its deputy in this office. *Example*: ‘A man whom I could mention seems to be a little conceited’. The *suggestion* here is that the man in view is the person addressed, but the utterer does not authorize such an interpretation or *any* other application of what she says. She can still say if she likes, that she does *not* mean the person addressed. Every utterance naturally leaves the right of further exposition in the utterer, and therefore, in so far as a sign is indeterminate, it is vague, unless it is expressly or by a well-understood convention rendered general. (*CP*: 5.447; also *CP* 1.434)

Thus, ‘a sign can only escape from being either vague or general by not being indeterminate’. Yet no sign ‘can be absolutely and completely indeterminate’ (vague) (*CP*: 5.506). For a sign, ‘however determinate, may be made more determinate still, but not . . . absolutely determinate’ (general) (*CP*: 3.93). If a sign were totally determinate, it would always be as it is, its attributes remaining intact and changeless.

Yes, of course, we would like to say. What could be more natural? In everyday situations, when the plethora of potentially variant timespace slices comes into the picture, the possibility of any absolutely determinate sign dissolves. There was a George Bush Senior of ‘Read my lips’, of ‘No new taxes’, of ‘Perhaps new taxes’, of ‘New taxes’, and of ‘New taxes, but the democrats made me do it’. But there is no George Bush impervious to

any and all change. We have a Bill Clinton of the Democratic Party as now neoliberal, now for social programs, now wooing the conservatives, now catering to the business community, now also of the working class and capable of eating hamburgers with the best of them, now favorable to the educators, now sympathetic with women and minority groups and gays, now friendly with the women folks but doing nothing improper, now intimate with a certain member of the opposite sex but according to his way of putting it still quite morally upstanding. Bill Clinton, like all signs, can be many things to many people, or he can be virtually an empty set capable of taking in almost any sign, according to the interpretation.<sup>9</sup> Like all signs, he simply cannot stand still. We also have George 'Dubya' Bush who talks terrorism through one side of his mouth and war against Iraq through the other side; he says Bin Laden in one moment and Saddam Hussein and weapons of mass destruction in the next moment, while somehow bringing them together in one package. Why should anybody let him stand still, as he continues to dance and sashay from one side to the other?

Still searching, we read from Peirce that whatever lasts for any time, however short, will invariably undergo some change (*CP*: 3.39, note 1). Peirce seems to say here and elsewhere that every sign must interrelate with some not-quite-absolutely-general 'semiotic object'. The 'object' cannot be the absolutely 'real object' as it is, for all 'objects' are interrelated with all other 'objects' of a given field of signs. To be sure, all signs relate to some singular 'object', at least potentially understood by all semiotic agents. But since the 'really real' lies perpetually beyond our grasp, there must exist some lesser sphere containing signs and their 'semiotic objects'. That sphere is partly shared by the semiotic agents involved in dialogic exchange, and those signs and 'semiotic objects' are to a greater or lesser degree general, though never absolutely so, and hence they are to a greater or lesser degree vague.

Vagueness and generality are in this sense *complementary* forms of *indeterminacy*. A sentence can be determinately judged either 'true' or 'false' in the 'here-now', though in the 'there-then' its value will have suffered a change, however small — thus, Peirce's conception of 'logic' in the 'broadest possible sense' embraces temporality. And a sentence that has been determined either 'true' or 'false' in one respect may be neither 'true' nor 'false' in another. A sound can be neither blue nor red in the literal sense, though it may conceivably be either the one or the other in the synaesthetic sense. Consequently, the predicates 'shrill' or 'mellow', 'bitter' or 'sweet', or 'blue' or 'red' attached to the sign can be both 'true' and 'false' from within the range of all possible conceptions. Now Peirce is finally beginning to make sense with respect to sign making and

taking within cultural contexts. Perhaps our deterritorialized meandering is beginning to bear fruit. A renewed note of confidence enters.

Ah, here is an appropriate passage: Generality includes the Peircean terms potentiality, convention, necessity, conditionality, and regularity — all of the category of Thirdness —, which implies process, growth, intellect, and mind (*CP*: 1.340). Generality thus calls for ever greater account of particular signs and their attributes as types. Yet to expect absolute determinacy through generality is out of the question: there can be no more than an approximation toward a sign in its most general sense.<sup>10</sup> Vagueness, given its nature as indefinite, ambiguous, and indeterminate, takes the terms possibility, chance, spontaneity, and novelty into its embrace. While generality entails relations to ‘semiotic objects’, vagueness bears no form or fashion of relatedness of signs to other signs established by some semiotic agent. Pure vagueness (Firstness) is the superposition of all possibilities without any of them being actualized. However, vagueness of actual signs (Secondness) requires their concrete contextualization and their being related to other signs. Such actualized signs, according to their interpretation, can now take on generality (Thirdness). It is for this reason that while the onus of further determination of a general sign is left to the conceptual scheme, the criteria, and the style of reason and the wishes and whims of its interpreter. In contrast, determination of a vague sign depends upon further revelation and specification of its meaning by its author and the context of its engenderment.

Regarding the complementarity of vagueness and generality, Peirce writes that no general description can serve indubitably to identify the object of a sign or establish its meaning. A certain degree of identification of the object is always left to ‘common sense’ (Firstness, vagueness). For:

the common sense of the interpreter of the sign will assure him that the object must be one of a limited collection of objects. Suppose for example, two Englishmen to meet in a continental railway carriage. The total number of subjects of which there is any appreciable probability that one will speak to the other perhaps does not exceed a million, and each will have perhaps half that million not far below the surface of consciousness, so that each unit of it is ready to suggest itself. If one mentions Charles the Second, the other need not consider what possible Charles the Second is meant. It is no doubt the English Charles the Second. Charles the Second of England was quite a different man on different days; and it might be said that without further specification the subject is not identified. But the two Englishmen have no purpose of splitting hair in their talk; and the latitude of interpretation, which constitutes the indeterminacy of a sign, must be understood as a latitude, which might affect the achievement of a purpose. (*CP*: 5.448, note 1)

In addition to common sense, *purpose* is a watchword here. If two somewhat different conceptions of the same sign — one person's estimation of Charles the Second and that of another person — yielded meanings that were for all possible purposes equivalent, then the signs could conceivably be considered equivalent. There apparently would be no latitude of purpose, the sign would be general in the fullest possible sense. Nor would there seem to be any room for vagueness, for the sign would have taken on the fullness of its generality, in the minds of its interpreters at least. However, in the context of human communication by way of natural language — and all other sorts of communication as far as that goes — there is no absolute identity of purpose. For, the motivating force behind purpose itself involves common sense (intuition, inclination, belief, disposition, all of which have a foothold in Firstness and are inevitably tinged with some degree or other of vagueness). Vagueness, then, is irreducible to the rank and file absolute determinacy of the 'semiotic object', since there is always something indeterminable and left indeterminate. Yet vagueness is every bit as essential to thought as is generality. For, a particular sign, its 'semiotic object', or its interpretant, cannot be properly cognized in the total absence of the general nature of the semiotic entity in question. And unless there is some element of vagueness, there can hardly be any account of the entity's change over time: a changeless, timeless sign would be none other than a Parmenidean eternally invariant domain of some form or other jam-packed with a host of timeless essences into an artificial *plenum*.

We attempt another preliminary sum up, now somewhat boldly, fortified by Peirce's words. In a finite community of fallible semiotic agents, there can be no unadulterated sign of generality without at least a tinge of vagueness. And there can be no purely vague sign, for once actualized in order that it be made intelligible, a vague sign must take on at least some modicum of generality according to its interpreters' inevitable beliefs, habits, presuppositions, prejudices, and preconceptions. If any form or fashion of a 'logic in the broadest possible sense' there may be, it must include the spheres of both vagueness and generality, and hence we once again note that the Principles of Non-Contradiction and the Excluded-Middle will not always be able to wield their terrible swift sword. The upshot is that insofar as we finite, fallible semiotic agents are concerned, all generals are also possibly false (i.e., the incompleteness of underdetermination), therefore they can be taken only conditionally as necessary, those conditions always remaining subject to their partial fulfillment, or in the event that they are false, to their unfulfillment.

But alas, we remain unsatisfied. How to go on? We decide on a further look at the complementary role of a sign's author and its interpreters — themselves also signs.

## 10. Our signs' elusiveness

Taking into account the composite characteristics of *possibility* (Firstness), *actuality* (Secondness), and *potentiality* (Thirdness), a certain 'Principle of Indeterminacy' is crucial to an understanding of Peirce's notion of *semiosis*.

If we embrace Peirce's idea that we dwell in a vague and inconsistent, and general but perpetually incomplete, world of signs, the ubiquity of vagueness and inconsistency breeds a tendency to tolerate contradiction and paradox. Moreover, the inevitability of incompleteness in all signs of general nature allows for the entrance of unexpected thirds without conceivable end. Yet, Peirce writes in so many ways that the collusion of possibility, actuality, and potentiality makes up our 'semiotically real world' as we perceive and conceive it, which, if we are fortunate, stands an outside chance of approximating some portion of the 'real'. Any and all 'semiotic worlds', in this light, must remain radically uncertain, for, 'when we busy ourselves to find the answer to a question, we are going upon the hope that there is an answer, which can be called the answer, that is, the final answer. It may be that there is none' (*CP*: 4.61).

Well, then, Kurt Gödel's inconsistency and incompleteness comes to mind. Peirce does not use Gödelian terms, now commonplace in mathematics, logic, and physics. However, we recall that his vagueness-generalty dyad is brought in line with something reminiscent of a Gödelian framework by Rescher and Brandom (1979: 124–26), though admittedly for a different purpose (see Merrell 1991, 1995; Nadin 1982, 1983). Vagueness-generalty and inconsistency-incompleteness and their relevance to indeterminacy and complementarity becomes more apparent as we contemplate Peirce's suggestion that '[e]very utterance naturally leaves the right of further exposition in the utterer; and therefore, in so far as a sign is indeterminate, it is vague, unless it is expressly or by a well-understood convention rendered general' (*CP*: 5.447).

Yes! That must be it — or at least so it would seem at the moment. The indeterminately vague sign calls out to its maker for further clarification, since that which can render it less vague is more accessible to the possibilities that lie before her than before the sign interpreter. If a sign of vagueness includes contradictions, then the sign's meaning for one community might be incompatible with its meaning for another community at another time. And if a sign of generality is never determined to the extent that it cannot be determined further, then an unordered set of potential interpretations exists with the characteristic that between any given pair of interpretations there can always be a third one.



In other words, as we noted, the Excluded-Middle Principle loses part of its sting. A small group of mathematicians, the intuitionists, deny the Excluded-Middle Principle altogether. They would discard statements the likes of 'either there is a string of 18 consecutive 5's somewhere in the decimal expansion of  $\pi$  or there is not', since they can most likely enjoy no proof in our finite world. That is to say, 'truth' is intimately linked to provability. For quite different reasons, a handful of quantum theorists also reject the Excluded-Middle, in roughly the sense of Jan Lukasiewicz, the Polish logician of the 1920s, whose '3-valued logic' includes 'true', 'false', and 'undetermined' (indeterminate, intermediate). In fact, John von Neumann pioneered an alternate 'logic', 'quantum logic', especially tailored to the needs of quantum phenomena. Following the general implications of quantum theory and quantum logic, a sign's becoming a genuine sign depends upon the interpreter's interaction with it. Just as no 'wave packet' is an actualized 'particle-event' until it enters into relationship with some aspect of its surroundings, so also no sign is a full-blown sign until it has been actualized (and interpreted) by some interpreter in some respect or capacity.<sup>11</sup>

Another simple 'thought experiment', we feel, might serve to illustrate our idea that: (1) a sign is not a genuine sign until it has interacted with some semiotic agent; (2) within the (vague) realm of all possible signs, inconsistency or contradiction inevitably prevails; and (3) given the range of all actualized (general) signs, past, present, and future, there is no guarantee that the Excluded-Middle applies, hence the meaning of any and all signs will be incomplete. Assuming we have little knowledge regarding a particular event reported in the newspaper, we can read each individual sentence with rather wide-eyed, innocent — and exceedingly vague — belief. Yet at a more general level we may also believe that this article, like all others, is in all probability the victim of at least some degree of biased reporting. We tend to believe each individual sentence as it stands, but at the same time we are willing to concede to the possibility that our belief in a given sentence can embrace contradiction, since we also believe that, lurking somewhere in the report, there is undoubtedly some distortion of the 'truth'. So we take the article as a whole with a grain of disbelief, though we have not yet encountered any sign of deceit: it remains as a sign of possibility. Even though we might not have been able to catch the reporter at her devious game, we may still retain our faith that a closer reading will in all likelihood reveal some sort of inconsistency (i.e., that the sign of possibility will be actualized). In other words, we believe the article is neither wholly 'true' nor wholly 'false', but somewhere in between (we once again realize that banishing any and all

contradictions and paradoxes is an interminable and hence futile enterprise). Extrapolating from Peirce, it seems to follow that: (1) an assertion of possibility (Firstness), having found newborn freedom from the Principle of Non-Contradiction, rests chiefly within the domain of vagueness; (2) an assertion of necessity (Thirdness), liberated from the fetters of the Excluded-Middle Principle, pertains primarily to generality; and (3) an assertion of actuality (Secondness) by and large, and for practical purposes, remains quite obedient to the demands of classical logic.

This collusion of vagueness and generality constitutes a fundamental principle, noted above, of what Peirce envisioned for his 'logic in the broadest possible sense'. According to the tenets of classical logic, once the identity of a proposition has been determined, it is either 'true' or 'false'. But for Peirce's more general 'logic', as long as a proposition remains indeterminate — which must always be the case to a greater or lesser degree — it is not necessarily 'true' that it is either 'true' or 'false'. In fact, it may also be neither 'true' nor 'false', for some newly born 'truth' may exist somewhere between the erstwhile horns of the presumed extremes of 'truth' and 'falsity'. And until the proposition is an absolutely determinate actuality — which will never be the case in a finite setting of fallible semiotic agents — it may be 'true', given its vast range of all possible determinations at diverse space-time slices, that it is both 'true' and 'false'. Peirce's 'logic', it appears, reflects a tension and potential mediation between vagueness and generality, the individual and the universal, and discontinuity and continuity, as well as between *self* and *other* and *self* and *sign*, in such a manner as to defy precise description. This accounts for the elusiveness of his hopeful 'logic', and his obvious difficulty in bringing it to fruition. It also endows the terms in question with a flavor somewhat reminiscent of Niels Bohr's *complementarity* (Bohr 1961; Folse 1985) regarding the wave/particle duality, of Werner Heisenberg's *uncertainty* (1958), which, he argued repeatedly, is more a methodological and epistemological than an ontological necessity, and of Kurt Gödel's incompleteness-inconsistency (Nagel and Newman 1958).

We're left breathless. This is too much for our paltry mental faculties. Yet we push on; we must push on; we can't help but push on to wherever, whenever. We speculate that since (1) complementarity and the uncertainty principle entail one's knowing now one character of an entity, now another character, without the possibility of knowing both characters in simultaneity, and since (2) Peirce's 'logic in the broadest possible sense' must be time-bound, (3) another brief incursion — albeit tangentially — into the nature of time behooves us.

## 11. Ultimately, it's about time, or better, timespace

According to Gödel's theorem, there are certain questions neither a machine nor presumably we sapient human semiotic agents can answer with a firm 'yes' or a firm 'no', for a degree of inconsistency (vagueness) inexorably inheres. In our nitty-gritty world of human *praxis*, on the other hand, a number of questions exist that apparently cannot be completely (in the most general sense) answered at any particular point in time. But, given sufficient time and experience, and the numbing range of variable possible contexts, eventually a satisfactory answer may be forthcoming.

Moreover, if a question is posed we can — though with some vacillation — choose to answer neither with a definite 'yes' nor a definite 'no', which is nonetheless also a decision. License to vacillate between *this* and *that* and *yes* and *no* creates the possibility, at each new moment, of a slightly to radically different context. And context and time are all-important, for they hold some of the keys to the significance (meaning) of signs and of the semiotic agent's very existence. It is not that time heals all change. Rather, through time, change ushers in new possibilities (Firsts) a minute portion of which are at particular space-time bifurcations and within particular contexts actualized (as Seconds) due to happy, and at times unexpected, collisions and collusions of memories, of present habits, dispositions, and conventions, and of anticipations of the future by the semiotic agent (*via* Thirdness). Most importantly, choices of one sort or another are exercised at each timespace juncture.

Now, if we replace *choice* by *decision* we are on the road toward approximating Gödel's turf. During our everyday coming and going, we decide and then choose, or we mindlessly choose, and then create the illusion we have judiciously arrived at a decision. In whichever case, a decision is made. In mathematical language, to have a proof entails the ability to make a decision regarding the 'truth' of an axiom. That is all quite rigorous, however. For the moment best we stick to our everyday language use. From within natural languages, just as much as from within formal languages, inconsistency and incompleteness play havoc with the power of *decidability*, which depends upon manageable degrees of complexity. The problem is that, given a relatively rich and sophisticated field of natural language signs, the degree of complexity is such that it simply defies our finite, fallible human capacity for specifiability and decidability.

What has been called the 'Berry Paradox' may give us a handle on the issue. This paradox comes in the form of an injunction: 'Find the smallest whole number that cannot be specified by a string of words with

less than twenty-nine syllables'. Attempting to solve the problem by entering through the back door, we can declare that the number of syllables in the Berry sentence itself, twenty-eight, is capable of describing that smallest number. And that smallest number is equal to the smallest number, which cannot be specified by a string of words with less than twenty-nine syllables. We feel compelled to conclude, then, that the least whole number not namable by a string of words with fewer than twenty-nine syllables can in fact be named in twenty-eight syllables. The problem is that the Berry sentence specifies a whole number, which by its own definition it contains too few words to specify. Logically speaking, it should not be able to make a decision regarding such a number, for it cannot 'jump outside' itself to specify the number from some 'transcendental' vantage. If in this vein we take human finitude into due consideration, ultimately, the smallest number not nameable by the Berry sentence is for practical purposes virtually equivalent to the total number of our possible brain states: we cannot possibly hold each and every one of that mind-bogglingly monstrous collection of brain states in our purview for the purpose of deciding on and specifying its magnitude, for logically speaking, we cannot do so without stepping outside our own brains, which we cannot do.

This impossibility of our grasping and specifying the whole of a given corpus has a temporal-existential counterpart, which was quite forcibly made evident in Wittgenstein's (1956) remarks on mathematics (see also Bloor 1976, 1983; Shanker 1987). A natural language rendition of this temporal-existential counterpart is revealed by another quandary known as the Prisoner Paradox. The paradox goes like this: It is Sunday. The warden tells the prisoners that the judge has decreed their execution on one day of that week. But they will not be informed which day it will be until the arrival of that very day; hence it will be a surprise. The prisoners, however, happen to have found a quite astute lawyer. She reasons that, assuming the warden has told them the truth, they cannot be executed, for if the fatal day is to be Saturday, then it cannot be a surprise, since it will be the only day remaining. By this mode of reasoning neither can it be Friday, for Saturday now having been eliminated, Friday is no longer a viable candidate. The same can be said of Thursday, and so on down to Monday. Therefore they cannot legitimately be executed.

There must be some sort of flaw here, we surmise. The lawyer's reasoning is strictly by atemporal logical means; she can certainly afford to be logical, for her life is not at stake. Her field of signs, conveniently conforming to logical principles, is quite manageable and for her apparently decidable. In contrast, the prisoners' very existence is in jeopardy. They

are rightly concerned over how much time remains of their life, and time is precisely the issue here. The lawyer's logic is timeless, and within this framework, entailing a God's-Eye grasp of things, the paradox springs forth in full force. In other words, as far as the lawyer is concerned, all events exist timelessly in the *before* or the *after* (i.e., J. M. E. McTaggart's [1927] B-series). There can't be a 'day *after*', regarding the prisoners' demise, for if there were, there could be no surprise, hence neither can there be a 'day *before*'. So the event of the prisoners' death at the hands of the firing squad can't occur, according to the lawyer's logic that is.

But the prisoners, their emotions having understandably taken precedence over their reasoning faculties, are condemned to time. They live in another world entirely, with a *past*, a *future* and a knife-edged *present* racing from the former toward the latter (i.e., McTaggart's [1927] temporal A-series). At any given *present* the warden can make his decision, the firing squad will be called up, and as far as the prisoners are concerned they will die. Hence try as their lawyer may to convince them otherwise, she will not be able to reason away their expectations of an unexpected moment announcing their doom. Condemned to a time-bound set of possibly, actually, and potentially unexpected signs the complexity of which is beyond their grasp, they can conceive of no solution. There is for them no timeless God's-Eye perspective of the sort apparently enjoyed by their lawyer.

The Berry Paradox traps the sentence 'within' itself and the interpreter within the sentence. The Prisoner Paradox traps the real flesh and blood objects of predication, the prisoners, 'within' the sentence, though a neutral interpreter can presumably remain 'outside', maintaining a timeless logical slant on the whole. It is ultimately a matter of the capacity or incapacity to survey and give account of, and of the knowability or unknowability of, the whole of things. The lawyer thinks she can view the whole from a timeless perspective, as if she were gazing upon the undivided sphere of Firstness or of Thirdness completed once and for all. She sees an inconsistency, and, applying it to the prisoners' 'semiotically real' world of Secondness, declares that the judge's decreed event, the fulfillment of Thirdness, cannot logically come to pass. Caught within their temporal existence and unable to survey the whole, the prisoners believe that an event, so decreed by the judge, is surely inevitable, but they cannot know the point of its occurrence along the race of time. The judge claims he knows what the prisoners and their lawyer don't know; the lawyer claims she knows the judge cannot (logically) know what he thinks he knows; the prisoners know they cannot know what the judge knows, in spite of their lawyer's refutation of the judge's knowledge.

Is there no happy meeting ground uniting such apparently incommensurable mind sets?

## 12. On our knowing our unknowing

Yes, there is a meeting ground of sorts. It plays on the limitations of *knowability*, that is, on the incompleteness and inconsistency of knowledge.

The judge, of the Prisoner Paradox, thinks he can justifiably set the day of the prisoners' execution. But the lawyer has discovered an inconsistency in his reasoning. The prisoners think they know not the day of the execution, and even though the lawyer points out the error of the judge's ways, they are not deterred from their learned sort of ignorance. They know their knowledge is destined to remain radically incomplete. For, between a given future time frame and a past time frame, an instantiation of the present can always pop up within which their doom becomes manifest. In other words, at the very instant knowledge of the time of their execution is at hand, they will be executed: their knowledge will now be complete, but at the expense of their very existence. Whichever day the judge decides upon, an inconsistency will inhere. Whatever the prisoners think, their knowledge will be incomplete. The lawyer thinks she has dissolved the inconsistency by mentally straitjacketing the judge and bringing the system to completion by discarding the possibility of a decision: things will remain as they are, timelessly. But the prisoners' 'semiotically real' world dictates otherwise, for the entire scheme is, from whichever vantage, either inconsistent or incomplete — or perhaps both — up to the instant their very existence is terminated. Each party, it would appear, is either right for the wrong reasons or wrong for the right reasons.

The reasoning behind this madness seems to be the following, we venture to guess. The lawyer's timeless realm of logic, when placed in the living and breathing world of time-bound Seconds and Thirds, is not existentially valid: it allows of no temporality, the very stuff life is made of. So from our perspective within the subjective world of the prisoners, the lawyer's form of logic appears vague and overdetermined: inconsistent signs are superposed as quite unruly bed partners. The lawyer, in contrast, wishes objectively to interject the timeless orb of her classical logic into the actualized sphere of Seconds, which allows for neither contradictory signs nor a proliferation of middles. But the lawyer's logic, from within the prisoners' own existential world, is a time bomb ticking out their destiny. It remains *for* them in their concrete living and

breathing incomplete. In fact, it is underdetermined and incomplete. They cannot know at what point in time the expected unexpected event of their death will occur, though they think they know it will occur. When it does occur, their knowledge will have reached completion, and the uncertainty of proliferating temporal middles between the judge's decree and their execution will no longer exist. But all will have been to no avail, for they will be no more. (Recall, in this light, the cases of science and culture from the timeless vantage point of Firstness: the 'center of the Universe' can be the 'Earth', the 'Sun', or it can be 'virtually anywhere, according to the frame of reference; or, the Virgin of Guadalupe can be the Spanish Mary, or she can be the Aztec 'Guadantzín', according to who is doing the perceiving and conceiving and interpreting. This is comparable to the lawyer's timeless view of the prisoners' dilemma. According to her, the paradox is no paradox at all because there simply can't be a day of execution, logical speaking. Recall also that, within the flow of time, the 'center of the Universe' can be now the 'Earth', now the 'Sun', now 'virtually anywhere', and at some future time something else entirely, so the 'center' is actually neither determinately either the one or the other, but, over time, in all probability something else. Within time, the prisoners' dilemma allows for the unexpected moment of their execution, since the door is always open for something hitherto unactualized to emerge. For the judge, when decision time comes around, there is neither paradox nor beating around the bush: a decision is forthcoming and the following day the prisoners will meet their maker, and that's that.)

Of course we would like to assume that such paradoxes are not ordinarily pernicious and that we can always 'jump out' of the signs within which they are dressed to specify whatever we wish: we persist in our desire to think we are master of our signs. However, though we can occasionally exercise a move from one set of cultural signs to another one of greater complexity, can usually do so only from within our own set of cultural signs. If not, like the Berry sentence or the lawyer of the Prisoner Paradox, we run the risk of futilely attempting to survey the unsurveyable, decide the undecidable, specify the unspecifiable, know the unknowable.

That is to say, given the sign fabricator and its interpreter — both hopeless meaningmongers in the event that they are high-handed humans — what is taken out of the sign is actually what was put there in the first place. What was put there is always subject, in time, to some change of minor to radical sorts, and what is taken out, since invariably incomplete, is always subject, also in time, to further possible additions and deletions. In short, no *corpus* of knowledge in the time-bound world of our severely restricted capacities can be both entirely consistent and nonvague and

complete in terms of its general nature, though our thinking would like to make it so.

### 13. Filling in a few gaps

Regarding vagueness and inconsistency and generality and incompleteness, we judge that Peirce's categories should be more properly foregrounded before we move on.

But before doing so, we recap in order to clear the air a little bit. Firstness is the possibility of a sign's becoming in the realm of Secondness, such becoming governed by the mediating force of the mind by way of convention, habit, and all other propensities lying in wait in the realm of Thirdness. Regarding this role of mind, given our human habits of thought, it seems that acts of Firstness are invariably pervaded with 'subjectivism' and 'idealism', Secondness with 'realism', and Thirdness with 'objectivism' and 'realism'. But these categories do not correspond to disjunctive 'realms' at all. They are mutually interdependent, a constantly folding in and over one another. Their interdependence is essential to their very nature as categories. Thus Firstness without Secondness and Thirdness is nothing. Secondness without Firstness and Thirdness is surely dead. And Thirdness without Firstness and Secondness is well nigh unthinkable. Together, when on their best of behavior, they stand tall; divided, and they will surely fall.

Signs of Firstness cannot but remain vague, and quite often inconsistent. Signs of Secondness, after emerging into the light of day, can — albeit partly arbitrarily — take on what at the outset appear to be crystal clear lines of demarcation. But as particulars, their moment of glory cannot but be ephemeral. For they are destined to pass on into something other than what they are/were, even though the differences between each of their momentary flashes of existence are well-nigh infinitesimal — hence the classical identity principle also runs the risk of falling by the wayside. Signs of Thirdness, it is assumed, must possess some form of continuity of existence. They are hopefully identical with themselves from one moment to the next, and they can be distinguished from other signs in terms of their character as generalities — though they cannot help being tinged with some degree of vagueness, for they are never free of Firstness *via* Secondness. But as generalities they are destined to remain incomplete, since there will always exist the possibility of other signs filling in the gaps between what had hitherto been construed as a set of precise categories. The upshot is that by and large there is a definite move toward some sort of idealism in terms of sign generalities, yet, incompleteness there will always be. Underdetermination is the order of



the day in this domain of generalities, since whatever sign happens to be underdetermined at a given time and place, it could always have been something other than what it is. As a rule of thumb, overdetermination ultimately entails a superposition of all possibilities without any of them having been actualized into Secondness; underdetermination is the juxtaposition of what at a give slice in space-time is considered 'real' and what is relegated to the status of 'unreality'.

The underdeterminationist assumption has it that intuitively we believe something but not everything is 'real'. Since we cannot by empirical means discover what is 'real' without a shadow of a doubt, the matter is left to our judgment, according to our persuasions and propensities and wishes and whims. Underdetermination implies incompleteness, for, what is 'real' could always have been construed otherwise, and what is 'unreal' may yet stand some outside chance of becoming 'real' at another time and another place. Underdetermination regarding scientific theories stipulates that competing and equally legitimate theories — equally legitimate from within their particular conceptual schemes, that is — can be generated on the basis of the same set of observations.<sup>12</sup>

Quine (1969), one of the more ardent underdeterminationists — by way of Duhem's methodological 'holism' — argues that a theoretical sentence in physics can have the same underdetermined relation to experiments and observation sentences that a sentence of natural language has to the observed objects, acts, and events that it is about (Vuillemin 1986). He writes that since experience is never an infallible adjudicator for rejecting or embracing individual theoretical sentences, theoretical physics cannot be other than an interconnected web of sentences, procedures, and formalisms in contact with the world only at its edges, if at all. Any impact observation sentences may have on the web becomes distributed throughout the web such that no part of it is immune to change and no part stands alone in bearing the brunt of that impact. Additions, deletions, and adjustments of diverse sorts can often be made in the whole to accommodate the experience, but there is no infallible or unique method for making these adjustments. Four naturally occurring elements or 92 of them, phlogiston or oxygen, Euclidean geometry or Reimannian or Lobachevskyan geometry, Darwinian or Lamarckian evolution, all during certain periods have been aided and abetted by proper 'empirical evidence' from one perspective or another. According to the dictates of a community's desires, what now appear to us as the most bizarre of theories could be, and at times have been, granted 'truth value'. And when fads, fashions, and tastes have suffered from the introduction of alternatives, theories have either followed suit, or they have served as stimuli for the most likely candidates from among those alternatives.

Given the nature of underdetermination, then, it is quite often possible to embrace logically incompatible but empirically equivalent theories — albeit at different times and in different places. As a consequence, competing and mutually exclusive theories may always be available to account for the observational data at hand. Arguments for determining absolute ‘Truth’ are thus rejected: we can at best only know what we (think we) know, for we can’t know whether what we know is infallibly ‘true’. That is, by Peircean refutation or Popperian falsification, we can’t know that what we know is *not* ‘false’. So the dominoes are set up only to be knocked down. Yet the hope persists in us that to all questions, an answer can eventually be found. Otherwise there would hardly be any motivation for continuing to play the game of inquiry. In other words, thought can potentially cure all ills, though when put into signs for communication with other semiotic agents, it often threatens to become undecidable.

It would appear, then, that our ideals are perpetually out of line with our real capacities. Such is the general nature of Peirce’s doctrine of fallibilism. Thus we see with greater force that overdetermination and underdetermination applies to the very idea of fictionality, and especially to the inexorable fuzziness between fictions and the ‘semiotically real’. The exact quantity of gold in Pike’s peak, the cause of Hamlet’s dementia, the reason for Napoleon’s decision at the Battle of Waterloo, Don Quixote’s height, the use of  $\sqrt{-1}$  in quantum theoretical equations, the absolutely precise nature of the sun with respect to all other entities in the firmament, are all underdetermined in that they are never so complete as to be immune to further determination. In fact, all signs are to a greater or lesser degree underdetermined, their ‘reality’ status or their fictionality status notwithstanding. Consequently, a community’s fabric of signs is read into experience, and in the process it becomes the *world that is*, the ‘semiotically real’. ‘Semiotically real’ signs from diverse time periods and from a variety of belief that are pregnant with meaning (‘mass’, ‘energy’, ‘Eucharist’, ‘Big Foot’, ‘Zeus’, ‘UFOs’, ‘mana’, ‘witches’, ‘AIDS’, ‘cholesterol’, and the ‘Cross’ and ‘Swastika’) have become so impregnated because of the role they play and the place they occupy in their respective interwoven semiotic fabric. They do not describe experience; they are ‘intersubjective idealizations’ of experience. Whether dressed in relatively concise and complete abstract language or in everyday language and enshrouded in vagueness, much of their meaning remains implicit.

After all has been said and done, we somehow sense that the overdetermination (vagueness)-underdetermination (incompleteness) set of terms is itself perhaps most economically viewed as two *complementary approaches toward knowing what is* (see especially *CP*: 2.322–2.323). The two approaches pattern the Heraclitus-Parmenides and Aristotle-Plato

antagonisms. In their purest form, one is messy and unkempt; the other is orderly. One is rich in the variety of its concrete particulars; the other is formal and parsimonious. The one is a maze of tropical flora; the other is a barren desert converted into a grid of meticulously cultivated plots. As the old adage goes, like the horse and the carriage and love and marriage, you can't have the one without the other. But there must be more: the *Included-Middle* emerging from within the pairs of terms, evincing inconsistencies here and there, keeping the complementarities together, in spite of whatever tensions might arise. So, we cope with our unruly signs, as best we can, improvising at every step, and we get on with life's processes.

Exhausted, we find ourselves . . .

#### **14. Desperately searching within the Latin American scene**

Where now? How? Why? How can we assume cultural practices within a timespace conception? Points, lines, planes, solids? How can we be so presumptuous? What vanity leads us to such assertions? We recall our vague feeling that the Amerindian Guadalupe — with lingering notions of their goddess, Tonantzín — and the Spanish Virgin, mother of Christ were somehow fused into 'Guadantzín'. Guadantzín emerges from the *Included-Middle*, from between the apparently incompatible terms, one within the Amerindian tradition and the other from within the Spanish tradition. Do we not have some sort of clue here? Where do we find comparable cultural phenomena?

Yes. For example, we have Brazilian intellectual Mario de Andrade's (1984) legendary anti-hero, *Macunaima*, who incorporates three 'races': European, Afro-American, and Amerindian (see also Morse 1993). Macunaima is caught in the middle among cultural worlds, there, suspended. He can't dwell in any one of these worlds; he is all three of them and at the same time he is not really any one of them, and he is neither any of them nor is he not any of them for he is all of them and at the same time he is none of them. Poor Macunaima, supreme Latin American metaphor of the *border of borders* collapsed to a point that oscillates in and out of the becoming of European and Afro-American and Amerindian and yet he is not becoming anybody at all. He can't choose because he is like a sine wave pattern of indecision; he indefatigably oscillates to and fro, to and fro; he is incessantly deciding yet he never quite decides. He is incapable of tapping the *border of borders* in order to come up with some pluralistic sense of flowing, incessantly changing identity that is one yet it is many. He remains caught along the dotted line in the Möbius band, unaware of the genuine nature of his complex cultural and ethnic density,

unable to tap the depths of his world-line within timespace in order to bring about a creative evolution of his becoming. (In short, he is like the prisoners oscillating from one day to the other to the other in their desperate attempt to arrive at an answer regarding the day when fate decides to knock on the door.)

Macunaima could learn a lesson from Jorge Amado's Dona Flor in his novel, *Dona Flor and Her Two Husbands* (1969), who chooses not to choose with respect either of her two husbands. The choice to resist making a choice, of course, is a choice. Yet in refusing to choose, Dona Flor enjoys the best of all possible worlds. She has both the methodically plodding husband, paragon of predictability and responsibility, and the erotic, roguish, daring husband who always promises a ribald, rip roaring time. In contrast, Macunaima, is unable to shake of the burden of What?, How?, Why? Those interrogatives again.

*Uncertainty* and *ambiguity*: two terms that come to mind with respect to Macunaima's dilemma. These terms are tempered by the notion of *complementarity*, which is interrelated with vagueness and generality, overdeterminism and underdeterminism, and inconsistency and incompleteness, emptiness and possibility, and there is always the process of becoming. Once again, do we not find these concepts in mathematical logic thanks to Kurt Gödel? Also in Heisenberg's uncertainty principle, in Bohr's interpretation of the quantum world, in Ilya Prigogine's (1980) physics of complexity? Do they not pop up repeatedly in the arts and humanities (Henderson 1983; Hofstadter 1979; Kern 1983; Meyer 1967; Shlain 1991; Szamosi 1986)? Somehow it would appear that we are finally getting somewhere. Small comfort: uncertainty, ambiguity, complementarity, and undecidability, all coupled with the devastation of our cherished principles of classical logic.

Then we demur, embarrassed by our unexpected boldness. How can we be so presumptuous when our recipe for knowing our culture-worlds, our physical world, and ourselves are so limited, so dour, so somber? Yet that's what we're left with when everything is said and done. We have no alternative but to take the baton from there and do with it whatever we can. We continue wandering, in vain it would appear, for who are we to think that we may fully understand our signs by means of which we somehow navigate through life, and what are signs that they may allow us to think we understand them?

## 15. The scene becomes delightfully muddled

Then we pluck up a modicum of valor, and it gradually allows us a drop of confidence. Within human cultures, those of Latin America for

instance, do we not find expressions patterning paradox and uncertainty, vagueness and ambiguity, complementarity and incompleteness, and overdetermination and underdetermination much in the order what some of the most gifted individuals among us have handed down in the most abstract disciplines — namely logic, mathematics, and physics? Might we not therein find some answers, however elusive they may be? And might not these key terms somehow reveal the enigmas cultural processes present before our feeble and fallibly limited senses?

The idea of racial, ethnic, and cultural blending (*mestizaje*) pops up. These processes, wrought and wrangled and warred over with increasing ardor during the past few decades, continue to evade us. The very phrase ‘racial, ethnic, and cultural *mestizaje*’, qualified by a mixture of labels — acculturation, hybridity, transculturation, and so on — make up a concoction of terms customarily accompanied by ‘logics’ of polyculturalism, multiculturalism, transculturalism, subalternity, hegemony, postmodernism, postcapitalist neoliberalism, globalization, and so on, that are either used almost indiscriminately, and if not, they are rarely given the specification one would expect, especially when these terms come from hegemony wielding scholars within the confines of the most notorious departments in the most prestigious universities in the land. Yet after reading these scholars’ offerings — mandatory reading for eager graduate students, hence equally mandatory for career-minded professors in lesser institutions of higher learning — we come away with Peggy Lee’s query from her sultry song: ‘Is that all there is?’ No, that’s not all there is! Not by a long shot. As Brazilian songstress Rita Lee puts it: ‘Sex is carnival; love is bossa nova’. Yes. Sex and love, apples and oranges: the differences are that pronounced. What has been handed down to us thus far by the cultural theory gurus is by and large so much regurgitated, desiccated, and hypergeneralizing verbiage posing as the genuine article (discourse by scholars all too often ensconced within the confines of academia — a lot of ‘talk’ and ‘sex’) while concrete, everyday, real flesh and blood people, how they feel, how they think, how they really live (and above all how they concretely and genuinely ‘live’ and ‘love’) hardly comes into the picture. But enough ranting. We must get on with our search.

Ah, there’s Gruzinski again. His emerging into view was surely not happenstance. There must have been some reason for it. We milk him for a few threads we might be able to weave into a tapestry of some sort.

However: racial, ethnic, and cultural *mixture* (*mestizaje*)? That doesn’t sound quite right. So we omit ‘racial’. ‘Ethnic’ and ‘cultural’ are sufficient for our purpose — not for ‘political correctness’, mind you, but because we are searching, rather than following recipes of proper conduct. Race is too charged with biological and social Darwinist overtones. Ethnic

and cultural mixture, amalgamation, blending, fusion, interpenetration, juxtaposition, superposition, overlapping, transposition, syncretism, fusion, and so on.<sup>13</sup> Still too many words in this semantic labyrinth. Gruzinski finds certain comfort in mixing (*mestizaje*). Mixing that which was segregated into presumably pure qualities, ‘homogenous’ qualities supposedly contamination free. Mixing must surely end in ‘heterogeny’, must it not? Thus there is transgression from ‘homogeny’ to ‘heterogeny’, singular to multiple, order to disorder, pure to dirty. Not so? So it might seem. That’s the down side of the term *mestizaje*. The up side consists of postmodernism’s celebration of difference, fracturation, pluralism, ‘heterogeny’, all of which often go by the label: *hybridity* (see Bhabha 1994; Butler 1998; Parry 1994, 2002; Santos 1998; Werbner 1997).

## 16. On the terms used

We find ourselves backtracking yet another time. We really must qualify three new terms — ‘homogeny’, ‘heterogeny’, and ‘hegemony’. We stutter and stumble, then a few tentative definitions emerge. *Homo-* qualifies the sphere of Firstness: a union of vague, overdetermined, complementary contradictories into a harmonious package in terms of sheer possibilities. *Hetero-* qualifies the sphere of Thirdness: sets of actualized terms that within indeterminately variable contexts are always in the process of becoming something Other than what they were becoming by way of always incomplete, underdetermined, hypergeneralized cultural worlds. The suffix, *-geny*, implies a manner of emergence, organic becoming without its reaching the stage of already having become.

Homogeny makes up a continuum of possibilities. Nothing is actualized, not yet at least. There are no distinctions, no lines of demarcation, no boundaries, no Other, no Otherness. Everything is there as a continuous — hence in principle potentially infinite — set of possibilities. The sphere of homogeny is of the form of virtually unlimited interrelatedness. It is the ‘utter vagueness’ of which Peirce often wrote. Thus, within homogeny, overdetermination is the order of the day. From homogenic possibilities through emptiness and the absence of actualities by the emergence of distinctions from emptiness, virtually anything can possibly give rise to anything else at some or other time and place. Thus, inconsistencies within the sphere of homogeny can become virtually compatible, at least until they enter the light of some hegemonic day.

Consequently, we see once again that the classical Principle of Non-Contradiction is thus rendered impotent. Both one entity or sign and another otherwise contradictory or incompatible entity or sign can exist

side-by-side quite comfortably. This is no problem, however, for nothing is actualized to make the inconsistency readily apparent. All is no more than possible. But, considering virtually unlimited contexts, past, present and future, there is no determining what might stand a possibility of emerging. What at one time and place might be considered contradictory and hence categorically barred, at another time and place might be considered as normal as can be. (Is the Earth the center of the universe?, or is the Sun the center of the universe?, or is the center perhaps somewhere else? — as we recall from the above, it's all a matter of who lives when and where and what corpus of thought they buy into. Is Guadalupe the Spanish Virgin or is she the Aztec 'Guadantzín'? Only particular perspectives can give us an answer).

*Hegemony*, we surmise, is not simply a polarity between haves and havenots, dominants and subservients, superalterns and subalterns.<sup>14</sup> Through contestation on the part of the havenots and their negotiation with the haves, it contains, within itself, effervescent, scintillating possibilities. These possibilities include emergent images, interrelations, and ideas giving rise to renegotiations of norms and values. This is no simple binary matter of Secondness with respect to hegemony. It intermittently highlights Firstness and Thirdness while subjecting Secondness to alterations and reforms. A certain sense of identity may make its appearance during these exchanges. But if identity there be, it is no more than ephemeral, transient, a minuscule and barely distinguishable area within the entire flow of things.

In this vein, hegemony entails distinctions marked out, actualization of what there is — or at least what there apparently is. It is the onslaught of digitalization and linearization at their best and at their worst. Here, classical logical principles usually manage to put on their best show. There is apparent Identity; Contradictions are customarily taboo; and Excluded-Middles are usually maintained at all cost. Hegemony is more often than not taken as the author of binaries, dualities, Manicheisms. Everything actualized — and imaginary unactualized things as well — is subject to strict demarcation: here/there, then/now, master/slave, dominance/subservience, self/Other, male/female, rich/poor, superaltern/subaltern, and so on. Here, the idea of incommensurability, as in Thomas Kuhn's (1970) 'scientific revolutions', becomes an issue in terms of nontranslatability, incompatibility, unintelligibility, and the impossibility of effective communication. Here, Gayatri Spivak's (1988) subaltern apparently can't speak and scholars can't listen, because they live in totally different worlds. Here, the much used and abused concept of syncretism can usually have its day. However, all is not always well in the utopia of a definite place for everything and everything in its place. Hegemony is also

the field of interaction, conflict, contestation, and negotiation. At any moment the possibility of the unexpected stands at least an outside chance of making its apparent existence manifested. Then, things may be up for grabs once again, and something from the virtually infinite range of possibilities (homogeny) can bring on something different, something novel, something new.

When novelty happens to pop up from the sphere of homogeny to take what might seem to be its rightful place within hegemony, it is primed to enter the arena of heterogeny, where clear-cut Manichean distinctions become fuzzy differences. Differences are at freedom to proliferate, and become increasingly finer until they are hardly distinguishable. For, the long history of surprising turns of the screw and the arising of novelty from homogeny to create change and often havoc and chaos within hegemony creates the notion that, actually, nothing is fixed, for everything is flux. Flow, meandering streams, side winding whitewater stretches, rushing flood stage chaos, are, apparently they have always been, and quite likely they will always be, of the nature of the universe. Comfortable fixtures in our perceived and conceived world are no more than minuscule islands constantly eaten away by the vast sea of chaos surrounding them.

Within heterogeny, full-blown language practices arise. Now, there is the possibility of metaphor, metonymy, irony, malapropisms, spoonerisms, hyperbole, portmanteau words, and myriad other strange making rhetorical devices. Nothing is ever exactly what it was. Within this process, underdetermination is always ready to make its play. Whatever might be considered the one and only interpretation of whatever there is at one time and place can possibly be subjected to another quite incompatible interpretation at another time and place. (First we had the Earth as center of the universe; at another time and place, the Sun as center; now, the center as relative to the frame of reference. First the Spaniards had a Spanish rendition of their Virgin, but the Aztecs *mesticized* her to create their own 'Guadantzín', and we must assume that over the years she has suffered from many changes — she has become an image on sooped-up hotrods in Los Angeles, tattoos on gang members in Mexico City, the subject of pop art in New York, and so on. All this, thanks to the effervescent nothing that *border of borders*).

Consequently, there are no necessary Excluded-Middles. Given the myriad concoction of possible times and places and their contexts, there is no predetermining what theory, interpretation, or general form of life might emerge. There is mediation between hegemony and hegemony through heterogeny to bring about the condition wherein whatever happens is in the process of becoming: there is no Being, only a being of



becoming and a becoming of some possible being that never quite finishes its becoming.

In sum, everything heterogenous is interdependent, a characteristic that complements the interactivity of hegemony and the interrelatedness of homogeny. Everything is interrelated, interactive, and interdependent through the merging of Other, the Otherness of the Other and the Other of that Otherness. This is not merely a matter of some Self here and some Other there. The line of demarcation between Self and Other within the sphere of hegemony becomes 'something' rather than merely 'nothing' — or at least 'nothing' in the usual Western sense of the word. Or perhaps better put, it becomes emptiness, which is to say that it is 'something' yet it is not 'something': it is sheer nothingness, emptiness. The interdependency of everything and every Other suggests that the celebrated subaltern can speak after all. She speaks, and if the superaltern — member of dominant social circles — can listen, she listens. But she is able to listen only after undergoing a long, painful, mind torturing process of initiation. (Contemplate, for instance, the role ideally — and in many to most cases, actually, in my estimation — played out by Subcomandante Marcos of EZLN and the indigenous Chiapas peasants [Marcos 1995]. Marcos lived among the indigenous people for some 11 years before the Zapatista rebellion began January 1 1994, the same day NAFTA went into effect. He learned their language and their 'form of life' insofar as possible. He did not enter the Chiapas jungle with the purpose of gathering them around him and leading them according to some ideology hitherto unknown to them. Rather, while learning their ways, he dropped suggestions here and there, and finally, they took the lead for themselves while he became their spokesman. His role was that of a mediator between the Zapatistas, the larger Mexican society, and the neoliberal world. Thus the mask, in order to resist becoming the typical charismatic revolutionary hero in the mold of Che Guevara; thus his originally concealing his identity, in order to prevent his being highlighted with respect to the indigenous people any more than necessary. Did the subaltern speak to Marcos? Had Marcos learned to listen? We would like to think so, at least inasmuch as communication between subaltern and superaltern can become possible. Incidentally, John Beverley [1999: 26–29] writes that most talk about subalternity regarding the Latin America scene is no more than so many concepts without content, preconception devoid of intuition, theorizing in ignorance of first-hand experience, language divorced from the concrete physical world. We tend to agree, in spite of our customary modesty.)

Homogeny proceeds from emptiness or the *border of borders* toward the possible emergence of 'something'. Hegemony is the consequence of

Table 1. *On the interconnections between homogeny, hegemony, and heterogeny*

Homogeny	Hegemony	Heterogeny
'Emptiness' → Empty set	Empty set → Something	Something → Many things
Continuity	Distinctions	Differences (→ Continuity)
Boundarylessness	Boundaries, taken as 'nothing'	Boundaries, as 'something'
No Other	Otherness, Other	Mediated Other
Alinearity	Linearity	Nonlinearity
Interrelatedness	Interaction	Interdependency
Overdetermination	Relatively fixed categories	Underdetermination
Inconsistency	Relative clarity and distinction	Incompleteness
No absolutely necessary	Classical logical principles	No absolutely necessary
Noncontradiction		Excluded-Middles
Both-And	Either/Or	Neither-Nor

actualization of 'something'. And heterogeny makes of the categorical 'somethings' within hegemony 'manythings'. Homogeny, we feel urged to emphasize, is comparable to Peirce's Firstness, hegemony to Secondness, and heterogeny to Thirdness. Firstness has benign tolerance for inconsistencies, and Thirdness allows for virtually unlimited Included-Middles. Classical logical principles find a somewhat contentious home in hegemony. Thus, when scholars within postcolonialism, poststructuralism, and postmodernism make inordinately vague allusions to 'logics' going by various and sundry strange labels, these 'logics' cannot fall exclusively within the customarily defined philosophy of hegemony. They are, in line with the premises of this inquiry, 'logics' of inconsistency and vagueness (within homogeny) and of incomplete formalities, universals, and generalities (within heterogeny) (see Table 1).

(If we might be so allowed, we wish to take a further step to suggest that not even in the hardest of sciences do we find 'logic' always used in the strict sense, as Henry Harris observes: 'I do not think that one can hope to understand [science] unless one appreciates that . . . , however formal its symbolism may sometimes become, it is not an exercise in logic. When some philosophers talk about the logic of scientific investigation . . . I can only suppose that they speak metaphorically' [Harris 2002: 48]. At your leisure, if you so desire, compare this statement to quantum physicist Louis de Broglie for whom 'in the region of the inexact sciences of human conduct, the strictness of the definitions varies inversely as their applicability to the world of Reality' [Broglie 1939: 281]. Well and good, one might conclude, for the human sciences cannot be held to the same rigorous criteria binding the hard sciences. However, elsewhere de Broglie writes that even the physical sciences 'are not that much less applicable

to reality when they become more complete and, although we have little inclination to be paradoxical, we could hold, contrary to Descartes, that nothing is more misleading than a clear and distinct idea' [Broglie 1953: 219; see also in this respect Broglie 1960: 131; Bridgman 1951: 9; Heisenberg 1971: 81; Jeans 1958: 1]).

Astounding! How we've managed to wax confident! How was it that our vacillation solidified? How could our assertions have suddenly been so brash? What happened to our walking-on-eggs tentativity? We really must take more care. So, it's ...

## **17. Back to the notion of hybridity**

Hybridity, of course, brings biology to mind. Biology evokes images of nineteenth-century social determinism. No ... heavens no! That's not what we had in mind at all. But all the above terms resonate with the idea of *mestizaje* in one way or another. Do they not? So how can we more adequately qualify the label?

Perhaps something like Gruzinski. He distinguishes between 'biological *mestizaje*' and 'cultural *mestizaje*'. Then he backpedals. The distinction is vague, and there is no clear-cut way to delineate the relationship between 'biological' and 'cultural' forms of *mestizaje*. Biological mixture multiplies the number of *mestizos* in a given culture, for sure. Eventually, one might assume, homogeneity would be the product. History generally demonstrates that *mestizaje* leads to a proliferation of differences that become increasingly fine, but they never altogether dissolve in the cultural milieu. Differences there will always be. Then heterogeneity must be the product of successive *mestizaje*, it might seem. However the tendency is toward finer and finer heterogeneity invariably creating the image of smoothly textured cultural homogeneity somewhere out there in the receding horizon. But like chasing the pot of gold at the end of the rainbow, homogeneity continues to recede beyond culture's reach. The upshot? *Mestizo* culture evinces both homogeneity and heterogeneity, according the way of taking it. It is at the same time neither entirely homogenous nor heterogenous.

Hybridity, moreover, evokes the image of a fusion into something new that is other than either of the two tendencies that made up the hybrid mix. That is the upside. The downside is that this something new in its own turn tends to evoke the image of something 'homogenous' and relatively static. *Mestizaje*, in contrast, is always melting into something other than what it was; it simply can't sit still for a moment; radically caught up in hypersensitive flitting and fleeting about in search of something new, it

is always multiple in terms of its expression, always radically 'heterogeneous'. Hybridism creates 'homogenous' wholes the collection of which can end in an antagonistic concoction; mestizaje always allows for a third term between any and all contrasts, contradictories, or clashing alternatives, since it always on the move.

It is the *Included-Middle* that gives rise to unexpected possibilities at every turn in the winding stream of culture. Gruzinski writes that from the sixteenth century onward Latin American can best be qualified by mestizaje. We tend to concur.

## 18. Dwelling within the eye of the hurricane

The sneaky notion of *interpenetration* comes to mind. It might well be that tendencies within one culture *interpenetrate* tendencies of another culture, and vice versa. All tendencies within one culture are interdependent, such that whatever change happens to occur regarding one tendency exercises a greater or lesser effect on all other tendencies. They are interrelated such that no tendency flows along in the cultural process alone, but is *interrelated* with every other tendency. And they are interactive, which is to say, that, given their interdependence and interrelatedness, everything is to a greater or lesser degree interactive with everything else, such that they are always becoming something other than what they were becoming.

The same implies when we consider two or more cultures: they are *interdependently, interrelatedly, interactively* in a *mutually interpenetrative process*. This is to say that all processes within one culture are *complementary* with all other processes, and that all processes within one human culture are complementary with their counterparts within another human culture. This, we would put forward, is inherently a *Yin-Yang* complementarity, or, if we may be allowed the liberty, Bohr's concept of complementarity with respect to quantum phenomenon once again — especially in light of the almost universally conceded fact that Bohr was influenced by the Taoist symbol (Figure 9) in arriving at his conception of quantum complementarity (between particle and wave, and other comparable phenomena).

A compelling image comes to mind. What is it? A processual combination of the three triads: Firstness, Secondness, and Thirdness, interdependence, interaction, and interrelatedness, and sign (representamen), semiotic object, and interpretant (meaning) (Figure 10). How to account for this process? Why, it can hardly be other than complementarity, the complementarity of all and all complementarily interpenetrating such that

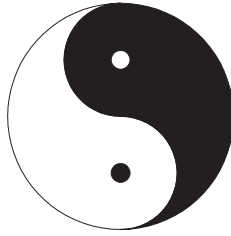


Figure 9. *Interpenetration of cultural 'tendencies' wherein the one is part of the other and the other of the one, such that they are not separate and two, logically, dichotomously, and analytically speaking, but one, paralogically, triadically, and holistically speaking.*

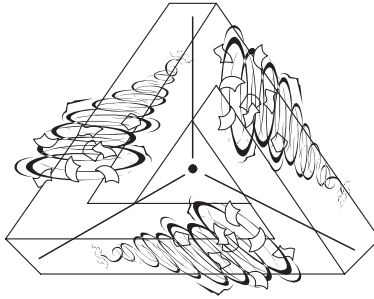


Figure 10. *A swirling, effervescent, scintillating, disequibrated temporal-spatial flux and flow of activity through Firstness, Secondness, and Thirdness, interdependence, interaction, and interrelatedness, and sign (representamen), semiotic object, and interpretant (meaning).*

there is no telling for sure where one thing ends and another begins. Multiplicity contained within oneness, oneness contained within multiplicity. Harmony within tension, vague clarity, disequibrated balance, muddled orderliness. The entire image is charmingly vague and ambiguous. The virtual sign, of unforeseen contextual and interpretive possibilities that can unfold within a dimension of space and another dimension of time; interacting with its actual object, it plays itself out with a two-dimensional spatial and one-dimensional temporal manifold; it's interpretant, nonlinearly flowing and fluctuating in three dimensions of space and one dimension of time, is always open to the unfolding of some alternative, thus embracing novelty at every juncture. It all seems so incomprehensible and yet we are inexorably attracted to it, that strange attractor.

Then we shrink back once again. This is surely too much to handle. We are overtaken by the urge to deny our thoughts, those thoughts that came

to us as if they were as natural as could be. Why this change of heart, as if it were some deeply entrenched, well-nigh automatic response, as if we suddenly realized we had erred, as if we had profaned cherished traditions, as if we had sinned against our cultural heritage? Could it be because our acknowledgment of the complementary principle went against the grain of what had become most dear to us, against the ways of our thinking and feeling and our view of our world and ourselves? Because this strange, uncanny philosophy of complementarity dissolves the self into the community and the physical world? Because individuality (the Identity Principle) is of little account? Because consistency (the Non-Contradiction Principle) is of little consequence since otherwise contradictory antagonists hold hands as they flow along? Because any given pair of antagonists can bring about the emergence of something different and hitherto unknown (the Excluded-Middle Principle)?

These very thoughts disturb us, for they play havoc with our various and sundry concepts of the term 'culture'. Above all, they jeopardize standard uses of 'otherness', 'alterity'. They place in question the very idea of the 'other'. There is no real 'other' outside, away, and removed from the 'one', if they are interdependently, interrelatedly, interactive in the complementary sense. Complementarity brings them together in a liquid embrace such that there is no possibility for saying 'Here is the one, there is the other'. There is simply no separating them, for they were as one before we decided to distinguish between them, exercise a slash, a cut, severing and mutilating them, dichotomizing them, in order analytically to account for them. There is no 'one' and 'other' for as far as we might be able to go back, they were One, Firstness, unsevered Firstness, two complementary tendencies in the process of mutual interpenetration. Only upon severing them do they become 'one' and the 'other', Secondness. Yet, when considering their severed condition as more than a mutilation of two particulars, when elevating to the heights of generality, then, they begin their interminable flow of interrelatedness, and their differences become finer and finer, approaching the smooth texture of Firstness, though their will never reach pure continuity in my lifetime or yours or anybody else's, for the flow, theoretically speaking, is infinite in extension.

Our thoughts take us back to the Latin American scene. Indigenous peoples who had 'discovered' America when the people of what today we call Europe were clothed in skins and refuged in caves, and Africans, victims of genocide the likes of which Europe had not seen until the sixteenth century, were 'homogenized' by their new 'masters'. Could these peoples' cultures have been by any stretch of the imagination qualified by the term 'homogeny'? Of course not! The very idea is ludicrous. They

were 'homogenized' by their 'conquerors'. Actually, like the Europeans themselves, they were the product of massive 'heterogenizing' processes. Their cultures, like those of their 'masters', had been 'heterogenous', mestizo, for centuries. Even today, those who in the name of 'political correctness' wish to impose 'homogeny' on us all, and who demand we give the African Americans and 'Amerindians' a voice tend to conceive of that 'voice' in homogenous terms.

But the Complementarity Principle won't be denied. Within every individual there is an interpenetrating flow of the Other, of the Others, and those Others flow into the would-be individual. There is no stalwart, hell-bent-for-leather, radically independent individual. Any and all of our contradictions, severed and mutilated and chiseled out of what we assumed was the rock hard foundations of our logic and reason, resist us. They flow into one another, as opposites tend ultimately to become one. Between any and all of our either/or imperatives we have imperiously constructed, something else — from the *Included-Middle* — always stands a chance of emerging to place our cherished epistemological mandates in a muddle. Between the erroneous idea of passive, submissive *Yin* and dominant, demonizing *Yang*, we have two extremes that are no more than the generalizing product of our obsessively analyzing mind. Complementarily speaking, we have neither exclusively the One nor the Other. For, there are no 'homogenous' wholes; there are 'heterogenous' particulars in fluctuating, undulating, effervescent, interpenetrating flow into any and all particulars, complementarily speaking.

## **19. Fallibly inconclusive conclusions**

Ethnic and cultural mestizaje disrupt linear thinking. Time and space become amorphous. In sixteenth-century America different ethnic and cultural temporalspatial manifolds converge and flow into one another. There is no linear 'chain of being' stretching outward and onward but a multiply converging and diverging, weaving and wavering, labyrinth of paths that emerge and submerge with each and every moment; there is no inevitable and unlimited progress traveling along the one and only pathway but myriad pathways that hold no determinate, consistent and complete promise; there is no one event causing another event but everything is the cause and the effect of everything else. The idea of homogeneous space and linear time that gave the impression — and hence nurtured the coveted dream — of order is no more than a skin masking over the ebullient, undulating, nonlinear flow of becoming.

Why are we estranged by the idea that cultural institutions and practices are not guided by some sort of originary foundational stability governing fixity and order? Why does complexity qualified by the flow of ongoing processes allowing for disequilibrium, disharmony, inconsistency, fluctuation, and creativity out of the ensuing tension appear so foreign? Why cannot we feel free to accept the notion that all cultures have been, are, and will always have been in flux, and that there never was any stable beginning, but rather, all beginnings arose from instability and conflict, which is nature's way (which is also the way of Heraclitus, and Wheeler, to mention only two names representing divergence from what have become our customary Western way)? Why cannot we feel comfortable with the idea that irregularity rather than regularity, disorder rather than order, imbalance and disharmony rather than balance and harmony, disequilibrium rather than equilibrium, and above all, to and fro oscillation and eventually conjunction of would-be opposites is the name of the game? Why can't we include 'homogeny', 'heterogeny' and 'hegemony', and the notions of both-and, neither-nor, and either/or within one living, effervescent surge and gush? If we could, mestizaje would not perturb our sensitivities. We would take it as the normal way; it would be as natural as could be.

Why, in spite of our better judgment, do we continue to talk about borders as if they were by and large static lines of demarcation in spite of our better judgment? Why can't we cheerfully acknowledge their vagueness, their fuzziness, their amorphously becoming something other than that which they were becoming such that they divide something and something else in ever fresh and novel ways and thus bring about changes in that which they divide, in that which we have divided by our use of them? Why cannot we accept the idea of borders in terms of what here has been labeled the *border of borders*? — zero, emptiness, the fountain of nothingness from which all that is arises. Why can't we conceive of borders in this manner as something positive and potentially beneficial for all rather than merely negative?

If we could, then, perhaps, we might be able fully to sense the fusion of conqueror and conquered, slaver and slave, superaltern and subaltern, the haves and the havenots, such that we no longer have any need of the virgule, the violent slash between terms, because they are no longer distinguishable? Why can't we realize that Amerindians and Afro-Latinos alike in the beginning had to improvise, throughout history they improvise, they now improvise, and in the future they will always have been improvising, in order to survive, to find a place in their enchanted world always becoming estranging for them, and during these processes they have wrought changes in their oppressors? Why can't we realize that this



improvisation is made possible by the *border of borders* where nothing is either distinctively one thing or the other and at the same time it is both the one thing and the other?

Why can't we come to terms with the idea that the oppressors tried their damndest to impose 'homogeny' on their subordinates, but ended up changing themselves and thus participating in ongoing 'heterogenous' processes? That they wanted order and progress and they got conformity and resistance? That they wanted things their way and they ended up negotiating? That they wanted crystal clear lines between races, ethnicities, and cultural practices and they gave in to mind-boggling forms of *mestizaje*? If we could come to grips with these questions, then we might be able to understand how, caught up in their euphoria for establishing order and with sugarplums of utopia dancing in their heads, the superordinates thought they were symbolizing their social existence into dichotomous, analytical, crispness with a place for everything and everything in its place, but they didn't realize that their rock-solid structures were rapidly melting. Linguistic order and stability (generality, Thirdness) was giving ground to a flow made up of myriad particulars (singularities, Secondness) in interdependent, interrelated interaction with one another to create a vast field of rippling, oscillating flow where everything enjoys close harmonious tension, stressful and strainful balance, antagonism and parentage with everything else (oneness, Firstness).

Where can we find something we can call a home in all this? The answer, we somehow sense, has been with us all along: home is where we are, within the processual coming and going, now here, then there, both here and now and there and then, neither the one nor the other, and yet, always everywhere and nowhere. And finally, we find peace of mind, without knowing either how or why.

## Notes

1. 'Emptiness' as I use the term here hearkens from Asian philosophy, most specifically Buddhism, to which Peirce occasionally alluded (see Huntington Jr. 1989; Kalupahana 1986; Loy 1989; Nishitani 1990; also Merrell 2003b. For commentary on 'emptiness' and contemporary western science, see Cole 2001; for the enigmas of the concept of 'zero', see Seife 2000).
2. Peirce's categories of thought and sign processes consist of Firstness, Secondness, and Thirdness. According to Peirce, any set of signs and every conceptual body of knowledge, no matter how complex, can be reduced to triadicity, but that triadicity cannot be further reduced without its suffering a loss. Although limited time and space do not permit my expounding on the categories, I trust their nature can be inferred within the context of my exposition (for further, see Almeder 1980; Hookway 1985).

3. In Wheeler's words with respect to the quantum world: 'Measurement, the act of turning potentiality into actuality, is an act of choice, choice among possible outcomes. After the measurement, there are roads not taken. Before the measurement, all roads are possible — one can even say that all roads are being taken at once' (Wheeler 1998: 339–40).
4. Along with a host of supporting texts, of course. To mention a few of the more important examples: Ainsa 1977, 1989, 1995; Anzandúa 1987; Beverley 1999; Chaui 1986; Coronil 1989, 1996; DaMatta 1995; Gómez-Peña 1996; Greenblat 1991; Hicks 1991; Hopenhayn 1995; Kraniauskis 2000; Mignolo 2000; Mignolo and Boone 1994; Saldívar 1992; Wachtel 1977.
5. These three qualifications stem from Peirce's assertion that 'anything is general in so far as the principle of excluded-middle does not apply to it and is vague in so far as the principle of contradiction does not apply to it' (*CP*: 5.448). For example, the general proposition 'the Earth is the center of the Universe' is neither true nor false. It is not true, for in our socio-cultural milieu we believe otherwise. Nor is it false, for from another socio-cultural perspective it is conceived as true. In other words, from the purview of Thirdness as storehouse of generalities, a generality can be conceived as true in one context and false in another one, but seen from the perspective of absolute truths that stand for all time, it is neither true nor false. The vague proposition 'I have the world's most attractive woman/man in mind' is possibly both true and false, at least for the proposition's interpreter, for no particular individual has yet been specified. When the proposition's utterer reveals the woman/man of his heart and mind, then the interpreter can decide for her/himself whether s/he was uttering truth or falsity — at least according to her/his criterion for attractiveness. What we have here is sheer possibility (vagueness) which holds inconsistent actual assertions in its embrace, and assertions of universal content (generality) that are inevitably incomplete since the future may usher in some other alternative that is deemed more desirable. Between vagueness (possible inconsistency, Firstness) and generality (incompleteness, Thirdness) perceived and conceived actual existence (Secondness) lies, where something is perceived and conceived in terms of either one or the other quality. Thus Robert Lane can claim that 'Peirce's startling claim that "anything is general in so far as the principle of excluded middle does not apply to it and is vague in so far as the principle of contradiction does not apply to it" poses no threat to bivalence, nor does it entail that a single proposition can be both true and false' (Lane 1999: 698). That is to say Non-Contradiction and Excluded-Middle do not apply, if, as we found in our examples, perception, conception, and utterances and their interpretation are temporalized; however, bivalent logic, in honor of standard logical rules and regulations, must remain atemporal: what is either true or false for someone must be so considered in every here and now, in the past, the present, and the future.
6. The 'pragmatic maxim' calls for at least a few words of clarification. In the act of creation, it would appear that abduction — the mere possibility of something's being taken for 'true' according to the extant conditions — invariably comes into play when the 'maxim' is put to use. In fact, I would respectfully suggest that the 'maxim' plays a role in all facets of semiosis, whether we are speaking of science, technology, the arts and humanities, or our coming and going within the flow of everyday life. In Peirce's first rendition of the maxim in 1878, which is the most commonly cited, we have the following:

Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then our conception of these effects is the

whole of our conception of the object. (CP: 5.402; also 5.2, 5.9, 5.18, 5.427, and MS 327)

Upon offering a few words on the maxim, I should first point how it implies a combination of Peirce's categories, Firstness, Secondness, and Thirdness. I scarcely made mention of the categories above, and will tentatively attempt to give them a bit more qualification here. Very briefly, engendering and processing signs and making them meaningful is more than merely getting information out of them or making sense of them. It is a matter of interdependent, interrelated, interactive, interplay between Peirce's categories. In schematic form, Firstness is possibility (a might be), Secondness is actuality (what is), and Thirdness is potentiality, probability, or necessity (what could be, would be, or should be, given a certain set of conditions).

7. The possibility of a 'fuzzy logic' has at least two chief sources. Peirce initiated the first with his ideas about a 'logic of vagueness'. The concept of 'vagueness' was later picked up by Max Black (1937), and has more recently become the focus of studies by Brock (1979), Engel-Tiercelin (1992), Merrell (1995, 1996, 1997, 2003a), and Nadin (1982, 1983), among others. The second source is an outgrowth of work with 'fuzzy sets' in the 1960s and 1970s by Lofti Zadeh (1965, 1975). 'Fuzzy logic' reveals the sloppiness inherent in everyday linguistic practices. As such, this new logic refuses to prioritize language over para-extra-linguistic modes: all communication is to a greater or lesser degree vague. (It was, of all philosophers, the analytical Bertrand Russell [1923] who, in a paper on vagueness, suggested that language is invariably vague and that vagueness is a matter of degree.)
8. For development of the notions of overdetermination and underdetermination and their relationship to the logical Principles of Non-Contradiction and Excluded-Middle with respect to signs within broad cultural contexts, see Merrell (1998, 2003b).
9. I would like to believe that in Merrell (2004b) I have presented an effective case of signs and their various and sundry 'logics' regarding what is perhaps the most complex cultural milieu in our contemporary world, Latin American. In this study I suggest throughout that 'cultural logics' are fabricated rather than discovered or coming from on high, they are invented rather than ready-made, and their interpretation depends upon a virtually incomprehensible array of possible perspectives within an indefinite number of possible contexts.
10. The allusion here is to Peirce's often maligned idea that science — and knowledge in general — is in a process asymptotically of approximating the truth (for a critique of Peirce's convergence theory, see Rorty 1991; for a discussion of the pros and cons, Skagestad 1981; for a defense, Hausman 1993).
11. Alternate 'logics' include those mentioned in note 7, and in addition, three- and many-value logic, dialectical logic, Buddhist logic, free logic, and, more in line with the premises underlying the present inquiry, Lupasco's 'logic of contradiction' (1947), Melhuish's 'complementary contradictory logic' (1967), Rescher and Brandom's 'logic of inconsistency' (1979), and the 'paraconsistent logic' developed in Brazil (Costa 1974), none of which I intend to preempt here. I wish merely to open the door to the possibilities revealed by Peirce.
12. In this vein, at the turn of the century, Pierre Duhem (1954) and Henri Poincaré (1952), and more recently, Nancy Cartwright (1983) and Hilary Putnam (1983), argue that there will always be equally satisfactory alternatives to a given theory or general theoretical framework (paradigm). Consequently, no single story can account for all the furniture of the world in one fell-swoop. This is, in essence, the Duhem-Quine scenario — in which Peirce is a principle actor, though his role in this respect is often

overlooked — predicated on the radical underdetermination of theories (i.e., they are empirically equivalent but logically incompatible. See also Gähde and Stegmüller 1986; Roth 1987; Sacks 1989).

13. On the problem of mixing and syncretism, see Canevacci 1996; Droogers 1989; Figueiredo Ferretti 1995, 1999; Gonçalves da Silva 1999; Greenfield and Droogers 2001; Merrell 2004a; Serra 1995; Valente 1977.
14. On hegemony see Butler et al. 2000; Friedman 1997; Gramsci 1971; JanMohamed 1985; Mattoso 1986; Nascimento 1977. I must hasten to point out, however, that homogenous and heterogenous processes keep the cultural flow alive by melting dichotomies (Mudimbe-Boyi 2002; especially Mignolo and Schiwiy 2002). These processes tend toward a nonracist society, yet, given human nature, racism manages to prevail (Bacelar 2001; Brandão 1986; Carneiro 1964; D'Adesky 2001; Degler 1971; Fernandes 1971; Hellwig 1992; Hess and DaMatta 1995; Sansone 2003; Skidmore 1974; Sodré 1988, 1999; Twine 2000). The possibility of such openness is enhanced by popular cultural practices and concomitant identity construction (Brandão 1986; Brown 1986; Browning 1995; Butler 1998; Dossar 1992; Ferreira 1998; Friedman 1997; Fryer 2000; Gomes et al. 2000; Gomes da Cunha 1998; Guerreiro 2000; Kubik 1979; Lewis 1992).

## References

- Abbott, Edwin A. (1952). *Flatland*. New York: Dover.
- Abram, David (1996). *The Spell of the Sensuous: Perception and Language in a More-Than-Human-World*. New York: Vintage.
- Ainsa, Fernando (1977). *Los buscadores de la utopia*. Caracas: Monte Ávila.
- (1989). The invention of America: Imaginary signs of the discovery and construction of utopia. *Diogenes* 145, 98–111.
- (1995). Identidade e utopia na América Latina. *Tempo Brasileiro* 122/123, 89–105.
- Almeder, Robert (1980). *The Philosophy of Charles S. Peirce: A Critical Introduction*. Totowa, NJ: Rowman and Littlefield.
- Amado, Jorge (1969). *Dona Flor and Her Two Husbands*, J. E. Tomlins (trans.). Kingsport: Vanderbilt University Press.
- Andrade, Mario de (1984). *Macunaima*, E. A. Goodland (trans.). New York: Random House.
- Anzaldúa, Gloria (1987). *Borderlands / La Frontera: The New Mestiza*. San Francisco: Aunt Lute.
- Bacelar, Jeferson (2001). *A hierarquia das raças: negros e brancos em Salvador*. Rio de Janeiro: Pallas.
- Baer, Eugene (1988). *Medical Semiotics*. Lanham: University Press of America.
- Bartra, Roger (1992). *The Cage of Melancholy: Identity and Metamorphosis in the Mexican Character*, C. J. Hall (trans.). New Brunswick: Rutgers University Press.
- Benítez-Rojo, Antonio (1994). *The Repeating Island: The Caribbean and the Postmodern Perspective*. Durham: Duke University Press.
- Beverly, John (1999). *Subalternity and Representation: Arguments in Cultural Theory*. Durham: Duke University Press.
- Bhabha, Homi K. (1994). *The Location of Culture*. New York: Routledge.
- Black, Max (1937). Vagueness, an exercise in logical analysis. *Philosophy of Science* 6, 427–455.
- Bloor, David (1976). *Knowledge and Social Imagery*. London: Routledge and Kegan Paul.

- (1983). *Wittgenstein: A Social Theory of Knowledge*. New York: Columbia University Press.
- Bohr, Niels (1961). *Atomic Theory and the Description of Nature*. Cambridge: Cambridge University Press.
- Bonfil Batalla, Guillermo (1996). *México Profundo: Reclaiming a Civilization*, P. A. Dennis (trans.). Austin: University of Texas Press.
- Brandão, Carlos Rodrigues (1986). *Identidade e etnia: construção da pessoa e resistência cultural*. São Paulo: Editora Brasiliense.
- Bridgman, Percy W. (1951). *The Way Things Are*. New York: Viking.
- Brock, Jarrett E. (1979). Principle themes in Peirce's logic of vagueness. In *Peirce Studies 1*, J. E. Brock et al. (eds.), 41–50. Lubbock: Institute for Studies in Pragmatism.
- Brogie, Louis de (1939). *Matter and Light: The New Physics*, W. H. Johnston (trans.). New York: W. W. Norton.
- (1953). *The Revolution in Physics*. New York: Noonday.
- (1960). *Physics and Microphysics*. New York: Harper.
- Brown, Diana de G. (1986). *Umbanda Religion and Politics in Urban Brazil*. Ann Arbor: UMI Research Press.
- Browning, Barbara (1995). *Samba: Resistance in Motion*. Bloomington: Indiana University Press.
- Butler, Judith, Laclau, Ernesto, and Žižek, Slavoj (2000). *Contingency, Hegemony, Universality: Contemporary Dialogues on the Left*. London: Verso.
- Butler, Kim D. (1998). *Ginga Baiana* — The politics of race, class, culture and power in Salvador, Brazil. In *Afro-Brazilian Culture and Politics: Bahia, 1970s to 1990s*, H. Kraay (ed.), 158–175. London: M. E. Sharpe.
- Canevacci, Massumi (1996). *Syncretismos: uma exploração das hibridações culturais*, R. Barni (trans.). São Paulo: Instituto Cultural Ítalo-Brasileiro.
- Carneiro, Edison (1964). *Ladinos e crioulos: estudos sobre o negro no Brasil*. Rio de Janeiro: Civilização Brasileira.
- Cartwright, Nancy (1983). *How the Laws of Physics Lie*. Oxford: Clarendon Press.
- Cevallos-Candau, Francisco Javier, Cole, Jeffrey A., Scott, Nina M., and Suárez-Araúz, Nicomedes (eds.) (1994). *Coded Encounters: Writing, Gender, and Ethnicity in Colonial Latin America*. Amherst: University of Massachusetts Press.
- Chauí, Marilena (1986). *Conformismo e resistência: Aspectos da cultura popular no Brasil*. São Paulo: Brasiliense.
- Chernoff, John Miller (1979). *African Rhythm and African Sensibility*. Chicago: University of Chicago Press.
- Classen, Constance (1993). *Worlds of Sense: Exploring the Senses in History and Across Cultures*. New York: Routledge.
- Cole, K. C. (2001). *The Hole in the Universe: How Scientists Peered over the Edge of Emptiness and Found Everything*. New York: Harcourt.
- Coronil, Fernando (1989). Discovering America again: The politics of selfhood in the age of post-colonial empires. *Dispositio* 14 (36/38), 315–331.
- (1996). Beyond occidentalism: Toward nonimperial geohistorical categories. *Cultural Anthropology* 11 (1), 52–87.
- Costa, Newton C. A. da (1974). On the theory of inconsistent formal systems. *Notre Dame Journal of Formal Logic* 15, 497–510.
- D'Adesky, Jacques (2001). *Pluralismo étnico e multiculturalismo: racismos e anti-racismos no Brasil*. Rio de Janeiro: Pallas.
- DaMatta, Roberto (1991). *Carnivals, Rogues, and Heroes: An Interpretation of the Brazilian Dilemma*, J. Drury (trans.). Notre Dame: University of Notre Dame Press.

- (1995). For an anthropology of the Brazilian tradition, or, 'A virtude está no meio. In *The Brazilian Puzzle: Culture on the Borderlands of the Western World*, D. J. Hess and R. A. DaMatta (eds.), 270–291. New York: Columbia University Press.
- Davidson, Donald (1984). *Inquiries into Truth and Interpretation*. Oxford: Clarendon Press.
- Degler, Carl N. (1971). *Neither Black nor White: Slavery and Race Relations in Brazil and the United States*. Madison: University of Wisconsin Press.
- Dobbs, H. A. C. (1972). The dimensions of the sensible present. In *The Study of Time*, J. T. Fraser, F. C. Huber, and G. H. Miller (eds.), 174–192. New York: Springer-Verlag.
- Dossar, Kenneth (1992). Capoeira Angola: Dancing between two worlds. *Afro-Hispanic Review* 11 (1–3), 5–10.
- Droogers, André (1989). Syncretism. The problem of definition, the definition of the problem. In *Dialogue and Syncretism*, J. Gort, H. Vroom, R. Fernhout, and A. Wessels (eds.), 7–25. Amsterdam: William B. Eerdmans.
- Duhem, Pierre (1954). *The Aim and Structure of Physical Theory*, P. P. Wiener (trans.). Princeton: Princeton University Press.
- Engel-Tiercelin, Claudine (1992). Vagueness and the unity of C. S. Peirce's realism. *Transactions of the C. S. Peirce Society* 28 (1), 51–82.
- Evnine, Simon (1991). *Donald Davidson*. Stanford: Stanford University Press.
- Farias, Priscila and Queiroz, João (2003). On diagrams for Peirce's 10, 28, and 66 classes of signs. *Semiotica* 147 (1/4), 165–184.
- Fernandes, Florestan (1971). *The Negro in Brazilian Society*, J. D. Skiles, A. Brunel, and A. Rothwell (trans.). New York: Columbia University Press.
- Ferreira, Ricardo Franklin (1998). A construção da identidade do afro-descendente: a psicologia brasileira e a questão racial. In *Brasil: um país de negros?*, J. Bacelar and C. Caroso (eds.), 71–86. Rio de Janeiro: Pallas.
- Feyerabend, Paul K. (1975). *Against Method*. London: NLB.
- Figueiredo Ferretti, Sérgio (1995). *Repensando o sincretismo*. São Paulo: Fapema.
- (1999). Sincretismo afro-brasileiro e resistência cultural. In *Faces da tradição afro-brasileira*, C. Caroso and J. Bacelar (eds.), 113–130. Rio de Janeiro: Pallas.
- Føllesdal, D. (1975). Meaning and experience. In *Mind and Language*, S. Guttenplan (ed.), 25–44. Oxford: Clarendon Press.
- Folse, Henry J. (1985). *The Philosophy of Niels Bohr: The Framework of Complementarity*. Amsterdam: North Holland.
- Fontana, Benedetto (1993). *Hegemony and Power: On the Relation between Gramsci and Machiavelli*. Minneapolis: University of Minnesota Press.
- Friedman, Jonathan (1997). Global crises, the struggle for cultural identity and intellectual porkbarrelling: Cosmopolitans versus locals, ethnics and nationals in an era of de-hegemonization. In *Debating Cultural Hybridity: Multi-Cultural Identities and the Politics of Anti-Racism*, P. Werbner and T. Modood (eds.), 70–89. New Jersey: Zed Books.
- Fryer, Peter (2000). *Rhythms of Resistance: African Musical Heritage in Brazil*. Hanover: Wesleyan University Press.
- Gädhe, Ulrich and Wolfgang Stegmüller (1986). An argument in favor of the Quine-Duhem thesis: From the structuralist point of view. In *The Philosophy of W. V. Quine*, L. E. Hahn and P. A. Schilpp (eds.), 117–136. LaSalle, IL: Open Court.
- García Canclini, Néstor (1995). *Hybrid Cultures: Strategies for Entering and Leaving Modernity*, C. L. Chiappari and S. L. López (trans.). Minneapolis: University of Minnesota Press.
- Gomes da Cunha, Olívia Maria (1998). Black movement in the 'politics of identity' in Brazil. In *Cultures of Politics/Politics of Cultures. Re-Visioning Latin American Social Movements*, S. E. Avarez, E. Dagnino, and A. Escobar (eds.), 220–251. Boulder: Westview.

- Gomes, Laura Graziela, Barbosa, Livia, and Drummond, José Augusto (eds.) (2000). *O Brasil não é para principiantes*. Rio de Janeiro: Editora RGV.
- Gómez-Peña, Guillermo (1996). *The New World Border*. San Francisco: City Lights.
- Gonçalves da Silva, Vagner (1999). Reafrikanização e sincretismo: Interpretações acadêmicas e experiências religiosas. In *Faces da tradição afro-brasileira*, C. Caroso and J. Bacelar (eds.), 149–157. Rio de Janeiro: Pallas.
- Goodman, Nelson (1978). *Ways of Worldmaking*. Indianapolis: Hackett.
- Gramsci, Antonio (1971). *Selections from the Prison Notebooks*, Q. Hoare and G. N. Smith (trans.). London: Lawrence and Wishart.
- Greenblatt, Stephen (1991). *Marvelous Possessions: The Wonder of the New World*. Chicago: University of Chicago Press.
- Greenfield, Sidney M. and Droogers, André (eds.) (2001). *Reinventing Religions: Syncretism and Transformation in Africa and the Americas*. Lanham: Rowman and Littlefield.
- Gruzinski, Serge (2001). *O pensamento mestiço*. São Paulo: Editora Schwarcz.
- Guerreiro, Goli (2000). *A trama dos tambores: A música afro-pop de Salvador*. São Paulo: Editora 34.
- Hanke, Lewis (1949). *The Spanish Struggle for Justice in the Conquest of America*. Philadelphia: University of Pennsylvania Press.
- (1959). *Aristotle and the American Indians*. Chicago: University of Chicago Press.
- Hanson, Norwood R. (1958). *Patterns of Discovery*. Cambridge: Cambridge University Press.
- (1969). *Perception and Discovery*. San Francisco: Freeman, Cooper.
- Harris, Harry (2002). *Things Come to Life: Spontaneous Generation Revisited*. New York: Oxford University Press.
- Hausman, Carl R. (1993). *Charles S. Peirce's Philosophy*. Cambridge: Cambridge University Press.
- Heisenberg, Werner (1958). *Physics and Philosophy*. New York: Harper and Row.
- (1971). *Physics and Beyond: Encounters and Conversations*. New York: Harper and Row.
- Hellwig, David J. (1992). *African-American Reflections on Brazil's Racial Paradise*. Philadelphia: Temple University Press.
- Henderson, Linda Dalrymple (1983). *The Fourth Dimension: Non-Euclidean Geometry in Modern Art*. Princeton: Princeton University Press.
- Hess, David J. and DaMatta, Roberto A. (1995). *The Brazilian Puzzle: Culture on the Borderlands of the Western World*. New York: Columbia University Press.
- Hicks, Emily D. (1991). *Border Writing: The Multidimensional Text*. Minneapolis: University of Minnesota Press.
- Hobsbawm, E. and T. Ranger (1983). *The Invention of Tradition*. Cambridge: Cambridge University Press.
- Hofstadter, Douglas R. (1979). *Gödel, Escher, Bach: An Eternal Golden Braid*. New York: Basic Books.
- Hookway, Christopher (1985). *Peirce*. London: Routledge and Kegan Paul.
- Hopenhayn, Martín (1995). Postmodernism and neoliberalism in Latin America. In *The Postmodernism debate in Latin America*, J. Beverley, J. Oviedo, and M. Aronna (eds.), 97–109. Durham: Duke University Press.
- Howes, David (ed.) (1991). *The Varieties of Sensory Experience: A Sourcebook in the Anthropology of the Senses*. Toronto: University of Toronto Press.
- Huntington Jr., C. W. (1989). *The Emptiness of Emptiness*. Honolulu: University of Hawaii Press.
- Huntington, Samuel P. (1996). *The Clash of Civilizations and the Remaking of World Order*. New York: Simon and Schuster.

- JanMohamed, Abdul R. (1985). The economy of Manichean allegory: The function of racial differences in colonialist literature. *Critical Inquiry* 12, 59–87.
- Jean, James (1958). *The Mysterious Universe*. Cambridge: Cambridge University Press.
- Kalupahana, David (1986). *Nāgārjuna: The Philosophy of the Middle Way*. Albany: State University of New York Press.
- Kauffman, Louis H. (1986). Self reference and recursive forms. *Journal of Social Biological Structure* 9, 1–21.
- Kern, Stephen (1983). *The Culture of Time and Space, 1880–1918*. Cambridge: Harvard University Press.
- Kraniauskis, John (2000). Hybridity in a transnational frame: Latin americanist and post-colonial perspectives on cultural studies. *Nepantla* 1 (2), 111–137.
- Kubik, Gerhard (1979). Angolan traits in black music, games and dances in Brazil: A study of African cultural extensions overseas. *Estudos de Antropologia Cultural* 10, 7–55.
- Kuhn, Thomas S. (1970). *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.
- Laclau, Ernesto (1977). *Politics and Ideology in Marxist Theory: Capitalism — Racism — Populism*. London: Verso.
- Laclau, Ernesto and Mouffe Chantal (1985). *Hegemony and Socialist Strategy: Towards a Radical Democratic Politics*. London: Verso.
- Lafaye, Jacques (1976). *Quetzalcóatl and Guadalupe: The Formation of Mexican National Consciousness, 1531–1813*. Chicago: University of Chicago Press.
- Lane, Robert (1999). Peirce's triadic logic revisited. *Transactions of the Charles S. Peirce Society* 35 (2), 284–311.
- Levis, J. Lowell (1992). *Ring of Liberation: Deceptive Discourse in Brazilian Capoeira*. Chicago: University of Chicago Press.
- Loy, David (1989). *Non-Duality*. New Haven: Yale University Press.
- Lupasco, Stéphane (1947). *Logique et contradiction*. Paris: Presses Universitaires de France.
- Magasich-Airola, Jorge, and Jean-Marc de Beer (2000). *América Mágica: Quando a Europa da Renascença pensou estar conquistando o paraíso*, R. Vasconcellos (trans.). São Paulo: Paz e Terra.
- Marcos, Subcomandante (1995). *Shadows of Tender Fury, The Letters and Communiqués of Subcomandante Marcos*. New York: Monthly Review Press.
- Matte Blanco, I. (1975). *The Unconscious as Infinite Sets: An Essay in Bi-Logic*. London: Duckworth.
- Mattoso, Kátia M. de Queirós (1986). *To be a Slave in Brazil*, A. Goldhammer (trans.). New Brunswick: Rutgers University Press.
- McTaggart, J. M. E. (1927). *The Nature of Existence*, vol. 2. Cambridge: Cambridge University Press.
- Melhuish, George (1967). *The Paradoxical Nature of Reality*. Bristol: St. Vincent's Press.
- Merrell, Floyd (1991). *Signs Becoming Signs: Our Perfusive, Pervasive Universe*. Bloomington: Indiana University Press.
- (1995). *Semiosis in the Postmodern Age*. West Lafayette: Purdue University Press.
- (1996). *Signs Grow: Semiosis and Life Processes*. Toronto: University of Toronto Press.
- (1997). *Peirce, Signs, and Meaning*. Toronto: University of Toronto Press.
- (1998). *Sensing Semiosis: Toward the Possibility of Complementary Cultural 'Logics'*. New York: St. Martin's Press.
- (2000). *Signs, Science, Self-Subsuming (Arti)facts*. Dresden: Thelem.
- (2003a). *Sensing Corporeally: Toward a Posthuman Understanding*. Toronto: University of Toronto Press.
- (2003b). *Living Learning, Learning Living: Signs, between East and West*. Ottawa: Legas.



- (2004a). *Local Processes, Hegemonic Pressure: Conformity and Resistance through Brazilian Capoeira and Candomblé*. Berlin: Verveurt.
- (2004b). *Sensing Latin American Borders*. West Lafayette: Purdue University Press.
- Meyer, Leonard (1967). *Music, the Arts, and Ideas: Patterns and Predictions in Twentieth-Century Culture*. Chicago: University of Chicago Press.
- Mignolo, Walter D. (1997). *The Darker Side of the Renaissance: Literacy, Territoriality, and Colonization*. Ann Arbor: University of Michigan Press.
- (2000). *Local Historias/Global Designs: Coloniality, Subaltern Knowledges, and Border Thinking*. Princeton: Princeton University Press.
- Mignolo, Walter D. and Boone, Elizabeth Hill (eds.) (1994). *Writing without Words: Alternative Literacies in Mesoamerica and the Andes*. Durham: Duke University Press.
- Mignolo, Walter D. and Schiwy, Freya (2002). Beyond dichotomies: Translation/transculturation and the colonial difference. In *Beyond Dichotomies*, E. Mudimbe-Boyi (ed.), 251–286. Albany: State University of New York Press.
- Morse, Richard (1993). *A volta de McLuhaima*. São Paulo: Companhia das Letras.
- Mudimbe-Boyi, Elizabeth (2002). *Beyond Dichotomies*. Albany: State University of New York Press.
- Nadin, Mihai (1982). Consistency, completeness and the meaning of sign theories. *American Journal of Semiotics* 1 (3), 79–98.
- (1983). The logic of vagueness and the category of synechism. In *The Relevance of Charles Peirce*, E. Freeman (ed.), 154–166. LaSalle, IL: Monist Library of Philosophy.
- Nagel, Ernst and Newman, James A. (1958). *Gödel's Proof*. New York: New York University Press.
- Nascimento, Abdias de (1977). 'Racial Democracy' in Brazil: Myth or Reality, E. L. do Nascimento (trans.). Ibadan: Sketch Publishing.
- Nishitani, Keiji (1990). *The Self-Overcoming of Nihilism*, G. Parkes (trans.). Albany: State University of New York Press.
- Ortiz, Fernando (1995). *Cuban Counterpoint: Tobacco and Sugar*, H. de Onís (trans.). Durham: Duke University Press.
- Parker, Fredrick B. (1992). *Otra lógica en América Latina: Religión popular y modernización capitalista*. México: Fondo de Cultura Económica.
- Parry, Benita (1994). Resistans theory/theorising resistans: Two cheers for nativism. In *Colonial Discourse/Postcolonial Theory*, F. Baraker, P. Hulme, and M. Iverson (eds.), 172–196. Manchester: Manchester University Press.
- (2002). Signs of our times: A discussion of Homi Bhabha's *The Location of Culture*. In *Learning Places: The Afterlives of Area Studies*, M. Miyoshi and D. H. Harootunian (eds.), 119–149. Durham: Duke University Press.
- Peirce, Charles S. (1931–1966). *The Collected Papers of Charles S. Peirce*, 8 vols., C. Hartshorne, P. Weiss, and A. W. Burks (eds.). Cambridge: Harvard University Press. [Reference to Peirce's papers will be designated CP followed by volume and paragraph number.]
- (1967). Manuscripts in the Houghton Library of Harvard University, as identified by Richard Robin, Annotated Catalogue of the Papers of Charles S. Pierce. Amherst: University of Massachusetts Press. [Reference to Peirce's manuscripts will be designated MS.]
- Poincaré, Henri (1952). *Science and Hypothesis*, F. Maitland (trans.). New York: Dover.
- Polanyi, Michael (1958). *Personal Knowledge*. Chicago: University of Chicago Press.
- Pratt, Mary Louise (1992). *Imperial Eyes: Travel Writing and Transculturation*. New York: Routledge.
- Prigogine, Ilya (1980). *From Being to Becoming: Time and Complexity in the Physical Sciences*. New York: W. H. Freeman.
- Putnam, Hilary (1983). Vagueness and alternative logic. *Erkenntnis* 19, 297–314.

- Quine, Willard V. O. (1953). *From a Logical Point of View*. New York: Harper and Row.
- (1969). *Ontological Relativity and Other Essays*. New York: Columbia University Press.
- Rabassa, José (1993). *Inventing A-M-E-R-I-C-A*. Norman: University of Oklahoma Press.
- Rama, Ángel (1982). *Transculturación narrativa en América Latina*. México: Siglo XXI.
- Rescher, Nicholas and Brandom, Robert (1979). *The Logic of Inconsistency: A Study of Non-Standard Possible World Semantics and Ontology*. Totowa, NJ: Rowman and Littlefield.
- Rorty, Richard (1991). Inquiry as recontextualization. In *The Interpretive Turn: Philosophy, Science, Culture*, D. R. Hiley, J. F. Bohman, and R. Schusterman (eds.), 59–80. Ithaca: Cornell University Press.
- Rosaldo, Renato (1993). *Culture and Truth: The Remaking of Social Analysis*. Boston: Beacon Press.
- Roth, Paul A. (1987). *Meaning and Method in the Social Sciences: A Case for Methodological Pluralism*. Ithaca: Cornell University Press.
- Rotman, Brian (1987). *Signifying Nothing: The Semiotics of Zero*. New York: St. Martin's.
- Russell, Bertrand (1923). Vagueness. *Australian Journal of Philosophy* 1, 88–91.
- Sacks, Mark (1989). *The World We Found: The Limits of Ontological Talk*. LaSalle, IL: Open Court.
- Saldívar, José David (1992). *The Dialectics of Our América: Genealogy, Cultural Critique, and Literary History*. Durham: Duke University Press.
- Sansone, Lívio (2003). *Blackness without Ethnicity: Constructing Race in Brazil*. New York: Macmillan.
- Santos, Jocélio Teles dos (1998). A mixed-race nation: Afro-Brazilians and cultural policy in Bahia, 1970–1990. In *Afro-Brazilian Culture and Politics: Bahia, 1970s to 1990s*, H. Kraay (ed.), 117–133. London: M. E. Sharpe.
- Seife, Charles (2000). *Zero: The Biography of a Dangerous Idea*. New York: Penguin.
- Serra, Ordep (1995). *Águas do Rei*. Petrópolis: Vozes.
- Shanker, S. G. (1987). *Wittgenstein and the Turning-Point in the Philosophy of Mathematics*. Albany: State University of New York Press.
- Shlain, Leonard (1991). *Art and Physics: Parallel Visions in Space, Time and Light*. New York: William Morrow.
- Skagestad, Peter (1981). *The Road to Inquiry: Charles Peirce's Pragmatic Realism*. New York: Columbia University Press.
- Skidmore, Thomas (1974). *Black into White: Race and Nationality in Brazilian Thought*. Oxford: Oxford University Press.
- Skolimowski, Henryk (1987). The interactive mind in the participatory universe. In *The Real and the Imaginary: A New Approach to Physics*, J. E. Charon (ed.), 69–94. New York: Paragon House.
- Sodré, Muniz (1988). *O terreiro e a cidade: a forma social Negro-brasileira*. Petrópolis: Vozes.
- (1999). *Claros e escuros: identidade, povo e mídia no Brasil*. Petrópolis: Vozes.
- Spivak, Gayatri Chakravorty (1988). Can the subaltern speak? In *Marxism and the Interpretation of Culture*, C. Nelson and L. Grossberg (eds.), 271–313. Urbana: University of Illinois Press.
- Stoller, Paul (1989). *The Taste of Ethnographic Things: The Senses in Anthropology*. Philadelphia: University of Pennsylvania Press.
- (1997). *Sensuous Scholarship*. Philadelphia: University of Pennsylvania Press.
- Szamosi, Gésa (1986). *The Twin Dimensions: Inventing Time and Space*. New York: McGraw-Hill.

- Todorov, Tzvetan (1984). *The Conquest of America: The Question of the Other*, R. Howard (trans.). New York: Harper and Row.
- Toulmin, Stephen (1990). *Cosmopolis: The Hidden Agenda of Modernity*. New York: Free Press.
- Twine, France Winddance (2000). *Racism in a Racial Democracy: The Maintenance of White Supremacy in Brazil*. New York: Routledge.
- Valente, Waldomir (1977). *Sincretismo religioso afro-brasileiro*. São Paulo: Ed. Nacional.
- Vianna, Hermano (1999). *The Mystery of Samba: Pop Music and National Identity in Brazil*. Chapel Hill: University of North Carolina Press.
- Vuillemin, Jules (1986). On Duhem's and Quine's thesis. In *The Philosophy of W. V. Quine*, L. E. Hahn and P. A. Schilpp (eds.), 595–618. LaSalle, IL: Open Court.
- Wachtel, Nathan (1977). *Vision of the Vanquished: The Spanish Conquest of Peru through Indian Eyes, 1530–1570*. New York: Barnes and Noble.
- Werbner, Prina (1997). Introduction: The dialectics of cultural hybridity. In *Debating Cultural Hybridity: Multi-Cultural Identities and the Politics of Anti-Racism*, P. Werbner and T. Modood (eds.), 1–25. New Jersey: Zed Books.
- Wheeler, John Archibald (1980a). Beyond the black hole. In *Some Strangeness in the Proportion*, H. Wolff (ed.), 341–380. Reading, MA: Addison Wesley.
- (1980b). Law without law. In *Structure in Science and Art*, P. Medawar and J. H. Shelley (eds.), 132–68. Amsterdam: Excerpta Medica.
- (1990). *A Journey into Gravity and Spacetime*. New York: Scientific American Library.
- (1994). *At Home in the Universe*. New York: American Institute of Physics.
- (1998). *Geons, Black Holes and Quantum Foam: A Life in Physics*. New York: W. W. Norton.
- Wittgenstein, Ludwig (1956). *Remarks on the Foundations of Mathematics*, G. E. M. Anscombe (trans.). New York: Macmillan.
- Zadeh, L. (1965). Fuzzy sets. *Information and Control* 8, 378–353.
- (1975). Fuzzy logic and approximate reasoning (In memory of Grigore Moisil). *Synthese* 30, 407–428.
- Zajonc, Arthur (1993). *Catching the Light: The Entwined History of Light and Mind*. New York: Bantam.

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