

## Entangling Forms

# Semiotics, Communication and Cognition 5

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# Entangling Forms

Within Semiotic Processes

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# Contents

List of abbreviations	vii
Preface	ix
Chapter 1	
Introduction	1
Chapter 2	
The play of musement	19
Chapter 3	
From Nothing to One to Many: <i>plurimorphy</i>	29
Chapter 4	
Simply ‘it’	41
Chapter 5	
What emerges from the unthinkable	66
Chapter 6	
Two worlds	80
Chapter 7	
We co-participate with what is becoming	96
Chapter 8	
An alternate view of the process	111
Chapter 9	
More on Peirce, and pragmatism	128
Chapter 10	
Process patterned through topology	144
Chapter 11	
How past, present, and future entangle living	165

Chapter 12	
Complexly entangled timespace	182
Chapter 13	
The tacit dimension again	194
Chapter 14	
From the mark of distinction's source	215
Chapter 15	
Neither here nor there nor now nor then	230
Chapter 16	
Signifying the form	242
Chapter 17	
The universe: a book to be read?	253
Appendix	
Otherwise thinking	261
References	273
Index	305

## List of abbreviations<sup>1</sup>

OAH = *Object, Act, and/or Happening*. A sign (*representamen*) interacts with its respective semiotic OAH (in Peirce studies customarily called the sign's *object*) during which process the OAH becomes the sign's Other, and both sign and OAH are mediated by the sign's *interpretant* (interpretation through co-participation of the sign and its interpreter). Thus there are three components to the fully developed sign.

CCC = *Contradictory Complementary Coalescence*, or *Contradictorily Complementary Coalescent*. Signs, as well as imaginary mental worlds and the physical world, are intricately interconnected, such that they *complement* one another, even though they might otherwise have been conceived as *contradictory*, and they converge toward and merge with one another by way of *coalescent* processing.

*i-i-i-* = *Interdependency, Interaction, Interrelatedness*, or *Interdependently, Interactively, Interrelated*. Signs are, as possibilities, *interdependent*; as possibilities having become actualized they are *interactive*; and as navigators within the *semiotic* process they are complexly, divergently, and convergently *interrelated* (Peirce CP 6.272–86).

BSO = The concept that what *is*, is *becoming something other than what it was becoming*. In a word: *process* (of the nature of C.S. Peirce's theory of 'continuity') (Peirce CP 6.102–185).

EZ = *Zero* ('nothingness', 'emptiness') conjoined with the *empty set* of 'set theory' (silence, a blank page). It is a matter of 'pre-language', or 'pre-semiotic', as purely *possible possibilities*, before any signifying process has begun emerging. It is comparable to what C.S. Peirce labeled 'nothingness' (Peirce CP 6.189–222).

LW = *Living World* (the macro-level, empirical 'physical world', and its depiction as a 'semiotic world').

QW = *Quantum World* (the micro-level counterpart to LW).

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1. These abbreviated terms have been years in the making, chiefly out of: (1) my scholarly beginnings in chemistry and physics (BA 1963) and later studies in philosophy of science (especially since 1968), (2) my reading about, and diverse concrete living experiences within, Latin American cultural processes (since 1959, and after beginning my graduate studies leading to a PhD [1973] in Iberoamerican Studies), (3) my immersion in Charles S. Peirce's writings (since 1973), and (4) my more recent interest in Buddhist philosophy (beginning around 1983). I abbreviate these terms for purposes of economy, hopefully without creating undue reading difficulties.





## Preface

During the last couple of decades I've occasionally pondered over the interrelations between physicist John Archibald Wheeler's interpretation of Niels Bohr's concept of the quantum world and Charles Sanders Peirce's process philosophy. I've struggled with the premonition that there are connections between Wheeler and Peirce, especially after I ran across Wheeler's essay, 'Bits, Quanta, Meaning' (1984), where he writes that quantum theory is a matter of 'information' becoming 'reality'. I had a vague feeling that Wheeler was onto something of semiotic nature, and that whatever it might be, it was germane to Peirce's process philosophy. Thomas Sebeok, who had occasionally made allusions to some of Wheeler's ideas in his own books and articles, encouraged me. So I pushed on, gropingly, following a vague, sinuous path that eventually led to this modest inquiry.

This book is basically Peircean in orientation. But it is Peircean in spirit rather than a close reading of Peirce texts. I attempt to write about Peirce's philosophy in view of much contemporary thought, especially in regard to (1) the North American pragmatic tradition insofar as it bears on Peirce, (2) a scattering of ideas from philosophy of mathematics, logic and science, (3) notions of *interconnectedness*, *complementarity*, and *co-participation* between the knowing subject and the known, which have emerged in several branches of physics, chemistry and biology, and (4) certain facets of Buddhist philosophy regarding these same notions. This places Peirce in a new light, which might tend to grate on the minds of those who prefer to focus on the letter of Peirce. But, I would hope, it will provoke new questions and elicit possible responses from those who are in search of alternate means for understanding our increasingly complex world.

This inquiry, then, is the yield of my meditations on semiotics, to be specific Charles S. Peirce's semiotics. At the same time, part of my mind has remained attuned to a diversity of disciplines with which Peirce, polymathic Peirce, was familiar during his times, plus other disciplines that didn't come into existence until after he passed away. I hardly need write that much has transpired since Peirce's times in all the disciplines I draw from, and I attempt to address these changes insofar as I am capable. Consequently, this inquiry should also be placed within the context of current semiotic studies along Peircean lines, largely in the tradition originally set out by Thomas A. Sebeok (1976, 1994,

2001).<sup>2</sup> Those readers experienced in this tradition will have no trouble following the train of thought in the pages that follow. As an aid to a reading of these pages by those who have not (yet) immersed themselves in Peirce and semiotics, I offer the above list of abbreviations, which serve as signposts sending out feelers in all directions such that the reading moves in nonlinear fashion, from each chapter back to preceding readings and forward to future readings.

Briefly to give a hint of what is to come, Chapter One offers tentative qualification of key terms and phrases that will frequently appear in the chapters that follow. Chapter Two begins with contemplation of what Peirce calls the *play of musement* by focusing on the present, or Peirce's category Firstness, which *is* what it *is*, irrespective of bearings in the past and projections into the future. Peirce's categories, three in number, are thoroughly processual. They consist of *interdependent* Firstness (what *is becoming*), *interactive* Secondness (what *is becoming* with respect to some *other*), and *interrelated* ideas, thoughts, meanings, and interpretations, or Thirdness (what *is becoming* as it mediates Firstness and Secondness in the same way that it mediates itself with them). Thus, we shall note, Secondness and Thirdness cannot help surfacing, as the nature of Firstness pours forth.<sup>3</sup> Chapter Three bears on Peirce's processual, *plurimorphic*, concept of *semiosis* in conjunction with the *objects, acts, and happenings* of everyday living, which vary with each biological species, each human community, and each human individual. It is an attempt to account for the becoming of everything such that it is always becoming something other than what it was becoming. In this respect, the scope of Peirce's pragmatic philosophy overflows the limited confines of disciplines as they are ordinarily conceived.

Chapter Four qualifies Peirce's triadic concept of the sign through a pre-semiotic 'sign of possibility' I offer in the form of an image (Figures 1 and 1a), which will serve to guide this entire inquiry. Discussion of this image empha-

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2. See especially, Brier (2008a), Chiasson (2001), Danesi (2007, with Sebeok 1999), Deely (1990, 2003), Eco (1976), Emmeche (1996), Engel-Tiercelin (1993), Esposito (1980), Goriée (2004), Hausman (1993), Hoffmeyer (1996, 2008), Houser et al. (1997), Johansen (1993), Neumann (2003), Petrilli (2009, with Ponzio 2005), Ponzio (1990), Rosenthal (1994, 2000), Rotman (1987), Santaella (1995), Sheriff (1989), Jakob von Uexküll (1957) and Thure von Uexküll (1982, 1986, 1987, 1989), and for a survey, Cobley (2009). Of course the list could be expanded trigonometrically, and I apologize to those scholars I have omitted.

3. Vincent Colapietro puts it nicely when he writes that the categories are 'best viewed as recursive heuristic conceptions. To describe them as *heuristic* implies that they are first and foremost guides and goads to inquiry. . . . [They] are not procrustean beds; they are not a priori molds into which the *facts* must be poured. They are . . . relevant guidelines for . . . fruitful [interpretation]' (1995: 29, 30).

sizes the notion of *bodymind*, and mind's and language's incapacity adequately to think and articulate *bodymind* knowing, which is in the process of emerging from pre-signness to enter into the flux and flow of *iconic*, *indexical* and *symbolic* signs.<sup>4</sup> Chapter Five introduces Peirce's concept of *abduction*, and what Peirce calls the 'pragmatic maxim'. These considerations bear witness to the importance of *vagueness* and *generality*, *inconsistency* and *incompleteness*, and *overdetermination* and *underdetermination*, all of which highlight the need for a processual alternative to classical logic and reason. Elucidation of this theme affords a glimpse of nonlinear, timespace contextualized feeling, sensing, perceiving, conceiving, and speaking and writing. Chapter Six introduces Niels Bohr's *Complementarity Principle*, and with it, Wheeler's *co-participatory universe*, both of which emerge as keys toward understanding the nature of *semiosis* within concrete everyday living.

Chapter Seven suggests that the *semiotic* process of becoming carries the implication that everything is mutually *co-participating*, thus perpetuating that very process of becoming. The watchword in regard to this process is the *inter-connectedness* of signs, worlds, meanings, and sign makers and takers. *Inter-connectedness* calls for particular focus on (1) the process of *contradictory complementary coalescence*, and (2) *semiotic entanglement*, which lie behind the notion of *co-participation*. Development of these topics evokes further words on what Peirce alludes to as 'objective idealism', and Bohr's *complementarity*. Chapter Eight interrelates *semiotic entanglement* with Peirce's 'objective idealism' via a couple of Wheeler's 'thought experiments' that serve further to illustrate the *co-participatory*, *self-organizing* nature of signs and the world as we perceive and conceive them through our communicative channels.

Chapter Nine illustrates how the concept of *bodymind* becomes effectively delineated in regard to *completeness* and *consistency*, *vagueness* and *generality*, *ongoing process* and *fixed product*, and *overdetermination* and *underdetermination*, and it reveals how pragmatism, specifically of Peircean origin, implies various paradoxes of age-old vintage. Chapter Ten offers diverse allusions, through a series of figures, to multiple renditions of temporality and spatiality (as *timespace contexts*) and their relevance for a Peircean concept of *semiosis*.

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4. My allusions to 'bodymind knowing' must acknowledge a debt to those scholars who criticize linear, hegemonic Western 'alphabetic writing', the likes of Jack Goody (1977, 1986, 2000), Robert Logan (1986) and Leonard Shlain (1998); I am particularly beholden to Brian Rotman (1993, 2008), especially regarding his project to take 'God out of mathematics' and put the 'body back in', which serves to amplify the 'alphabet effect'.

These moves reveal the paradoxical complexity of the world's process, especially in view of the virtually infinite range of *possibilities*, regarding science, the arts, and concrete life situations, given their inherent vagueness and baffling ambiguities. Chapter Eleven extends certain implications of twentieth-century physics to the premises of this volume, especially in regard to *timespace contextuality*, past, present, and future. Two Peircean 'thought experiments' help provide (1) a sense of how timespace contextual processes perpetuate themselves, (2) a notion regarding how change and the emergence of novelty can come about through communication, and (3) a possible idea as to how spontaneity, improvisation, and creativity, all by way of *musement*, can begin in the first place.

Chapter Twelve offers further aspects of Peirce's triadic thinking, which include (1) introduction of the importance of 'imaginary' and 'complex numbers', (2) a 'thought experiment' exemplifying these mathematical concepts, and (3) Peirce's categories with respect to *vagueness* and *generality*. Ultimately, these considerations bear on the concept of *complementarity* as it is gradually becoming fleshed out. Chapter Thirteen turns more specifically to issues of Peirce's processual philosophy in view of his categories. This brings much of what has been suggested in previous chapters to bear on various imaginary semiotic situations, by way of two art works, Diego Velázquez's *Las Meninas* (1656) and Maurits C. Escher's *Print Gallery* (1956) in order to illustrate these complementary processes of *becoming*. Chapter Fourteen returns to *musement*, as the initiation of *process*, and to the universe of signs becoming signs, ourselves included as *bodymind* processes, with the aid of another Wheeler 'thought experiment' illustrating *co-participation*. Chapter Fifteen entails (1) further enigmatic words regarding the perplexing notion of 'emptiness' – which Peirce's calls 'nothingness', and (2) multiple allusions to the *polysemeous* nature of signs, given their complexly emerging and diverging timespace contexts. Illustration of *polysemy* comes by way of rhetorical devices, especially what I term 'portmanteau phenomena', and additional allusions to *contradictory complementary coalescence*.

Chapter Sixteen further qualifies the notion of *polysemy* and its particular *portmanteau* nature emerging from a fusion of *vagueness* and *generality* and the tension between *inconsistency* and *incompleteness* arising out of the *overdetermination* and *underdetermination* of signs. And finally, Chapter Seventeen drills in on the nonlinear notions – which have surfaced repeatedly in the preceding chapters – of *both-and* and *neither-nor* processes, as the *middle way* between and through the bivalent *either/or*, which allows for the possibility of *overdetermined* and *underdetermined*, *inconsistent* and *incomplete*, and *vague* and *general* alternatives to the customary ideas of feeling and sensing, experi-

encing and perceiving, and conceiving and thinking and reasoning. An Appendix complements the seventeen chapters with additional words on the concept of *complementarity*.

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My appreciation to John Deely, who once motivated me to write about Wheeler's influence on Sebeok, to Marcel Danesi for his ongoing encouragement, to D. Emily Hicks, whose kindred spirit of inquiry gave me a second wind at a time when I was almost ready to hang it up due to what I thought was terminal burn-out, to Steven Rosen whose work has frequently motivated me,

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Most of all, to Araceli, who has always been there.

# Chapter 1

## Introduction

### Preliminaries

In this introduction I offer preliminary qualification of the key terms and phrases, from the List of Abbreviations, which frequently appear throughout the following chapters. Particular attention to these terms and phrases at the outset will facilitate a reading of this volume, though if you wish, you can go directly to Chapter 2. If you choose to do so, in capsule form the most prevalent abbreviated terms discussed in this introduction are: OAH = *Object, Act, and/or Happening*; CCC = *Contradictory Complementary Coalescence*; *i-i-i* = *Interdependency, Interaction, and Interrelatedness*; and BSO = the idea that everything is always in the process of *becoming something other than what it was becoming*.

### 1.1. *Bodymind*: a crucial topic that has never really had its day

If I may begin by paraphrasing Thomas H. Huxley, what we know is finite, and what we don't know is infinite.<sup>5</sup> We inhabit a minuscule islet of knowability in the midst of an illimitable ocean of inexplicability. The task set for every generation is to reclaim a bit more land with hopes that someone will always be around to plug the holes that appear in the dike. It would be nice if there were never any holes – if knowing were continuous, with no breaks. But if so, new knowing would come to a halt, for, without any – discontinuous, finite – holes, there could be no passage to the – continuous, infinite – sea of unknowing, which is the source of all possible knowing.

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5. This notion is age-old, of course. In recent times it has been at the heart of process philosophy, especially that of Whitehead (1929, Malin 2001), and Peirce (Kauffman 2001, 2002), as we shall see throughout this essay. René Thom's (1975) topographic mathematical theory is at least indirectly relevant. According to Thom, change is continuous (of infinite variations) but punctuated by discontinuous, 'catastrophic' breaks, which entails conjunction of infinity and finitude. However, while we can contemplate the infinite continuum as topological and of logical form, when we think it and say it, we cannot help but do so in large part by way of finite categories and distinctions, differences that make a difference.

New knowing must start with the premonition that there are a few holes in what is known. There must be a tinge of dissonance, the sneaky feeling that things are a little out of whack, that there is something awry. In other words, there must be readiness for some sort of surprise: an *object, act, and/or happening* (OAH) that doesn't quite meet with expectations. When a surprise springs forth, we usually tend to perk up and take notice. Yet, we need not always be surprised that we often aren't surprised when we should be surprised: there should also be a little dose of skepticism also. It occasionally pays to proceed with jaded know-it-all surety. That way, we tend to cling to what we (think we) know. But at the same time, we should guard against dogmatic certainty, which can easily close the door to the possibility of future knowing. Still, as Yogi Berra once quipped, the 'future ain't what it used to be'. So, a little skepticism regarding what's in store for us is healthy, for there should be some doubt lurking behind what we (think we) know. Hence we should meet most, but by no means all, our surprises with wide-eyed innocence, with child-like curiosity. Putting these three postures together – (1) readiness for surprise, (2) a dose of skepticism, and (3) innocent curiosity – reveals a *contradictory complementary coalescence* (CCC) of concrete corporeal experience accompanied by mental fabrications, many or perhaps most of them abstract. Allow me to attempt at least a preliminary qualification of this italicized phrase, *contradictory complementary coalescence*.

Throughout life, we develop expectations as a consequence of past experience regarding what should transpire in the course of future experience. But if we are to a degree wary of our experience, since it can be at times deceptive, we place our trust in what our mind tells us (for example, poke a stick in water and it doesn't actually bend, because we know from practical experience and with scientific certainty that water and air diffract light differently). And since the unexpected, occasionally of the most bizarre and apparently outlandish sort, emerges from time to time, we must re-evaluate what our cogitating mind tells us and look at what our intuitive, contemplative body-mind tells us. This is not a matter of mind over body or vice versa, but rather, the *complementary* – often apparently *contradictory* – *coalescence* of mind and body. It involves *bodymind*. The conjugate term 'bodymind', of course, is nothing new. It has appeared here and there, especially in the social sciences, for a few decades. I use it as part of my own feeble effort to avoid classical dichotomies insofar as possible.

Bodymind is more than simply what body does – body-doing – juxtaposed with what the mind does – mind-doing – and it is more than simply a fusion of what they do as some sort of bodymind mixture. This 'more than' entails *both* body-doing *and* mind-doing, and in the same breath, it is more; it is *neither*



merely the one *nor* the other, but something else emerging from the ‘inbetweenness’, the artificial ‘boundary’ presumably separating them; it is something that is new and different. It is the *CCC* of the two forms of doing and of the two words, ‘body’ and ‘mind’, fused into ‘bodymind’. I would like to think that bodymind, at least within the context of the word’s use in this essay, pays due respect to Maurice Merleau-Ponty’s (1962) own endeavor to avoid customary dichotomies. If dualisms the likes of mind/body, mind/world, and language/world cannot be discarded outright, refusal to abide by their common usage can nevertheless bring us to perceive and conceive ourselves, others, and our physical world, in a different light.

Having said this much, one of my aims in this inquiry is to illustrate the importance of bodymind doing and meaning through socio-proprioceptive-somatic-kinesthetic *interdependency*, *interrelatedness* and *interaction* (*i-i-i*) between ourselves and (1) our inner dialogue, (2) our dialogue with others, and (3) our dialogue with our physical world.<sup>6</sup> When I write ‘dialogue’, I by no means limit my dialogic imagination to words, whether spoken or written or thought. In addition to language, ‘dialogue’ involves basic signs of sound, touch, taste, smell, and sight, much in the sense of Antonio Damasio (1994, 2000). And when I write ‘socio-proprioceptive-somatic-kinesthetic *interdependency*, *interrelatedness* and *interaction*’ (*i-i-i*), I allude to our *complementarity* and our *co-participation* with all signs and all signs with us.<sup>7</sup> For, in the final analysis, we are signs ourselves, signs among signs.

We ordinarily perceive and conceive a world populated by *objects*, *acts* and *happenings* (OAHs). But there is something that precedes perception and conception: feelings, emotions, intuitions, and inordinately vague sensations. During moments of raw bodymind feeling, when mind is no more than *tacitly*, or *subsidiarily*, involved, what is *here*, *now*, is no more than mere feeling. It is *what it is*, in that particular *here* and *now*. It is unspecified and unclassified, with neither qualifying label nor particular attributes. It just *is* (what Peirce calls category Firstness). Then in a split second the feeling becomes sensation, and perception emerges. Now what there *is*, an OAH of some sort of *other*,

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6. Regarding *interdependence*, *interrelatedness* and *interaction*, I take a cue from what Peirce calls ‘interaffection’ (CP 6.128–31), of ‘intrinsic qualities of feeling’ (CP 6.132–34) and of ‘ideas’ (CP 6.135–42), all of which is ‘interconnected’ (CP 6.142), forming the basis of ‘synechism’, or ‘continuity’ (CP 6.143).

7. At this juncture I should point out that while the italicized terms, ‘interdependent’, ‘interactive’, and ‘interrelated’, are not exactly Peircean in origin, nevertheless, as I have argued in detail elsewhere, citing derivation of these terms in Buddhist philosophy and quantum theory, I believe they effectively portray the spirit of Peirce regarding his general concept of *semiosis* (see merrell 2000a, 2002, 2003).

becomes perceived *as* so-and-so. It becomes a particular something instead of something else (Peirce's Secondness). In the next moment, awareness is emerging that the OAH can be conceived *as* so-and-so because it apparently has such-and-such a set of characteristics *that* qualify it (Peirce's Thirdness).<sup>8</sup> Mind, conjoined with body in the form of bodymind, is now processing signs in their fullest. During this process, what precedes what? Does OAH precede both body and mind, and if so, do we not have an objectivist 'view as if from nowhere'? (Nagel 1986). Does body precede any and all qualification of OAH in good materialist or physicalist fashion? Or does mind precede what there is as some sort of Grand Adjudicator? An answer to final three of these questions, to put it bluntly if I may, is: No, No, and No.

## 1.2. Flowing categories of the world, thought, mind, and signs

Then where, exactly, am I coming from? As a beginning, I would like to suggest that we contemplate Peirce's notion of the *categories* of mind, the world, and

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8. I write 'such-and-such a set of characteristics' with certain trepidation, since the very idea of 'characteristics' brings the accompanying notion of fixed categories to mind. However, following George Lakoff (1987), I would rather use the term 'radial categories', that involve 'core tendencies' – 'tendencies', and by no means compulsion or imperatives – that allow for fuzziness, vagueness, variations of the category in question. This term evokes Eleanor Rosch's 'prototype theory' (1977, 1978, Rosch et al. 1976). A 'prototype' is, loosely speaking, a category. And it is much more. It allows us to conceive of ourselves and our social and physical worlds, by way of 'styles of reasoning' (Hacking 1985), that are not objective features of these worlds, but imaginative cognitive creations. If I say 'There's a bird in that bush', the category bird will likely have been evoked in your mind. That's the 'core tendency'. But your preconditioned 'style of reasoning', following certain presuppositions and prejudices, tell you that the bird in question is likely not a duck or a goose or some other class of water fowl, that it is likely not an eagle or a turkey vulture or an Andean condor. Most likely it is a sparrow, a starlet, a cardinal, a finch, and so on. That is, it is a bird of relatively small size and common to the aviary that are usually found in bushes. Certain prototypes may be innate, but for sure, the vast majority of them are internalized through cultural upbringing, formal education, and personal experiences, such that they have become habituated, entrenched ways of breaking up and mutilating and classifying the world in such a manner that it can be made intelligible. So how do new variations of a prototype come about? As I shall attempt to illustrate below, by going 'beyond the information given' (Bruner 1957), beyond the customary prototype where the classical logical Excluded-Middle Principle would otherwise have exercised its force, to what I term the 'Included-Middle', which makes its play and gives rise to the emergence of something hitherto unacknowledged and unexpected.

thought. I must point out, however, that I evoke Peirce's *categories* not as hard-rock fixed entities or concepts – as is too often the assumption – but as flexible tendencies, as heuristic devices, that can aid us in getting a feel for the process.

During the coming and going of our concrete everyday experiences, we *interdepend on*, we *interrelate* and *interact with*, and we *reflect upon*, myriad OAHs: my car, this book, that building, a brief conversation on the sidewalk, a newspaper article, a game of touch football in the park, and so on. I add the expression 'reflect upon', because when we first interact with the OAHs in our environment, we do not initially encounter them in a reflective way, but in a pre-reflective manner. That is, our bodies respond to certain vague aspects of the world, but these aspects are not yet OAHs elevated to conscious levels as signs *of something, for us, in some respect or other*. In other words, at the pre-reflective level, OAHs do not (yet) exist *as items of our experience*. This, once again, raises the question: What precedes what with respect to bodymind, OAHs, and the world?

In order address this question, further account of the categories must be forthcoming. Firstness *is* what it *is*, without any interrelationship with any *other*. It is self-contained, self-reflexive, and self-sufficient.<sup>9</sup> Secondness *is* what it *is*, insofar as it enters into interrelationship with some *other*, interacting with it in the sense of something here and something else there, the first something acting as a *possible* sign and the second something acting as a *possible* OAH in interaction with the sign. Thirdness *is* what it *is*, in the respect that it brings Firstness and Secondness together by *mediating* them, and at the same time it brings itself *mediatingly* into interaction with them in the same way they are brought into interaction with each other (Peirce *CP* 2.227–390). Mention of the categories seems to belie what I said in footnote eight regarding 'prototypes'. However, like prototypes, the categories have no clear and distinct boundaries, nor are they static. They slide over, under, and merge into one another, which is to say that their boundaries are slippery and vague.

This notion of somewhat vague categories has a bearing on: (1) signs and their respective OAHs, which are never absolutely stable, but always in the process of *becoming something other than what they were becoming (BSO)* and, (2) the nature of *interdependence, interrelatedness* and *interaction (i-i-i)*

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9. Sandra Rosenthal (2001) considers Firstness 'the most neglected of his categories' due to the fact that (1) since it is elusive, and vague, it is considered relatively unimportant with respect to the other categories, and (2) because of its characterization as 'inherently inconsistent'. However, as we shall note in this essay, 'inconsistency' is one of the principal actors in the *semiotic* drama of the universe, and should by no means be avoided.

between signs, OAHs, ourselves, and our world (our *world-version*) made meaningful with respect to the mediation of signs, OAHs and those meanings. Since everything is always becoming, then time comes into the picture, and with it contexts, spatially conceived; hence the term, which will be used prevalently in this inquiry: *timespace contexts*.

If, following the spirit of Peirce, what we take to be our world-version is initially a matter of no more than *possible* pre-reflective signs and/or OAHs (Peirce's Firstness), if a split second later we distinguish them as *actual interacting* signs and OAHs (Peirce's Secondness), and if in another split second we *identify* and *conceptualize* those signs and OAHs (through Peirce's Thirdness) such that they make up an integral part of our meaningful world-version as we (think we) know it, then we would likely wish to assume that the most basic semiotic processes precede our *conceptualized* world. And so it is. In the beginning, we are what we are by virtue of our *selecting*, from the sphere of *possibilities*, no more than a few aspects of our world-version, and *actualizing* them according to our context-dependent preconditions, presuppositions and prejudices; then we make them meaningful. In other words, selection from among the possibilities is a matter of what *might possibly be* selected (Firstness). The possibilities from which some selection or other can be made are not simply *there*, for us to ponder over, appraise, and analyze for the purpose of some choice or other. First and foremost, there is bodymind, within, and interdependent with, its personal world, its social world, and the physical world (the combination of which makes up a *world-version*). Choice and selection become a matter of *feeling, sensing, perceiving, and conceiving*, all of which entail more than either body or mind: they entail bodymind, and they begin with Firstness prior to our becoming of awareness *of* our signs.

So, a selection is made, here and now, and it emerges *as* something that is *other* than bodymind, yet it comes into interaction with bodymind (Secondness). Such interaction includes not only bodymind, but virtually everything within the timespace context and its attendant OAHs that happens to prevail for the moment. This interaction involves interrelatedness of everything within some particular timespace context, and it calls for the emergence of what *would be, could be* or *should be* selected (Thirdness) in view of the particular situation within the particular context that happens to have emerged. In other words, it calls for bodymind's entry into the process, bringing itself as *interdependent* Firstness into *interaction* (Secondness) with the processual OAHs, and *inter-relatedly* bringing about the CCC – or *mediation*, as it were – of everything that's in the BSO process (Thirdness).

There is really no bodymind without assuming its interdependence with the sphere of possibilities (of Firstness) from which selections can be made. And

there is really no bodymind without its interaction and interrelatedness with that which bodymind takes to be its private world, its physical world, and its social world, all of which are becoming what they are becoming according to the prevailing conventions and norms of bodymind's community (Secondness and Thirdness). In this sense it is neither the case that bodymind precedes these worlds nor is it the case that these worlds precede bodymind. A possible solution to this problem entails the idea of mutual *interdependence*, *interrelatedness* and *interaction* (*i-i-i*) of bodymind and worlds (world-versions).

In other words, I would respectfully suggest that we should not embrace the idea that bodymind and worlds come into *Being* when they interact. Only at the interface between bodymind and worlds can there be some form of *essence* or *Being*. But even if so considered, there is at most merely the *becoming of being* and the *being of becoming*. Any conception of bodymind-world *Beingness* can hardly include more than a collection of OAHs (Secondness) perceived and conceived as fixed rather than fluid. What is lacking in this conception is an adequate account of: (1) Firstness (the range of all possibilities, including bodymind-worlds, and their interdependency, before there is anything), and (2) Thirdness (bodymind-worlds' interrelatedness that *mediates* their interaction and endows them with meaning regarding what the future holds with respect to the sphere of possibilities and their likely actualization into OAHs).

This inclusion of full-fledged Firstness and Thirdness to make up Peirce's triad of categories, by definition, entails the flux and flow of *semiosis*. *Semiosis* is the process of *signs becoming signs*. It is the *becoming of the beingness* and the *beingness of the becoming* of both bodymind and worlds, without the possibility of *beingness* becoming fixed, according to the classical logical Principles of Identity, Non-Contradiction and Excluded-Middle. Within this flux and flow, the OAHs we consciously identify as demarcated portions of reality are no more than secondary to Firstness, and they cannot – they should not – become construed as fixed products, for Thirdness mediates between Firstness and Secondness in order to keep the process alive. Following this line of thought, the dynamic OAHs in our environment enter the *semiotic* stream in interaction with bodymind at largely tacit levels, as Firsts. Then, we can attend to them in the sense of Seconds and Thirds, but even then not as ideally objective OAHs, but as OAHs in *i-i-i* with bodymind.

### 1.2.1. *Within concrete living*

For example, during your everyday coming and going, do you at every moment actively think about your shoes when walking, the steering wheel of your car

when driving, your social status when chatting among friends over a beer, your looks as an extension of your personality? Of course you might attend *focally* to your shoes, and so on, at any given moment. But they ordinarily rest within your *subsidiary* attention (as Firsts), patiently, and waiting for your *focal* attention to shine brightly on them (the concepts of *focal* and *subsidiary* attention are from Polanyi 1958). They definitely exist within certain timespace contexts, but most of the time you are not (*focally*) aware of their existence. They enter direct *focal* attention only when they are brought forth into your consciousness (as Seconds and Thirds), such as when you feel your shoes are too tight, a resistance on the steering wheel tells you there is a problem, a friend fails to show you the respect you think you deserve, and so on.

OAHs are not simply ‘out there’ waiting for our mind to heed them. They do not exist as specific, individuated OAHs (having fixed identity as ‘shoes’ or ‘steering wheel’ or ‘a friend’) before you pull them into *focal* attention. Your steering wheel doesn’t exist *as* ‘a steering wheel’ *that* serves such-and-such a function before you grab it and stick a key in the ignition. The steering wheel is a particular member of the general class of things called ‘steering wheels’ – a prototype. Yet when you grab the steering wheel with one hand and with the other hand you are holding a set of keys one of which is directed toward the ignition switch, you are not *focally* attending *to* the steering wheel. What you are doing, you are doing as a matter of course, with hardly any *focal* attention to the particular object you call a ‘steering wheel’. The object in question is just one object among a host of others in the general context, and it is the entire context you are attending to, *focally* and *subsidiarily*. This is not to deny the fact that particular OAHs exist ‘out there’, *for* you, *at* that particular moment. It is a reminder of their existence ‘out there’ as a range of *possibilities*, one or more of which can become *actualized* and properly labeled (‘steering wheel’).

You generally interact with OAHs as singularities (Seconds) in their process of becoming something other than what they were becoming (*BSO*). Ideally, when you attend to a particular something (a Second) in your environment, it emerges into your attention primarily through the interdependent, interrelated interaction (*i-i-i-*) you temporarily establish with it, with respect to the *possibility* (Firstness) that it could have been becoming something other than what it is becoming, or the *likelihood* (Thirdness) that it will have been becoming something other than what it is becoming within some future timespace context. Then, and only then, do you ‘objectify’ it by attaching a label to it and conceptualizing it. Thus, in your daily experience, and at the most basic level, you are primarily involved, tacitly, with bodymind-worlds in interdependence, interrelated interaction regarding particulars.

### 1.3. The mark of distinction

In this manner, living systems, human and otherwise, are *co-participants* with the worlds of their concrete experience. This property is manifested by their communicative activity, by their ability to signify and at least provisionally constitute their existence through signifying processes.

The most basic act of signification *for* an organism is specification of a boundary between the organism and its environment through a signifying process that differentiates between *self* and everything it is not: *non-self* (Spencer-Brown 1979). This communicative act is evident at all levels of classificatory behavior. A cheetah ‘knows’ tacitly, at entrenched, sedimented levels, how to differentiate between its prey and the rest of its world, although each candidate for preyhood is a particular thing, and each interaction with a particular prey-instant is a singular moment of interaction. In this sense, classification or conceptualization is primarily associated with the *act of differentiating* a given world as evident from the tendency of the organism to specify the boundaries between itself (the *self*) and its *worlds* (*non-self*). This act of differentiating in the most primitive sense is so simple that it might appear superfluous. It is no more than a matter of drawing a boundary that distinguishes something from everything it *is not*.

However, at an exceedingly higher level of abstraction, and especially among human animals, this act of differentiation can become intertwined with the use of *symbols* (linguistic signs, socially conventional signs), which are customarily fixed by the classical Principle of Identity: for example, a ‘cheetah’ is a cheetah.<sup>10</sup> ‘Cheetah’ is the name of a specific class of particulars; it is the classificatory means for differentiating ‘cheetah’ from ‘gazelle’ or anything else. A cheetah, like all organisms, also classifies. It puts gazelles into the class of things to hunt down and eat, but steers clear of elephants. It can quite effectively put gazelles and elephants in their proper place as *icons* (image-signs) and *indices* (what the image represents). The English speaking human semiotic agent, in addition – and to an extent other complex organisms – has elaborate *symbolic* signs whose use involves social conventions developed within the

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10. I illustrate below that *symbols* (signs based on social convention – linguistic, logical, mathematical, and so on – whose chief characteristic is Thirdness) are the third of Peirce’s basic class of signs, that include *indices* (signs that are interconnected with their respective *others* in terms of contiguity, part-whole, container-contained, cause-effect, and so on – whose chief characteristic is Secondness) and *icons* (signs that bear similarity with that with which they are possibly interrelated, whose chief characteristic is Firstness).

human community. The word or *symbol*, ‘cheetah’, allows the English speaker to create (1) an *icon* or cheetah image, (2) the *indexical* interconnection between the *iconic* image and a cheetah in the mind or in the physical world, and (3) the concept – idea and/or thought – of a ‘cheetah’, all in the absence of any particular cheetah instances. This use of *symbolic* signs in the human sense is distinctively human. Although non-human organisms behave according to classificatory principles, the human use of *symbols* involves a higher level of abstraction and conceptualization.

I argue throughout this essay that the human penchant for abstracting signs and OAHs and considering them to be what *is as it is* in terms of the *way the world is* often ignores and even denies the idea of *process* by which everything is always *BSO*. ‘Cheetah’ is not a fixed entity, identical to/with itself. The word and the biological organisms are not simply what *is*. Rather, we should think: ‘A cheetah is always in the process of *BSO*’. It is “*cheetah-becoming*”, in the manner of Deleuze and Guattari (1983). A ‘logic’ of this *becomingness* capable of including time, we shall note, resists the limitations of the Identity Principle, and hence also of the Principles of Non-Contradiction and Excluded-Middle.

Yet, the most basic level of *semiosis*, entailing no more than a mark of distinction between something that *is* and something else that it *is not*, seems to have no problem with these classical logical principles. Even the simplest living organism enacts myriad marks of distinction during its everyday existence: food/nonfood, safety/danger, friend/foe, and so on. However, I must emphasize, we humans complexify the issue inordinately, creating teeming collections of classes, and classes of classes, all by way of marks of distinction, apparently without conceivable end. Ultimately, we cannot possibly render account of more than a virtually infinitesimal fraction of the mind-bogglingly complex nature and number of all possible marks of distinction available to us in terms of identity and *either/or* categories.

In an attempt to render our world comprehensible, we generalize collections of like distinctions, such as the class of mammals we call ‘cheetahs’. This generalizing and abstracting practice has paid huge dividends regarding our human capacity for organizing ourselves and our world. That’s the positive side. On the negative side, abusing the practice could end in our destroying our world, and along with it, ourselves. That comment on the boon and bane of our nature as *Homo loquens* aside, if we concede that any and all ‘cheetahs’ are *BSO*, while becoming increasingly aware of specific ‘cheetah’-differences, such ‘cheetah’-differences become ever-more-finely differentiated so as to approach indifference, that is, continuity. But in this finite world of fallible human organisms, there is no pure continuity; there is no such perfection. Nevertheless,



as the marks become ever more minimal, differentiations become well-nigh indistinguishable.

So we abstract, and generalize, demarcating what (presumably) *is* from what (presumably) *is not* as we go along. How does this generalization come about? By taking our (particular) signs for *what they are such as they are*, and no more; by taking our signs as signs *with respect to* and *in interaction with* something else, that which they *are not*, and no more; by taking our signs as individuals, as particulars, and generalizing them in terms of their similarity with what we take as the class of like signs to which they belong, and no more. It is basically in this third sense that we are able synthetically to fix our signs as if they were stable entities: classes of signs according to general labels (*CP* 5.314, 6.270, 7.583).

Thus the assumption often has it that symbols are artificially fixed and stable entities when qualified as nouns, in contrast to verbs and adjectives, which are ordinarily neither fixed nor stable. But the problem is this: we tend to take nouns for what they are, clearly and simply, as if they were self-contained, self-sufficient entities. This is germane to the idea of Firstness, albeit in an artificially static sense. But nouns are not simply Firstness. They interdepend, and interact with all possible nouns that could have emerged alongside the nouns under consideration but didn't. As Secondness, nouns are what they are in terms of their interaction with something else, their respective others (OAHs). As Thirdness, they and their respective others (particulars) with which they interrelate are stuffed into pigeon-holes (prototypes) ordinarily conceived as static classes. The problem is that all particular signs and their others, and hence the general class of signs of which those particular signs are members, are always *BSO*. They are process, not product; they are to a greater or lesser degree fluid, not fixed. Neither particulars nor generals are static.

Moreover, verbs and adjectives customarily take on noun-signs in their interaction with OAHs. As such, verbs and adjectives render their noun-signs more flexible, given the fluid nature of transitive verbs and a tinge of vagueness invariably inherent in adjectives. Verbs also imply, in addition to their interaction with noun-signs and their others, the authors of that interaction. There is no genuine 'eating' without an 'eater', and there is no 'running' without a 'runner', just as there is no 'dance' without the 'dancer'. And there is no genuine 'eating', without adjectival qualification of what is 'eaten', no 'running' or 'dancing' without qualification of the action. Gregory Bateson (1972) points out that our fascination with nouns and relatively fixed entities should be replaced by a fascination with processes that do not depend upon a preconceived set of OAHs. Obviously, the shift to such processual language must be accompanied by a radical transformation in our way of thinking.

Such a transformation, I suggest, is possible, since we as human beings have the ability to reflect *on* our classificatory processes. These classificatory processes interdepend with our most basic level of experience (Firstness), interact with our dynamic OAHs (Secondness) in our world, and interrelate with our thought processes (Thirdness) when we use names and artificially fix them and place them into (what appear as) stable signs. In this sense, due to their relatively static and abstract appearance, symbolic signs may be the objects of contemplation and thought beyond a particular perceptually grounded context. Therefore *they might be mistaken for having referential meanings to their OAHs, whether within a Platonic or sensual realm*. That's the risk. The advantage is that *they can be used as springboards launching us into new realms of feeling, sensing, and thinking such that we may become more aware of our sedimented, entrenched ways of feeling, sensing, and thinking and, if we are fortunate, we may get a glimpse of a few of the virtually unlimited alternatives available to us*. As we shall note, it is in this manner that we, as becoming processes, *co-participate* with our world's becoming process.

I now turn to the nature of these springboards.

#### 1.4. Our need for novelty

We improvise, constantly. One of the most common sources of improvisation is everyday speech. Noam Chomsky's (1957) linguistic theory suggests that at any moment in an ordinary conversation we stand a chance of improvising a sentence that has never before been uttered. While we chatter and hear others chatter, we draw from a vast array of lexical possibilities (vocabulary) and rules for their combination (grammar), and we improvisingly put them together and understand them in diverse ways. In Stephen Nachmanovitch's words: 'Every conversation is a form of jazz. The activity of instantaneous creation is as ordinary to us as breathing' (1990: 17).

In our general everyday extralinguistic activities as well, we improvise at every turn. We most often seem to do it without thinking. At times we have a minor 'flash of insight' that leads us spontaneously to create some utterance, idea, physical activity, or way of doing what we're doing. At other times, we are in a period of mild to intensive concentration, and the 'flash' comes to us as if out of the clear blue. A playwright, composer, novelist, or painter, or a mathematician or scientist, might have a major 'flash of insight', when a new idea suddenly reveals itself; then, it may take her months and even years of work to bring it to fruition. During that time she is required to keep the insight fresh in her mind: she socializes with it, works with it, plays with it, eats with it, attends

to her biological functions with it, and sleeps with it, until it's just the way she wants it. The finished work – actually that's a misnomer, since a work is never really finished – expands on that original momentary 'flash'. But the expansion doesn't stop there. Onlookers and listeners and readers and critics expand on the expansion, and alter it considerably.

And the original 'flash'? It might have come to her when she was at a cocktail party, at the job, or engaged in another project, playing a game of tennis, having breakfast, or in a dream, all part of her everyday goings-on. If she is in a process of receptivity for the improvising act, when she is munching on a tidbit and gossiping with a colleague, passing her time at a menial task, trying to slam a tennis ball over the net, digging into a fruit salad, or in deep sleep, she is primed for improvisation; she is in tune with herself, with others, and with her physical world. She, body and mind, bodymind, does what she does as if it were as natural as can be. She is no slave to some rigid set of rules of conduct, of thinking, or of creating; she more often than not does what she does spontaneously. She follows no script to the letter; she is generally in tune with the spirit of the script, and she improvises. She does not adhere to some plan or set of instructions she made for herself; she is open to other possibilities at every moment. She does not merely follow methods and means in pre-scribed ways; she re-scribes at every opportunity and at every moment, when the context permits it.

In Nachmanovitch's words, once again:

Faithfulness to the moment and to the present circumstance entails continuous surrender. Perhaps we are surrendering to something delightful, but we still have to give up our expectations and a certain degree of control – give up being safely wrapped in our own story. We still engage in the important practice of planning and scheduling – not to rigidly lock in the future, but to tune up the self. In planning we focus attention on the field we are about to enter, then release the plan and discover the reality of time's flow. Thus we tap into living synchronicity. (1990: 21)

When we surrender, we are aware of what *might* happen at some future moment – a 'might be' of Firstness, of Peirce's three categories of feeling, thought, action, and the physical world. But we don't know what *will* happen for sure. Then what happened, *happened* – it becomes what 'it is', or Secondness. Then we can become aware that what happened was what *could*, *should*, or *must have* happened – Thirdness.

This whole process wouldn't have been possible had we not surrendered, had we not been within the process, in readiness for what might emerge at any moment, at any place. Without surrendering to unforeseen possibilities, what we expected *should have* happened *would likely have been* what we perceived

and conceived happened, and if not, we likely would have jam packed it into our Procrustean bed of perception and conception, while giving little or no mind to our feelings and sensations, to what *might otherwise have* happened. Without a readiness for the unexpected, the unusual, the bizarre, the apparently outlandish, we more often than not have little disposition for surprise, and accompanying such surprise, a sense of marvel over what *has* happened. In other words, we would tend to be unsurprised that we were not surprised when we should have been surprised.

Surrendering to whatever life brings, whenever and wherever, is risky business. Openness to novelty breeds uncertainty. Creating on the spur of the moment with neither prompts nor props nor foresight nor hindsight nor script nor structure can be frightening. It is a leap into the unknown, and one must do with whatever one happens to have at hand. Every moment is to a greater or lesser degree unique. A gesture, a spoken or written word, a catchy tune, a dance step, a swirling stroke on a canvas, a mathematical proof, an enchanting thought experiment, a joke, a pun, or a nimble trickster's act, all emerge for the first and last time. All are like a shot in the dark, a dive into a murky lagoon. They are hazardous, potentially perilous, and precarious. Yet, the improviser enthusiastically enters into the charming and enticing yet terribly *uncertain* fray.

### 1.5. Life's insecurities, vagueness, and undecidability

Speaking of *uncertainty*, Werner Heisenberg's *Uncertainty Principle* might perchance come to mind. This esoteric idea has frequently been annexed into the social sciences, the humanities, and the arts. It even appeared in that TV series, *West Wing*, when C. J. mentioned the obvious, that the act of observing a phenomenon changes it, implicitly evoking Heisenberg. We've always suspected, and often we've propagated the idea, that the OAHs of our world are multiply interpretable, that they inevitably evince a minor to a massive dose of uncertainty. We all know people, most notoriously actors and politicians, act differently when before an audience or in front of a camera, and we know OAHs, like art works, don't mean the same thing to different people.

So why bring Heisenberg into the picture? I don't do so in order to applaud social scientists and humanists who might find dubious justification for their own uncertainty principle in their assertions the likes of 'every interpretation is a misinterpretation' (Paul de Man), every text has a tragic 'flaw' (Jacques Derrida), all texts have virtually countless meanings (Stanley Fish), the world is no more than a matter of sentences (Richard Rorty), the whole of culture is textuality (Clifford Geertz), or we, like texts, are 'inscribed bodies' (Michel Fou-

cault). In view of these assertions, Heisenberg's Uncertainty Principle seems to become less daunting to the nonscientist and more like the slippery, elusive kind of knowing we grapple with in everyday living (Lindley 2007: 7).

I suggest something else: the notion of *contradictory complementary coalescence* (CCC) which involves *interdependent, interrelated interaction* (*i-i-i-*) among the OAHs of our world on the basis of *vagueness* and *generality*, *inconsistency* and *incompleteness*, and *overdetermination* and *underdetermination*. These terms are effectively qualifiable by Peirce's categories of corporeal, mental, and physical world processes. As a rule of thumb in light of Peirce's categories – and to repeat myself somewhat – Firstness is what *might be*, a mere possibility. Secondness is what *is*, presumably and hopefully clearly and distinctly. It is some particular OAH here and now; it is what that *might be* – or perhaps something else – is in the process of becoming, which, in the next moment, is something other than what it was. Thirdness is what *could be*, *should be*, or *must be*, according to the conditions regarding some OAH that happens to have emerged, with respect to the general nature of that OAH and comparable OAHs of the past. Thirdness involves probability, in complementarity with the possibility of Firstness.

Firstness, in this manner, can be largely qualifiable as *vagueness*. A momentary image of some possible OAH that is not yet specified or perceived as something or other is a First. Secondness is *singularity, particularity*, what merely *is* without regard to the interrelations between the *isness* of that particular OAH and past OAHs and expected future OAHs. 'This chair' right here and now in this room is a Second. 'This chair' as a member of the class of objects generally labeled 'chairs' is a Third. This Thirdness is most appropriately qualifiable as *generality*, a word used in interrelationship with some OAH in regard to the general use of the word in a comparable manner within comparable contexts. 'Chair' as a *generality* has to do with the expectation that whatever is perceived as a 'chair', wherever and whenever, will be so perceived because the object of perception will be of such-and-such a nature.

Firstness as a *might be* remains *indeterminate* – or *uncertain*, if you will. A child usually learns that swans are 'white'. Yet the possibility exists, as a *might be*, that some swans are 'black' – and some are just that, in Australia, as became evident in the eighteenth century during one of Captain James Cook's voyages. A *might be*, of Firstness, is thus not only *vague*. It contains, as possibility, what we might ordinarily consider an *inconsistency*, given the possibility of both 'white' swans and 'black' swans. In this sense Firstness is radically *overdetermined* – many alternatives, some of them virtually inconceivable, might possibly be regarded as common knowledge, within the sphere of Secondness and Thirdness, at some future time and place (for example, the Earth was the center

of the Universe, then the Sun, then neither the Earth nor the Sun, and so on, into the indefinite future).

Thirdness as what *should be*, *could be*, or *must be the case* within some future timespace context is not simply a generality that is the case, yesterday, today, and tomorrow. Thirdness eventually reveals the *incompleteness* of our knowing, since what we (think we) know always stands a chance of modification, adjustment, amendment, or rejection and replacement at some future time and place. In this sense, Thirdness is radically *underdetermined* – some alternative might emerge and, over time, win the general respect of a community to become acknowledged as what *should be* the case regarding the world's OAHs (Copernicus was instrumental in overthrowing the 'Earth as center' hypothesis and replacing it with the 'Sun as center', which became commonly accepted a century later, and now, we have another – undeniably *underdetermined* – interpretation of the 'center of the Universe'). To reiterate, knowing, within the sphere of Thirdness, is invariably *incomplete*, hence *processual*. Everything is always *BSO*.

Uncertain all this? Yes, that's the implication. Fashionable allusion to Heisenberg? Likewise, if you wish. But I would suggest that I'm not simply flippant in writing these words. Were I to remain strictly within the spheres of Secondness and Thirdness, my words might appear merely facetious, trivial, glib. But when I include Firstness, the very phrase, 'might appear', takes on an entirely new light. Firstness is no more than possibility. But it is not simply the possibility of a coin showing either 'heads' or 'tails' after it is been flipped through the air and comes to a rest on the floor. That is classical Newtonian thinking: the coin is actual, while it is between a thumb and an index finger; it is actual while flip-flopping through the air, oscillating between heads-up and tails-up; and it is actual when it comes to rest. All this is Secondness as particularity, and Thirdness as the general act of coin flipping and wagering.<sup>11</sup>

So how does Firstness enter the scene? The Firstness of a coin flip is no more than a *possibility*; as such, it is, so to speak, *imaginary*; it is metaphorically comparable to a possible quantum world 'event'. In fact, if we imagine the coin exists in the quantum world, while it is imaginarily arching through the

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11. Over the years, I have developed this notion of *uncertainty* and the terms interrelated with it in regard to our knowing from my readings, among others, of Smith (1995), Pagels (1983, 1988), Bohr (1934, 1958b, 1963), Heisenberg (1958, 1971), de Broglie (1939, 1953), Capek (1961) Eddington (1946, 1958a, 1958b), Kaku (1994) Einstein (1949), Feynman (1994, 2005a, 2005b), Malin (2001), Penrose (1989, 1996), Wheeler (1980a, 1980b, 1984, 1990, 1994, 1998), Davies (1988), Weyl (1949), Prigogine (1980), Prigogine and Stengers (1983), Schrödinger (1954, 1967).

air, at each moment there is *neither* ‘heads’ *nor* ‘tails’, or there is *both* ‘heads’ *and* ‘tails’, as you wish – you can say it whatever way, for there is nothing at all in terms of ‘coin’, ‘heads’ and ‘tails’. It is all *imaginary*. Then the coin comes in contact with the floor, and at that moment, it is actualized, and then there is either ‘heads’ or ‘tails’. The coin has become a ‘real’ object, a Second; ‘heads’ shows, you lose, and somebody else wins, according to the general game of wagering, as a Third.<sup>12</sup> Firstness, the range of all *possibilities*, sets the stage for uncertainty, because it contains all *possibilities* for future moments, some of them highly possible and others of virtually zero probability (the Sun was once a likely candidate for adoption as the center of the Universe, but hardly the Moon, much less an imposing mountain in the horizon, and virtually impossibly, a mole on Copernicus’s left cheek).

## 1.6. Life’s incomplete generalities

So much for a preliminary discussion of *vagueness* and *inconsistency* regarding the range of all possibilities within the sphere of Firstness. What about the *incompleteness* of any and all *generalities* within Thirdness?

Reconsider the coin flip. Everybody knows the probability of ‘heads’ or ‘tails’ is 50/50. Flip the coin 100 times and it might show ‘heads’ 50 times and ‘tails’ 50 times. That’s possible, but quite improbable. And a bet on 100 ‘heads’ and no ‘tails’ would certainly be a losing proposition; yet that remote possibility exists. Flip the coin 1,000,000 times and you might conceivably have 500,001 ‘heads’ and 499,999 ‘tails’. Close to 50/50, but not exactly. In fact, no matter how many times you flip the coin, chances are the flips will turn out to be slightly off the absolute 50/50 mark.

In other words, your experiment with actual coin flips will most likely remain *incomplete*. The only way to attain absolute certainty is by actualizing an infinite number of flips, which is outside the realm of Secondness. With respect to Thirdness, however, it remains as a theoretical construct. Theoretically, the probability is 50/50; actually – through experience in the physical world – that probability cannot be known absolutely. Actually, our knowing is by and large

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12. This coin toss as Firstness is the semiotic counterpart to the quantum theory *superposition* principle of ‘heads’ and ‘tails’ as *wave amplitude* within which state we can say that the ‘coin’ (or possible quantum ‘event’) is both ‘heads’ and ‘tails’, as pure possibility, or it is neither ‘heads’ nor ‘tails’, for it hasn’t (yet) become actualized as some ‘event-happening’ (sign), as either ‘heads’ or ‘tails’, in the physical world (see Tegmark and Wheeler 2001).

limited to our experience; theoretically, our limitations are extended into the fading horizon. In other words, theoretically, we can know without a shadow of a doubt in the most general sense, but in the experienced world of actualities, there's always some *vagueness* in our knowing. Our world of concrete experience is guided by our *generalities*, and we would like to think we adequately know this world; but a surprisingly large number of our *generalities* eventually tap into that incomprehensible void of Firstness, of *vagueness*, to reveal the *incompleteness* of these *generalities*.

In short, with the inclusion of Firstness to categories Secondness and Thirdness, *vagueness* and *generality*, *overdetermination* and *underdetermination*, and *inconsistency* and *incompleteness* aid in qualifying our uncertainty (and, as we shall note throughout this inquiry, they will afford a sense of *CCC* and *BSO* inherent in the *i-i-i-* of all OAHs, of all signs, and of ourselves – signs among signs – to boot).



## Chapter 2

### The play of musement

This chapter begins by focusing chiefly on the present, or Firstness, which *is* what it *is*, or more genuinely put, it is *BSO* processing, here-now, irrespective of bearings in the past and projections into the future. But, of course, since Peirce's categories are thoroughly processual, through interdependent Firstness, interactive OAHs (Secondness), and interrelated ideas, thoughts, meanings, and interpretations (Thirdness), the form of the content of this chapter, which is the content of its form, cannot help also embracing Secondness and Thirdness, as its fallible account of the nature of Firstness pours forth. Then in the early Wittgenstein sense, could I not *show* the form and content of this chapter rather than trying to *say* it? Negative. For, in an attempt to do so, I would ultimately be consigned to the blank page, to silence.<sup>13</sup> And yet, I have no recourse but to plod on, letting words account for themselves. Thus it is that I venture to take up . . .

#### 2.1. The challenge

An undeniable fact about our lives is that we do not and cannot know what will happen tomorrow, or for that matter, in the next moment. The unexpected awaits us at every turn. The future is a vast, unexplored temporal-spatial expansion. It perpetually recreates the mystery of learned ignorance regarding our life, and the more we go on, the greater the mystery. Moreover, the unexpected perpetually throws us into the present. When the blinders of our unknowing fall, and we are in the present moment of awareness, that's just what we have: the moment, the whole moment, and nothing but the moment.

What to do with the moment? On the one hand, if we dwell on the individual moment, we eventually enter into continuous surrender, giving up our

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13. In this vein, David R. Cerbone (2000) writes eloquently on Wittgenstein's writing in the *Tractatus* and in his later work that it is impossible to think illogically, for that would imply awareness of the limit of logic and of what lies beyond. However, it will become apparent, as the following chapters unfold, that my attempt to articulate what lies beyond classical logical Principles of Identity, Non-Contradiction, and Excluded-Middle, is not necessarily illogical; it can be a form of 'alternate logic', or in Walter Mignolo's (2000) words, an 'Other logic' of the sort that operates within cultural forms of life.

expectations and our wish for control. We give up our safe cultural wrapping that has so comfortably endowed us with the sense that we are who we are. We are willing to concede that we can more or less know what *might happen* in the next moment and perhaps even in the next day, but we cannot know what *will happen* without a shadow of a doubt. On the other hand, if we are not inclined to make these concessions and continue smugly to think we are by and large privy to what *will happen*, do we not artificially crystallize the future and insulate ourselves against the unexpected? And if so, does this not at least create a more comfortable situation for us? Perhaps, but such security would tend to be more detrimental than beneficial, because the unexpected is what awakens curiosity, wonderment, enchantment of the world, and puts us in a playful mood.

If we take this playful mood to the extreme, we have what Peirce calls ‘pure play’, the ‘play of musement’. In Peirce’s words, if I may quote him at length:

There is a certain agreeable occupation of mind which, from its having no distinctive name, I infer is not as commonly practiced as it deserves to be; for indulged in moderately . . . it is refreshing enough more than to repay the expenditure. Because it involves no purpose save that of casting aside all serious purpose, I have sometimes been half-inclined to call it reverie with some qualification; but for a frame of mind so antipodal to vacancy and dreaminess such a designation would be too excruciating a misfit. In fact, it is Pure Play. Now, Play, we all know, is a lively exercise of one’s powers. Pure Play has no rules, except this very law of liberty. It bloweth where it listeth. It has no purpose, unless recreation. . . . I will call it “musement” on the whole . . . If one who had determined to make trial of Musement as a favorite recreation were to ask me for advice, I should reply as follows: The dawn and the gloaming most invite one to Musement; . . . It begins passively enough with drinking in the impression . . . But impression soon passes into attentive observation, observation into musing, musing into a lively give and take of communion between self and self. If one’s observations and reflections are allowed to specialize themselves too much, the Play will be converted into scientific study; and that cannot be pursued in odd half hours. (*CP* 6.458–59)

The musing mood. It challenges some of our most basic assumptions. It tells us that our intuitions, feelings, spontaneity, our delight in the ephemeral sensations of the moment, and our indifference to prestige, riches and power, are all of the nature of the muser. Thus Peirce counsels us:

I should say, “Enter your skiff of Musement, push off into the lake of thought, and leave the breath of heaven to swell your sail. With your eyes open, awake to what is about or within you, and open conversation with yourself; for such is all meditation.” It is, however, not a conversation in words alone, but is illustrated, like a lecture, with diagrams and with experiments. (*CP* 6.461)

For sure, those who have a penchant for musement in this day and age are swimming against the current, at odds with the standard norms. Even so, recently there have been serious studies in psychology, philosophy, anthropology, sociology and literary and cultural studies on musement solely for the sake of contemplating oneself and one's place in the world.<sup>14</sup>

Musement involves a state of pure indifference, with no particular purpose or end in sight. It is a moment of purposeful purposelessness, mindless awareness, passive indeterminacy. For Peirce it is lively yet detached contemplation, when there is neither affirmation nor denial, and at the same time there is both affirmation and denial. There is neither choice nor non-choice, only floating dreaminess. It is imagination entering into a 'make believe' world that calls for 'play acting'. Belief in the customary world is suspended, so there is no need for suspension of disbelief in the make believe world.<sup>15</sup> Imagination oscillates between the play world and the customary world, between what there is and what there might otherwise be, between 'realism' and 'idealism', 'objectivism' and 'relativism' (Raposa 1999: 89–102).

## 2.2. Musement's intrigue

Musement flattens the hierarchical distinctions between mind and body, mind and physical world, private ego and community, language and all other communicative forms, and culture and nature. Musement is an ambiguous concept. It can be taken as the noblest of pastimes, according to the eye of one beholder, or in the eye of somebody else, it can be seen as a lack of motivation, of slothfulness, the pursuit of leisure devoid of any work ethic that is of utmost importance in an enterprising, dynamic community.

Perhaps the most solid characteristic of musement is that it is its own purpose. A musing act is carried out for its own sake. Like Firstness, it is self-contained, self-sufficient, and self-reflexive. It cannot be controlled or

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14. On the topic of musement in addition to Peirce's writings, first and foremost would be a reading of Sebeok's *Play of Musement* (1981). For recent books on creativity as a consequence of musement from which I've drawn inspiration, see Csikszentmihalyi: (1997, 2007), Gardner (1984), Kaufman and Baer, eds. (2006), Michalko (2001), Pope (2005), Root-Bernstein (1999), Rothenberg (1990), Sawyer (2006), Sternberg et al., eds. (2004), Weisberg (2006), and West (1997).

15. For this topic with regard to play, see Caillois (1961), Csikszentmihalyi and Bennett (1971), Combs (2000), Huizinga (1950), and for the notion, germane to the topic under consideration here, of open and infinite play (including musement), and closed, finite, rule driven games, see Carse (1986).

manipulated in order to gain something that is other than what it, itself, *is*. It is not a step toward something else; it has no other-oriented intentionality. It demands a sort of naïve innocence; it is a completely free act, unconditioned except by its own impulse. In a word, musement simply ‘*is*’; it ‘*is* what it *is*’. But jumping to the conclusion that the formula, ‘it *is* what it *is*’, entails hard-rock identity is like the dog barking up the wrong tree. What the animal honing his hunting skills thinks there *is* up there, there *is not*. What *is*, is what it *is* only in interdependent interrelationship with what it *is not*. However, like pure play or musement, there’s no telling what the future holds, so what *is not* in the next moment is becoming something other than what it was becoming (*BSO*) ephemerally to take on the countenance of what *is*, and then in the next moment it will have passed into what it *was not*.

A given present moment of musement evokes certain images: Socrates taking a tangential turn to learn a new tune on his flute on the eve before he was scheduled to die; Martin Luther pondering over the act of planting an apple tree in the morning of the day the world was presumably to come to an end; the delight of a Zen Master contemplating an ant hanging at the edge of what for it must be a terrible abyss. The musing attitude. Call it mindless mindfulness, subliminal awareness, or whatever, it is devoid of any specific direction; it is open to the range of all possibilities; it knows virtually no boundaries.

It hardly needs saying that this musing attitude runs counter to the nature of our customary rat-race existence. Contemporary living compels preparation for *later*, for a time to come. Savings, insurance, education, credit cards, 401Ks – they’re all geared toward the future. Temporality haunts us; time must be overcome, through speed in getting things done. And with each successive temporal increment, the speed must be upped a notch. Indeed, we take temporal acceleration to be one of our greatest assets: the past is past, don’t dwell on the present, and make way for the future.

The muser slows this rush of time, often almost to a standstill. But since temporality can’t be simply stopped in its tracks, it folds back onto and into itself, and there is attunement solely in the *now*. Even when past and future are contemplated, interest remains absorbed in the present. Each moment is full in and of itself, and then in the blink of an eye it begets the next moment. Each moment is a crossing that contains the past because, having expired, it has re-emerged, and it contains the future because, although that future hasn’t yet dawned, it is there, in the *now*, within the field of all possibilities. There is *mutual interpenetration* of past and future into present, hence the moment of the *now* is not the absence but the fullness of time.

What are the implications of the muser’s *now*? First, she will have a totally different attitude toward work. She will not merely work; she will strive to get

in tune with *working*, as act, as action, or better, as *acting process*. Work is for her an ongoing process, a *doing* for the sake of *doing* rather than getting it done, picking up the check or reaping the rewards, gaining power, fame and fortune, and basking in the sweet smell of success. If the *doing* isn't meaningful in itself, she simply won't engage in it. Second, the muser's respect for the acting process is characteristic of the musing attitude. She will cultivate a plant, for example, but cultivating it is meaningful in itself; it is ennobling regarding the very *process of acting*, which is like *playing*, or *play acting*. While creating complementation between herself and the plant-becoming, she is in the process of herself-becoming. She is becoming nature and nature is becoming her. She is completing the play acting when she ingests the plant, literally becoming it at the same time that it becomes her. This play acting is of the nature of the musing process. When she is musing, she is nature-becoming and nature is herself-becoming. The same can be said of her cultivating and her play acting.

Third, she coalesces with her working, her play acting, and she has little regard for the product of her work. She entered into the process of play acting for the sake of that process itself, and not for what might come of it. There was no act as a means to some end. Her play acting was comparable to the dancer in the process of dance-becoming which is in the process of dancer-becoming, or comparable to the musician's instrument-becoming and the instrument's and musician's jazz-becoming at the same time that the jazz is musician-becoming and instrument-becoming. This is to say that she loses herself in her play acting: she is selflessness-becoming. Becoming is what becoming is becoming, and the self is what selfing is becoming. This is not to say that there is no consciousness. The muser is conscious, for sure, but her consciousness is processual: she is in the process of conscious-becoming, or of selfing, so to speak. She is like the total process of a Japanese tea ceremony, where each act is an organic part of the whole process.

In sum, the muser's activity is neither selfish nor utilitarian nor the product of mindless rule following. She acts under neither compulsion nor obligation. She is driven neither by the desire for immediate rewards nor for power and notoriety. So what motivates her? Disinterested pursuit of her insatiable curiosity. A desire, from deep within, to go where she's never before gone, where perhaps few before her have gone. She begins with musing, and from there, to wherever and whenever.

### 2.3. When there's nothing instead of something

It is becoming increasingly apparent that this musing process (Firstness-becoming, by the grace of *BSO*) cannot be adequately expressed in language

(chiefly Thirdness-becoming, via *i-i-i-* and *CCC*) through mental and physical world allusions (OAHs, Secondness-becoming). Musing is too subtle, rich, and pregnant with possibilities, while language, proud, presumably objective language, in proper command of logic and reason, is inflexible in comparison.

Access to the deeper environs of musing, within one's own 'reality', the 'social reality' of one's community, and one's 'physical reality', can only be adequately fathomed by wordless feeling, emoting, intuiting, imagining, and sensing, what is within one's self, within the multiple selves making up one's community, and within all aspects of one's physical world. However, language, whatever language, whether logic, mathematics, Boolean computer formalism, or natural language, *is* what it *is* only with respect to what it *is not*. And what is this wordless *is not* with respect to what language *is*? No more than a *possible* sign, emerging from the 'Empty Set' (silence, a blank page), and at the furthest extreme, from 'Zero', 'nothingness', 'emptiness' (a combination of the 'Empty Set' and 'Zero' will be designated EZ). In other words, it is 'pre-semiotic', 'pre-language', 'pre-Firstness'. It lies outside consciousness and self-consciousness, outside awareness *of* signs becoming other signs (Baer 1988, Brier 2008b; also merrell 1998, 2003, 2007) (see Figure 1).

The 'empty set' and 'zero' (EZ) are always lurking around among the dark shadows of every word. EZ is invariably ignored when words are interpreted; yet it is behind every interpretation. Words and interpretations can't simply repress EZ; it is there, ubiquitous in its absence. It bears witness to a word's presumed 'truth' revealed in its interpretation; yet it also gives warning that no matter how 'true' a given word and its interpretation might seem, it could always have been something else in the process of becoming that is capable of taking on some equally apparent 'truth', within a different timespace context. EZ can give rise to multiply variant 'truths', the totality of which is ONE; but,

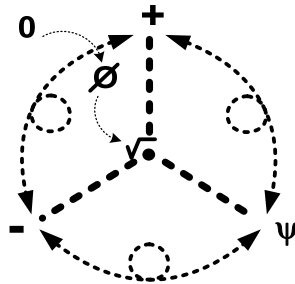


Figure 1. Pre-semiotic: sign possibility

of course, finite and fallible mortals that we are, we cannot be privy to that all encompassing ONE.

### 2.3.1. The pre-semiotic, semiotic diagram

What we have in view of Figure 1 is, first, ‘Zero’ (0), an image of the *possible possibility* of a word, or any other sign for that matter. ‘Zero’ engenders the ‘Empty Set’ ( $\emptyset$ ), or ‘noticed absence’, and the concrete *possibility* of a sign – a virtual sign – emerges. The diagram’s lines are dotted, since nothing is (yet) actualized. The swirling, swiveling, rippling, scintillating process is: ‘0  $\rightsquigarrow$   $\emptyset$   $\rightsquigarrow$   $\sqrt{\bullet}$   $\rightsquigarrow$   $\blacktriangle$  (= +  $\rightsquigarrow$  -  $\rightsquigarrow$   $\Psi$ )’ (where  $\rightsquigarrow$  depicts multiple nonlinear paths). The signs making up the equation for this process are qualified as:

- (1) 0, Zero, ‘nothingness’ or ‘emptiness’ in the Buddhist sense, as the range of all *possible possibilities*, . . .<sup>16</sup>
- (2)  $\emptyset$ , the ‘empty set’, or ‘noticed absence’ of the *possibility* (as distinguished from the range of all *possible possibilities*) that some sign or set of signs *could be there* but it *is not*, or it *was there* and now it *is not*, but it *might be there* once again at some future moment, . . .
- (3)  $\sqrt{\bullet}$ , the beginning of that necessary distinction between what *possibly is* and what *possibly is not* (+, -), . . .
- (4)  $\blacktriangle$ , representing the three lines making up the ‘tripodal’ figure as a model of the Peircean sign (this symbol,  $\blacktriangle$ , will occasionally be used in place of Figure 1.), . . .
- (5)  $\Psi$ , bringing about mediation of + and - in the same way it mediates between itself and them.

I must stress an important point: Figure 1 is not a model of an *actual* sign. Rather, it is the *possible possibility* of a sign (at 0), and the *mere possibility* (from  $\emptyset$  to  $\Psi$ ) that there might be some sign where there is no sign (see also in this respect CP 6.185–88, 6.215, 6.217). From ‘emptiness’ (0), the noticed absence ( $\emptyset$ ) of what might have been or never was but might possibly be, emerges. Then there is ‘ $\sqrt{\bullet}$ ’, a strange counterpart to the irresolvable imaginary number, ‘ $\sqrt{-1}$ ’, that evokes the *possible* presence of a sign (+), and the absence of that with which it might *possibly* interact (-) – its respective ‘semiotic object’, an OAH, which in empiricist parlance is dubbed its ‘referent’. However, that which is absent can become present as positivity in its own right when it

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16. It bears mentioning that the Greeks feared both zero and infinity. Zero threatened to give itself membership into the collection of numbers as ‘something’ which was ‘nothing’, while infinity masqueraded as an uncountable number of things that, like zero, couldn’t be specified (Barrow 2005: 23–26).



Figure 1a. From a possible to an actual sign

emerges and interacts with the sign. Then *possible* mediation emerges ( $\Psi$ ). The symbol, ' $\Psi$ ', embodies the *possibility* for mediating between and bringing '+' and '-' together and bringing itself into interdependence, interrelatedness and interaction (*i-i-i*) with them in such a manner that a *possible* interpretation – or meaning through contradictory complementary coalescence (*CCC*) as it were – may begin its process of emerging.

The emergent sign is of the same 'tripodal' nature as the pre-semiotic diagram. In fact, an actualized sign can be construed as a natural outgrowth of the *possible* sign (see Figure 1a).

A *representamen* (*R*), sign of Firstness, interdependently interrelates with its respective *OAH*, its *semiotic object* (*O*, of Secondness), and they are mediated by an *interpretant* (*I*, of Thirdness) in the same fashion as it mediates itself with them. And a *possible* sign can come into the world of some *possible* interpreter within some *possible* timespace context.

### 2.3.2. Qualifying the diagram

A protest is lodged: 'All this is hopelessly "antiessentialist" in the most radical sense'. Yes, so it might seem. However, this 'antiessentialism' departs from the manner in which the term is often used these days.

Richard Rorty, a self-confirmed 'antiessentialist', uses the term 'relations' (1979: 54–55). But his relations can – and perhaps should – be expanded into the three terms, *i-i-i*, and their accompanying terms (*CCC* and *BSO*), which I've offered for your contemplation. These terms more broadly involve process not product, perpetual change rather than fixity, fluidity rather than a relatively static web of relations. Language is simply not up to the task of clearly and distinctly articulating this process. Yet, I would like to think I can at least tentatively address *EZ*, *CCC*, *i-i-i*, *OAHs*, and *semiosis*, all in the process of *BSO*. The problem is that these processes are not what we ordinarily conceive to be 'real'; that is, they are neither explicitly mental nor physical world 'objects', about which we can effectively speak and think. We can't directly speak and



think them, just as we can't search for the darkness surrounding us in the blackest of nights with a flashlight in our hands. We can, however, speak and think *around* them; we can speak and think *about* them at their fringes in terms of what they *are not* more than what they *are*. We can do this, because they are precursors holding the possibilities for language and thought; they give rise to the emergence of all signs.

EZ, CCC, *i-i-i*-, OAHs, and *semiosis* (by way of *BSO*) spill into thoughts and words, and in doing so, they fade away. But they are never entirely absent. Even though they have faded out of some nebulous goal toward which thoughts and words within a particular timespace context are directed, they are there, holding myriad possibilities that can emerge spontaneously, offering unforeseen opportunities to the musing mind. There is no Cartesian clarity and distinction in this process. Any and all thoughts and words arising out of EZ are tinged with some degree of vagueness, ambiguity, incoherence, and paradox – paradox, that necessary ingredient in the most fruitful mixes of musement. In spite of our desire to hammer thoughts and words into well-honed instruments we can use and abuse, they are always around to reveal our shortsightedness, our limitations, our learned ignorance, our impoverished intellectualism.

If we remain within signs chiefly of the nature of possibility (Firstness), hardly entering into the problem of interaction between signs and our imaginary worlds and the physical world, communication remains context-dependent, embedded within the *present*. When these signs entertain their respective *others* (OAHs, Secondness), whether mental or 'out there', they usually carry cumbersome baggage from the *past* – presuppositions, predispositions and prejudices – which renders their interrelations vague and ambiguous. But when we confront what I have labeled EZ, CCC, *i-i-i*-, OAHs, and *semiosis*, including language (symbolic signs, chiefly of Thirdness), things become *future-oriented* and inordinately complex, as we doggedly persist in striving toward. . .

#### 2.4. Saying a bit more

We would like to think we are masters of intelligibility, but time and again we find ourselves flowing along the fringes, where fuzziness prevails and transparency elude us. We would like to think we can say everything we want to say. Yet, we invariably fail to make ourselves understood, clearly and distinctly, completely and consistently. This is because our words often conceal more than they reveal. In fact, they reveal only insofar as they conceal, and it is only when we become aware of the concealment that we are able to become aware of what

is possibly revealing. I can't say all I mean, for there is always something unrevealed in what I manage to say, and you can't absorb all the meaning of what I say, for there is always something concealed in your estimation of my saying what I say. In all saying, there's an element of implication, of suggestion, of that which was left unsaid: a *remainder* (Lecerclé 1990).

This is to say that when saying is at its best, it is never monological, nor is it dualistic; rather, it is dialogical, in the triadic sense. It commonly seems that there is always silence/word, an apparent dualism. But silence is not mere absence; it is the mute possibility of all possible words ( $0 \rightsquigarrow \emptyset \rightsquigarrow \dots$ ). And words are not the mere absence of silence; they are silently within *i-i-i-* as possible signs ( $\sqrt{\bullet} \rightsquigarrow \blacktriangle \rightsquigarrow \dots$ ), since silence bears the possibility of any and all words that can emerge to accompany the words that in some past moment broke the silence to emerge as the words they are at the present moment. But resting content with words and silence is not enough. Since words and silence are *i-i-i-*, there must be mediation between them by a third, which brings itself into mediation with words and silence in the same way that it brings words and silence into mediation with one another ( $+ \rightsquigarrow - \rightsquigarrow \Psi \rightsquigarrow \dots$  Signness). Then the intermediary trio gives rise to actual words in *i-i-i-* with silence, which once again calls for a mediating third, and the process continues, without determinable end.

To summarize, Peircean triadism entails: (1) musing moments, (2) perpetual emergence and mergence of Firstness, Secondness, and Thirdness, and (3) EZ, CCC, *i-i-i-*, OAHs, and *semiosis* (BSO). This entails signs that *might be* one or another of the possibilities they hold within themselves, signs that (presumably) *are* what they *are*, because they have come into interaction with some *other*, and signs that *could be*, *should be* or most likely *will be*, within some future timespace context, due to presuppositions, predispositions and prejudices moderated by social conventions. But we must bear in mind that the whole process depends ultimately on the pre-semiotic EZ and the *now*, in its most premiere moments: the *musings now*.

This inevitably introduces us to that disconcerting process within which we flow.

## Chapter 3

### From Nothing to One to Many: *plurimorphy*

A turn more directly to Peirce's radically transdisciplinary process philosophy now behooves us. In complementarity with presentness, which was the primary focus of Chapter 2, pastness and futurity now come directly under the spotlight. This time-binding gives rise to the notion of *plurimorphic* complexity, rather than relatively noncomplex *pluralism*. *Plurimorphy* aids in accounting for contradictory complementary coalescence (CCC) of mind and body into body-mind, an idea that will surface often in the following chapters.

#### 3.1. The becoming of Many from One

In retrospect: EZ, *i-i-i*-, and processual *semiosis* (CCC and BSO), in conjunction with any and all OAHs, vary with each biological species, each human community, and each human individual.<sup>17</sup> Human cultures are guided by their particular form of a collective imagination that can take on diverse countenances from one culture to another. The very idea of a collective imagination suggests a repository of premonitions, presuppositions, prejudices and proclivities, all embedded within conventions that have accumulated in past times among human communities. It suggests development of expectations with respect to what will emerge in future times. The future holds surprises in store, in large part because both the past and the present are always becoming something other than what they were becoming (BSO). This process customarily evokes the notion of pluralism.<sup>18</sup>

However pluralism may be interpreted in terms of an individual within a particular human community, it is usually in various stages of transition into

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17. In this regard, see the seminal work by Jakob von Uexküll (1957), Kull (2001, 2003), and Thure von Uexküll (1982, 1986, 1987, 1989).

18. For work bearing on Peirce's pluralistic leanings, Anderson (1987), Dozoretz (1979), Esposito (1980), Rescher (1993), and especially Rosenthal (1994). *Pluralism*, as the concept unfolds here, will give way to a more processual concept, *plurimorphy*. The sources for these two terms with respect to this chapter are multiple; they hail from diverse perspectives and disciplines (see Beall and Restall 2006, Connolly 1995, Galston 2004, Panikkar 1995, Plaw 2005).

something other than what it was according to the following<sup>19</sup>: (1) pluralism embodies distinctions – differences that make a difference – yet (2) pluralism, differences because the community says so, can fade into differences that are simply different, and thus it becomes increasingly diffuse, hence (3) the process creating diffusion begins spilling into *plurimorphy*, that is, convergent heterogeneities, differences that make new and different differences,<sup>20</sup> and (4) plurimorphy's myriad diversity begins becoming increasingly highlighted.

That much tentatively outlined, the paradox of the One and the Many raises its ugly head, or its benign countenance, depending on how we wish to construe it. However, there may be a way out in the name of what has been termed. . .

### 3.1.1. *Plurimorphy: as One and Many, and as neither One nor Many*

The conflict between One and Many has occupied a host of thinkers, especially since Plato in the West and the Upanishads in the East. The customary distinction between (1) monism, (2) dualism, and (3) non-dualism – but still in a predominantly bivalent sense – can be summarily reformulated as (1) One *or* Many, and the one and only genuinely legitimate One is surely destined to win out in the end; (2) One *and* its *other*, and the One usually ends up having its day at the expense of its *other*; and (3) *neither* One *nor* Two, *nor* Three, . . . *nor* Many, nevertheless, polarity usually manages to exercise its force. There is another way, the plurimorphic or processual way: everything arises out of EZ and engenders signs and their respective OAHs that merge into one another by way of *i-i-i-* and *BSO*; consequently, *CCC* is the name of the play of all signs.

I prefer to qualify this radically fluid, fluctuating process as *plurimorphy* rather than *pluralism*, since within *plurimorphy* there is no collection of relatively autonomous entities at war with one another, as bivalent thinking would have it. Plurimorphy is not a matter simply of distinctions and differences, for anything and everything is perpetually emerging and changing. This is a qualitative notion that cannot be determinately and uniquely quantified by the use of

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19. These four assumptions compose a summary variously influenced by Abram (1996), Conway (1989), Fisher (2002), Gendlin (1997c), Gilligan (1982), Jonas (1966), Levin (1989), Romanyschyn (1989), Taylor (1989), and Wittgenstein (1969).

20. *Plurimorphy*, in contrast to what might be expected, does not raise the question of compatibility or incompatibility in regard to *heterogeneity*, because the *unity* of the community within which this *heterogeneity* pervades is already a tacitly accepted fact. The community is a community with comparable possibilities of becoming among all members, although members make different selections from those possibilities according to their own whims and wishes and modes of thinking and believing.

linear formal language, because diversity within plurimorphy is radically nonlinear. The concept of pluralism, unfortunately, is often construed as mere bivalent diversity. Radically nonlinear plurimorphy, in contrast, is fresh, spontaneous, and creative; it is always *BSO* in the *CCC* sense (see *CP* 6.102–213).

*BSO* in the *CCC* sense finds itself unfit for convenient inclusion within what currently goes as the ‘linguistic turn’, that is, insofar as language is conceived in linear fashion.<sup>21</sup> However, the concept of *BSO* does allow for something akin to that extralinguistic Buddhist Tetralemma, for which second century philosopher, Nāgārjuna, is notorious. According to the Tetralemma, ‘what’ is under consideration, if ‘it’ is construed as a particular ‘something’ that can be taken for ‘what’ it ‘is’, is a matter of ‘its’ possible qualification from divergent possible perspectives. These possible perspectives are qualified in terms of the following injunctions with respect to whatever assertion is up for consideration: (1) ‘It is so!’, (2) ‘It is not so!’, (3) ‘It is *both* (1) and (2)!’, and (4) ‘It is *neither* (1) *nor* (2)!’. And then, to do proper justice to the Tetralemma, Nāgārjuna shocks us out of our slumber by giving us a couple of corollaries: (5) ‘*All* of the above’, and (6) ‘*None* of the above’.<sup>22</sup>

‘Outlandish!’ one immediately exclaims. Granted, we naturally tend to shrink back when confronting such apparent ‘illogic’. However, if we integrate the Tetralemma with our standard notions of Zero and Infinity, and One and Many, the Tetralemma becomes less unwieldy.

Zero and Infinity – and regarding concrete affairs of One and Many – are the Twiddledee and the Twiddledum of numbers, and indeed, of thought in general. In many respects they are the mirror image of one another. Multiply zero by any number and you get zero; multiply Infinity by any number and you get Infinity. The same equals the same. Dividing a number by zero leaves you with indefiniteness, or in the final analysis Infinity; dividing a number by Infinity leaves you with zero. Add zero to any number and the number remains unchanged; add Infinity to any number and the yield is Infinity, unchanged. Zero and Infinity are basically two sides of the same coin. They are the *Yin* and *Yang* of all that is becoming; they are the beginning and the end of the process of becoming that has neither beginning nor end (Seife 2000: 131–32). They are what *is* and what *is not*, the positive and negative, the ‘+’ and ‘–’ of Figure 1. They are the two

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21. This, of course, is an exceedingly broad topic into which I cannot enter here. I might mention, at least, that some of the books that have influenced the writing of this essay include Bell (1998), Berman (1988), Brandom (2000, 2008), Caputo (2000), Guignon and Hiley (2003), and Hiley, Bohman and Shusterman (1991).

22. For further I would suggest consultation of Huntington (1989), Gangadean (1981), Kalupahana (1986), Laycock (2001), Loy (1989), McCagney (1997), and especially Nāgārjuna (1967).

poles of becoming by means of which what *is* (+) is always becoming something other (–) than what it was becoming (*BSO*), but that ‘other than’ is what is also already becoming something other than what ‘*it*’ was becoming.

Still, there seems to be something lacking in any equation containing no more than ‘+’ and ‘–’. There must be some ‘middle ground’, some ‘middle way’, some mediator and moderator that not only takes in ‘+’ and ‘–’, but, in addition, takes in itself in its mediation of itself in regard to ‘+’ and ‘–’. The mediator, or ‘ $\psi$ ’ as it were, mediates what is other than what it *is*, and at the same time it mediates *itself* reflexively with that other. In this manner, if ‘+’ *is* what is in the *BSO* process, and if ‘–’ *is* what ‘+’ *is not* in that same process, then ‘ $\psi$ ’ entails *both* ‘+’ and ‘–’, and at the same time *neither* ‘+’ nor ‘–’. This, in what might appear as a convoluted – and perhaps muddled – frame of reference, embodies the Tetralemma in another form: (1) ‘+’, (2) ‘–’, (3) *both* ‘+’ and ‘–’, and (4) *neither* ‘+’ nor ‘–’, and ‘All of the above’ (. . .  $\infty$ ), and ‘None of the above’ (. . . 0) (where ‘All of the above’ implies the infinite march toward completion, and ‘None of the above’ implies the spontaneous emergence from sheer ‘emptiness’) (see also merrell 1998).

This is still perplexing, for sure. However, the Tetralemma’s apparent muddle quite conveniently dovetails with the image presented in Figure 1. How so? Recall that Figure 1 depicts not a substantive sign ready to enter into the customary march of signs with which we are familiar; rather, it begins as no more than a *possibly possible* sign and ends as a *merely possible* sign – and as such has nothing to do with linearity. It contains, as *mere possibility*, ‘A!’ (what possibly *is* what it *is*, or +). That possibility evokes ‘Not-A!’ (what that which possibly *is*, *is not*, or –). Then, ‘*Both A! and Not-A!*’ (or  $\Psi$ ) seeps in, as mediator of ‘A!’ and ‘Not-A!’, which at the same time mediates itself with ‘A!’ and ‘Not-A!’, by means of *i-i-i-*. And, ‘*Neither A! nor Not-A!*’ emerges, to introduce processual *BSO* and *CCC*. The whole of these processes creates a sense of ‘*All of the above*’, for they cannot be anything other than radically *i-i-i-*. And they create a sense of ‘*None of the above*’, for what is in the process of becoming emerges from EZ (that is, ‘0  $\rightsquigarrow$   $\emptyset$   $\rightsquigarrow$   $\sqrt{\bullet}$   $\rightsquigarrow$   $\blacktriangle$  [ $\rightsquigarrow$  +  $\rightsquigarrow$  –  $\rightsquigarrow$   $\Psi$   $\rightsquigarrow$  . . . Signness]’). So, it is not so perplexing after all, when the Tetralemma and Figure 1 are processually contemplated.

For sure, the Tetralemma throws ‘Truth’ as One for a loop, and ‘truth’ as Many enters into the fray and plays loosely, while allowing for the ‘truth’ of particular traditions, which can be properly understood only within the very traditions that have elaborated them. Yet each tradition, qualified in terms of *i-i-i-* and *BSO*, enjoys some commonalities with other traditions: they are in their composite contradictorily complementarily plurimorphic. In other words, Figure 1, the *possible possibility* of signs becoming signs, given its radically

nonlinear nature, is always *possibly* moving out along multiple diverging and converging paths, breeding *plurimorphy*, in the CCC sense. The Tetralemma, then, embracing plurimorphy, a bold extension of pluralism, is perspectivism of the most radical sort (I will not dwell further on the Tetralemma here, but will allow it to define itself at various stages of this inquiry).

Well and good, it might seem. But perhaps not, not really. For we are often inclined to resist pluralism, and to a greater extent, plurimorphy. This is chiefly for four reasons: (1) our very nature predisposes us to wish for some comfortable set of universals underlying all humans and all cultures, (2) since we have no 360-degree cultural vision, we are incapable of viewing an entire panorama of diverse cultures and languages, so we'd best stick to what we can fathom, (3) if reality is itself pluralistic, then objectivity flies out the window, and we'd do well to shy away from free-wheeling relativism, and (4) in view of our recently having become enchanted with the Kuhn-inspired notion of incommensurability of scientific cosmologies, and by extension languages and cultures, we'd best ethnocentrically hold to what we have, and defend it at all cost.

Regarding (4), Stefano Gattei (2008), Andrew Smith and Leonard Shyles (1995), and Ziauddin Sardan (2000), have some choice words; regarding (3), Joseph Margolis (1991) offers some keen insights, as does Richard Bernstein (1983, but attacks launched against relativism from the likes of James Harris 1999, Nenad Miscevic 2000, and Christopher Norris 1997). The first two tendencies, (1) and (2), are most germane to the interests of this inquiry; hence they call for further words.

### **3.2. A case in point**

In the West, reason is customarily considered one: Universal Reason. In contrast to this mode of thinking, plurimorphy entails: (1) the end of one-and-only-one Universal Reason and the adoption of relatively fluid 'styles of reasoning' (Hacking 1985), and (2) a loosening of strictly defined classical logical principles in order to allow for the possibility of alternate 'logics' (Rescher 1993).

Plurimorphy is not simply a matter of many views and languages under one umbrella. It cannot enjoy any final, unbridgeable set of human attitudes. If two views allow for what usually goes as some sort of synthesis, we cannot genuinely speak of plurimorphy. In fact, rather than 'synthesis' in the Hegelian dialectical sense, we should be considering the *process of coalescence*. Plurimorphy allows for no form of enduring synthesis, for there can be no

final resolution; rather, there is contradictory complementary coalescence (*CCC*), ongoing process, the emergence of what is always *BSO*.

From the *CCC* perspective, the idea of plurimorphy goes against the grain of mutually exclusive and contradictory systems and human communities ruled by virtue of bivalent classical logical principles according to which the Many can ordinarily be abstracted into the One. Plurimorphy embodies the procesual flow of becoming; thus it has little use for rigid Principles of Identity, Non-Contradiction, and mutual exclusion or Excluded-Middle. Given the idea of process, plurimorphy relaxes classical logical principles in order that divergent ‘styles of reasoning’ and possible ‘alternate logics’ may be embraced.<sup>23</sup>

Unfortunately, I must reiterate, perhaps more so in the West than in most other cultures, and more so among monotheistic religions than in polytheistic religions, we tend conveniently to remain enchanted with bivalence (Logan 1987; Shlain 1998). Things are simpler that way. There is Truth (One) and Falsity (Other, and Many), and that’s that. This tendency follows on the heels of the need for order and simplicity. Ideal order and simplicity can be effectively patterned in terms of dimensionality. Nothing is more symmetrical, harmonious, and orderly than a perfect sphere. Rotate it any way you like, and it remains the same: it is literally One. Zero is like a Point that expands out in all possible directions simultaneously to yield that form of perfection, a sphere. Next comes opposition in all things: Two. Something and that which it *is not*. Truth and Falsity, positivity and negativity, in eternal conflict. There can only be the One vanquishing the Other: Good abolishing all Evil. Ideally, this would leave the perfect world, the sphere, once again. It would come about by absolute prioritization of the One over the Other and the Many.

But if the One and the Other are considered genuine complementarities, they can’t be absolutely separated. The authentic nature of Twoness implies some unifying function rendering One and Other Two, yet One. This unifying

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23. In this vein I would applaud Ruth Nanda Anshen’s words in her presentation of Heisenberg’s *Physics and Beyond*, the forty-second volume of a series titled ‘World Perspectives’:

Our Judeo-Christian and Greco-Roman heritage, our Hellenistic tradition, has compelled us to think in exclusive categories. But our *experience* challenges us to recognize a totality much richer and far more complex than the average observer could have suspected – a totality which compels him to think in ways which the logic of dichotomy denies. We are summoned to revise fundamentally our ordinary ways of conceiving experience, and thus, by expanding our vision and by accepting those forms of thought which also include non-exclusive categories, the mind is then able to grasp what it was incapable of grasping or accepting before. (1971: xvi)



function is imperative, for, how can there be Good without Evil, We without Them, Male without Female, and so on? Like the horse and the carriage and love and marriage, as they used to sing out, you can't have the one without the other. As Two they are poles apart, yet they are One. There must be something other than *either* the One *or* the Other: some Third, some 'middle way'. In this sense, *complementarity*: *Yinness* and *Yangness*, a matter of disparities contradictorily complementarily coalescently held together. There is no priority of *Yang* over *Yin* or vice versa. Now the one is highlighted, now the other, on an equal basis. But they are disparate, yet contradictorily complementary; equal, yet complexly different; happy bedfellows, yet incongruencies make themselves known; there is cacophony within harmony, friction within accord. In other words, in the most general sense, all is *CCC* and *i-i-i-*, and above all, it is always *BSO*; in other words, plurimorphy is the name of the game.

How does plurimorphy operate? In a nutshell, from complementary Two, Three emerges, and then Many (as in Lao-Tsu 1963). And, though there is an umbrella of Oneness over Manyness, it becomes a matter of a greater or lesser degree of imbalance, disharmony, decoherence, dissonance, disequilibrium, and above all, syncopation. Three gives us 'A One . . . a Two . . . , . . . and a Three', syncopatedly speaking. This is not like jogging in One-Two fashion, but skipping. Three creates, like syncopation, asymmetry, hesitation, vacillation, a pause that doesn't refresh, not yet at least, but rather, there is that moment of uncertainty, doubt, undecidability, during the premonition that something will happen, but it is not yet known what; it will be a surprise.

Then a surprise suddenly erupts, and something different and new emerges. Ah, so that's it! It's actually the surprise that refreshes. It evokes, it provokes, it pushes toward who knows where or when. It creates that moment when many possibilities are there and waiting; then something spontaneous and new suddenly makes its appearance. And we are in the nonlinear, unpredictable, swiveling, swerving, spiraling path where plurimorphy pervades.

### **3.3. Plurimorphic creativity**

The plurimorphic process is a matter of creativity. How so? It begins with that syncopated Threeness, when there's a feeling of something as yet unspecified and perhaps unspecifiable. Then, fingers do the walking, eyes do the probing and scanning, and ears, nose and tongue do the sensing, when the proprioceptive, kinesthetic, somatic body does the talking, in its silent, nonverbal way. During such spontaneous corporeal activity and nonverbal dialogue, mind is

not just along for the ride. Mind and body, bodymind, as a complementary plurimorphic whole, enters the creative vortex.

Plurimorphic creativity begins with bodymind, through an act of what Peirce calls *abduction* – to be briefly discussed in Chapter 5 – as a consequence of the emergence of a First, of Firstness.<sup>24</sup> Schematically put, the creative act is in the process of emerging from pre-semiotic EZ involving CCC through *i-i-i-*, bringing about an *abducted* possibility that is always *BSO*. But the act does not simply appear, as if out of the clear blue sky. It emerges because creative people have an insatiable curiosity. They are always on the lookout for the new and different. When confronting a perplexity, their persistence simply won't allow them to leave it and move on to other less confounding pastimes; they are tireless workers whose production is far above the norm, and yet, they can find time for contemplation, pondering, musing, which prepares the terrain for creativity – as the adage has it, creativity is 90% perspiration, and 10% inspiration. It is quite safe to say that there is rarely any creation without the intention to create something. Contrary to the romantic belief that the creative mind does what it does spontaneously and with hardly any effort, the creative process involves massive doses of direct, intense, concentrated effort on the part of bodymind (Michalko 2001, Root-Bernstein 1999, Rothenberg 1979).<sup>25</sup>

Albert Einstein's unique 'thought experiments' are certainly among the most salient cases of scientific plurimorphic creativity. After he released his Special Theory of Relativity to the world in 1905, he knew there was something missing. Filling this gap took him 11 more years, culminating in his General Theory of Relativity, which addressed problems in Newton's theory of gravity in view of the Special Theory. While pondering over the apparently irreconcilable differences between Newton's theory and the Special Theory, it occurred to him that if an observer is in a state of free fall, there exists, from within the frame of reference of that observer, no gravitational field. If while falling, the observer lets go of an object she has in her hand, it won't fall; but from an outside frame of reference both she and the object will be falling according to Newtonian gravitational force. From within her perspective, she is in a state of rest; from the outside perspective, she is in a state of free fall and accelerating

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24. The abductive process emerges out of *musement*. It customarily involves acts of improvisation, above all in the sense that improvisation is the 'skill of using bodies, space, all human resources, to generate a coherent physical expression of an idea, a situation, a character . . . ; to do this spontaneously, in response to the immediate stimuli of one's environment, and to do it . . . as though taken by surprise, without preconceptions' (Frost and Yarrow 1990: 1).

25. For further on Peirce's view of creativity, see Anderson (1987), Hausman (1975), Miller (1989), and Rothenberg and Hausman (1976).

at the rate of 32 feet per second squared. At the outset, an ordinary mortal would discard the very notion as illogical. For Einstein, the apparent contradiction was eventually resolved. He had the ability to hold disparate concepts together in order to resolve the problem situation their conjunction produced.

Albert Rothenberg calls Einstein's talent, which is typical of the creative act, *janusian process*:

The janusian process lies at the heart of the most striking creative breakthroughs. . . . I have found the janusian process – a major element of the creative process – to be a conscious, rational process. . . . In an apparent defiance of logic or of physical possibility, the creative person consciously formulates the simultaneous operation of antithetical elements or factors and develops those formulations into integrated entities and creations. It . . . transcends ordinarily logic. What emerges is no mere combination or blending of elements: the conception contains not only different entities, but also opposing and antagonistic elements that are experienced and understood as coexistent. As a self-contradictory structure, the janusian formulation is surprising when seriously posited. Although it usually appears modified and transformed in the final product, it leaves the mark of implicit unexpectedness and paradox on the work. (1990: 15)<sup>26</sup>

The janusian process rarely reveals itself in the product of a created endeavor. It plays its role during the creative act; it is part and parcel of the creative process itself. The creators entertain the juxtaposition of opposite images, situations, ideas and concepts, and eventually bring them together into a harmonious yet discordant, a consonant yet dissonant, and an orderly yet seemingly illogical, whole. Rothenberg reports that ideas patterning this process emerged time and again during his extensive interviews with creative people.

The janusian process: one characteristic and its opposite? No, not really. Better said in the terms of this inquiry: one characteristic and its complementarity. Rothenberg writes how Joseph Conrad adopted the process in *Nostramo*. He was surprised by a story he had heard about an 'unmitigated rascal', an opportunist, who took advantage of the revolutionary confusion in a South American country to steal a large quantity of silver. It dawned on Conrad that this rogue was from another point of view actually a man of character. He was unprincipled as far as those short-sighted people who see only good and evil, but he was neither entirely good nor evil from a more encompassing, complementary point of view. Rothenberg also offers the example of Picasso's *Guernica* one of the preliminary sketches of which shows a female figure oriented

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26. I should point out at this juncture that my development of Gilles Fauconnier's and Mark Turner's (1995, 1998, 2002) 'conceptual blending' for the purpose of semiotic theory (in merrell 2007) doesn't contradict Rothenberg, because it entails a 'defiance of logic', of classical logic that is, and incorporates an alternate 'logic'.

spatially in diametrically opposite directions, in good cubist fashion, which serves to reveal two different perspectives of the human carnage during that tragic event (1990: 18). Rothenberg goes on to tell us that in an interview, British sculptor Henry Moore remarked: ‘To know one thing, you must know the opposite . . . just as much, else you don’t know that one thing. So that quite often, one does the opposite as an expression of the positive’. Or as painter Josef Albers in another interview put it: ‘I start from experiences and read . . . always between polarities . . . loud and not-loud . . . young and old . . . spring and winter. . . . If I can make black and white behave together instead of shooting at each other only, I feel proud’ (1990: 19). Rothenberg writes that creative processes ‘transcend the bounds of ordinary logic and cognition’ (1990: 22). (Indeed, his thesis, we shall note in the following chapters, is of the nature of complementarity in the form of CCC.)

The janusian moment is not merely a matter of ‘bisociation’, as in Arthur Koestler’s (1964, 1979) theory. It is, if I may put the issue in Peircean terms, a possibility, an *abduction*, which emerges from between the poles of *inductivity* and *deductivity*; it is something spontaneous and different, from a more general vantage point (CP 6.144–49). Unlike ‘bisociation’, the mechanics of which lies beneath a Freudian-like unconscious, janusian creativity is a more-or-less conscious choice from a range of possibilities one – or more – of which have emerged to present itself as just that: a possibility. First there is a surprise, resulting from failed induction; the surprise suggests some fresh possibility that brings otherwise contradictory images together; then there is a hypothetico-deductive leap in order to assay the consequence of choosing this confluence of contradictory images into a whole package; finally, there is a trial period in order to ascertain whether or not this new more inclusive perspectival field and its conceptual counterpart is feasible.

Rothenberg’s summary of Einstein’s janusian creativity merits citing:

Albert Einstein . . . had considered all the characteristics of gravitation and motion. . . . He had pondered moving objects, speed, acceleration, and especially the motion of magnets in an electrical field. Rest, the opposite of motion, was the limiting condition at the fringes of the matter until he brought rest and motion together in the image of a person [in a state of free fall] – at rest within his fall. . . . Certainly aware that the idea seemed contradictory . . . he was nevertheless moved by his thought. The experience of extreme disparity, the turning around of what was previously believed to be totally untrue or contradictory, is what accounts for the strong feelings of suddenness and strangeness. (Rothenberg 1990: 54–55)

First, there is ample preparation. Then the feeling of ‘strangeness’ that must somehow be resolved. A possible (abducted) solution emerges that goes

against the grain of conventional common sense. An ‘idea’ that might have ‘seemed contradictory’, given its ‘extreme disparity’, is put forth and (hypothetico-deductively) given a mathematical context. ‘Moved by his thought’, he develops his idea. And his ‘idea’ eventually meets (inductively) with empirical success. At the outset of this process, Einstein could have had things *both* one way *and* another, and at the same time they were *neither* one way *nor* the other, for there was something else, something strange yet enticing, unorthodox yet feasible, something oscillating, palpitating, scintillatingly attractive, between one extreme and the other. And then, the moment of illumination.

The usual tendency would be to think of Einstein’s solving his physics problems with mathematics, and without the unruly and apparently illogical abductive rigmarole. Even psychologist Howard Gardner in *Creating Minds* (1993) describes Einstein as the premiere example of a ‘logico-mathematical’ mind. However, Gerald Holton (1978), Walter Isaacson (2007), Arthur Miller (2002) and Leonard Shlain (1993) emphasize the fact that Einstein was actually relatively weak in mathematics, occasionally relying on professional mathematicians for the necessary equations to illustrate his ideas. Einstein revealed the unmathematical, and intuitive, pre-linguistic and abductive nature of his mental strength to his psychologist contemporary Jacques Hadamard: ‘The words of language, as they are written or spoken, do not seem to play any role in my mechanism of thought. The psychical entities which seem to serve as elements in thought are certain signs and more or less clear images which can be “voluntarily” reproduced and combined. . . . The above mentioned elements are, in my case, of visual and some of muscular type’ (Hadamard 1945: 142–43). Einstein also once confessed to Max Wertheimer that he only vaguely understood the implications of his visual and muscular sensations, for his feelings were ‘very hard to express’ (Wertheimer 1959: 228, n.7). Along comparable lines, Werner Heisenberg tells us that ‘mathematics . . . played only a subordinate, secondary role’ in his contributions to quantum theory (1974: 146). And Richard Feynmann: ‘In certain problems . . . it was necessary to continue the development of the picture as the method, before the mathematics could really be done’ (in Gleick 1992: 244–45).

Perhaps geneticist and Nobel Prize recipient Barbara McClintock most effectively expresses this aspect of the plurimorphically creative, abductive, janusian process with her sense of a ‘feeling for the organism’. While studying, or better said, getting close to her plants, she came to know each one of them intimately:

I found that the more I worked with them the bigger and bigger [they] got, and when I was really working with them I wasn’t outside, I was down there. I was part of the system. I even was able to see the internal parts of the chromosomes

– actually everything was there. It surprised me because I actually felt as if I was right down there and these were my friends. . . . As you look at these things, they become part of you. And you forget yourself. The main thing about it is you forget yourself. (in Keller 1983: 117, quoted in Root-Bernstein 1999: 4)

### 3.4. The centrality of plurimorphity

This notion of non-cerebral, non-conscious, kinesthetic-proprioceptive-somatic bodymind feeling before sensing and thinking, before labeling and cognizing, without clearly and distinctly being able to say how it is one knows at this level, has always been commonplace for some artists, scientists, and thinkers and writers.

It recalls Blaise Pascal’s heart that has reasons that reason cannot know. It also recalls Picasso, who once told a friend: ‘I don’t know in advance what I am going to put on canvas any more than I decide beforehand what colors I am going to use. . . . Each time I undertake to paint a picture I have a sensation of leaping into space. I never know whether I shall fall on my feet. It is only later than I begin to estimate more exactly the effect of my work’ (in Ashton 1972: 28). In McClintock’s words: ‘The answer came, and I’d run. Now I worked it out step by step – it was an intricate series of steps – and I came out with what it was. . . . It worked out exactly as I’d diagrammed it. Now, why did I know, without having done a thing on paper? Why was I so sure that I could tell them with such excitement and just say, “Eureka, I solved it?”’ (in Keller 1983: 103–04).

This bodymind feeling for what is becoming, and what might be thought and said bears directly on *plurimorphity*. Unlike *pluralism* and especially *plurality* whose focus all-too-often rests on relatively fixed entities, *plurimorphity* involves ongoing process. It is a form whose content is no content without the form and the form is nothing without the content. It is One, since it can’t be subdivided; yet it is Many, because Many involve CCC through *i-i-i-* in order that they may become One. Plurimorphity is virtually infinitely pliable – form-able – since it is radically *BSO*; yet it remains what it is with respect to some *other* that is also *BSO* in complementation with it. It is Firstness because it is One, but it engenders Secondness because there is its Other, and mediating Thirdness emerges to bring them together in the same manner in which it unites itself with them.

Thus, the plurimorphic nature of ourselves and our imaginary worlds, our diverse community of like but different individuals, and the physical world, all in the process of CCC through *i-i-i-*, which is always *BSO*.

## Chapter 4

### Simply ‘it’

Beginning with a few words on Maurice Merleau-Ponty, this chapter moves on to Eugene Gendlin’s emphasis on body, and on mind’s and language’s incapacity to think and say body’s knowing; that is, knowing that is in the process of emerging from pre-signness (Figure 1), to enter into the flux and flow of signs oriented around self-knowing as well as physical world and social world-knowing. Body, or better, bodymind-knowing, much of which defies clear and distinct articulation, entails the problem of confronting the neutral, non-person pronoun, ‘it’. As Brazilian writer Clarice Lispector marvelously illustrates, ‘it’ is prior to, yet it is a necessary component of, language. It is *both* inside *and* outside language, and at the same time it is *neither* inside *nor* outside. ‘It’ is germane to key terms in this book: *focal* and *subsidiary*, *vagueness* and *generality*, *inconsistency* and *incompleteness*, and *overdetermination* and *underdetermination*, all of which have a bearing on human limitations of thought and expression.

#### 4.1. How to say the unthinkable word?

The picture I’ve been striving to paint while remaining as faithful as possible to the suggested principles, EZ, CCC, *i-i-i-*, and BSO, falls in line with much of Merleau-Ponty’s thought (1962). While I have alluded to the necessity of a ‘pre-semiotic’ origin of signification (EZ), prior to language and intellection, Merleau-Ponty posits corporeal emotional depth, which involves proprioceptive, somatic, and kinesthetic sensitivity to contextualized living. Merleau-Ponty’s ‘primacy of perception’ has no fixed form, but rather, in line with the premises of this inquiry, it is corporeal; it flows within everyday living (Cataldi 1993).

That much said, it bears mentioning that, unfortunately, Merleau-Ponty is often ignored or overlooked in today’s academic circles. For, the assumption generally has it among many post-structuralist, post-analytic and neo-pragmatic scholars, that there is nothing outside language, textuality, and linguistic signs.<sup>27</sup> According to these scholars, whatever human activity engages

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27. For further critique of this view, which have inspired much of this essay, see Abram (1996), Bennett (2001), Berman (1989), Sheets-Johnstone (1990, 1994), Spretnak (1991, 1997), Toulmin (1982, 1990).

us, whether economics, politics, history, society, other cultures, the sciences or the arts, that which is important is incorporated in sentences, discourses, narratives – texts all! According to this view, we cannot feel or sense, or understand or interpret, without ‘textuality’. All facets of our coming and going within society are already pregnant with language, even our sense of identity, the self, and otherness. Our concrete world of proprioceptive, somatic, and kinesthetic extralinguistic feeling and sensing has virtually faded away.

Against this current, Merleau-Ponty wrote about something other than and prior to language. This is what I have at least indirectly alluded to above as corporeal or bodymind feeling and sensing that cannot be reduced to, nor can it be described by, language and thinking, because it is pre-linguistic, or extralinguistic if you will. Merleau-Ponty, in this vein, stressed the ‘primacy of perception’ rather than the ‘primacy of language’, a ‘corporeal turn’ rather than a ‘linguistic turn’, for which he was relegated to dusty library shelves, while proud ‘textuality’ stalwartly marched on. Merleau-Ponty’s silence has been textualism’s loss, however. Or perhaps better put, in our days, Merleau-Ponty’s speaking out and being heard would spell the demise of many of textualism’s most cherished premises.

Language and thinking are obviously of utmost importance to the process of human experience. But the notion of body, given its inherent proprioceptive, somatic, and kinesthetic nature, is not merely a linguistically garbed notion, nor is it susceptible to thinking as formulated in words, words, and more words. There is always something else, something that eludes disembodied thinking, something that by and large remains unspecifiable in language. This proprioceptive, somatic, kinesthetic nature of the body, its *CCC*, its *i-i-i-*, its *BSO*, and its having only barely begun taking its leave of *EZ* as it begins emerging into the light of day, is something language simply cannot adequately fathom. In other words, if *EZ* is pre-Firstness, if *CCC*, *i-i-i-*, and *BSO*, give rise to the emergence of Firstness, Secondness and mediating Thirdness, and if language and thinking exercise their dominance chiefly within Thirdness, then there is still something else, something more basic, something upon which language depends and without which it could not have arisen in the first place. This something will be the silent focus of the present chapter.

## 4.2. Rethinking Peirce?

In terms of Peirce’s categories of (1) feeling and sensing, (2) the physical world ‘out there’ and mental worlds ‘in here’, and (3) thinking and interpreting, perception and ultimately conception enter the scene after the *semiotic* process



flowing into Firstness from pre-Firstness and then passing through Secondness and Thirdness has begun its beginning.

At the outset of this process, perception takes in some *other*, for somebody. It is something that happens *to* somebody, or *in* some fashion or other affects that somebody. Perception obviously already entails *otherness*. So it doesn't begin at the moment *semiosis* begins emerging. This beginning of the emergence of something for somebody in some respect or capacity, this surfacing of *semiosis*, is the process illustrated in Figure 1: '0  $\curvearrowright$   $\emptyset$   $\curvearrowright$   $\sqrt{\bullet}$   $\curvearrowright$   $\blacktriangle$  (= +  $\curvearrowright$  -  $\curvearrowright$   $\Psi$ )  $\curvearrowright$  . . . Signness'. The *possibility of possibility* precedes Firstness; it precedes the *possibility* of the sign's becoming. Then Firstness becomes, and from Firstness, actual signs of Secondness emerge, and from Secondness, Thirdness of those signs arises, and from Thirdness, uncountable signs are ready and waiting for their beckoning. In this manner:

1. If Firstness as *possibility* entails the *interdependency* of all *possible* signs;
2. If Secondness entails *actual* signs having emerged to enter into *interaction* with other signs, including their *possible* signing or interpreting agents, and;
3. If Thirdness entails mediation of Firstness – *possible* signs that were *actualized* in *interdependency* with all *possible* signs that were not *actualized* but could have been – and Secondness – *actual* signs in *interaction* with other *actuals*, though they remain *interrelated* (thus completing *i-i-i-*) with all those *possible* signs that could have been *actualized* but were not;
4. Then, Thirdness involves sign *use* in the manner of their coming into *inter-relationship* with all signs, whether they are past, present, or remain as future *possible possibilities*, . . .
5. And, in addition, the implications of the Tetralemma, as summarily illustrated above, hold: there *is* what *is*; there is what is *other than* what *is*, or what *is not*; there is mediation of what *is* and what *is not* and mediation of the mediator with what *is* and what *is not* as well; thus there is *both* what *is* and what *is not* and there is *neither* what *is nor* what *is not*; and there is *all* of the above; and there is *none* of the above. It is all One, and the One is Many and the Many is One, paradoxically.

In this manner, perception doesn't begin coming into play until Secondness is entering into the flow of becoming, and then, and only then, can Thirdness begin making its play. For example, a plant interacts with its environment. That's basically Secondness. But the plant is without perceptual data, at least in the human sense, and indeed we would suppose, in the sense of self-propelling organisms. Like the plant, self-propelling organisms interact with their environment, but unlike the plant, they do so on non-conscious, semi-conscious, conscious, and perhaps self-conscious levels. Such interaction, if outside any

form of awareness, entails Peircean Secondness in the process of emerging from Firstness. A split second later, it can become Secondness acknowledged *as* something *other* on the part of some semiotic agent. If this agent is human or some other higher organism, then Secondness can be in the process of emergence into Thirdness, which can then bring about a *thought*, by means of sense-data, *that* some OAH, the *other* in question, is *of* such-and-such a nature.

Regarding human semiotic agents, a percept, the object of perception, involves something presented, an OAH, as sensed within some timespace context, while the human semiotic agent and the OAH within the context are in the process of bringing about the sign's emergence as a full-blown sign. Since the OAH and the semiotic agent must be in the process of their own becoming before the percept can enter the flow, that particular percept begins its becoming as Firstness merging into Secondness, while the semiotic agent is artificially – and often arbitrarily, as it were – becoming more keenly aware of the distinction between herself and her environment. Thus at the outset a percept 'exists' *for* someone (Secondness), but not (yet) *as* something *for* someone *in* some respect or capacity (Thirdness). It presents itself simply as if it were a thing that 'exists'. In this manner the percept is 'topped off – lops itself off – as if it could be a thing on its own'. Only then, a split second later, does the percept become 'something presented, something happening-to-someone' (Gendlin 1992a: 343–44).

Perception, then, separates the perceiving subject *off*, as Secondness-becoming and properly understood only retrospectively, *from* that which is becoming a percept. Once the percept is taken in, then the semiotic agent cannot add much, cannot change what has been received. For, the Secondness of the percept is already in the process of becoming Thirdness. The percept is a *having-of*, the becoming aware *of* some *other*. It entails *consciousness-of* the *having-of*, and the *becoming-of* some qualification or other of that which consciousness is *conscious-of*.

All this is to say that perception is:

something that appears before or to – a body. But the body is an interaction also in that it breathes, not only in that it senses the cold of the air. It feeds; it does not only see and smell food. It grows and sweats. It walks; it does not only perceive the hard resistance of the ground. And it walks not just as a displacement between two points in empty space, rather to go somewhere. . . . The body senses the whole situation, and it urges, it implicitly shapes our next action. It senses itself living in its whole context – the situation (Gendlin 1992a: 345).

We as human semiotic agents, within Secondness-becoming and prior to the initiation of Thirdness-becoming, interact in every situation in terms of the five senses plus proprioception, somatics, and kinesthetics; we act from the bodily

sense of each situation. Without a corporeal sense, there would be no sense of the *otherness* of this situation within our environment. We would not effectively know where we are or what we are doing. However, body's interaction isn't simply something latent; it isn't merely prior work of body in order to make perception possible; it isn't merely pre-linguistic, of the pre-cultural body in that reductionist post-structuralist mode. Rather, body's interaction with the situation at hand in terms of its received percepts is a transitory processual stage making way for the becoming of Thirdness, of language in the human sense. There is no Thirdness without Firstness and Secondness, no concepts without perception (percepts) and that which is felt and sensed, no language-signs – symbolic signs – without sensed images or signs of themselves (icons) and acknowledgment of some *other* (indices). United, the three processes flow on, divided, they dissipate and die. We cannot deny body's (bodymind's) self-sentience before mind becomes active and there is cognizance.

All this is to say that bodymind feelings and sensations entail: (1) proprioception (through sensory receptors chiefly in muscles, tendons, and joints, that respond to stimuli emerging within the organism), (2) somatogenesis (sensations emerging within the body as a result of the OAHs presented to it and its CCC, and *i-i-i-* within its environment that is in the BSO process), and (3) kinesthetics (sensation of bodily position, presence and movement resulting from stimulation of nerve endings from muscles, tendons, and joints). These sources of feelings and sensations – within processual Firstness and Secondness – involve entire contexts, and contexts of contexts, that include past contexts, present contexts in interactive interrelation with other contexts, and future contexts that are likely to emerge, given past experiences, predispositions and proclivities, presuppositions and prejudices, and expectations regarding what is most probable and what is least probable.

For example, assume one evening you are driving on a rather secluded two-lane county road along the ocean. The road winds along mountainous terrain arising abruptly from the ocean, with a steep drop to the narrow beach strewn with rocks some 500 yards below. And, . . . what's that? There's a car behind bearing down on you. The car's weaving from one side to the other leads you to think the driver must be drunk or drugged. It's rapidly approaching your vehicle; it must be exceeding the 55 miles per hour speed limit by twenty or so. Your right foot spontaneously twitches a little on the accelerator pedal, varying the quantity of gasoline injected into the engine. *You* don't twitch your foot. *It* twitches. Your right foot is primed to switch from the accelerator to the brake pedal at a fraction of a second's notice. Your left foot is arched upward, positioned for jumping into action and pressing down on the clutch in case of an emergency compelling you to change gears with lightning quickness. *You* don't

arch your foot. *It* arches. Your eyes dart back and forth between the rear-view mirror and the road ahead. *You* don't dart them. *They* dart. Your back is tense, your neck tendons stand out, your head is erect. *You* don't do all this. *Bodymind* does it. All the while, you – now it's *you*, torpid, languorous, hesitating, vacillating, *you*, via your mind-state – are debating over what you should do. Speed up in an effort to lose him? – why do you assume it's a him? Pull over to the side of the road? – but there's hardly any 'side of the road'; there's only an abrupt drop. Slow down so he'll pass you? – and risk his car slamming into yours. Continue on as if nothing out of the ordinary is happening? – but something *is* happening, and your life is in jeopardy!

You are, *mentally* and *consciously* speaking, carrying on an inner dialogue with yourself. Meanwhile, body, bodymind, is doing what it does best, always poised and ready for rapid-fire responses to whatever unexpected conditions might pop up.

### 4.3. Symbolizing the process, if I may

Bodymind doesn't need language to do what it does. Far from it. It does what it does in a pre-linguistic mode, barely past '▲☞...'. The first of the pair of symbols, '▲☞...', implies the tripartite diagram in Figure 1, and the squiggly ornament implies possible – and radically nonlinear, as it were – swerving toward here, there, or virtually anywhere else: plurimorphy.<sup>28</sup>

Thus the schematic '▲☞...' is, if I may repeat myself, no more than the *possibility* of a *possible* sign. It is pre-First, and it is certainly pre-linguistic or extra-linguistic. It is prior to dialoguing and debating with words, prior to thinking, conceptualizing, and intellectualizing. This bodymind-sensing 'includes more than' you 'can list, more than you can think by thinking one thing at a time. And it includes not only what is there. It also implies a next [possible] move to cope with the situation' (Gendlin 1992a: 346). But this implication of your next move is still '▲☞...'. Your actual move has not yet entered the scene.

In other words, '▲☞...' is not (yet) a percept. So is it a feeling? Proprioceptively, somatogenically and kinesthetically speaking? It may somehow be felt, but feelings usually arise out of emotions of some sort or other. The '▲☞...' implies emotions, but it doesn't contain emotions; it is more than that. Is it then something rather mysterious? No, not really: it is concrete, cor-

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28. My use of this compound symbol, '▲☞...', and the words surrounding it, owe a debt to Eugene Gendlin (1988, 1991a, 1991b, 1992a, 1992b, 1997a, 1997b, 1997c).

poreal, and a split second later, sensed. It is what it *is becoming*, so to speak, though it is not quite yet Firstness: it is Firstness-becoming. You have it now, and you somehow know it; that is, bodymind knows it, though there is not (yet) any consciously aware acknowledgment of its existence.

At present, you have this book in your hands, and you've been reading about your imaginary predicament along a lonely county road. On doing so, there was an ever-so-slight twitch of your foot, of your back and neck muscles, a vague uneasiness. Was there not? Well, perhaps not – or perhaps you weren't aware of it. But at least the possibilities were there for your tinge of discomfort. Or if not, perhaps you weren't really into your reading of the imaginary situation I was in the process of trying to create for you. Perhaps you were only mindlessly passing through the words while hardly giving them a chance to register on your consciousness. Perhaps the possible imaginary situation remained no more than that: a possibility, Firstness-becoming. Yet the possibility was there, and it could have been actualized had you been more 'into' the story. Whether possibility or actuality in regard to proprioceptive, somatogenic, and kinesthetic feeling and sensing, body was doing what it was doing, and in this particular case mind was trailing along behind, since under ordinary circumstances it is limited to taking things on a one-at-a-time basis, even when multitasking.

Body and mind, or bodymind if you will – since they are always in some degree in CCC, *i-i-i*-, and BSO with one another – takes in '▲☞. . .'. It is a possible 'felt sense'. The notion of 'felt sense' can illustrate '▲☞. . .', or vice versa as it were, but only if '▲☞. . .' excludes specific signs, words, and language. It can't be put into linearly generated, logically, reasoned, and well-formed signs and sentences, because it by and large lies outside logic, reason, and language – that is, insofar as those terms are taken in the classical sense of proper Aristotelian logic, Cartesian reasoning and thinking clearly and distinctly, and presumably objective language use. In a word, it is plurimorphic.

The '▲☞. . .' implies, as Firstness-becoming, an entire range of possibilities one or more of which can at some moment be selected. It includes a host of alternatives, and more: it implies what can be in the process of emerging in the next moment. It gives a vague hint, it subtly suggests, it offers a choice from the range of possibilities; yet it is at the stage of what will have been becoming in the future moment nothing, that is, nothing actual, for it is no more than possibility. It is the culmination of: '0 ☞ ∅ ☞ √• ☞ ▲ ☞. . .'. It is the barest premonition of what is to come.

In other words, it is the *not-yet-formedness of* that which is prior to iconic and indexical signs and symbolic or linguistic signs, of Firstness and Secondness and Thirdness. The '▲☞. . .' is bodymind's way of beginning the *semiosis* process before there is explicit mind, and before there is interrelated

interaction. For example, if there is a bodily feeling of danger, ‘▲☞. . .’ is prior to an emotional reaction to the source of danger. A situation has presented itself, bodymind feels it, and there is ‘▲☞. . .’. Then there is a reaction: what danger, where, how, why? But that can come only later. First there is ‘▲☞. . .’, and without it there can be no interaction by bodymind, and no search for interdependent interrelations between bodymind and the situation provoking a sense of danger. Indeed, ‘▲☞. . .’, the range of possibilities, and what is to begin its becoming if and when there will have been a choice and selection from among the possibilities, is a whole whose parts are entirely interdependent. United, they flow; divided, they dissolve.

Embracing ‘▲☞. . .’ involves ‘thinking through the body’, as Adrienne Rich puts it. She writes that ‘there are ways of thinking that we don’t yet know about’, which ‘traditional intellection denies, or is unable to grasp’ (1976: 192). The problem is that we have distanced ourselves from bodymind to the extent that we have forgotten it (Irigaray 1985: 214). Certain feminist studies remind us, and rightly so, of our estrangement from our corporeal roots, and they advise us that we must get back to the ‘bodily roots of the thinking process’ (Braidotti 1991: 8).

#### 4.4. Qualifying the scheme, tentatively

Then could we assume that ‘▲☞. . .’ is *indeterminate*, a sort of *semiotic uncertainty* principle? In a manner of speaking, yes. However, it is considerably more than what we would ordinarily take for *indeterminacy* or *uncertainty*. In the sense of *quantum uncertainty* – Heisenberg *uncertainty* – it is a matter of *overdeterminacy*: there is virtually an infinite number of possible possibilities, each of which stands some chance, however remote, of entering into the process of becoming.

In this sense, ‘▲☞. . .’ is not at all *indeterminate*. However, prior to processual becoming’s initiation, there’s no knowing which of the *overdetermined* possibilities will have been selected. When some candidate or other is selected, then and only then does it become to a greater or lesser extent *determinate* in the ordinary sense of the word. But in that moment there remains, as in all moments, an *overdetermined*, virtually infinite range of possible possibilities, each of which is waiting and ready to make its play. Body, bodymind, usually takes all this in its stride, selecting and choosing, at nonconscious or tacit and conscious and explicit levels. And life goes on. Bodymind has no alternative but to take the process as it comes. There is no fighting it, for ‘▲☞. . .’ is prior to explicit sign processing. If bodymind puts up a fight – thus attempting to speed

up the sign processing – it quickly becomes aware of its limitations. Given these limitations, a particular situation may be exceedingly complex, such as the car rapidly approaching you from behind. Body, on automatic pilot, reacts almost immediately, while mind trails along behind, as it deliberates over what you should do. There is no time to think out each of the possible moves separately; yet they are implicitly at work in bodymind's felt and sensed '▲☞. . .', which will have begun the process of becoming.

Thus the *overdetermined* nature of the range of all possible possibilities is not simply *indeterminate*, for in a manner of putting it, on the one hand, it is for practical purposes *determined*; in fact, it is *overdetermined*, since it entails virtually an infinite number of possible possibilities; but on the other hand, it is *indeterminate*, since there is no possibility of knowing exactly what will begin its process of becoming, and when it will begin. All possible possibilities are interdependent, and once something begins its becoming, it is *that* which is beginning its becoming and nothing else: it is interactive with everything and anything that has been becoming, is becoming, and will have been becoming. When what has been becoming enters into interaction with its respective *others*, such interaction maintains distinctions between something and some *other*, between *this* and *that*, *here* and *there*, *now* and *then*, as it has been entering into interrelationship with them.

As time goes by, these interrelations tend to make of distinctions, differences, and increasingly finer differences, such that they become *underdetermined*. *Underdetermination* comes into play when a sign, its object, or its meaning, has become fraught with problems – inconsistencies, contradictions, and inordinate fuzziness, ambiguities, and even paradox. Consequently, customary signs and their interpretations are placed in doubt; they are amended here, revamped there, overhauled somewhere else, and if they are found no longer feasible, they are replaced by other signs and interpretations that at least at the time and place are considered preferable (this process, of course, patterns Thomas Kuhn's [1970] celebrated study of scientific paradigms).

In short, given *overdetermination* (chiefly of the nature of Firstness) and *underdetermination* (chiefly of the nature of Thirdness), '▲☞. . .' is far from *indeterminate* in the ordinary sense of the term. It is more determining than signs as they are habitually, tacitly, and rather mindlessly used in everyday practices, caught up in presumptions, presuppositions, proclivities, and prejudices. It is more determining, because it encompasses the entire range of all possible possibilities awaiting their emergence at some propitious moment. The *overdetermined* range of possible possibilities is by and large of *inconsistent* nature: signs and their interpretations that would be, according to the bivalent dictates of Secondness, considered contrary, contradictory, or incompatible, can live

together quite congenially within the range of *overdetermination* as possible possibilities. After all, they are no more than possibilities that haven't (yet) entered into the light of day. In complementarity with the *overdetermined* range of possible possibilities, the *underdetermined* range of signs as they are conventionally used is of *incomplete* nature; consequently, it must at some point draw from the wellsprings of '▲☞...' in order to resolve some problem situation that has emerged.<sup>29</sup>

For example, an artist feels, senses, merely gazes at, her unfinished picture. She is within '▲☞...'. Suppose her '▲☞...' is one of dissatisfaction-becoming. Is that simply an emotional reaction? Not really. Implicit within '▲☞...', there is the entire history of her training, her experience with the work of many other artists, a feeling and sensing of and thinking about her previous works. There is even more: within '▲☞...' there is also some exceedingly vague implication regarding the next bit of paint she will put on the canvas, but it hasn't yet emerged. At this moment she is only musing and pondering over what is absent in her painting, and what is present but should be absent. Perhaps it needs a bit of color here, less texture there, something moved to somewhere else. In other words, perhaps it needs '▲☞...'. But what is that '▲☞...'? She doesn't know, precisely, mindfully and explicitly, not yet at least. But bodymind has some feel for the painting. The artist tries this and that, and something else, and daubs paint over the changes each time. This '▲☞...' of which she is not (yet) consciously and self-consciously aware is quite demanding, though it somehow gives her a feeling for the failure of her each and every attempt. It seems to 'know' precisely what the painting needs, and it 'knows' that those changes she made were not it. But there's so much to 'know'. So she leaves the work, for now. In a manner of speaking, only '▲☞...' can 'know' how to finish it, during a process that may take a few more hours, days, weeks, months, or perhaps even years.

The artist's work is new; it has never existed before in exactly the same way. If and when the artist puts another daub on the canvas, it will be something new as a minuscule part of the universe in its creative, self-organizing advance. In other words, the bodymind process, incorporating '▲☞...', can emerge as something that has never before emerged in the same way. And, if it doesn't emerge, it may never exist at all except as implied by some possible possibility. In this vein, and expressing the process formally if I may, when we understand bodymind in terms of *i-i-i-* arising out of EZ through CCC which is always

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29. I have elsewhere expounded on *overdetermination* and *underdetermination*, and *inconsistency* and *incompleteness*, which, I believe, are fundamentally Peircean in spirit, in previous books (merrell 1995, 1997, 2000a, 2003, 2007).



*BSO* implying OAHs, we need not limit the consideration of ourselves as sentient animals. Even plants, without perceptual faculties, at least of the self-propelling organism sort, are nonetheless ongoing, corporeal life processes. The concept of bodymindness – from the plant world to human self-consciousness – gives us the notion that if bodymind senses itself, it includes awareness of concrete contextual information – and awareness of why, if it is in tune with this information when in the musement process, it can tap this information in new ways. Such bodymind awareness precedes, it is more than, and it enhances, abstract concepts and language. All thinking at its core involves, bodymindingly, ‘▲☞. . .’.

For instance, in a lively conversation at a social gathering you feel suddenly compelled to put in your two cents worth. You open your mouth and begin speaking. How, precisely, will you finish the multiply embedded clauses within the utterance you’ve begun? You don’t yet know. After a dozen or so words, you take a quick pause – very quick so that nobody can butt in. During this pause you have a vague feeling for ‘▲☞. . .’. You don’t know how your utterance will end; yet while your mouth is in motion, it wends its way along by tapping the fountain head, ‘▲☞. . .’. You are confident you know what you’re saying. At least that’s the impression you wish to convey to all ears present. Yet you don’t know, precisely.

With this in mind it behooves us to focus . . .

#### 4.4.1. *On our limitations*

There is no language with which clearly and precisely to discuss what is more than language: ‘▲☞. . .’. The pre-semiotic range of possible possibilities is there, while you talk, and somehow you know it’s there, in the shadows beyond words, and you know it’s there, deep down and tacitly. Without it, you can’t speak at all, can’t think, can’t know what you need to know, and above all, you can’t engage in musement, can’t improvise, can’t create, can’t flow along within the stream of plurimorphity. Through ‘▲☞. . .’ you live on the edge, the edge beyond which there is ‘nothing’, ‘emptiness’, and beyond that there is ‘everything’ as purely possible possibility.

Suppose something happens that surprises you. There’s the problem of accounting for that which was unexpected. How do you go on? Ah, yes. There’s this, and that, and the other, and then ‘▲☞. . .’. You run smack into a wall; you can’t go on. But you must go on. You can go on, because there’s ‘▲☞. . .’. So you go on. If you get distracted and temporarily lose your feeling for ‘▲☞. . .’, you can always backpedal in an effort to return to familiarly unfamiliar ground. This, and that, and the other, and . . . ah, ‘▲☞. . .’, so that’s what it is! You

selected and actualized something from the *overdetermined* range of possible possibilities. Ah, good, now you (think you) know. But eventually, at some future timespace juncture, what was actualized seems somehow insufficient – *underdetermination* has emerged. You feel, sense, contemplate, conceptualize, and talk to yourself and perhaps others about this problem, and you might eventually come to the conclusion that what you had selected should be changed, or that it has become a candidate for the trash can.

There is no grand mystery here. You think and speak through ‘ $\blacktriangle \infty \dots$ ’ virtually countless times each day. Even if the surprising turn is only slightly troubling, it gives you pause. You know the routine things you can say and do, but through ‘ $\blacktriangle \infty \dots$ ’, which is now before you, you somehow know bodymindingly, without explicitly knowing you know. You know how bodymind entails more than you can know in concepts and words. But you know. So you think and talk, through ‘ $\blacktriangle \infty \dots$ ’; you think and talk through the way of bodymind, the way it processes, the way it lives on.

Bodymindingly, ‘ $\blacktriangle \infty \dots$ ’ is ‘real’; yet it is neither here nor there nor now nor then. It is *i-i-i*; it is *CCC* and always already *BSO*; it is *EZ*; and it is ‘real’, for it is in everything and everything is in it. Through it, you learn what (for you) is ‘real’, that is, concrete contextual ‘reality’. But . . . I’m floundering and flailing about upon striving to write what I wish to write. Best I let that supreme contemplator of ‘ $\blacktriangle \infty \dots$ ’, Brazilian writer Clarice Lispector, speak for me.

#### 4.5. The ‘ITNESS’ of ‘ $\blacktriangle \infty \dots$ ’

In *The Hour of the Star* (1992, *A hora da estrela*), Clarice tells us: ‘I am no intellectual, I write with my body. . . . The words are diffused, shadowy, sounds that disparately criss-cross, stalactites, giving up, transfigured organ music’ (30–31). In my more mundane way of putting it, ‘pre-Firstness’, ‘ $\blacktriangle \infty \dots$ ’, begins emerging from ‘emptiness’, and it flows into the becoming of signs of Firstness. Then the signs begin their becoming. But Clarice also enigmatically tells us that ‘this book is written without words. It is a mute photograph. This book is silence. It is a question’ (31).

Writing without words? A mute photograph? Silence? A mere question? Indeed, from the very beginning it might seem that Clarice’s works suffer, since there is apparently no genuine, sufficiently developed Thirdness. There is gaping incompleteness, since Firstness (Unity) and Secondness (Multiplicity) are not brought together and complemented by Thirdness (qualification, specification and generalization of what there is in order to render signs and the world intelligible). Without genuine Thirdness, there is no more than lost Unicity, a

raw, disjointed, multiplicity of particulars, and disconnected words, apparently without rhyme or reason.

Or perhaps the problem goes deeper. Does Clarice find herself within 'pre-Firstness', '▲☞. . .',? Might it be possible that she has found a way to write – albeit exceedingly vaguely – about that which precedes consciousness *of* words and *of* signs in general? Is this why she writes as if she were hiccupping her words with a sob, with a syncopated rhythm? Comparable to Samuel Beckett's later works? – especially *How It Is* (1964). In *Um sopro de vida* (1978, *A Breath of Life*) Clarice tells us: 'Before thinking, well, I already thought' (1978: 22). And what did she think? That she is 'pre-thinking in black and white', because her words 'don't yet have quality' (23). This 'pre-thinking' is, like pre-Firstness, '▲☞. . .', a matter of 'pre-instants', because it occurs during the instant immediately preceding the present instant, outside the 'concretization, the materialization, of that which is pre-thought' (23). Besides, pre-thought 'is not rational'; it is 'almost virgin'; it is what 'guides us' (23). Sometimes Clarice tells us that the sensation of that which is pre-thought 'is agonistic: it is a tortuous creation that debates in the shadows and that becomes liberated only after thinking – in words' (23).

In this vein, another Lispector work, *The Stream of Life* (1989, *Água viva*), sort of wraps around itself and eats its own tail; it is self-contained, self-reflexive and self-sufficient. It has no qualms about flowing away in whatever direction or in all possible directions. It is the yield of pure improvisation, of pre-Firstness or *abduction* as it were – the narrator occasionally says so much. In other words, *Stream* is the birth of a text, but it still has its umbilical cord, and Clarice seems unable to break the 'it'. It is still undergoing the birth process, and the 'process is *it*' (39).

'*It*'? Yes, '*it*', . . . in English embedded within the Portuguese text. Clarice uses, in English, what linguist Emile Benveniste (1966) calls the 'non-person pronoun'.<sup>30</sup> Romance languages do not have the precise equivalent of '*it*'. '*It*' is neither somebody nor nobody: it's entirely neutral; it's *nothing*, *Nothingness*. We usually say in English 'It's raining', or 'It's cold'. In Portuguese we say 'Chove' and 'Faz frio' (literally, 'Raining' and 'Making cold', without the pronoun). What, exactly, is the subject of 'raining', or of 'cold'? '*It*'. Just '*it*', that's all. '*It*' simply *is* what it *is*. But if it is neither somebody nor nobody, '*it is not*.

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30. Peirce writes regarding 'it': 'Before any *comparison or discrimination* [via Secondness] can be made between what is present, what is present must have been recognized as such, as *it*' (*W* Vol. 2:4: 49). And Anne Freadman remarks that 'it' is one, and re-cognition *of* it is in the Gilles Deleuze sense *repetition*, which presupposes *difference* (1994: 9–10).

Well, then, we might wish to say that ‘*it* both is, and ‘*it* is not. Wrong again. ‘*It* neither is, nor is ‘*it*’ not. It just is; it implies everything, and it implies nothing; it is, so to speak, of the nature of pre-Firstness, of ‘ $\blacktriangle \infty \dots$ ’.<sup>31</sup>

Clarice writes that out of ‘*it*’ she improvises, and ‘the beauty of what I improvise is a fugue’ (1989: 36). Fugue. Music. Interrelations between sounds. These are all Seconds, it would seem, but with neither essence nor substance, practically speaking. Yet, Clarice wants to convince us that her text is a ‘dialogue with you’. But this dialogue ‘will be monologue. Then, silence. I know there will be an order’ (36). Monologue? Silence? Order? Clarice can’t help using words, but where is the Thirdness, the symbolicity, in her words? Will she have to ‘die’ and be ‘reborn again’ in order to keep the words coming? (1989: 35). She accepts the possibility; she will return to the unknown. Meanwhile that which sustains her is ‘*that*’, which is ‘*it*’. This ‘*it*’, cannot be written as anything other than ‘*that*’. It is born from birth pains, this thing that is a non-thing. ‘*It*’ is the ‘core . . . soft and alive, perishable, in danger’. It is ‘life becoming’ (35). ‘Life becoming’, because this ‘life’ has hardly left *nothingness*, and ‘*it*’ is hardly beginning to enter the physical world. ‘*It*’ is the *becomingness* of *becoming*. ‘*It*’ just ‘is’ (1978: 17).

It is relevant that Clarice writes about *nothing*, and *nothingness*. She also writes as if from the ‘empty set’ (in Figure 1), with the hope that there may be *something* rather than *nothing*; but nobody really knows, because the hope is that of the mere *becomingness* of *something* the nature of which can be of a million faces. This is so, because of the ‘mystery of the non-person nature of “*it*”’, for, as the narrator puts it: ‘I understand the non-personal within me and it is not yet corrupted and rotten by the personal’ (1978: 21). Given this concept of the ‘non-personal’, Clarice recognizes that what happens, happens, and it must be accepted because it happens. It is the ‘instant’ of the happening. Each

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31. Recall, once again, the Tetralemma, which is implied in Clarice’s ‘*it*’. Indeed, the nature of pre-Firstness, ‘ $\blacktriangle \infty \dots$ ’, bears similarity with certain key aspects of Asian philosophy. For Hindu thought, *Atman* – the permanence of everything – is characteristic of ‘reality’. For Buddhism, in contrast, *Anatman* – the impermanence of everything – is of the world’s nature. Consequently, the notion of a fixed self is alien to Buddhism. To say ‘I’m mad’, or ‘I’m cold’, is erroneous. Better, one should say ‘Madness happens’, or ‘Coldness occurs’. In other words, the notion of ‘*it*’ has nothing to do with fixed essence, but fluctuating process: ‘*it*’ as a non-person sign, without ‘I’, a sign of itself that includes an essenceless subject. In Clarice’s conception, ‘*it*’ is tantamount to a series of instants; each of them is different from all others; yet, in the terms of this essay, as a collection they are *interdependent*, *interrelated*, and *interactive* (*i-i-i*) (Nāgārjuna 1967).

'now' is an 'instant', but it is always already 'another now'. For, 'when I speak, what I speak is nothing more than that, what I speak' (1978: 21).

Clarice writes from *nothing* to the vague hope of *something*, to either positivity or negativity and to a decision from an 'instant' in suspension, with neither up nor down nor forward nor backward, and then, finally, she has the possibility of a genuine sign. In abstract form, the progression is tantamount to that now familiar series: '0  $\rightsquigarrow$   $\emptyset$   $\rightsquigarrow$   $\sqrt{\bullet}$   $\rightsquigarrow$   $\pm$   $\rightsquigarrow$   $\Psi$   $\rightsquigarrow$  . . .'. The rhythming, oscillating, scintillating, fluctuating moment when the sign is becoming born, entering into the light of day, with its umbilical cord still tenderly joined. The possibly possible sign is becoming a merely possible sign, and then an actual sign might emerge.

#### 4.5.1. *But what, really, is the 'instant'?*

The instant is merely 'that', arising out of '0', passing through ' $\emptyset$ ', and entering into the oscillating, scintillating, vacillating ' $\sqrt{\bullet}$   $\rightsquigarrow$   $\pm$ ', possibly to emerge as a full-fledged sign. But it doesn't emerge, not quite; it can't emerge; it can't make its way to ' $\Psi$ ' and beyond, for it is caught up in the uncertain 'instant'.

'The instant is itself immanent. At the same time that I live it, I hurl myself in its passage to another instant' (Lispector 1989: 62). Elsewhere we read: 'I capture sudden instants that bring their own death with them and others are born – I capture the instants of metamorphosis, and their sequence and concomitance have a terrible beauty' (1989: 7). It is as if Clarice were trying to still photograph each instant. She metamorphoses words into images that are more shadowy than faithful images of objects. She writes this way because this is the way life looks at itself. She writes improvisingly, in order to leave a vacillating image, a mere suggestion, for her reader, improvisingly, but the words pour forth as if she had no control over them.

The words just pour forth, within the nonlinear stream of instants: 'One instant takes me unthinkingly to the next, and the a-thematic theme keeps unfolding without a plan yet geometrically, like the successive figures of a kaleidoscope' (1989: 8). Clarice vibrates within the '*it*' at each instant; she lives in '*it*' and '*it*' lives in her; she is '*it*' and '*it*' is her, 'like a wound, a flower in the flesh, it is open, in me' (61). Each pause, in conjunction with '*it*', marks the beginning of time; Firstness becomes Secondness (and sequentiality begins with 'this' . . . pause . . . 'other' . . .), and Secondness becomes Thirdness in its mediation of Firstness and Secondness in the same way it mediates between them and itself, within the sequence. While time is becoming.

#### 4.6. Knowing, beyond the customary powers of articulation

The upshot of the preceding sections is that body (or more appropriately, body-mind) does what it does best, without active intervention by mind. This is by no means to say that body and mind operate separately, or that they are partly autonomous with respect to one another. They are complementary.

What I have in mind with respect to bodymind complementarity is a pair of terms Michael Polanyi (1958) introduces: *focal* (or *proximal*) and *subsidiary* (or *distal*) awareness. The whole of one's attention swerves and sways between these rather fuzzy processes – fuzzy, because the line demarcating them is porous. *Focal* attention is that of greater conscious awareness, such as one's concentration on a book one is reading, while one is *subsidiarily* or relatively nonconsciously aware of other processes in one's surroundings (soft music playing, the refrigerator's humming, birds chirping outside, traffic on the street, the neighbor's lawnmower). With respect to one's actual reading of the book, one attends focally to the meaning behind the words and clusters of words on the printed pages, while remaining subsidiarily aware of the words themselves as lexical items from one's vocabulary and as black marks on white paper.

Subsidiary attention can in the blink of an eye be booted up to focal attention, and focal attention can switch to subsidiary attention, as one's field of interest and practical needs so dictate. This might occur if, while one is reading the book, there is a traffic accident on the street and one's attention is abruptly turned to the noise and its signal of possible consequences, or if a word in the book calls attention to itself by means of some rhetorical device it sports. In either case, what was previously focal attention became subsidiary attention, and vice versa. This is to say, focal and subsidiary attention are complementary, by virtue of *CCC*, *i-i-i-*, and *BSO*. Given the nature of this complementarity, the mind ordinarily focuses on the task at hand, while it remains subsidiarily aware of other activities – the proprioceptive, somatic, kinesthetic – that are left to take care of themselves.

Take a more mundane everyday activity. When hammering a nail into a board, the carpenter is focused on the head of the nail. At the same time, his left hand holding the shaft of the nail, his right hand grasping the hammer, the tension in his biceps and triceps, the angle and bend of his elbow, the angle of the hammer and its weight, the nail now leaning slightly to the left with the third blow, the board sliding approximately one inch forward due to the hammer blows, and more remotely, perhaps some hammering next to him, a circular saw that just kicked in some ten yards to the right, some idle carpenters at the edge of the lot in a joke-telling session, a jet plane flying overhead: all this be-

longs to subsidiary attention. These subsidiary activities are more immediate and less mediated than focal attention. In Peircean terms, they are closer to the field of Firstness and Secondness and somewhat removed from Thirdness. They consist of signs in *i-i-i-* with other signs in what has come to be taken as the most natural ways of signs, because they largely do what they do out of 'habit' and without active intervention by the mind.

These signs are most at home as signs chiefly of indexicality. A weathervane, for example, indicates the direction of the air current whether or not anyone is around to acknowledge the sign *as* a sign and properly interpret it. In a sense, the weathervane 'knows' what to do and does it, because that is its nature. That is its 'habit', as it is the 'habit' of the hand that wields the hammer that hits the nail that is driven into the wood.<sup>32</sup> Suppose the hammer has been around for some years and the head is loose. While the tool is being used, the head gives a little. Its owner stops hammering and shifts his focal attention to take a look. The hammer's head is now the sign of his focal awareness, and his right hand itself has become the subsidiary sign that moves the hammer shaft that causes the hammer's head to wobble slightly in order to catch its owner's focal attention. His right hand knows how to do this on its own, just as it knows how to hold the hammer when engaged in the act of hammering, because that is its 'habit'. The tool is inspected, and then tossed in the junk heap: time to buy another one anyway. What happened when the hammer head began wobbling is that its owner's focal attention was redirected and became subsidiary, while part of what previously constituted subsidiary attention took center stage as focal attention.

With focal-subsidary attention in mind, reconsider how bodymind subsidiarily does what it does best. It puts itself on automatic pilot, so to speak, while mind is free to engage in other matters that demand specific, concentrated focal attention. During this process, bodymind brings forth signs from '▲❧. . .' and 'it', and goes on to create signs of characteristic *vagueness*. Why *vagueness*? Because a considerable number of these habitual, entrenched, automatized bodymind signs are by and large difficult, if not well-nigh impossible, effectively to articulate. For example, suppose you are hammering on a nail. You know what you're doing – bodymind knows what it's doing – though you wouldn't ordinarily think of putting this doing in words. A youngster approaches you and asks you how you can drive the nail in the board so quickly and easily. You begin: 'Well, son, I put the nail where I want it to go through this board and into the board underneath it, then I look at the head of the nail,

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32. For a discussion of 'habit', in the inorganic as well as organic and biological sense, see Peirce (*CP* 5.358–405), Boler (1964) and Semetsky (2005).

and bring the hammer down on it hard, over and over again. . .'. The young man interrupts you: 'But if you're not looking at the hammer, how do you know it will hit the nail and not your thumb?' 'Well, I just know it . . . I'm looking at the nail's head, and the hammer comes down hard on it . . . well, it just comes down. . . . Anyway, why don't you go back to that soccer game with your pals over there?'

Theoretically a physicist can precisely and accurately describe your activity with abstract terms, equations, graphs, and diagrams; a photographer can document your activity with her digital camera; someday, a neurophysicist might even be able to pattern your activity via neural firings. In contrast, you run into difficulty when attempting to say precisely what you do in layperson's – or in a kid's – words. Once again we see that bodymind knows what to do and does it, while mind brings up the rear. Yet the two are intimately fused by way of *CCC*, *i-i-i*, and *BSO*, beginning with '▲☞. . .' and 'it'. In short, *bodymind tacitly knows more than it or relatively detached mind can explicitly tell*.

In another manner of putting this, bodymind's subsidiary doing involves signs of *vagueness*, since in ordinary circumstances many of its activities cannot effectively be put into words of descriptive and explanatory clarity and distinction. As tacit signs of *vagueness*, they remain chiefly *overdetermined*; they give rise to a host of possibilities, and many of them, when conjoined, evince *inconsistencies*. This presents no overriding problem insofar as articulability goes, for as possibilities they haven't yet entered into the arena of linguistically descriptive, explanatory and interpretive signs. In contrast, focal signs that have been endowed description, explanation and interpretation as signs of *generality*, are invariably *incomplete*, and they are largely *underdetermined*. That is, within some timespace context they may eventually reveal their *incompleteness*, and they may then be replaced with signs deemed possibly more appropriate, signs that have issued forth from '▲☞. . .' and 'it' to actual signs, that, nevertheless, in their beginning, couldn't have been other than *vague*, perhaps *inconsistent*, and *overdetermined*.<sup>33</sup>

But lest I get inordinately mired in my story, it is now time for . . .

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33. Given our fallibility and our finitude, our generalities will always remain to a certain degree incomplete, since, in Peirce's conception, complete and absolutely valid generality would be a form of continuity, and continuity is 'nothing but perfect generality' (*CP* 6.172). Such continuity and perfection implies infinity, which lies beyond our reach; hence whatever generalities we might manage to come up are destined to remain incomplete.



#### 4.7. Rendering the terminology more specific – insofar as I can in words, that is

*Focal* and *subsidiary*, *vagueness* and *generality*, *incompleteness* and *inconsistency*, *overdetermination* and *underdetermination*, are all characteristic of Peircean signs, I would submit. These terms, especially *incompleteness* and *underdetermination* or *indeterminacy*, might also remind us of Kurt Gödel's masterful but earthshaking *incompleteness* theorems.<sup>34</sup>

In his small book on Gödel, Jaakko Hintikka provides an analogy that can help us get a handle on Gödel's proof that as a 'purely formal technique' appears understandable but the strategy of which taxes the mind inordinately. It entails language talking to itself. And much more. It entails a formal proof that says it isn't provable. Most popular renditions of Gödel's notorious work compare it to the 'Liar Paradox', 'I am lying', more basically expressed as: 'This sentence is false', which, if false, is true, and if true, is false (see especially Hofstadter 1979). The Gödel technique, Hintikka writes, can actually be articulated in a more commonsensical way: it is like *play acting*:

The actors have their normal life outside the play, but they also have a role in the tragedy or perhaps the farce in question. As a consequence, what one of them says can typically be taken in two different ways, either as it would be understood in his or her everyday life outside the play or else as a line in the play. Likewise, [in Gödel's proof] one and the same arithmetical proposition can now be taken in two different ways, either as a proposition about numbers in their everyday life as numbers, or as a statement about the formulas that these same numbers represent when they play different characters in their Gödelian play. In neither case, neither in a stage play nor in a metamathematician's skit, need there be any real danger of confusion. Indeed, understanding the technique of Gödel numbering thus need not cause any greater difficulties than understanding play acting. (Hintikka 2000: 31–32) (Recall the words on play acting in regard to musement in Chapter 2.)<sup>35</sup>

*Play acting*. Indeed. This notion entails open, infinite play (including musement), rather than closed, finite, rule driven, competitive, cut-throat games (Carse 1986). It entails the game of signs and life. Whether viewing a play or trying to get a handle on Gödel's technique, we must 'suspend our realistic

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34. I might mention that I've painstakingly been in the process of trying to develop this topic for over a decade in merrell (1995, 1996, 1997, 2000b, 2003, 2004, 2007).

35. On children's play acting, which in 'adult' logically and rationally precise language often appears as nothing more than frivolous 'child's play', but which nevertheless has a bearing on *play acting* according to its account in this essay, see Cohen (1987) and Paley (1987).

attitude' in the play that is in the process of unfolding, taking the play acting or the numbers in terms of their imaginary role, 'as if they were acting an artificial role' in a Shakespeare play or in a logician's 'play'. That is to say, we must both 'suspend and unsuspend our disbelief', construing the play as life itself and at the same time *as a play, as an imaginary construct*, and in the Gödel sense do the same with the numbers. We must keep everyday living and the imaginary construct together such that we may be able to muse over and contemplate them both. But, like the famed particle-wave problem in quantum theory, we can't have both of them in mind at the same instant, though we can oscillate back and forth between them in order that we might avoid taking the play (or Gödel's numbers) for the real thing. While this *double-entendre* requires certain sophistication, Gödel numbering actually need not be any more perplexing than watching a play. So Hintikka tells us.

Or it need not be any more perplexing than signs becoming signs, including ourselves as signs. We are our own mental and physical worlds' signs and our worlds are the signs we're in the process of fashioning. Beginning within EZ ('▲☞. . .' ['it']) we 'suspend and unsuspend disbelief' in a sign as possibility, in order that it may interact with some semiotic OAH, and in order that the sign and OAH may enter into mediation. We are at the same time tantamount to that very mediating process, performed by an *interpretant* mediating the *representamen* (or *sign*) and the *semiotic object* of the *sign*, which enters the scene as a sign whose mediation brings about the emergence of some mentally or physical worldly OAH that then takes on the role of mediator engulfing us within its embrace and rendering us that *interpretant* we're in the process of becoming as a sign among signs (recall Figure 1a). It's all the CCC, *i-i-i-*, and BSO process unfolding, within us, focally and subsidiarily, a process that includes *vagueness-generality*, *overdetermination-underdetermination*, and *inconsistency-incompleteness*.<sup>36</sup>

In other words, following Hintikka, Gödel thinking, though daunting for the nonmathematician, is not necessarily any more confounding than operating with focal-subsidiary awareness through signs of *vagueness-generality*, *overdetermination-underdetermination*, and *inconsistency-incompleteness*. Imagi-

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36. I have, perhaps too deviously, evoked Peirce's tripartite concept of the sign, consisting of representamen, semiotic object (or OAH), and interpretant (a mediator, mediating the representamen and its respective object in the same way that it mediates itself with respect to them; thus the interrelations are comparable to those between Firstness, Secondness and Thirdness). I do so to suggest that signs are indelibly processual, and that there is no necessary end to the process, since the interpretant can become another representamen, which is then mediated, and hence can become, yet another interpretant (CP 1.339).

nary constructs in conjunction with everyday life situations are, in view of the premises underlying this essay, a matter of: '⤴. . . ⤵. . . Signs becoming Signs'. This is to say that focal and subsidiary signs, and everyday life signs and *imaginary signs*, emerge from the same source, and, in order to perpetuate the oscillation from one class of signs to another, a dip into '⤴. . . ⤵' is necessarily part and parcel of the process. In other words, '⤴. . . ⤵' is the source of all signs, and it contains, within itself, the wherewithal for mediation of any and all pairs of signs and their concepts – pairs that might otherwise be taken as dichotomies.

#### 4.7.1. Exemplifying the process as plurimorphy, which includes the 'middle way'

A simple diagram can help illustrate this notion. Figure 2 depicts two values, A and B, with a line of demarcation separating them. According to the tenets of classical logical principles, A *is* what it *is* and it cannot be anything else, and the same can be said of B. But what is the line? Is it A? No. B? Negative also. In a manner of speaking, it is A-less and B-less. But as A-less, it shares some value with B: it is A-less. And as B-less, it shares some value with A: it is B-less (CP 6.126, 6.203). In this respect we might say that the line is in a sense 'Both A and B', and hence it can find a comfortable resting place within the sphere of Firstness, as the possibility of signs, some of which are contradictory with other sign possibilities. Consequently, within the sphere of possibly possible signs, the Principle of Non-Contradiction loses its force. But that's no problem, since one compound sign, say, the 'Earth as center of the Universe', can rest quite comfortably with another compound sign, the 'Sun as center of the Universe', as long as they are no more than possibly possible signs.

Once signs are in the process of becoming actualized, they begin by taking their place among signs as signs of *vagueness*, '⤴. . . Firstness', and they make their way toward becoming signs as particulars: 'Firstness ⤵ Secondness'. But

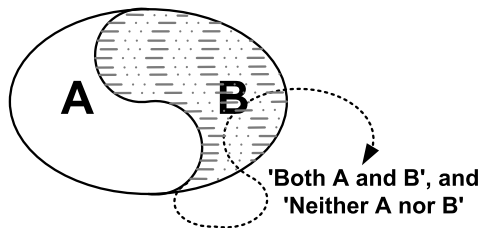


Figure 2. The demarcation line's function

if they expect to become genuine signs, they can't stop there. They must become signs of the nature of *generalities*. They must become integrated with any and all signs of comparable ilk: 'Secondness  $\approx$  Thirdness'. However, among signs of *generality*, *inconsistencies* occasionally raise their ugly heads. One sign, 'Sun', as 'center of the Universe', enters into conflict with another sign, 'Earth', which was 'center of the Universe'. Then, some new sign interpretation emerges, as if from the line of demarcation in Figure 2, as a sign of Firstness, then Secondness and finally Thirdness. This new sign, 'Sun', is what the old sign, 'Earth', was (the 'center of the Universe'). And it is *neither* what the old sign was ('Earth') *nor* what it was not ('Non-Sun'). In other words, like the dividing line in Figure 2, 'the center of the Universe' is '*Neither A nor B*' (*neither* 'Earth' *nor* 'Non-Sun'), and as such it can be found quite congenial with signs of *generality* that *are* something other than what they *were*. So, if the dividing line is '*Neither A nor B*', but can become something other than *either A or B*, then there is always the possible possibility of something else, something new, some alternative that stands a chance of emerging – from between the *either* and the *or* – to become the 'center' as *neither A nor B*, but, in the contemporary Einsteinian sense, it can be anywhere, according to the 'frame of reference' (and we have Nāgārjuna's Tetralemma in a different guise).

This reveals that signs as *generalities* are invariably *incomplete*, and that somewhere along the winding path toward more adequate *generality*, alternatives can always stand a chance of emerging from within the 'inclusion', the 'middle way', a 'third space', between A and B, which would otherwise have abided by the Excluded-Middle principle. There can be no genuine Excluded-Middle, for at any moment something might be in the process of arising that is other than the *either* and the *or* of the Excluded-Middle. In other words, there must be some 'Included-Middle'. From the 'center' as 'Earth' and *not* 'Sun' or anything else, to 'Sun' and *not* 'Earth' or anything else, to *neither* 'Earth' *nor* 'Sun' but something else – 'relative to the "frame of reference"' – there has been some alternative emergent from the erstwhile Excluded-Middle. One sign – plus that with which it interrelated, and its meaning – gave way to another sign, and that sign to yet another sign, and so on.

Thus: '0  $\approx$   $\emptyset$   $\approx$   $\blacktriangle$   $\approx$   $\pm$   $\approx$   $\Psi$   $\approx$  . . . Firstness<sub>1</sub>  $\approx$  Secondness<sub>1</sub>  $\approx$  Thirdness<sub>1</sub> (Sign<sub>1</sub>)  $\approx$  0  $\approx$   $\emptyset$   $\approx$   $\blacktriangle$   $\approx$   $\pm$   $\approx$   $\Psi$   $\approx$  . . . Firstness<sub>2</sub>  $\approx$  Secondness<sub>2</sub>  $\approx$  Thirdness<sub>2</sub> (Sign<sub>2</sub>) . . . and so on'. This plurimorphic process, emerging from the 'middle way' – metaphorically, the line in Figure 2 – is ongoing. And, I would submit, it is comparable to play acting as described above. One sign's *consistency* at some rivulet in the stream – the stage must be a stream, for it is process, not product – says of itself, we say of it, which is to say that it says of us, that it – we – are *inconsistent*, which is to say that it was *incomplete* and

must become something other than what it was becoming in order that it may become ephemerally *consistent*, or at least hopefully less *inconsistent*. In order for that sign – us – to say of itself – of ourselves – that it – we – is-are *inconsistent*, it – we – must have taken leave of itself – ourselves – and momentarily become a spectator rather than an actor. As Niels Bohr once quipped regarding the quantum universe, we are both spectators and actors in the great drama of the world's unfolding.<sup>37</sup>

#### 4.7.2. A brief digression

Some of Nāgārjuna's critics say he destroyed logic in order to bring out his interpretation of the Buddhist notion of 'emptiness'. Other critics contend that Nāgārjuna's 'logic' is evasive, for he asserts, simultaneously, the equivalent of 'Either to be *or* not to be', 'Both to be *and* not to be', and 'Neither to be *nor* not to be'.

In response to these charges, Shotura Iida (1980) offers the following scheme (see Figure 3), which is implicit within many of the images developed in this inquiry. None of these figures explicitly reveals 'emptiness', or in other words, zero. Yet it is there, in all the figures. It is like the Buddhist wheel. For

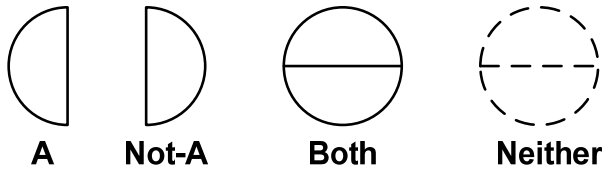


Figure 3. Modeling the 'middle way'

37. Bohr emphasized often that as human beings and subjects with faculties of cognition we are part of the world we explore:

For a parallel to the lesson of atomic theory regarding the limited applicability of such customary idealizations, we must in fact turn to quite other branches of science, such as psychology, or even that kind of epistemological problems with which already thinkers like Buddha and Lao Tse have been confronted, when trying to harmonize our position as spectators and actors in the great drama of existence. (1958b: 19–20)

We are 'in' the world and therefore we cannot see it from 'without'. We cannot transcend the world. This is the deeper meaning of what Bohr gave expression to by saying that we are 'suspended in language'. For Bohr it is wrong to think that the task of physics is to find out what nature is. Physics concerns only what the physicist can *say* about nature.

the wheel to revolve, the center must be ‘empty’, it must be of zero rotation, thus ‘ $0 = 0$ ’. There is no value, no rotation either in the one direction (+) or in the other direction (-). Likewise, for numbers to exist, for there to be some distinction or other, for there to be something rather than nothing, this *or* that, this *and* that, *neither* this *nor* that, *neither* existence *nor* nonexistence, there must be ‘emptiness’, zero. It’s as simple and as mind-boggling complex as that. The ‘emptiness’ of any and all OAHs means they’re not independent, but interdependent, interrelated, and interactive (through *CCC*, and *BSO*).

The *both-and* and *neither-nor* are tantamount to Nāgārjuna’s ‘middle way’, which plays a gigantic role in this essay. It is patterned in the line of demarcation that offers a dip into EZ and ‘ $0 \rightsquigarrow \emptyset \rightsquigarrow \Delta \rightsquigarrow \pm \rightsquigarrow \Psi \rightsquigarrow \dots$ ’, and the possibility of something new emerging. The dividing lines in Figure 2 and in the semicircles of Figure 3 are exemplary of this ‘middle way’, the stage upon which the play in question is enacted. It is like the liar paradox, ‘I am lying’ – presumably the prototypical example of a Gödel number in natural language – which is *both* true *and* false, and at the same time it is *neither* true *nor* false.

And yet, this ‘something else’ is of some nature outside the ordinary confines of the lines making up the diagrams in Figures 2 and 3. What, then, is this ‘something else’? It is ‘ $0 \rightsquigarrow \emptyset \rightsquigarrow \Delta \rightsquigarrow \pm \rightsquigarrow \Psi \dots$  Firstness’, from the line, the ‘middle way’, the ‘Included-Middle’, that entails the range of all possibilities.

#### 4.8. We are always in the play, the plurimorphic stream of becoming

But a question pops up: ‘How can I qualify the “line” if not by some argument for transcendence?’ To begin formulating a response, let us listen to Hintikka once more:

[J]ust as in the same way as in a play the actors and actresses normally speak the same language as they speak in ordinary life, with the same literal meanings and the same logic, just in the same way the same logic applies to arithmetical statements on either way of construing them. The same statements are of course logically true no matter whether we are speaking of numbers or formulas. The difference in both cases is that this common language can be given two different interpretations, relative to two different classes of individuals (ordinary folk vs. characters in a drama or ordinary numbers vs. numbers as codifications of formulas). This implies that the same statements are logically true in the two cases, for it was seen that logical truths are precisely the truths that are independent of the interpretations of the language in question. (Hintikka 2000: 32)

In this regard, here’s a further take on the play acting analogy. Suppose Sean Connery is making his first post-James Bond movie by playing yet another

James Bond type of role. He meets up with his counterpart, a spy from the customarily enemy nation intent on carrying out its imperialistic plan, who just happens to be a beautiful, sexy woman going by the name of Serendipity.

But our Secret Agent is not meeting with much success, since Serendipity and her cohorts manage to outwit him at every turn. After Connery has met with another failed attempt to better his opponent, both in the spy game and in the game of love, he remarks to his lovely rival: 'If I were James Bond I'd have had you in bed a month ago'. This is Sean Connery speaking of himself, of himself in the James Bond movie series, and of himself in this non-Bond movie. Sean Connery is who he is and he is a post-Bond actor alluding to himself as a Bond actor. This should, however, create no insurmountable problem. We can take it all in our stride, perhaps chuckle a little over the cute twist, and continue on with movie. There is no transcendental leap here, for everything's within signs of Sean Connery, Sean Connery the actor, the actor in Bond movies, and the actor in this post-Bond movie.

Upon understanding the *i-i-i-* allusions, we were submerged within '▲☞. . .'; then, when surprised with the unexpected switch alluding to Bond movies through '▲☞. . .', we came up with another First sign (by *abductive* inference), and we moved through its Secondness and Thirdness (by *deductive* and *inductive inferential reasoning processes*). We compared and contrasted the sign with its mirror-image countenances, while giving the whole scene hardly any sustained thought. We took it all in, subtly maneuvering in and out of the signs, apparently with no need of any hidden meanings from some mysterious transcendental source, for we're always submerged within the immanent whole.

Indeed, there is no mystery about EZ, '▲☞. . .', and Lispector's 'it'. They're as natural as can be, for they incorporate the purely possible possibilities of all that *was* becoming, *is* becoming, and *will have been* becoming, including ourselves as signs.

## Chapter 5

### What emerges from the unthinkable

Regarding the becoming of signs from EZ, Peirce's concept of *abduction*, completing the triad that includes the usual pair of terms in bivalent logic, *induction* and *deduction*, must be given its share of the spotlight. A discussion of abduction ushers in Nelson Goodman's 'New Riddle of Induction' and Carl Hempel's 'Inductivity Paradox', in conjunction with what Peirce calls the 'pragmatic maxim'. These considerations bear further witness to the importance of *vagueness* and *generality*, *inconsistency* and *incompleteness*, and *overdetermination* and *underdetermination*, all of which serve to highlight the need for a processual alternative to classical logic and reason, especially in view of the implications introduced through Figure 1. Elucidation of this theme affords a glimpse of nonlinear timespace contextualized feeling, sensing, perceiving, conceiving, and speaking and writing, which are genuinely accountable solely through bodymind channels.

#### 5.1. From 'somewhere else'

Peirce's *abduction* dwells within us and we dwell within it whenever we are in the act of processing signs.<sup>38</sup> In the most general way of putting the nature of this indwelling, through the creative *abductive* process, the evolution of the human species and our individual development are what they are by virtue of the cultural ambient within which we live and breathe. This cultural ambient is what it is by virtue of the human species as a whole and ourselves as a minute and quite insignificant part of it.<sup>39</sup>

We learn about this very important aspect of our everyday living when Peirce tells us of an *abductive* experience of the simplest sort:

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38. Time and space limitations do not allow for detailed expatiation on the topic of *abduction*. For early work, see Fann (1970); from diverse views and more recent studies, Ayim (1979), Hanson (1961, 1965), Harris and Hoover (1983), Hintikka (1998), Hoffman (1999), Pape (1999), Staat (1993), Turrisi (1990), Wirth (1999), and for a special issue of *Semiotica* dedicated to abduction, Queiroz and merrell (2005).

39. In this regard I would once again recommend Jakob von Uexküll (1957) and Thure von Uexküll (1986, 1987, 1989).



Looking out of my window this lively spring morning I see an azalea in full bloom. No, no! I do not see that; though that is the only way I can describe what I see. That is a proposition, a sentence, a fact; but what I perceive is not proposition, sentence, fact, but only an image, which I make intelligible in part by means of a statement of fact. This statement is abstract; but what I see is concrete. I perform an abduction when I do so much as express in a sentence anything I see. The truth is that the whole fabric of our knowledge is one matted felt of pure hypothesis that is confirmed and refined by induction. Not the smallest advance in knowledge can be made beyond the stage of vacant staring, without making an abduction at every step. (Peirce *MS* 692)

In the beginning there is not the Word. There is only ‘0 ∞ ∅ ∞ ∧ ∞ ± ∞ Ψ ∞. . .’, and then there is a humble image (Firstness). This image pushes through the vast background making up the imager’s knowledge that is a ‘matted felt of pure hypothesis’. The imager hypothetically imagines – in a tacit rather than explicit sense during the process of concrete everyday experience – that the image is that of something *particular* (Secondness) from some *general category* (Thirdness). This entails *choice* and *selection*, after which act the imager *confirms* or *disconfirms* her implicit conjecture.

*Abducted* image, *hypothetico-deductive* projection, *inductive* confirmation. Starkly put, we might wish to assume that *abduction* is the spark of knowing what *might possibly be*, but with no guarantee that the possibility enjoys any stable truth value; *deduction* says what *would be* or *should be*, if certain conditions were to inhere; *induction* is identification of what *is* (or at least appears to be), according to the particular preconceptions, predispositions, proclivities, prejudices, the particular conjecture, guess or assumption, and the whims and wishes of the imager. In another manner of putting it, *abduction* is ‘I might possibly know the meaning of this sign’; *deduction* is ‘If I am thinking rightly – and I believe I am – I should be able to know this sign’s meaning’; *induction* is ‘I believe I can properly determine what I believe is the case, therefore I (think I) can know what this sign means’.

Case closed? No, far from it. In good Peircean spirit, we really must expand our horizon if we wish to account successfully for the process of *abduction*.

## 5.2. Maximizing abduction, if I may

There is the matter of Peirce’s pragmatic maxim. I would suggest that *abduction*, as well as *induction* and *deduction*, invariably come into play with the maxim. At the outset an abducted possibility leaps onto the scene, whether we are speaking of *semiosis* processes within technology, science, the arts and

humanities, or the coming and going of everyday living. When an assumption, conjecture, merely a guess, or a hypothesis is forthcoming, and when the maxim is put into effect through an effort to verify the assumption, conjecture, guess, or hypothesis, then the potential knower is in possession of the proper tools for knowing the meaning of her signs.<sup>40</sup>

In Peirce's first rendition of the maxim in 1878, which is the most commonly cited, we have:

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)

Notice how this injunctive implies a combination of Firstness, Secondness, and Thirdness. We are asked to consider (Thirdness) the practical bearings of the effects (Secondness) that whatever we are sensing (imaging, by use of the faculty of imagination) might have (Firstness). This includes what we conceive would be, could be, or should result if a particular aspect of that which is sensed were of such-and-such a nature, according to what we imagine might possibly be the case.

What *might be* imagined as what *is*, is *vague* (Firstness). What is *actually* sensed is that which apparently *is*, right here and now, in the manner of a more-or-less *determinate particularity* (Secondness). And what *should be*, gives what is sensed a tenuous element of *generality* (Thirdness). What remains *vague* is *overdetermined*, since many possibilities for choice and selection inhere: many of them will be in *contradiction* and *inconsistent* with one another. The *contradictions* and *inconsistencies* can often be conveniently pushed under the rug, however, for what is considered to be what *is*, is ordinarily taken for what *is*, clearly and distinctly, with little or no regard for any possible alternatives. Classical bivalent logic pervades here; hence strict *contradiction* barring is in effect. What is relegated to a *general category* is *underdetermined*, for at some future time and place the generality's *incompleteness* might become apparent, and hence it likely will be amended or tossed – and something different and new from between erstwhile binary imperatives stands a chance of emerging and earning its place in the spotlight. (Thus, we recall Peirce's enigmatic and sometimes ill-comprehended suggestion that the Principle of Non-Contradiction

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40. This suggestion goes against the grain of the customary 'cognitive', 'intellectual', or 'conceptual' interpretation of the maxim, as especially exemplified by scholars the likes of Neshier (1983, 1990), whose work is of excellent quality in my estimation, but it ignores important human aspects of sign processing within everyday living.

does not necessarily apply with respect to *vague* signs, and *general* signs do not always abide by the Excluded-Middle Principle [*CP* 5.505–16].)

Quite obviously we should not simply assume the maxim's process leads us along the royal road to clear, distinct, and complete meanings and knowledge, as Peirce's long-time friend, William James (1920: 411–12) would ideally have it. The maxim is capable of providing us with a bit more clarity, when it is successful. But there is no absolute clarity for us tenderly fallible articulate mammals, since all signs of *general* nature that allow us to know what we (think we) know, according to Peirce, are inexorably to a greater or lesser degree *vague*.

This is to say that signs of *generality* are always somewhat *incomplete* with respect to their general nature, for they have a tinge of *vagueness*, but no sign is absolutely *vague*, since if so, it would be no more than an *inconsistent* jumble of *contradictions* and hence well-nigh unintelligible.<sup>41</sup>

### 5.3. On our inextricable quandaries

This conjunction of *vagueness* and *generality* and *inconsistency* and *incompleteness* can be given more specific articulation along the lines of Nelson Goodman's (1965) 'New Riddle of Induction' that, as is customary in logic, mathematics, and philosophy, tends to ignore abduction.

Goodman asks us to imagine a society of Grueworlders for whom emeralds are 'Grue'. That is to say, in our language, the Grueworlders 'Grue' means emeralds are what we would call 'Green' up to time  $t_1$  and 'Blue' thereafter. In contrast to 'Grue', as far as we are concerned, emeralds are 'Green' yesterday, today, and presumably from the beginning of time and forever. With respect to our everyday talk, the same can be said of the majority of our sedimented, customary, and conventional labels we attach to our world. We ordinarily want nothing to do with the likes of 'Grue' and other linguistic qualifiers that would inevitably place us in an unruly conceptual swamp.

However, our world is not exactly a paragon of stability, in spite of our wishes. The strange Grueworlders' world would actually be quite comparable to scientist A, from our contemporary world, for whom 'Atoms' were 'Solid

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41. I should mention at this juncture that this notion of *inconsistency* and *incompleteness* in conjunction with Peirce's *vagueness* and *generality* is largely inspired by Kurt Gödel's Incompleteness Theorems (Nagel and Newman 1964; for the implications of Gödel from various perspectives, see Goldstein 2005, Hofstadter 1979, Schlegel 1967).

spheres' up to time  $t_1$ , but after centuries of scientific development they *became* 'Largely empty space' after that point in time (i.e. the transition from the Greeks' 'Atoms' to quantum theory 'Atoms'), and scientist B, from the ancient world, for whom 'Atoms' have always been, are, and will always have been, none other than 'Solid spheres'. Put the two scientists together and at the outset there might not be any more communication between them than there would be between Goodman's Grueworlders and a collection of Realworlders from our culture. We would have signs used across a well-nigh unfathomable chasm with interlocutors at each edge talking past each other (comparable to Kuhn's 'incommensurability' thesis).

It would appear that there would be hardly any overlap of meaning between one sign ('Grue', or 'Atoms' as first 'Solid spheres' and then 'Largely empty space') and another sign ('Green', or 'Atoms' as 'Solid spheres, past, present, and for all time'). There would be merely *incompatibility* or *incomparability*, and at best *incommensurability*, between the two perspectives. In other words, *inconsistent* signs (scientist A's 'Atoms' and scientist B's 'Atoms') could only find some happy meeting ground if they were taken as inordinately *vague* and *overdetermined*, and if they were considered as signs of *generality*, their nature as *generalities* would at best be radically *incomplete* and *underdetermined*.

In order to bring some order to our thought and prevent our wallowing in a murky world consisting of a rowdy combination of Grueworlders' signs and our signs, Goodman introduces us to his idea of *entrenchment*. Since whatever emeralds our community has experienced in the past are 'Green', the assumption – or hypothesis, we could say – is that 'All emeralds are green'. This assumption is *projected* into the community's linguistic practices. Thereafter the assumption, if viable, is linguistically confirmed time and time again, and it eventually becomes entrenched (sedimented, habituated, embedded in daily practices). Thus we have our Realworlder qualification of emeralds. But the Grueworlders could have done the same with their proposition 'All emeralds are grue'. So from their perspective at least, they have as much reason to project and entrench 'Grue' as we have to project and entrench 'Green'. On both sides of the fence, *general* signs are looked upon as quite *complete* and *consistent*, but put the two sides within the same perspective, and in their composite form they become *inconsistent* and hopelessly *vague*.

Nevertheless, Goodman argues that our projection is a safer bet than the Grueworlders' projection. It promises us a more stable world – needless to say, however, the Grueworlders also believe their world is as stable as can be and it is our world that is awry. So, in Goodman's conception, we'd best stick to our 'Green emeralds'. Entrenchment is in this manner not a matter of 'truth', but of linguistic practice: hence Goodman's nominalism.

## 5.4. Goodman meeting Peirce

Comparing Goodman and Peirce, James Harris and Kevin Hoover write:

Considering Goodman's account of induction from Peirce's point of view, it seems obvious that Goodman confuses induction with abduction and also confuses the logical and psychological aspects of confirmation and testing. Nevertheless, there are points of contact between Goodman's and Peirce's accounts: Goodman's notion of projectibility involves the same problems as Peirce's account of abduction. (1983: 137–38)

Goodman's approach is strictly linguistic: entrenchment occurs against the background of language use. Peirce, in contrast, emphasizes belief: emeralds have been in the past 'Green', the emerald we have before us at this moment is 'Green', so we have no reason to believe emeralds are any color other than 'Green'.

On the one hand, Goodman notes that we intuitively resist talking about emeralds in the way Grueworlders do with their labeling emeralds 'Grue'. On the other hand, Peirce would likely tell us that we believe emeralds are 'Green', because the concept of 'Green emeralds' has in our culture become 'acritically indubitable' (*CP* 5.368, 5.511; Chiasson 2002). We instinctively hold emeralds to be 'Green', because that's the way we've come to see them, and we believe we have no reason to think otherwise. Harris and Hoover, like myself, opt for Peirce over Goodman, since first, Peirce's view escapes strictly linguistic and nominalistic imperatives, and second, because it includes pre-linguistic abductive insight. In this light, Goodman's projection and entrenchment would best be couched within the maxim, that would include: (1) the abductive act of imagining, choosing, and selecting a response to nature that *might be* the case, then (2) putting it either implicitly or explicitly in the form of a hypothetico-deductive conditional with respect to what *would* or *should be* the case if certain conditions held, and finally, (3) confirming the conditional inductively in the physical world of give-and-take in order to ascertain whether at least for us it actually *is* the case.<sup>42</sup>

In order to bring a mite more clarity to the issue, let us consider various Goodman-style propositions based on Peirce's idea of a human community's belief at a particular time and place:

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42. Although I cannot give a detailed discussion of this topic, as well as Peirce's 'abduction', 'acritical indubitability', and 'doubt', these concepts entail, albeit implicitly, a subtle critique of Kuhn's 'incommensurability' (for pros and cons regarding Kuhn's thesis, see Davidson 1984; Devitt 1979; Lakatos and Musgrave 1970; Sankey 1994; Soler et al. 2008; Suppes 1973).

- (1) 'All emeralds are green'.
- (2) 'All swans are white'.
- (3) 'John is unfaithful'.

I trust enough has been said of (1) for the purpose of this essay. So I'll proceed to (2). It reminds one of Carl Hempel's (1945) 'Inductivity Paradox', which complements Goodman's 'New Riddle of Induction'. Hempel, in an unexpected move, argues that a sentence the likes of 'All swans are white' can be restated as 'All nonwhite things are nonswans'. How can this be? Actually, Hempel tells us, the two sentences have the same content. In order to demonstrate this, Hempel posits what he calls the 'equivalence condition' between the two hypotheses: *Whatever confirms (or refutes) one of the two equivalent sentences, also confirms (or refutes) the other*. In other words, one hypothesis is a *contrapositive* of the other hypothesis. To state 'This swan is white, . . . that swan is white, . . .  $n$ , therefore all swans must be white' also confirms the statement 'All nonwhite things are nonswans'.

Of course 'All swans are white' is the least problematic of the two assertions to test, even though it entails memory of all swans seen in the past, and inspection of all swans in the present, as well as all swans in the future. This is a daunting task indeed. Yet, it is exceedingly less cumbersome than confirming 'All nonwhite things are nonswans'. Black ravens, pink flamingos, red cardinals, gray doves, and blue jays, all confirm the contrapositive version of the hypothesis, as do yellow lemons, silver coins, red herrings, and green emeralds. So we can go through life, at each step spying either white swans or nonwhite nonswans, and our original hypothesis asserting 'All swans are white' will not yet be absolutely confirmed, for something will always remain to be observed, including species of insects in the Amazon basin becoming extinct almost daily. The problem is that Hempel's contrapositivity entails virtually an infinite number of inductive grasps. This is to say that we stand no chance whatsoever of absolutely confirming anything at all in our lifetime or even during the existence of our entire human community.<sup>43</sup>

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43: If we wished to jump from the frying pan into the fire we could combine Hempel's 'Inductivity Paradox' with Goodman's 'New Riddle of Induction' by positing that the Grueworlder could state 'All nongrue things are nonemeralds', and the Realworlder could state 'All nongreen things are nonemeralds'. For the Grueworlder, an observed 'Green' object would not necessarily qualify as an emerald, in contraposition to the Realworlder for whom an observed 'Grue' object would also be a non-emerald – assuming they could by the 'principle of charity' get into 'Green' objects and 'Grue' objects respectively. In this respect also, we become aware of the symmetrical interrelations between the two worlds.

During the coming and going of our everyday affairs, we ordinarily pay the equivalent of Hempel's Inductivity Paradox little mind. We just take the furniture of our world as we believe we should take it, with 'acritical indubitability'. In so doing, we do what we do best, and get on with life. We cut the world up as we go along. We send and take, and engender and translate signs. We compare new experiences to old ones, and pack signs into the pigeon-holes with which we have become comfortable, in spite of the risk we constantly run that what we take to be correct from our vantage point might well be absurd from another vantage point. Consequently, we use our customary set of categories to classify virtually everything there is, that is, everything in our world that we cut out, distinguish, and indicate by means of the standard categories of our particular community. For every item of experience, we abductively fashion and fabricate some similarity between our present item of experience and our memory of past experiences, and we usually manage to find a fit, deductively and inductively, for that similarity. If there is apparently no fit, then it's time for that wily trickster in abductive dress to bring about something new as a result of the surprising nonfit, and then we appropriately revise our set of categories.

So, we might customarily assume 'All swans are white' and attend to our daily affairs quite effectively without becoming aware of any anomalies or alternatives. As far as we are concerned it is simply true to say 'All swans are white' and false to say that 'Some swans are nonwhite', and that's that. It is ideally an *either/or* binary matter. We would like to think there is little to no *vagueness* and *inconsistency* here, and that our *generality* regarding swans is as complete as anybody could possibly wish. However, as mentioned, a certain explorer down under, namely, Captain James Cook (1728–1779), once found – that is, sensed (*via* Secondness) and interpreted (*via* Thirdness) – some 'black swans'. Henceforth the categorical border suffered a change. It eventually became known that 'Most swans, but not all, are white; those non-white, that is black, swans can be found in a remote region of the globe, namely, Australia'.

Instances like these led Karl Popper (1972) to declare that if you look for positive evidence for a general proposition you will almost always be able to beat the world into submission and discover your evidence. So looking for positive evidence is no big deal. What is important is looking for negative evidence that will change customary ways of looking and thinking. In other words, you should expect to be surprised by the unexpected, and then you can give a nod of acknowledgment that you are not surprised that you are surprised when an expected unexpected event turns up. Consequently, you solve whatever problem arises from the unexpected, alter your expectations, and continue on

your way, expecting another surprise somewhere along the road that will thwart those newfound expectations. If we want to learn something, Popper advises us, we should look for mistakes.

### 5.5. Inevitably falling into *incompleteness* and *inconsistency*

In this manner, it should not be at all shocking that ‘All swans are white’ did not withstand the test of time. This goes to show that in the sphere of pure possible possibilities for any and all OAHs, seeing and saying must imply the sort of statement: ‘A given swan might be white *and* it might be nonwhite’. One pole of this contradiction held true during one period of human history; the other pole during another period.

So, (1) if we take ‘Swans are white *and* they are nonwhite’ as a set of purely possible possibilities (pre-Firstness in the sense of Figure 1), (2) if we assume ‘This swan here and now is possibly white (Firstness)’, though we’ve not (yet) qualified it as such’, and (3) if we believe ‘This swan must (bivalently logically) be *either* white *or* nonwhite’ (Secondness), nevertheless, (4) we have, in addition, the implicit statement that, ‘It is *neither* absolutely the case that all swans are white *nor* is it absolutely the case that no swans are nonwhite’ (Thirdness), for, within some future context ‘swans’ might become considered as of some other nature. In other words, *generalities* are more often than not *incomplete*, and if *incomplete*, then they are in some sense or other *vague*, and *inconsistent* with other possible *generalities*.

This is to say, ‘All swans are white’ was presumed to be the case, but it is now the case that ‘Most swans are white’, and ‘Some swans are nonwhite’. Within this apparently unkempt sphere of sign making and taking where something is *neither* timelessly one thing *nor* another thing but potentially something else, we have the emergence of temporality in the passage from *either/or* (germane to Secondness) to *neither-nor* (germane to Thirdness). This implies transition from a relatively static combination of something and what is *other* than that something to something else, its *other*, and some possible alternative that is entering the *semiosis* flow (for the initiation of temporality within *semiosis* see Hartshorne 1970).

Thus in composite form we have: (1) the atemporal range of pure possible possibilities in harmonious intermeshing, no matter to what extent they would otherwise violate the Principle of Non-Contradiction, (2) the hopefully hard-rock range of logical *eithers* and *ors* (in line with Non-Contradiction and the Excluded-Middle Principle), and (3) the range of emerging novelties from be-



tween the *eithers* and the *ors* (which implies the Included-Middle Principle). In this sense, (1) is qualified as exceedingly *vague*, since it is fraught with *contradictions* and *inconsistencies*, any number of which can over time be actualized, hence it is *overdetermined*, (2) is (as far as we are concerned) relatively *determinate*, since in our everyday coming and going we tend to pack our world into our entrenched, habituated, embedded pigeon-holes, and (3) is marked by *generalities* arising out of the *particulars* actualized from (1) and passing through (2), so as to render those *generalities incomplete*, since there is no knowing when and where something new and different may emerge to become construed as a more viable alternative, hence it is *underdetermined*. What does this imply? Why, virtual limitlessness, with respect to all possible possibilities for selection and choice and action and thought; that is to say, from pre-Firstness to Firstness to Thirdness. Once again, absolute knowledge is not *for* us, given our fallibilistic limitations.

To reiterate, if I may: all signs are to an extent *vague*, hence they can embody *overdetermined inconsistencies*; they can also be *general*, and if so, their *generality* cannot escape *underdetermined incompleteness*. How can I take the next step in specifying the abductive act? Perhaps by moving to sentence (3) from the list in section 5.4, namely, ‘John is unfaithful’.

## 5.6. Indeterminately minimizing indeterminacy

But first let us very briefly reconsider the pragmatic maxim. We are asked to take into account (Thirdness) the effects (Secondness) a particular phenomenon in question might conceivably have (Firstness, by way of imagination), given all the possible circumstances (Firstness, of possibility), past, present and future.

With respect to the abductive process, from within some timespace context we are jerked from our perceptual and conceptual slumber with a surprise. There’s something we didn’t expect. How do we respond to this new situation? We imagine a possible consequence, set up a tentative answer to our problem, make some sort of perceptual judgment, and confirm or disconfirm our conjecture. In Peirce’s azalea example, he sensed an image; he imagined that it might be an azalea; he brought about a perceptual judgment and considered his judgment viable; and he concluded: ‘Azalea!’ All in the blink of an eye. We can safely assume he had seen many azaleas in the past, and the fact that an azalea image entered his retina and was registered on his brain would virtually automatically elicit the desired response. Peirce had become accustomed to the idea

of seeing shrubs of this sort as ‘Azaleas’, quite spontaneously and without further ado. His seeing ‘Azaleas’ had over time become ‘acritically indubitable’, or in the Goodman way of putting it, ‘entrenched’.<sup>44</sup>

We can assume the same for ‘Green emeralds’ and ‘White swans’. Not so? Well, no, not exactly. Within a given context and according to the angle of the sun’s rays and the shady areas, the shrub Peirce saw might have been of another species; it might have been of a species at the time unknown to Peirce; it might have strangely been one of a number of shrubs of Asian origin that according to the light patterns at a particular moment took on a rough sort of azalea image. For that matter, an emerald subject to Peirce’s perceptual grasp could conceivably be the equivalent of ‘Grue’ rather than our customary identification of it as ‘Green’; or he might happen to run onto a ‘Black’ swan and take it for a ‘Nonswan’.

In every possible case, Peirce could have conveniently held onto his ‘acritical indubitability’ regarding ‘Azaleas’, ‘Green emeralds’ and ‘White swans’. He would have the disposition, the propensity, to go through life, sensing, experiencing, and conceiving his world at each and every moment of the present according to his belief that that is the way his world is. Given the confidence his belief afforded him, he would have developed a set of expectations that in the future his world would present itself to him in much the same way. He had confidence in his belief, since in the past that is pretty much the way the world has been.

Actually, the notion of ‘acritical indubitability’ by and large applies to the distinction between Grueworlders and us Realworlders. The Grueworlders projected ‘Grue’ emeralds at some present time now past, and eventually the projection became entrenched. Now, properly habituated, they would conceivably go on in life qualifying emeralds as ‘Grue’, presuming their color attribute is as stable and fixed as could be. Then one fine day a Grueworlder might meet a Realworlder, and at some point in time she discovers the Realworlder’s emeralds are ‘Green’ – for the Grueworlder, ‘Grue’ up to time  $t_1$ , and ‘Bleen’ (equivalent to the Realworlder’s ‘Blue’) after that time. Grueworlder takes Realworlder to be unstable of mind. But for Realworlder the shoe is on the other

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44. Of course this spontaneous exemplification of the pragmatic maxim as the result of entrenched, habitual responses involves relatively little collaboration on the part of active mind; thus it is quite distinct from the maxim when it comes into play during scientific, artistic, and much everyday creative practice, which involves more conscious and self-conscious interdependence, interrelatedness and interaction of mind, bodymind, and inner, social, and physical world experience.

foot: she thinks it is her Grueworlder counterpart who has a strange schizophrenic tendency (see in this respect Hacking 1993, 1997).<sup>45</sup>

In other words, Grueworlder and Realworlder color terms are symmetrical with respect to one another. However, from our account arrived at from a combination of Gruespeak and Realspeak, we can possibly become aware of the indelible *vagueness*, *inconsistency*, and *incompleteness* of naming and signs in *general*. We become aware of Grueworlder's and Realworlder's linear push from past to present to future with each abductive act in the order of Peirce's imagining, perceiving and conceiving 'Azalea', with each mindfully contrived hypothetico-deductive conjecture, and with each inductive perceptual judgment. But at some point, we realize, there was an irreversible event that separates what had transpired before from what would be the case after time  $t_1$ .

Let us not be so smug, however. Our presumed superior posture is available to us only because we are privy to a more general timespace view of things. Exclusively from within either Grueworld or Realworld, we enjoy no such general timespace view. Now, finally, let's turn to 'John is unfaithful' in order to reveal our impoverished limitations with respect to our making and taking signs within our everyday living.

### 5.7. Lying signs

Assume Jane, John's wife, has always taken him at his word during their 20 years of marriage. Then for some reason beyond her capacity of articulation, due to an almost imperceptible nervous twitch registered on John's face, she suddenly gets the feeling he has been deceiving her. Could it possibly be that he is really unfaithful? Ah, yes, that must be it. She thereafter begins searching for other tell-tale signs revealing his infidelity. And lo and behold, she finds what she is looking for. Surprise? Not really, for she was pretty sure she would find the evidence anyway. So she was not surprised that she was not surprised when under other circumstances she should have been surprised.

Or perhaps she only thought she found the evidence. Or it may be that she was fabricating what she took to be evidence of his deceit. But how can she be

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45. Indeed, Goodman's *Grue* paradox argues that there can be no formal rules for inductive logic, since any and all formal rules eventually land us in inconsistencies, as also argued by Feyerabend (1968), Foster (1969, 1994), Hacking (1993), Harris and Hoover (1983), Hesse (1969), Kripke (1982), and Skyrms (1975) – for a diversity of views on Goodman's paradox, see Stalker (1994).

absolutely sure of John's unfaithfulness? She can't, absolutely speaking that is. Yet she can't get the sneaky feeling out of her mind that his words are invariably misleading her. Try as she may to believe in him, she remains plagued by doubt. Each and every one of John's verbal and nonverbal messages becomes for Jane *ambiguous* and inordinately *vague* – and *overdetermined*. In their conjunction, she takes them as a *complete* and *consistent generality* – and relatively *determinate*. She had a premonition that John was unfaithful, she investigated his behavior, and she convinced herself that he is indeed unfaithful – the pragmatic maxim put to a concrete, practical test. Yet, the possible fact remains that John is no more than possibly unfaithful, but then it is also possible that he is possibly faithful.

Jane's dilemma is basic to the 'Possible Liar Paradox' (Post 1987a, 1987b). Unlike the 'Liar Paradox', 'I am lying', or its equivalent in the form of 'This sentence is false', the Possible Liar Paradox says of itself that it is merely possible false. It is as if sentence (3), 'John is unfaithful', were crying out 'I, John, am possibly other than what I seem'. He is possibly unfaithful, and it is possible that he is faithful. If Jane takes a leap of faith into the belief that he is cheating on her, she is possibly right, and possibly wrong; if she takes him at his word, she is possibly wrong, and possibly right. One interpretation might have as much possible validity as its mirror-image twin.

What's a lady to do? Either she makes a choice and takes a risk, or she vacillates and ends up unable to act, much in Hamlet fashion. If she chooses, she abducts either in one direction or the other. She takes John's words and his gestures as betrayal, or she takes them for honesty, thereby either confronting him for who he is not or accepting him for who he is. Awareness of a sign's *vagueness* renders a decision inordinately tricky. And there is little to no 'acritical indubitability' to be had. The problem is that Jane doesn't know, or she is unwilling to admit, that John's condition, if taken in *general* terms, is for her *incomplete* and *undetermined*. Jane wants *determinism* ('acritical indubitability') at all costs, but John as merely a 'possible liar' evades *determinacy*, for *vagueness* and *ambiguity* and radically *underdetermined generality* are the name of the game.

In sum, we have 'acritical indubitability' regarding shrub images, emerald images, swan images, and Jane's feeling for the vibes John sends out. These signs of Firstness carry implications of many possible interpretants and their meanings. As long as 'acritical indubitability' holds, one interpretant, and only one, tends to emerge, and the signs' interpreters customarily remain unaware of the other possibilities of the signs' *vagueness*, as well as the *inconsistencies* and *contradictions* found among their myriad possible interpretants.

### 5.8. So, where's the 'logic' in all this?

In other words, the interpreters in question are basically unaware of the signs' character of *overdetermination* in the full sense. They customarily take the signs' *particular* manifestations bivalently, linearly, and as if the Excluded-Middle and Non-Contradiction Principles applied in each and every case. Consequently, these signs of *particularity* are automatically elevated to the rank of Thirdness, as *general* signs, as if their *generality* were not only clear and distinct but also *complete*. In other words, 'Azaleas are always as they should be', 'All emeralds are green', 'Swans are nothing but white', and 'John must surely be unfaithful'. Little to no doubt enters the scene.

However when an Asian plant is taken for a possible 'Azalea', an emerald is construed as possibly 'Grue', a swan as possibly 'Black', or John as only possibly 'Unfaithful', 'critical dubitability' arises, along with the future emergence of possible alternate interpretants. Prior to this construal, there was an abductive jolt, an unexpected occurrence, a surprising event. And now, if a choice happens to come about and selection is made, then other possible interpretants can emerge. 'Tropical plants can be taken as azaleas', 'Emeralds can be construed as grue', 'Swans can be seen as black', and 'John can be considered faithful after all'.

Such awareness of alternate possibilities leads to the assumption that whatever the choice, it could always have been something other than what it *was, is,* and *will have been*. Now, after awareness has entered, after there has been a moment of surprise, emerging cognizance can bear witness to the *incomplete generality* of all signs with respect to their interpretants. There is awareness of their *underdetermination*, since sign interpretants that were thought to be the case would eventually prove insufficient or erroneous, and they would be either amended or tossed in the garbage heap of discarded interpretants for other interpretants, that at least for the time being might be deemed more reliable.

## Chapter 6

### Two worlds

Quantum theory, unlike relativity theory, radically breaks with classical modes of thinking. Indeed, it entails an entirely different ‘style of reasoning’. How can we bring the quantum world and our own concrete everyday world together? Bohr’s Complementarity Principle offers a solution, though it is considered piecemeal rather than complete by many of his critics. Those critics opt for a complete account in the classical mode – *via* the concept of what are called ‘hidden variables’ (Bohm 1980). This chapter briefly takes up the controversial quantum issue, with an eye toward physicist John Wheeler’s *participatory universe*, in an effort to understand the nature of *semiosis*, from EZ to concrete everyday sign making and taking.

#### 6.1. What two worlds?

Arthur Eddington (1958b) once alluded to the ambiguous nature of his writing desk. On the one hand, it is a solid object capable of supporting a sheet of paper, the jotting point of his pen, and the weight of his forearm supporting the upper portion of his torso. On the other hand, quantum theoretically speaking, it is nothing more than a largely vacuous swarm of minuscule particle-events.

One desk is that of Eddington’s Living World (LW); the other desk is that of his Quantum World (QW).<sup>46</sup> Sensations belong to LW and descriptions within physics belong to QW. The two worlds deal with the same ‘reality’, but from complementary perspectives. QW allows for talk about one class of things, and LW allows for talk about an entirely different class of things; QW depends for its existence on LW, and LW depends upon sensory experience for its existence. QW and LW are apparently incompatible; and yet, . . . and yet, . . . there is something more to the interdependent interrelations between them.

We might return to Figure 1 in search of further elucidation of this complementarity. First there is the transition, ‘0  $\rightsquigarrow$   $\emptyset$   $\rightsquigarrow$   $\sqrt{\phantom{x}}$ ’, preceding the ‘node’ or ‘vortex’, ‘•’. Then, the plus sign (+) emerges. It depicts what *is* as it *is* for the moment: self-contained, self-reflexive, self-sufficient. It has no genuine *other*, not yet at least, because there is only it and everything else no aspect of which

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46. This LW-QW distinction owes a debt to Wolfgang Smith (1995), as also developed previously in merrell (2000a).

has (yet) been marked and distinguished as something else (Secondness) that the originary Firstness *is not*. Then a split moment later the minus sign (–) emerges: it is the *other* of the plus sign. It is some *other* that is now marked and distinguished. Now we have a binary pair. There is just one thing and its *other*, without *complementarity*, without a hint of the *other* in the one and the one in the *other*, without the process of mediation *by* a third in the same way that the one and the *other* at the same time mediate *with* that third. So ‘ $\psi$ ’ emerges, bringing about a complementary interrelationship between ‘+’ and ‘–’ and it puts the *semiotic* whirligig into motion.

So where are we now? Consider the following:

- (1) The ‘ $0 \rightsquigarrow \emptyset \rightsquigarrow \sqrt{\bullet} \dots$ ’ series is metaphorically of the nature of the ‘wave property’ of a quantum event. Nothing *is*, yet a plethora of semiotic happenings are *possibly possible*, some of them more so than others. Like the ‘wave function’, two or more, many more, of these possible happenings can be *interdependent*, and they spread out in space in cloud-like fashion. There is no problem with the classical Principle of Non-Contradiction here. Two apparently incompatible and even inconsistent *possible possibilities* can get along together quite congenially.
- (2) When a potential subject enters into codependent *interrelated interaction* with this semiotic ‘wave packet’, it ‘collapses’: ‘ $\rightsquigarrow + \rightsquigarrow - \rightsquigarrow \Psi \rightsquigarrow \dots$  Firstness’. Now there is a *possible* sign (Firstness) and its *possible* collaborator (Secondness), one and the *other*, but nothing else, not yet at least. Something else, however, awaits the next move on the part of the sign’s collaboration with this newly emergent subject. If collaboration takes place, a *possible* sign is *actualized* and it becomes sensed *as* such-and-such instead of something else. This is comparable to the Necker cube in Figure 4. Look at the two-dimensional set of lines, and you almost immediately ‘collapse’ it and project it into three-dimensional space: you see it *as* a cube. Is it a cube? Of course not! It is no more than a set of

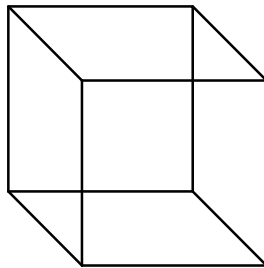


Figure 4. Necker cube

one-dimensional lines slapped down on a two-dimensional plane. Yet, properly inculcated and entrenched within your Western Euclidean mode of seeing, you see it *as* a cube, like the overwhelmingly vast majority of your fellow Westerners. You see it *as* a cube instead of something else. You don't usually see it *as* a block of ice, *as* a transparent box made of glass, *as* a child's building block, or something else. You see it *as* a cube. Now there is a sign in the process of becoming a genuine sign within the context of some OAH or other.

- (3) The cube evinces at least two concrete *possibilities*: cube with its face pointing upward, cube with its face pointing downward. The sign, in other words, is ambiguous. Assume you first saw it *as* a cube-up. Stare at it for a couple of seconds, and it might flip into its enantiomorphic twin. The sign ceases to exist in terms of cube-up and suddenly takes on its cube-down countenance. Within one semiotic timespace context it was one thing, and then it became another thing. There has been a 'semiotic jump' in time and space from a sign seen *as* one thing from one angle, and then seen *as* something else from another angle. (At your leisure you might compare this situation to 'Green' and 'Grue'.)
- (4) A cube is a cube is a cube. No? Not really. If you can never step into the same *semiosic* stream twice, then a cube is never exactly the same cube, for within perpetually differentiating contexts it is always *BSO*. Nevertheless, your flipping the sign of Figure 4 from cube-up to cube-down did not occur in a vacuum. Cube-up was cube-up only insofar as it is *CCC* and *i-i-i-* with cube-down, and they are both what they are only insofar as they are *CCC* and *i-i-i-* with you and you with them. Moreover, they are becoming and you are becoming in terms of your seeing *that* they are the proud owners of so-and-so a set of – transient rather than static – attributes. Where did the other cube come from? Where did these attributes come from? Or for that matter, where did you come from? From the series: '0  $\rightsquigarrow$   $\emptyset$   $\rightsquigarrow$   $\sqrt{\bullet}$   $\rightsquigarrow$   $\pm$   $\rightsquigarrow$   $\Psi$   $\rightsquigarrow$  . . . Signness (Firstness-Secondness-Thirdness)'. And how is it that you and the two cubes happened to converge at a particular timespace slice? You were all always already there, as *possible possibilities*. You 'emerged' and 'converged' from 'emptiness' (0). It might appear that there is something mysterious going on. But not so. Then how so?

## 6.2. Necessarily 'two worlds'?

How so? That's a \$64,000 question, which can only be addressed after a full-fledged discussion of quantum theory, which lies outside the purview of this



essay, and to be truthful, outside my technical knowledge of quantum theory.<sup>47</sup> For now, however, compare the four points above with the following, which, in a nutshell, summarize the properties of quantum happenings:

- (1) A quantum particle-happening (for example, an electron) as a *possible possibility* (the ‘wave property’) can be in many places at once.
- (2) The quantum particle-happening as *possible possibility* does not live in ordinary space and time until it *interdependently interrelates* (and *interacts*) with something/somebody else (‘collapse’ of the ‘wave packet’).
- (3) The quantum particle-happening can cease doing its thing ‘here’ and in apparent simultaneity pop up ‘somewhere else’. There is no knowing what it was or what it was doing when it went through the intervening space (the quantum ‘jump’).
- (4) A manifestation of one quantum particle-happening, brought about by *CCC* and *i-i-i-*, becomes what it is becoming (*BSO*) because it is in *CCC* and *i-i-i-* with its *other* and with that which makes its becoming what is becoming (*BSO*) (apparent quantum ‘action-at-a-distance’).

John Wheeler (1994: 114) laments that Einstein couldn’t abandon classical causality (he categorically rejected what he called ‘spooky’ quantum action at a distance). At the same time, he was not completely satisfied with Bohr’s response that there is no causality at all. An alternate response, commensurate with Mahayana Buddhism, would be that there is causality and yet there is no causality, because everything is the cause of everything else, from within the *semiosis* ‘0 ∅ √ • ± Ψ ...’.

What, more exactly, is this series that continues to pop up here and there? Notice that we cannot ask ‘where’ or ‘when’. It is in a manner of speaking ‘nowhere’ and ‘nowhen’. Henry Stapp (1977) once observed that the deepest process of nature lies outside timespace but creates events that can be located in timespace. We might put this in a semiotic setting to yield: The deepermost field of *semiosis* – the range of *possible possibilities* – lies outside timespace, but it engenders *actualized* OAHs that can be sensed, signed and said *as* so-and-so *that* are such-and-such within varying timespace contexts.

Actualization from the range of possible possibilities involves fragmentation, the Cartesian split, binaries and dichotomies. These binaries and dichotomies continually force their way onto the scene because of our habitually

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47. I have an undergraduate degree in chemistry and physics, I taught courses in these areas at the high school level for 6 years, and I’ve read philosophy of science extensively, but, of course, that by no means qualifies me as an authority in quantum theory.

assuming, according to our entrenched ways, that there is direct ‘reference’, ‘correspondence’, and ‘representation’ of signs and ‘objective reality’. Actually, the *semiotic* process knows of no such direct ‘reference’, ‘correspondence’, or ‘representation’, for all signs are signs of process, and the process makes up a continuous whole that becomes discontinuous by virtue of our cutting and chopping and splitting and mutilating it. What is ‘real’ is the whole; what is fragmentary is in large part the product of our own analytical constructions, more often than not for our own ego-driven purposes. The fragmentary is therefore partly illusory. Now the question becomes: If what we make of our world is what we make of it as much as how what we found it, then what happens when we cease making it? Wheeler’s response, as we shall note in more detail below, is that our world is a matter of our *co-participation* with it and it with us. The fact remains, however, that one of our most obsessive beliefs is the idea that things exist ‘out there’, independently of us as observers and obsessive manipulators.

There is commonsensical evidence for this assumption. Look at Figure 4 once again, then look away. Naturally we suppose the ‘cube’ remains intact and in the same spot when our back is turned to it. Not so. It was a ‘cube’ because you made it a ‘cube’; you constructed a ‘cube’. Show it to a child who has not yet learned about cubes and it will be no more than a mysterious bunch of lines. Semiotically speaking, that’s all it is when you are not looking at it and seeing it *as* such-and-such and *that* it is so-and-so. That is, that’s all it is in terms of your cultural-conventional and idiosyncratic modes of sensing and perceiving and conceiving your world. That, most properly, belongs to the LW. Then there is the other ‘semiotic object’, the black marks on a white sheet. What happens to them when you’re not looking? Assume you do not look at the figure as a ‘cube’ but as a set of two partly overlapping squares connected by lines at 90 degree and approximately 45 degree angles. After conceptualizing it as such, you turn away, assuming it is the same figure. But by the same semiotic reasoning as above, it is not such a figure in terms of your having ‘geometrized’ it. Your ‘geometrization’ lies most properly within the domain of LW. However, the figure’s raw physical existence as small particles of a black substance deposited on a piece of bleached cellulose flattened into a sheet remains just what it is when you are not looking at it. Does it not? Not exactly, if we follow quantum theory. Before a ‘wave packet’ enters into collaboration with something else, it is nothing, *no-thing*, at all. So the lines on a sheet as metaphorically like a QW ‘wave amplitude’ are nothing when they remain isolated from all interactors.

At the outset this seems absurd. An ordinary object, Eddington’s desk, insofar as it is a hard object suited for bearing books and a computer and paper to

write on, is ‘real’. Surely it doesn’t behave like nothing more than ‘wave amplitudes’ in the process of becoming a teeming collection of subatomic particles. Or does it? When the swarm of subatomic particles in LW we call a desk ceases to interact with anything at all, it resorts to its QW ‘wave amplitude’ status, even though we would like to think otherwise. Wheeler (1980a, 1980b, 1984) presses this point emphatically.

Back to our Necker cube, but now from a *complementarity* point of view.

### 6.3. Are the two worlds, by complementarity, one?

We observed that the cube can be in two places and two times at once, insofar as it is pure possible possibility. We observed that when it becomes one thing instead of another thing, it is now an empirical object we conveniently named and cognized, and that at future moments along the *semiotic* stream it can suddenly become something else. We also speculated that from the depths of pure possible possibility everything ‘influences’ and ‘causes’ everything else.

So, you look at Figure 4, then you look elsewhere. As possible possibility, its ‘wave amplitude’, so to speak, ‘spreads’ out and yields a set of possibilities, such that when you give it another gander, it might ‘collapse’ into cube-down instead of cube-up. Or perhaps instead of a cube you now see it as a ‘cake of ice’, or something else. Of course, as black ink marring a white sheet, there is just a teeming rush of particles in *i-i-i-* with one another, so the raw physical existence of the cube drawing by no means fades out of existence. However, as a semiotic item interacting *with* something else *for* your conscious mind *in* some respect or capacity, when you cease looking at it, it once again becomes metaphorically like a ‘wave amplitude’ that recommences its spreading out into a range of possibilities in preparation for some future semiotic happening. The important point is that there is no semiotic happening within the *semiotic* stream without some semiotic subject. This implies some sort of fusion of LW (as sign possibilities, Firstness) and QW (as signs of possible possibility, pre-Firstness), it would appear. Perplexing, to say the least.

But there is actually no real problem here. No problem, that is, if we place the semiotic scene in a non-classical light. Recall that within the depths of possibility, the classical Principle of Non-Contradiction is ‘violated’. This is no tragedy, however. The cube is *both* cube-up *and* cube-down, as possible possibilities. As simply an unclassified cube, it is of the nature of Firstness. Once we see it *as* cube-up, we see it *as* such only insofar as the possible possibility existed, and still exists, that it could have been, or will yet have been, cube-down. Within this field of Secondness, of signs actualized and categorized, the

classical *either-or* principle stands straight and tall. The sign is *either* one thing *or* another, *or* another, *or* . . . Fine and dandy. The world has been organized: we brought order out of chaos, and now we can get on with our comfortable bifurcation of the universe.

But hold on! The *semiosic* swirls and vortices aren't through with classical principles yet. In order to get to the next stage, let's go back to the arena of Firstness. We apparently have a proud, autonomous sign, smug with its assumption that it is supremely autonomous. This sign is, at least for the moment, self-contained, self-reflexive, and self-sufficient. I say 'for the moment', because *semiosis* is never at a standstill, and surely the sign will not remain what it is for more than a split second. Brainmind, when at its musing, contemplative, self-reflexive best, would seem a likely candidate for such a sign. For example, if I am concentrating on my clumsily trying to saw a 2' by 8' board at a 90 angle when I would like to think I'm going through the motions of constructing a deck behind my house, that's about all I can do. The task demands my undivided attention. In contrast, when engaged in a familiar activity like riding my bicycle, I can maintain the machine in an upright position by putting bodymind on automatic pilot to do all the work, while at the same time I might be thinking about a book project with brainmind. However, if I suddenly become engrossed in thinking *about* my thinking, brainmind now becomes self-reflexive, at least for a split second or so – of course, after years of practice, Eastern mystics are good at this game for long periods. In this respect, I am the subject and my own object, so to speak.

This situation was disconcerting for Wilder Penfield, who pondered the idea of a neurosurgeon performing an operation on herself: 'Where is the subject and where is the object if you are operating on your own brain' (Penfield 1976; in Goswami 1993: 96). Within the current of Firstness, there is no difference between subject and object. It is a matter of *both-and* rather than *either-or*. The subject is its own object, yet the object is apart from the subject, all within the range of possible possibilities for the emergence of a sign, somewhere, somewhen.

Suppose a neurosurgeon actually operates on herself. She is the one that operates on the *other*, which is her own *other*, somewhat like Maurits Escher's hand that draws a hand that draws another hand that is in turn drawing it. This apparent analogy is somewhat deceptive, however. The problem is that if we remain within a self-contained, self-reflexive, self-sufficient view (i.e. within Firstness), the *semiosic* whirligig is incomplete. So let's include some *other* of the sign, a Second, the sign's *object*. Within this view, there isn't any legitimate complementarity either. There is only the equivalent of '+' in a tug-of-war with '-'. What we need is 'Ψ', Thirdness. The 'Ψ' function is *neither* the '+' *nor* the

‘–’ but rather, the semiotic mediator and moderator bringing about the counterpart of quantum theoretical complementarity. So Penfield’s neurosurgeon sees her own brain and operates on it; but in order to do so, she must be somehow capable of attending to her brain at the same time that she attends to herself operating on her brain. It is as if Escher’s own hand were within the drawing and in the act of drawing a hand drawing a hand. This is closer to the genuine nature of complementarity. Adequate development of this assumption, I would suspect, calls for consultation of what Wheeler calls the ‘co-participatory universe’. But first, some preliminary words.

#### **6.4. The wave-particle is schizophrenic, isn’t it?**

We’re all somewhat familiar with the ‘double-slit experiment’ in quantum theory. There is an electron source. It shoots particles toward the target, a fluorescent screen. But before the potential electrons get there as ‘wave packets’, they must find their way through a barrier that is punctuated by two slits. Either both of the slits are open or only one of them is open. If both slits are open, the ‘wave packets’, soon to collapse into electrons, pass through the slits unmolested. On the other side, they set up a ‘wave interference’ pattern that presents itself when the wave packets are collapsed into electrons upon reaching the screen in the form of a concentric set of dark and light circles. If only one slit is open, the wave packets pass through and find their way to the screen without interference from other wave packets from the other slit. Then they strike the screen, leaving a circular area that is dark in the center and somewhat fuzzy at the periphery.

Wheeler asks us to suppose we weaken the energy source to the extent that it spits out only one electron at a time. If one slit is open, there is no problem: the electron passes through it and makes a bee-line for the target. However, if two slits are open, there is a problem. Do we get an interference pattern? Surprisingly, quantum theory says yes. The particle had to go through either one slit or the other; yet it leaves a pattern on the screen as if it went through both slits. It is as if the single electron as a noninteracted wave packet split in half, with one half passing through one slit and the other half passing through the other slit. It then interferes with itself, with each of its halves, and leaves a set of intermittent light and dark areas as if different packets had passed through the two slits. Now suppose we shine a flashlight on the electrons before that pass one at a time through both slits to see what they will do. The light source interacts with them, they collapse into particles, and then they pass through the two slits to produce two concentrated dark areas on the screen. If we don’t shine the flashlight on them, then each electron sets up an interference pattern

with itself to give the periodic light and dark patches. It is as if with the flashlight we tried to locate the electron's *position*, and it acted like a *particle*, but without the flashlight, we concentrated on its *momentum*, and it acted like a *wave*.

Now that's *complementarity* for you. Is the electron a particle or a wave? Before it has interacted with anything else, as possible possibility, the answer is that it is *both* the one *and* the other. Must it not be *either* a particle *or* a wave? After the collapse, we have made a decision to see the electron either in terms of position or momentum, and we can say yes, it is *either* a particle *or* a wave. However, if we want some really crazy logic, we must concede that the electron, strictly speaking, is *neither* purely a wave *nor* purely a particle, and it is *neither* a non-wave *nor* a non-particle.

On the one hand, binary *either-or* logic maintains its force; on the other hand, *both-and* plays havoc with classical logic's Principle of Non-Contradiction. The *both-and* side is where Firstness as a particular set of possibilities lives, and lives quite comfortably, feathering her nest with all sorts of otherwise inconsistent partners. The *either-or* side, with hair carefully parted down the middle, cheeks polished, and shoes spit-shined, will have no truck with any fuzziness of thought: her world is largely bivalent, bifurcated, such that she can conceptualize it and talk about. Then there is the other chap: *neither-nor*. What can we do with him? He declares that the answer to any question is *neither* here *nor* there but somewhere else, somewhen else, potentially an infinity of somewhere elses and somewhen elses. Things get fuzzy, for sure. This fuzziness complements the exceeding vagueness of Firstness in its purest form. Fuzziness is, then, tantamount to the third term, the 'middle way', that which plays havoc with the classical Principles of Identity and Excluded-Middle.<sup>48</sup>

Now, back in our Wheeler 'thought experiment', suppose the batteries in our flashlight become so weak they can generate only the faintest of beams. In fact, the beam is so weak that it manages to find its way to only 50% of the electrons as the travel toward their destiny. What will happen? Half the electrons split and interfere with themselves to give evidence of an interference pattern on the screen. The other half, those that the weak light beam reached, pass through their respective slits to produce two concentrated area on the screen. Now we have *ambiguity*, and it is inordinately *fuzzy ambiguity* at that. We have evidence of the one side of the complementarity and evidence of the other side, and also evidence of many values in between. Were the electrons

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48. In much the same spirit, Peirce writes that: 'It is not really contradictory . . . to say that a boundary is both within and without what it bounds', thus also giving voice to what I termed above the 'middle way' (CP 2.420).

particles *or* waves? We saw the collections of electrons as *both* waves *and* particles. Each electron must have been *either* a wave *or* a particle, for sure. However, there is no knowing what would have come up beforehand. Between wave and particle there is only fuzziness. There is *neither* clearly and distinctly particle *nor* wave.<sup>49</sup>

With reason, Bohr occasionally quipped that if anybody who learns about quantum theory is not shocked, then she cannot possibly have comprehended it. The fact remains, however, that upon interaction, the electron was *either* one thing *or* the other and nothing else. Of that I would imagine few physicists would have much doubt. Peircean semiotics is another matter, however. Here, *fuzziness*, *ambiguity*, and *vagueness* of signs run rampant. The main difference, one might assume, is that semiotics has to do with macro-level signs while quantum theory is a matter of micro-level events. Good enough.

But there is another ‘thought experiment’: Schrödinger’s notorious feline that mixes micro-level and macro-levels (for a detailed layperson’s account, Gribbin 1984). The cat is enclosed in a box with some radioactive material that, after a certain lapse of time, has a 50/50 chance of reacting and tripping a mechanism that will release some poison that will kill her. When the designated time is up, we open the lid and expect to see *either* a live cat *or* a dead cat. We recall that when one electron was sent on its way toward the target with both slits open in the barrier, it acted as if it split itself up and then interfered with itself. Could the same be said of Schrödinger’s cat? That before it is observed it has split itself into a half-live cat and a half-dead cat? This is an apparent absurdity.

But perhaps not as absurd as we might wish to think. As a superposition of wave packets sporting a set of possible possibilities, one can say that the cat is *both* alive *and* dead (as *overdetermined* Firstness). Then we take a gander at it, and it collapses into a unique state: *either* alive *or* dead (as Secondness). But wait a minute. Before we opened the box and took a peek, as far as we were concerned it was *neither* actually alive *nor* dead. This is not to say that it was in some state of suspended animation, but rather, that it was *neither* the one thing *nor* the other but possibly something else (as *underdetermined* Thirdness). Something else? What else? Surely there is either a purring eigenpussy or a deceased feline. There is no way physics can conjure a rat or a bat or a gnat or something else into existence in place of the cat.

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49. Quantum theory, by way of ‘quantum logic’, mentioned above in passing, entails an abrogation of the Excluded-Middle Principle, given its non-Boolean, non-linear, ‘ortho-complemented’ nature (Heelan 1970, 1971, 1983).

What does Schrödinger's 'thought experiment' have to say about the state of the cat with respect to our choosing to open the lid and take a peek or not? And what does it have to say about the consequences of our choice in bringing about the cat as *either* alive *or* as dead? Surely it is *either* alive *or* dead, in spite of whether we interact with it or not. Is it not? Well, yes *and* no. That is, *neither* yes *nor* no. Vaguely and generally speaking.

Let us turn to Wheeler for a possible answer to this quandary.

### 6.5. Complementarity within a co-participatory universe

Some physicists believe a quantum collapse is the result of a choice and identification by a conscious observer. I don't know how far one should go with the heated controversy over the idea of consciousness creating 'reality'. At any rate, Wheeler's *co-participatory universe* presents itself as a viable alternative. According to his story, we can bring about a particular happening by 'delaying our choice' regarding the becoming of something after that something was in the process of becoming such that it will have been becoming what it is becoming due to our co-participation with it and it with us.

That mouthful cries out for exemplification. I write the future conditional, 'will have been becoming', in light of Wheeler's 'delayed choice' thought experiment. A beam of light is split into two beams, one reflected and one transmitted by using a half-silvered mirror. These two beams are reflected by two mirrors so that at a particular point they cross paths and set up an interference pattern. If the half-silvered mirror is included in the set-up, the beams will approach the point of intersection from both directions. If the mirror is left out, the beam will arrive from only one direction. There is an instrument for detecting whether the beam was split or not. Now, in the 'delayed choice' experiment, after the beam of light has been emitted and has passed the point where the half-silvered mirror is to be placed, then, in no more than a million millionths of a second, the mirror is slammed into place.<sup>50</sup> What happens? Or better, what 'will have happened'? – once again I use the future conditional, for the mirror came into place in the present, which is not past, but it determines what 'will have happened' in the future. What 'will have happened' is that the beam reacts as if it were a split beam! How did the beam know after it had already passed that

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50. Before the virtual instantaneity of this act brings on the sneaky feeling that we are not in fantasyland, this experiment, surprisingly enough, has actually been conducted by Hellmuth, Walther, Zajonc, and Schleich (1987, see also a layperson's discussion of Wheeler's philosophy of physics in Davis 1997).



the half-silvered mirror emerged into existence? It didn't know. The scientist as co-participant knew. That's enough. The scientist is a co-participant with the apparatus and the apparatus with the scientist.

Wheeler remarks, regarding his delayed choice idea:

Looking at an empty courtyard, we know that the game will not begin until a line has been drawn across the court to separate the two sides. Where, is not very important; but whether, is essential. 'Elementary phenomena' are impossible without the distinction between observing equipment and observed system; but the line of distinction can run like a maze, so convoluted that what appears from one standpoint to be on one side and to be identified as observing apparatus, from another point of view has to be looked at as observed system. (Wheeler 1994: 292)

Wheeler then alludes to Parmenides's ruling out 'nothingness' as 'meaningless' with respect to the line of distinction that rules it out.

Indeed. We heard a variation of this story above. The line or *mark of distinction* emerges from 'nothingness', or better, 'emptiness', and in the act it erases the very idea of 'emptiness'. The mark of distinction brings about something and something else, and from the one and the *other* there is a third thing, and then many. And the many are at the same time one, the one of the universe.

Schrödinger (1967: 138–50) observes that the term 'consciousness' is rarely if ever heard in the plural, for all consciousness is one, the many in the one, the one having become many, which is one. Schrödinger compares this to the 'mathematical paradox'. From zero comes one, then two, then three, then many – Lao Tzu's dictum, once again – but the many as a whole is one. Wheeler concludes that such considerations 'lead us at the end to ask if the universe is not best conceived as a "self-excited circuit"'. Beginning with the big bang, the universe expands and cools. And then, 'after eons of dynamic development it gives rise to observership. Acts of observer-participancy – via the "delayed-choice" experiment – in turn give tangible "reality" to the universe not only now but back to the beginning' (Wheeler 1994: 292). The dog chases its own tail; the snake grabs its hind end and eats itself; the universe looks at itself becoming itself. It should come as no surprise that the universe, as Peirce was wont to put it, is a sign, a massive self-contained, self-organizing icon.<sup>51</sup> More on the *mark of distinction* in this light.

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51. There is a story of three Buddhist monks observing a flag flapping in the wind. The first monk, caught up in the sign as Firstness, said: 'The flag is moving'. The second monk, obsessed with Secondness, countered: 'The wind is moving the flag'. The third monk, wiser than his companions, contemplated that: 'Mind is moving'. In the sense of Wheeler and Peirce, the 'self-excited universe', the universe as *semiosis*, is that mind.

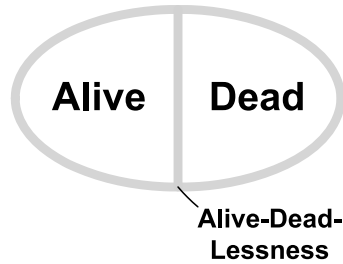


Figure 5. The demarcating line exemplified

Consider Figure 5, where the vague line within an equally vaguely outlined oval distinguishes Alive from Dead, obviously in honor of Schrödinger's cat – and as an extension of Figure 2. True to form, the cat must be either 'alive' or 'dead', with a strict dividing line between the two terms. But what do we have in the line? The line does not represent Alive; it is Aliveless. Neither does it represent Dead; it is Deadless. Yet as Aliveless, it has something in common with Dead: it is Aliveless. And as Deadless, it has something in common with Alive: it is Deadless. So it shares something with *both* Alive *and* Dead. Yet it is *neither* Alive *nor* Dead. It is Alive-Dead-Lessness (compare this to the discussion of Figure 2). That, precisely, is the commonality. So there is something of both Alive and Dead in the line of demarcation after all, like the line separating *Yin* from *Yang* each of which contains something of the other. The left side of Figure 5 contains no Dead and the right side contains no Alive. Yet, to repeat myself, the line is the 'emptiness' that contains the makings of both of them. In the Wheeler sense, this is the 'nothingness' or 'emptiness' that rubs out meaninglessness and the mark of distinction that brings about the fading of 'emptiness' to usher in meaningfulness.

The line's function as pre-Firstness, then, is that which brings about the emergence of the sign. The sign's emergence and development as a genuine sign involves both the interpreter interpreting the sign and interpretant interpreting itself in collaborating with the self-interpreting interpreter. This is the semiotic counterpart to Wheeler's co-participatory universe. However, a word of caution. Nowhere is there any assertion that the interpreter, or her consciousness for that matter, actively 'causes' a particular sign-event or elementary phenomenon to begin its becoming. If Schrödinger's cat receives a dose of poison and we want to see a live cat, we cannot open the lid and will it back to life. Yet the cat – or any sign for that matter – is *neither* dead *nor* alive until some semiotic subject interacts with the entire set-up.

In this manner, a given pair of possible signs within our processual world of *semiosis* entails, like Schrödinger's cat, *both* one possibility *and* the other and

*neither* one possibility *nor* the other, and as such the possible signs are of the nature of ‘emptiness’; but when we *interact* with them, we co-participatingly bring about the actualization of *either* one possibility *or* the other. The important point is that there is no actualization of possibilities without semiotic agents. And the same can be said of us: unless and until we co-participatingly interact with some aspect of *semiosis*, we are, ourselves, no more than possible signs. It is our co-participating interaction that brings us into actualization from the range of all possible possibilities, just as our co-participation brings about the actualization of our semiotic world from that same range of possibilities. When we ponder over the myriad, virtually infinite, pairs of possibilities that lie in store for us, we cannot help but remain appropriately humbled by a sense of our feeble, fallible capacities.

### 6.6. The co-participatory universe as *semiosis*

‘Well’, someone might wish to remark, ‘you’re just splitting hairs. What is, is what it is, and if we sense it we sense it, and that’s that. If we don’t sense it, the universe is hardly any better or worse as a consequence’.

So it might appear. In an attempt to clarify this cantankerous issue, let us consider attributes rather than cats and other things. Assume a cat I keep in my apartment is charcoal gray. In fact, it is so dark, a newcomer might have to do a double take to determine whether it is actually gray or black. However, I prefer to see it as black. Now suppose you have been under the bright sun at a Florida beach all day, and, without realizing it is the same cat you saw last year when you visited me, you make a comment on my ‘well-fed and sassy gray cat’. Your hours in the sun altered your sensations of the animal when entering the relatively dark room. This is ordinarily no problem. I correct you, you are convinced, and you theretofore refer to it as a ‘black cat’. Now suppose some stranger from some strange place enters the neighborhood, and we become acquainted with him. He makes a few comments about my ‘black feline’. We nod in approval. Then, at some point in time, call it  $t_1$ , he refers to the same cat as ‘gray’. We correct him. He insists it is ‘gray’, apparently unaware of the fact that it is the same cat he previously called ‘black’. Let us, with a nod to Nelson Goodman, call this stranger’s color terminology for the cat ‘blay’ – a portmanteau word of the sort to be discussed further below. ‘Blay’ is anything that we would label ‘black’ before time  $t_1$ , and after that time we would label ‘gray’. ‘Blay’ is quite disconcerting for us. It is as if our neighbor were living in one color world up to a certain time and then shifted gears into another color world. In other words, among the members of our little community consisting of you

and me and that other strange fellow, at least one of the attributes of my cat has become fuzzy.

Moreover, there is no necessary end to the fuzziness. Someone else might call the cat the equivalent of ‘grack’ – ‘gray’ before time  $t_x$  and ‘black’ thereafter. Someone else might call him ‘greck’, and yet someone else ‘glay’, each strange term denoting what we might consider the fine line dividing gray from black with respect to the color of my cat’s coat of fur. There is theoretically no end to the possibilities. So according to the mark of distinction’s function in Figure 5, my cat might be ‘gray’, it might be ‘black’, it might be ‘blay’, it might be ‘grack’, it might be ‘greck’, or one of any other of the possibilities. According to possible Firstness with respect to the mark of distinction, my cat is *both* ‘gray’ *and* ‘black’ *and* everything else besides. According to possible Thirdness, my cat is *neither* categorically *either* ‘gray’ *or* ‘black’ *or* anything else for everybody concerned, but it always stands a chance of coming to be considered something else. Consequently, we might say of our feline that: ‘It is *either* black *or* gray; it is *both* black *and* gray; it is *neither* black *nor* gray; it is *all* of the above; it is *none* of the above’. This brings the ‘double slit’ experiment and Wheeler’s ‘delayed choice’ to our attention. And, quite significantly, it is also relevant to Nāgārjuna’s Tetralemma – indeed, the Tetralemma is apparently becoming more relevant as these pages unfold.

In this light, ‘ $\Psi$ ’ of Figure 1, in conjunction with the just-now-beginning-to-emerge becoming of Firstness, lives within the mark of distinction, while the binary opposition, *either* one possibility *or* the other, is of the nature of what might often be construed as the independent, autonomous action of Secondness. However, if we take another look at Figure 5 in light of the above discussion of Figure 4, we will notice on the one hand that what I have called *underdetermination*, like Thirdness, bears witness to the perpetual *incompleteness* of all knowing in the *general* sense, for whatever is taken to be the case (‘black’ or ‘gray’) can *possibly* be displaced by something else (‘blay’, ‘grack’, ‘greck’, and so on). On the other hand, *overdetermination*, of the order of possible Firstness, offers an image of *inconsistency* lurking in the shadows of any and all *possibly possible* forms of knowing; yet, vague though it is, it allows for an unlimited number of such constructs within a variety of timespace contexts. In other words, within the range of Firstness or *overdetermination*, there is no distinction between LW and QW. Within the range of Secondness, the two categories must be maintained separately, in accord with bivalent principles. Given the range of *underdetermination*, the possibilities offered up by Thirdness, it is not necessarily the case that a distinction must be made between LW and QW, for they enter into contradictory complementary collaboration and coalescence toward every novel way and means of methods and strategies for knowing.

All this is to imply that, to evoke another trio of Peircean terms: (1) *overdetermination*, where LW and QW are quite congenial bedfellows, most adequately allows for *abduction*, the creation of possibilities for knowing, (2) the world of Seconds, where signs are tried and tested in the physical world of hard knocks, is most conducive to *induction*, which maintains an LW/QW distinction, and (3) *underdetermination*, where, between one LW and another and between one QW and another something else can always emerge, is the most reliable field for engendering *hypothetico-deductive* postulates, thanks to the possibilities handed down by *abduction*, for *inductive* practices.

## Chapter 7

# We co-participate with what is becoming

The process of becoming implies that everything is mutually co-participating in order to perpetuate the process of becoming. The circle is virtuous rather than vicious. It cannot be seen as purely vicious, because there is no view of the whole ‘from nowhere’; and it is virtuous, because, as process, there are no fixed boundaries, but rather, everything is open to change. There is neither conceivable beginning nor ending, and the middle can possibly be anywhere and everywhere. In this sense, the watchword is *interconnectedness* of signs, world, meanings, and sign makers and takers. Thus this chapter obsessively focuses on: (1) contradictory complementary coalescence (CCC), however apparently dissonant it might seem, of all that is in the process of *BSO* by virtue of *i-i-i-*, having emerged from *EZ* and developing along nonlinear paths according to ‘ $0 \infty \sqrt{\bullet} \pm \Psi \dots$ ’, and (2) the nature of *semiosis*, which has a bearing on co-participation, as will be illustrated through a Wheeler ‘thought experiment’. Development of these topics calls for further words, at various stages, on Peirce’s categories, his notion of *objective idealism*, and Bohr’s Principle of Complementarity.

### 7.1. More on Wheeler

David Hume once mulled over the possibility that no more than an agitation in the brain of the sort that we ordinarily call ‘thought’ might be capable of creating a model of the entire universe (1978). Wheeler observes that this is typical of modernity’s penchant for regarding the observer’s positioning herself in a neutral zone, as if she were protected from contact with the world ‘by a 10 cm slab of plate glass’. In contrast to this enchanted dream of objectivity, Wheeler goes on, present-day theory tells us that it is ‘impossible to observe even so minuscule an object as an electron without in effect smashing that slab and reaching in with the appropriate measuring equipment’ (1994: 25).

Choice of the measuring apparatus – which implies a particular timespace context – produces an unpredictable change of the microphysical quantum world (QW), while choice of a different timespace context would produce an unpredictable change of an entirely different sort in the macrophysical living world (LW). In other words, with respect to QW, the changes can be as different as the unpredictable conditions of the position or the momentum of a quantum

event. Our choice of the conditions for observation brings about an irreversible change in those conditions, which is to say that the observer ‘is elevated from “observer” to “participator”’, and that in ‘some strange sense this is a participatory universe’ (Wheeler 1994: 25).

In the terminology of this essay, Wheeler argues that:

1. If we are co-participants with and within the universe, then the universe is not immutable; it is perpetually in the process of *BSO*; it is a self-organizing whole, according to principles of *i-i-i*.
2. If the universe is incessantly becoming, then there can be no ultimate underpinnings, no ultimate foundations.
3. Whatever genesis there may be regarding the universe is a matter of our co-participation with its becoming; thus the ‘anthropic principle’ inheres.<sup>52</sup>

A tangential move is necessary in order properly to qualify these three premises within the context of our concrete everyday world, LW. Why my insistence on our concrete world? Because, in the final analysis I would like to

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52. The idea of co-participation is somewhat akin to what is known as ‘cosmological anthropic principle’, of which there is a ‘weak’ and a ‘strong’ version (Barrow 1990; Barrow et al. 1988). The weak version says that if intelligent life exists in the universe, it exists insofar as its intelligence is capable, with hits and misses, of falling in line with the nature of the universe, hence the universe as it is couldn’t be without intelligent life and intelligent life couldn’t be without the universe. Steven Weinberg comes close to this notion when he says that ‘the world is the way it is, at least in part, because otherwise there would be no one to ask why it is the way it is’ (1989: 6). Stated in this manner, the ‘weak’ version appears quite intuitive. The strong version says that the universe is the way it is because it has been made so we can populate it and understand it. The problem with this version is that can easily be made out to presuppose some Supreme Being who created the universe and thus it supports the anti-Darwinian ‘intelligent design’ hypothesis. Wheeler believes his co-participation concept improves on the ‘weak’ anthropic principle, since we wouldn’t be able to imagine a universe that didn’t somewhere and from some length of time contain knowers (ourselves and other living organisms), because the knowing and the known, or observer-participancy, is the only way the universe can enter into the process of *BSO*. He bases this idea on observer-participancy from the macro-level to the quantum micro-level, where no phenomenon is a phenomenon until it is an observed (or registered) phenomenon. I would suggest that, semiotically speaking, we consider the weak ‘anthropic principle’ as co-participatory at the *global* level, commensurate with the entirety of the *semiotic* world arising out of the range of all possible possibilities. Our concrete *i-i-i* with our *local* world, which, like the *global* world, is *CCC*, involves our bringing about the emergence of signs of possibility (pre-Firstness). In this sense the *global* field entails ‘0  $\infty$ ’, while *local* fields entail ‘ $\emptyset \infty \sqrt{\bullet} \infty + \infty - \infty \Psi \infty \dots$  Signness’.

resist what Alfred North Whitehead (1925) calls the ‘fallacy of misplaced concreteness’. Abstractions are acceptable, to a degree, especially within the arena of language use and when we engage in the ethereal game of theory making. But if the theory remains divorced from our physical world within which we live and breathe, it will tell us little, and above all, it will give us hardly any inkling as to how it is that we are co-participants with our world’s becoming.

Well, then, is our co-participation virtually nil, in spite of Wheeler’s elaborate ‘thought experiments’? Have we no role in the universe’s becoming? Or in the becoming of *semiosis*? In other words . . .

### 7.2. Does God play dice?

Consider Figure 6, which, by the way, is the variation of ‘Schrödinger’s cat’. First there is the Necker cube, a two-dimensional object that we almost immediately identify as a three-dimensional object. This identification is the product of our habits of thought and categorization, of our sedimented, entrenched, virtually automatized ways of perceiving and conceiving, of our preconceptions, presuppositions and prejudices, of our predispositions, predilections and

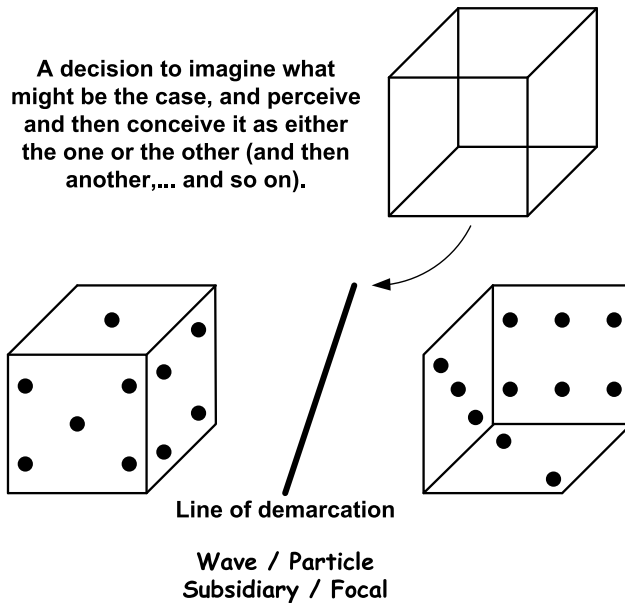


Figure 6. Complementarity becoming



proclivities. But the object is ambiguous. We would most likely ordinarily assume that the Figure 4 'cube' can be either the one or the other, and that's that. However, in the Wittgenstein sense, as mentioned above, we might have seen it as a 'cake of ice', as a 'wire box', as '12 lines on a two-dimensional plane', or maybe something else (1953: §200–01). So the object is multiply ambiguous.

But we almost immediately saw it as a 'cube'. In other words, following the meandering stream of feeling, sensing and thinking, we imagined it as a 'cube' (abduction) by means of its interdependence and possible interaction with comparable objects we've seen in the past (inductive inference), and we assumed that within the context of the object's appearance in the present we could most likely conclude that it is a 'cube' (hypothetico-deductive postulate), and without hesitation we confidently blurted out: 'Cube!' That is, a 'cube' oriented in either one way or another way. Figure 6 sports solid cubes, a pair of dice, oriented in the way of the two possible cubes in our ambiguous Figure 4, with two different sets of numbers showing. Our *either/or* imperatives hold, since the two dice are dichotomously interrelated. Thus far, our normal concrete, everyday world as we ordinarily perceive and conceive it is properly honored. So, if we toss the dice, either one possibility or the other shows up.

But wait a minute! There are other possible combinations. The trio of numbers showing on the two dice could have been any two of a number of alternate combinations. We have much more than a simple *either/or* distinction here. In fact, what initially struck us as a distinction actually consists of a set of possibilities the combination of which would give us *neither* the one die *nor* the other die as we see them in Figure 6, but some other combination involving the hitherto concealed numbers on other sides of the two cubes. The dice, then, as pure possibilities, could, after we toss them, give us either the combination illustrated in the figure or one of a number of alternate combinations that could have resulted but did not. Then, after we toss them and, say, the same combination as in Figure 6 shows up again, during successive throws the combination could be *neither* the one die *nor* the other one, but something else that had remained as possibilities two of which became actualized. There are many possible 'dice versions' before each toss. With a successive toss, one of them will have become actualized, while the others remain as possibilities, and if they are tossed again, another 'dice version' might show, while the previous 'version' will now be back in the sphere of possible 'versions' along with all the others (see *CP* 6.53–55).

What we have are possible possibilities, possibilities in the *present*, actualities along with others now in the *past*, and *future* possibilities or probabilities: Firstness, Secondness, and Thirdness, or *imagination*, *identification* of the image, and *conception* of the identified image.

### 7.3. Back to our concrete world

Let's actually toss a pair of dice. We place them in one hand, shake them about a bit, and throw them in the air. They twist and turn as they describe an arc, hit the floor, bounce around, and then find a resting place.

What happened between the moment they left our hand and the moment they came to rest? Intermittently, one of the six numbers on each of the dice was in more or less the up position, then another, then another, and finally, the dice are there on the table, coldly staring us in the face, as we euphorically realize we've won the game of chance. While the dice were in the air, quite conceivably they could have momentarily found themselves in all of the possible combinations. But when they came to rest, they sported one combination and one combination only. The other combinations were relegated to the sphere of possibilities that could have shown but did not, and with a successive toss one of them might possibly show, and all the others would then be there, as possibilities. All this occurs in our concrete physical world, our 'macroworld' (LW). But what about the 'microworld' (QW), the subatomic world of quantum possibilities?

Now enter a situation somewhat reminiscent of 'Schrödinger's cat'. Assuming the dice are 'quantum dice', we have at the outset a number of possibilities, but nothing is actual. There are no actual dice, only 'imaginary dice' – as we noted above with respect to a coin toss – which we can describe as a 'wave-amplitude'. We can't physically toss the dice, for our crap game is no more than imaginary. So we imagine we toss the imaginary dice. They arc through the air, while the numbers trade places in the up position, then they hit the floor, bounce around, and come to a rest. Right? Negative. The dice are imaginary, which is to say that the numbers are imaginary, and the toss is imaginary. So there were no actual numbers to momentarily take the up position. There was, so to speak, no more than an imaginary 'traveling wave amplitude'. After the imaginary dice imaginarily flipped-flopped in the air, they hit the floor, that same LW physical plane that is holding us up while we were imaginarily tossing the imaginary dice. Interaction with the floor actualizes the dice, they do their 'collapsing' thing in the LW, and then they show us an actual pair of numbers. Another stage of the quantum crap game came to a close.

Unlike our LW dice throw, our imaginary QW throw enjoyed no physical oscillation from one number to another, and then another, and so on; but when the dice struck the floor, there was actualization of *either* one possibility *or* one of the others. There were actually no dice and no numbers, until the imaginary dice interacted with the floor, with us, and with everything else in the room, the building, the street, and indeed, our entire LW – that's quantum entanglement.

QW possibilities are ‘pure’ in the purest possible sense. They are somewhat comparable to LW possible possibilities, ‘0  $\rightsquigarrow$  . . .’. LW possible possibilities, however, processually move on to possible signhood, ‘ $\rightsquigarrow$   $\emptyset$   $\rightsquigarrow$   $\sqrt{\bullet}$   $\rightsquigarrow$   $\pm$   $\rightsquigarrow$   $\Psi$   $\rightsquigarrow$  . . .’, which then spills into the arena of actual signs emerging, ‘ $\rightsquigarrow$  Firstness  $\rightsquigarrow$  Secondness  $\rightsquigarrow$  Thirdness . . .’. When one or more of these LW possibilities interact within some timespace context, they end up in some particular concrete, actual sign configuration instead of one of the other possible configurations. This process of LW possibilities becoming actual is Newtonianly statistical, and hence there is always an element of uncertainty, given some probability factor. QW possibilities, in contrast, have nothing to do with the statistical uncertainty of actuals; QW statistical uncertainty is no more than a matter of what *will have become* actualized. Moreover, Heisenberg quantum uncertainty tells us that after a ‘wave amplitude’ has ‘collapsed’ and a particle emerges, *either* the position *or* the momentum of the particle can be known, but not both simultaneously. Or the quantum event can itself be considered *either* as a ‘wave-amplitude’ *or* as a ‘particle’, but not both within the same timespace context. In this respect the two ‘worlds’, QW and LW, are entirely different: they are mutually exclusive, but *complementarily* so.

‘How, then’, somebody is surely asking, ‘can they in any form of fashion be compared? After all, they must be comparable in some respect, if Bohr was on the right track when he insisted time and again that his Complementarity Principle applies to the (Newtonian) LW as well as to the (quantum) QW. So the two worlds must need each other’.

Yes, in a manner of speaking, and speaking of *complementarity*, let us lend an ear to Bohr and others.

#### 7.4. Separate but equal?

Just as the central issue regarding Bohr’s complementarity, by way of Wheeler’s corollary, is that *no elementary phenomenon is a phenomenon until it is a registered (observed) phenomenon*, so also the central issue of concrete everyday becoming can be conceived in terms of: *no cultural (or semiotic) process is process unless it is co-participatory process, and it is no phenomenon until it is an interactive (sensed, demarcated, perceived, and conceived) phenomenon* – that is, a difference that makes a difference.

Just as there is ambiguity between particle interpretation and wave interpretation in the quantum world, and just as there is ambiguity between cultural processes and the processes of interacting interpreting agents, so also there is ambiguity – or many would proclaim, contradiction – between Bohr’s quantum

theory and what is called the ‘pilot-wave theory’. The ‘pilot-wave theory’ was originally presented by Louis de Broglie in 1927 and developed further by David Bohm (1957) in his argument for ‘hidden variables’. The search for ‘hidden variables’ is a controversial attempt to render the universe unambiguous and deterministic, thus avoiding the troublesome idea that waves and particles are forever in conflict and that the only way for particles to appear is by a ‘collapse’ of ‘wave-amplitudes’. De Broglie, Bohm and others wished to unify waves and particles by demonstrating how particles consist of *localized* phenomena incorporating and propagating ‘wave functions’ the *totality* of which includes the entire universe as a massive composite ‘wave function’. In a manner of putting it, this was an attempt to bring QW and LW together in one whole package. The Copenhagen interpretation, in contrast, could live quite comfortably with wave/particle and QW/LW ambiguity; that is, *complementarity* (Aczel 2003: 49–54).<sup>53</sup>

In the eyes of some onlookers, Bohr’s view could hardly help becoming wedded to ‘idealism’. How could his interpretation have been extrapolated to such an extreme philosophical position? The answer might be found in the idea that Bohr’s interpretation was committed not to a Berkeleyan idealism, but to ‘anti-realism’ somewhat in the neo-Kantian sense – which is not a purely ‘idealist’ position (Murdoch 1987). Bohr’s writings suggest that to an extent he was drawn toward neo-Kantianism insofar as he saw complementarity of importance to philosophy as well as physics, and even to biology and the social sciences (Bohr 1934: 102–23).

Actually, what’s wrong with the idea of linking complementarity to philosophical principles? First, most physicists would have nothing to do with sweeping metaphysical concepts. Second, philosophizing complementarity would give it a broad, general base, which would put it in conflict with those who held to ‘pilot theory’. One solution among Copenhagen-Bohr physicists limited the Complementarity Principle, anchoring it in the phenomena physicists studied, while leaving all other phenomena to the life sciences and social sciences. Then there were those physicists who remained outside the Copenhagen-Bohr camp, refusing to embrace the Complementarity Principle on the grounds that, although it was non-classical (non-Cartesian-Newtonian) in nature, it still had a foot tenderly and incongruously placed within the classical scheme of things. To their way of thinking this conflict simply couldn’t fly (Faye 1991).

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53. The ultimate expression of the entire universe as a ‘wave function’ is Hugh Everett’s ‘many worlds interpretation of quantum mechanics’ (DeWitt and Graham 1973), often construed in terms of a collection of ‘parallel worlds’ (Kaku 2005).

The question now is: What has all this to do with the principle theme of this book: *living within complexly entangled processes*?

### 7.5. Musement on a *semiosic* interpretation of complementarity

If we ventured to create a *CCC* concept of the universe of signs, metaphorically in the order of a massive ‘wave function’, we would have the notion of a range of all *possible possibilities* before anything has been distinguished from anything else. A *semiosic* Complementarity Principle, then, comes into play when a *possible* First has set itself apart from everything else as an *actual* mark of distinction. Complementarity in this sense is qualifiable in terms of Peirce’s categories as: ‘Pre-1<sup>st</sup>  $\curvearrowright$  . . . 1<sup>st</sup>  $\curvearrowright$  distinguishing, . . . 2<sup>nd</sup>  $\curvearrowright$  mediating, . . . 3<sup>rd</sup>, and into the process of becoming wherein everything is *CCC*, *i-i-i-* and *BSO*’.

Bohr’s complementarity, bringing what *is* (particle) and what it *is not* (wave amplitude) together in a liquid embrace, provides the wherewithal for the idea of process, for the becomingness of something with respect to something else. Thus, strictly defined *idealism* is barred, since there *is* what *is*, and strictly defined *realism* based on an independent ‘reality out there’ finds itself lacking, since there *is* what there *is*, but only in regard to what there *is not*, or *not yet is*; yet it *is*, as the range of alternate possibilities. In other words, neither *realism* nor *idealism* applies, strictly speaking; nevertheless, strangely though it appears, some combination of these terms plays a role in the process of *CCC*, *i-i-i-*, and *BSO*. In other words, an independent ‘reality’, in the ‘ordinary physical sense, can neither be ascribed to the phenomena nor to the agencies of observation’ (Bohr 1934: 53). Whatever ‘reality’ there may be, it must include the range of possible possibilities outside phenomena and agencies of direct observation. And whatever ‘ideality’ there may be, it is perpetually giving way to *actuals becoming* what they *will have been becoming*.

The door is hence open for a consideration of what Peirce dubbed ‘objective idealism’, a sort of ‘methodological realism’ combined with ‘ontological idealism’ (Rescher and Brandom 1979). Or in the Bohr sense, it is a form of pragmatism according to which sensations and observations depend on that which has been selected from the sphere of possibilities. What is observed cannot be termed ‘ontological idealism’, nor is it ‘socially constructed’, an idea recently popular in certain academic circles (Gergen 2009, Hacking 1999). Yet, something has been selected from the myriad array of possible possibilities for selection; the observer thus plays a role in creating the conditions for observation (the processual transition ‘1<sup>st</sup>  $\curvearrowright$  . . . 2<sup>nd</sup>’). At the same time, observations and interpretations (‘2<sup>nd</sup>  $\curvearrowright$  . . . 3<sup>rd</sup>’) are never entirely divorced from theoretical

notions. This is to say that, according to Bohr's Complementarity Principle holding classical mechanics and quantum theory together as one, in every particular case it is a question of convenience at which point the concept of observation involving that which was selected, 'with its inherent "irrationality"', comes into play in the act of observation (Bohr 1934: 53).

Why 'irrationality'? Because the readiness of Firstness (including tacitly held, and sedimented, entrenched presuppositions, predispositions, and prejudices), in the process of merging into Secondness (including sensations and perception), and before passing into Thirdness (including categorizing, naming, conceptualizing, and interpreting), involves an act of selecting, distinguishing and demarcating something from something else from an indeterminate number of possible possibilities. The semiotic act of selecting, distinguishing and demarcating brings about a rupture of the process. But what emerges could always have been something else, which is to say that had the timespace context been different, there would have been a virtually unlimited number of alternate possibilities. In this sense, Bohr's pragmatic quantum interpretation is comparable to the Peirce inspired process of pre-Firstness or EZ giving rise to emergent hands-on CCC and *i-i-i-* co-participation between observer, means of observation, and observed object.

This is neither 'subjective idealism' nor 'objective realism', but remarkably close to Peirce's 'objective idealism'. There is practical or pragmatic give-and-take regarding what is taken to be the concrete 'real' physical world (entailing multiple acts of selecting, distinguishing and demarcating), and there is always the 'idealized' possible possibility that what there *is* could have been what would have been emergent from what *is not*, had the conditions been slightly different. It also bears pointing out that Bohr's position is far from Ernst Mach's positivist philosophy. Bohr is clear that observations, whether or not they are reducible to mere sense impressions, must be expressed in terms of concepts – they are interpreted. This is where Bohr puts a boundary between the observed system and the context of observation, a boundary that is invariably somewhat arbitrary (since a selection from the range of possibilities must be enacted prior to observation).<sup>54</sup>

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54. Much in this vein, Merleau-Ponty (1962: 28) writes that 'empiricism cannot see that we need to know what we are looking for, otherwise we would not be looking for it, and intellectualism [or rationalism] fails to see that we need to be ignorant of what we are looking for, or equally again we should not be searching' (brackets mine). With respect to 'objective idealism' I would be inclined to rephrase this statement: *objectivism (regarding what is presumably 'out there') cannot see that we need to know (be conscious of what is 'in here', what we have in mind) what we are looking for; otherwise we would not be looking for it, and idealism fails to see that we need*

Thus we have observer-observed through *CCC, i-i-i-*, which is always *BSO*. That is, we have a transition from 1<sup>st</sup> to 2<sup>nd</sup>, which entails: (1) Context : Object :: Observer : Observed (the Observer can't be separated from Context, the Object, or the Observed, nor can the Observed be separated from the Context, the Object, or the Observer). And we have transition from 2<sup>nd</sup> to 3<sup>rd</sup>, which entails: (2) Context-Object-Observer-Observed : Concept :: Expression : Interpretation (the Expression can't be separated from the Context-Object-Observer-Observed, the Concept, or the Interpretation, nor can the Interpretation be separated from Context-Object-Observer-Observed, the Concept, or the Expression). In all cases, (1) is 'realizing' or 'objectivizing', but even in the best of circumstances, it doesn't quite reach the dream of pure 'realism' or 'objectivism', and (2) is 'idealizing' (in a 'subjectivizing' manner), yet there is invariably some degree of 'objectivism'. 'Idealism' and 'objectivism' can be complementarily combined, it would seem, much in the order of Peirce's 'objective idealism' (to be discussed further below).

But this is admittedly an over-schematic move. A few additional words on Bohr and complementarity would behoove us.

## 7.6. Bohr's travels through complementarity

Bohr, in what is known as the 'Como lecture' in 1927, said that an 'unambiguous description' of a quantum event is no longer possible, for the observed world (LW) and the quantum event (QW) are *complementary*; the features of description and the ideals of observation are mutually exclusive, yet interdependent. This was the first time he used the word 'complementarity'. As in the case of light, and what goes as matter, 'we are not dealing with contradictory but with complementary pictures of the phenomena, which only together offer a natural generalization of the classical mode of description' (1934: 56).<sup>55</sup>

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*to be ignorant (unaware of what is 'out there') of what we are looking for, or equally again we should not be searching.* Thus the apparent quandary within 'objective idealism'. There can be no 'objective' world insofar as we can know it without its collaboration with what we have 'idealistically' created, and there can be no mental, that is, 'idealistic' creation ('in here'), without its collaboration with what is 'objectively experienced' ('out there'). But there is no quandary at all, if we consider 'objectivism' and 'idealism' as complementary, yet mutually exclusive terms, in the sense of Bohr, and Peirce – to be further discussed below.

55. Bohr's development of the Complementarity Principle includes his observation that quantum theory 'is characterized by the acknowledgment of a fundamental limitation in the classical physical ideas when applied to atomic phenomena. The situation

The concepts of space and time have no meaning independent of some timespace context of observation, and the context is the result of selections from the range of possible possibilities. After a selection has been made, then and only then can observation and description be forthcoming. If the selection involves QW and observation and description involve LW, then according to Bohr, the two must be combined. Such combination, in his estimation, can be none other than ‘complementary’. Addressing himself to Heisenberg’s Uncertainty Principle, Bohr writes about the possibilities of LW observations after changes in energy and momentum of QW events have occurred. LW observations and QW changes cannot take place simultaneously, for there is ‘reciprocal uncertainty’ between LW observations and QW changes and hence ‘limited accuracy’ regarding what is duly recorded and described. Bohr then goes on to write of ‘the complementarity . . . between the possibilities of observation and those of definition’ (1934: 63).

If we give Bohr’s words an interpretation in line with the implications of Figure 1, we have: (1) *Possible possibilities* of Observation ( $0 \rightsquigarrow \emptyset \rightsquigarrow \sqrt{\bullet} \rightsquigarrow \pm \rightsquigarrow \Psi \rightsquigarrow \dots$  Possible 1<sup>st</sup>), (2) Possibilities of Actualization ( $1^{\text{st}} \dots \rightsquigarrow$  Possible 2<sup>nd</sup>), and (3) Possibilities of Expression and Interpretation ( $2^{\text{nd}} \dots \rightsquigarrow$  Possible 3<sup>rd</sup>). According to the premises underlying Figure 1, this process entails, first and foremost, no more than the possibility of a sign. This possibility emerges out of the range of all possible possibilities according to the implications of Figure 1. Complementarity, then, cannot but imply contextualism regarding the possibility of actualizing, sensing, observing, naming, expressing and interpreting signs. Complementarity is timespace context interdependent.

Schrödinger, among others, reacted to Bohr’s Complementarity Principle. He wrote that: ‘Since what is unobservable in principle should not at all be

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thus created is of a peculiar nature, since our interpretation of the experimental material rests essentially upon the classical concepts’ (1934: 53). In this regard, he states that ‘evidence obtained under different conditions and rejecting comprehension in a single picture must, notwithstanding any apparent contrast, be regarded as complementary in the sense that together they exhaust all well-defined information about the atomic object’ (1963: 92). And elsewhere, he writes that the quantum event ‘forces us to adopt a new mode of description designated as *complementary* in the sense that any given application of classical concepts precludes the simultaneous use of other classical concepts which in a different connection are equally necessary for the elucidation of the phenomena’ (1934: 10). Complementarity in Bohr’s conception entails two mutually exclusive pictures that nonetheless can be brought together into one picture, but each of the two component pictures cannot be taken into one’s purview simultaneously; rather, there can be only now the one, now the other, as in the two Necker cubes (Figure 4) or the dice (Figure 6).



contained in our conceptual scheme, it should not be representable in terms of the latter. In the adequate conceptual scheme it ought no more to seem that our possibilities of experience are restricted through unfavorable circumstances' (in Bohr 1985: 465). In this sense, and in terms of Figure 1, the 'unobservable' would be tantamount to: ' $\Psi \pm \Psi$  . . . Possible 1<sup>st</sup>'. And the 'actualized', 'observed' and 'conceptualized scheme' would be: ' $\Psi$  . . . 1<sup>st</sup>  $\Psi$  . . . Possible 2<sup>nd</sup>  $\Psi$  . . . Possible 3<sup>rd</sup>'. Then, in a split moment what had been (to a greater or lesser degree arbitrarily) selected as a possibility for signness could be actualized, and the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> of the sign could emerge into the light of day.

Given the nature of Figure 1 as no more than possibilities, what was selected could to a large extent be construed as predetermined. Yet there is no precise determination, for an undeterminable range of alternate possibilities could have been selected but were not, and some of them may be selected at future moments to enter into conflict with what was selected in the previous moment. All told, the element of 'idealism' making up Peirce's 'objective idealism' regarding this process can at any moment usher in an element of ambiguity, of uncertainty, which throws 'objectivism' a curve-ball. Thus neither is there simply 'idealism' – for the possible possibilities are 'real' – nor is there simply 'objectivism' – given the co-participatory nature of selector and selected, observer and observed, interpreter and interpreted.

Nevertheless, Schrödinger, Einstein, and others wanted nothing less than a classical unambiguous account of the quantum world (Lindley 2007). But Bohr insisted that LW concepts could effectively be used in interpreting QW experiments (Sachs 1988). How, then was he able to get beyond classical LW theory? How could he see beyond the periphery of classical concepts to include both LW and QW within his purview? Bohr's answer was, once again: *complementarity*. Bohr writes, in this respect that complementarity

is only the mutual exclusion of any two experimental procedures, permitting the unambiguous definition of complementary physical quantities, which provides room for new physical laws, the coexistence of which might at first sight appear irreconcilable with the basic descriptions of science. It is just this entirely new situation as regards the description of physical phenomena that the notion of *complementarity* aims at characterizing. (Bohr 1935: 696)

What could possibly be the nature of this 'new situation'? These 'new physical laws'? Complementarity, capable of holding two mutually exclusive views together. Thus according to Bohr, evidence obtained under different experimental conditions – different concrete timespace contexts – cannot be comprehended in one fell swoop. They must be regarded as complementary in the sense that only the totality of all possible conditions and their attendant phenomena – the

sphere of all possible possibilities – can exhaust all possible information about the phenomena in question. No single (local) picture can be regarded as complete (global); they are complementary, and depending on the experimental conditions (that is, in the parlance of this essay, *EZ*, *CCC*, *i-i-i*, *BSO*, and timespace contexts), different conditions can yield different results. The totality exhausts the possibility of information about the events, and hence the possibility of sensation, observation, expression, and interpretation: the whole is greater than the sum of its parts.

In Bohr's writings, then, the physical world and the quantum world, giving rise to classical LW concepts and quantum descriptions, make up a whole. So they can't be categorically and sharply distinguished; yet there is the necessity of making some kind of distinction, for classical concepts and quantum descriptions are mutually exclusive; and yet, a clear-cut and precise distinction is not possible. The impossibility of clearly and determinately distinguishing is inherent in Firstness as a consequence of the sphere of all possible possibilities (actual continuity), and ultimately in Thirdness as the successive differentiation of distinctions such that they become finer and finer but can never reach genuine continuity (it remains a potential), both of which are by and large commensurate with quantum formulations.<sup>56</sup> The necessity of distinguishing, however, is inherent in acts of Secondness, and in this sense there is a degree of coherence with classical concepts.

Putting the two processes, classical (LW) and quantum (QW), together yields, as we shall note in more detail as this essay proceeds, *semiosis*, bringing implications of an 'Other Logic', that goes against the current of classical logic in that it does not abide by the Principles of Non-Contradiction (Firstness) or the Excluded-Middle (Thirdness); and at the same time it is capable of including Identity, while entailing both Non-Contradiction and Excluded-Middle (Secondness) (see the Appendix). This offers the notion of processual *CCC* and *i-i-i* whereby everything is always *BSO*.<sup>57</sup>

Bohr writes, in a comparable light, that:

In the case of quantum phenomena, the unlimited divisibility of events implied in such an account is in principle, excluded by the requirement to specify the experimental conditions. Indeed, the feature of wholeness typical of proper quantum phenomena finds its logical expression in the circumstance that any

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56. Regarding this topic, if you happen to find yourself with nothing else to do, you might take a look at Merrell (1995a, 1996, 2005a, 2005b).

57. This 'Other Logic' I allude to, from among a host of other sources that will be revealed in following pages, takes its cue from what Peirce calls a logic of 'vagueness', of the 'universe', of 'continuity' (*CP* 6.189–213).

attempt at a well-defined subdivision would demand a change in the experimental arrangement incompatible with the definition of the phenomena under investigation. (1958a: 313)

In the terms of this inquiry, Bohr's words imply that there is no unbearable incompatibility between the quantum and classical worlds. One maintains that there can be no phenomenon without a context within which the phenomenon can emerge from the range of possible possibilities; the other maintains that the very idea of contextuality calls for specification as a counterpart to the contextless condition prior to the emergence of the phenomenon in question in order to specify its unambiguous timespace coordination. Combining the two worlds yields, once again: *complementarity*.

For a number of reasons, complementarity didn't quite live up to its expectations, and, late in life, Bohr expressed disappointment at the limitations of the concept in its application to other fields, specifically biology and the social sciences, declaring that 'in the last resort, it is a matter of how one can make headway in biology. I think that the feeling of wonder which the physicists had thirty years ago has taken a new turn. Life will always be a wonder, but what changed is the balance between the feeling of wonder and the courage to try to understand' (Bohr 1963: 27).

### 7.6.1. *Wrapping up complementarity as presented thus far*

To sum up, the chief characteristics of complementarity in regard to this essay are basically five in number:

1. Strictly within Secondness, contradictory terms cannot simply be absorbed into a single unambiguous term, for they are of *either/or* nature, which puts a choice before the co-participatory observer.<sup>58</sup>
2. A complete account of some aspect of the physical or a mental world cannot be forthcoming without the inclusion of *both* contradictory terms *and* the entire range of all other possibly possible terms that might have been used in the past, that can be used in the present as alternatives, and likely will have been used in the future ('EZ  $\approx$  Firstness'). In this sense, like *Yin-Yang*, part of one of the complementary terms must inhere in the other one, and

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58. However, I suggest below that 'complementary' rhetorical processes, among them the creation of *portmanteau* words, demonstrate how apparently contradictory terms are presented as conjugate pairs that bear witness to the emergence of novelty by way of CCC, *i-i-i-*, BSO, and the 'Other Logic' I mentioned in a preceding paragraph.

vice versa (in the words of Max Jammer [1966], the two terms must in some form or fashion ‘overlap’; but I beg to disagree: the terms merge into one another; they coalesce).

3. Complementarity breeds process through symmetry dissolution, disequilibrium creation, and dissonance from consonance such that something different and new seeps up through what might have been otherwise conceived as the Excluded-Middle. Thus the new term that emerges is *neither* the one existing term *nor* the other one, but *something else*. This newly emergent term is qualified by *CCC* and it is always *BSO*, as are the original terms, by way of *i-i-i-* (Thirdness). Consequently, it becomes necessary to distinguish between logical (‘tough minded’) Contradiction and Excluded-Middle (of the domain of Secondness), and mutually exclusive (‘soft minded’) Contradictory terms, and the possibility of an Included-Middle Principle. Both of the original, mutually exclusive terms, must intermittently be highlighted – albeit within slightly to radically distinct timespace contexts – in order to make way for the emergence of a third term, and then another one . . . and another one . . . and so on, from within the Included-Middle (see also Teller 1969).
4. All of the above is possible solely through collaboration of some community of co-participating semiotic agents who are in the process of knowing what they can know.
5. None of the above is capable of giving an absolutely *complete* and *consistent* account of what there is, given the finite, fallible nature of the co-participatory agent, hence . . .
6. The Tetralemma continues to hold its charm.

A turn to an alternate notion of coalescent contradictory complementarity might behoove us, in order to concretize and hopefully naturalize the topic at hand.

# Chapter 8

## An alternate view of the process

This chapter takes up the concept of ‘entanglement’.<sup>59</sup> As a preliminary blanket statement, *entanglement* encompasses the notions of EZ, *i-i-i-*, CCC, and BSO, as expounded in this inquiry thus far. The concept to an extent also bears on Peirce’s ‘objective idealism’. In order to present these complexly intertwined concepts, I call once again on Wheeler by way of a couple of his ‘thought experiments’ illustrating the co-participatory, self-organizing nature of the ‘microworld’ (QW) in conjunction with our ‘macroworld’ (LW) as we perceive and conceive it through our sign making and taking.

### 8.1. Focal and subsidiary: equal but asymmetrical

Recall Polanyi’s *focal/subsidiary* attention. In Figure 6, I also specified the line of demarcation separating the dice by the virgule that is also often used to separate wave/particle. However, I would suggest that we should resist these and other such presupposed dichotomies, whenever and wherever.

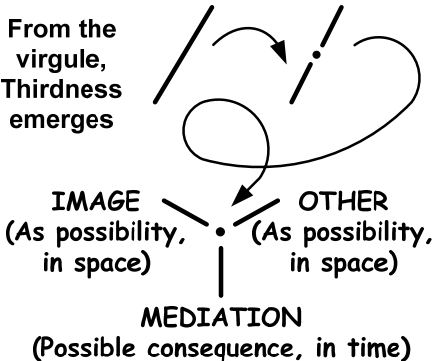


Figure 7. Complementarity mediating

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59. Entanglement is a relatively recent development in quantum theory, emerging in conjunction with the quantum concept of nonlocality according to which everything is interconnected with everything else. In this respect Mara Bellert writes that today, ‘physicists and philosophers of quantum physics consider entanglement, rather than acausality, the most distinctive feature of the quantum world’ (1999: 151).

How can we accomplish this? By expanding the scheme, for example, along the lines of Figure 7. The virgule carries the implication of one thing and its antagonist: Firstness and Secondness. Imagine our bisecting the virgule, separating the two halves, and placing a solitary point depicting that which is *neither* the one side *nor* the other. The point functions like a secondary virgule; it keeps the two line segments in separation, like the primary virgule that separates the dice in Figure 6. Now imagine the left segment as ‘image’ and the right segment is ‘other’, and let us add a third segment and endow it with the function of ‘mediation’. And we have our now familiar tripod. This yields the makings of a sign, including Thirdness to complement Firstness and Secondness.

The most important character of our added term to yield the tripod is the emergence of *time*. Now, in time, the sign process begins, from the line of demarcation (or the point, the vortex), in timespace. The line or point, of course, is timeless and spaceless. Given its function, it is the ultimate symmetry that allows for the possibility of mutability, of change. From this point, which is at once nothing and everything, everything and virtually anything can stand at least an outside chance of emerging. And the time-binding process begins its becoming.

Now, one would expect that there are laws that govern the process, and that it surely must be our task to discover these laws. But think about it. If process follows the principle that (1) whatever is becoming is always *BSO*, and that (2) whatever is becoming is *neither* what it is *nor* is it what it is not but something that is in the process of emerging, then (3) whatever is becoming will be creative, unique, and as such there is no guarantee that it will be governed by the same iron-clad laws that were in force prior to that creative event of becoming, and (4) if this is the case, then those presumably carved-in-granite laws are also in the process of *BSO*, and so on into the receding past, and moreover, (5) projecting into the future, whatever laws are in effect are likewise in the process of *BSO*, so (6) laws themselves, as process, are not absolutely fixed and intransient (for more in this regard, see Wheeler 1980b).

Laws are in this sense pliable rather than rigid (Peirce implies so much in *CP* 6.185–210). They are the result of Wheeler’s theory that our co-participation with everybody and everything, and everybody’s and everything’s co-participation with us, keeps the universe’s *self-organizing* process going. This process is possible solely by virtue of the *entanglement* of everybody and everything with everybody and everything else, which is the next item under the spotlight.

## 8.2. Entanglement: within the interconnected range of all possible possibilities

I've read from various angles that quantum *entanglement* evokes images of your child's bedroom clutter, of trying to make your way through a maze of tropical undergrowth, of anguishing over the jumbled pieces of a possible article you have to bring to completion, or of struggling with an inordinately abstruse piece of postmodern writing.

I would like to think that it is more akin to Gödel's proof according to which every line within the proof is interdependent and interrelated with every other line. More pedestrianly, it is like your income tax form, where the final line has what appears as a simple sum, which is actually the outcome of countless painful, tear-jerking operations, such as your sweating over whether or not you could declare a tax deduction for a lunch with an associate that in a sense was not thoroughly a professionally-motivated encounter. Quantum *entanglement* is one of those things that are almost impossible to believe and even more impossible to understand. Nonetheless, it just might be true.

In a nutshell, quantum entanglement is linked to the *superposition* principle whereby myriad possibilities are superposed within a complex 'wave amplitude'. Regarding the superposed state, there is no '*either here or there*'. There is '*both here and there*', or there is '*neither here nor there*'. All superposed possibilities are interconnected, and when some of those possibilities are actualized, they interact as if they were not Many but One indivisible whole. When two quantum particle-events emerge, interact, and then journey in different directions until they are millions or billions of miles apart, they still remain mysteriously interlinked. Whatever happens to one of them *simultaneously* brings about a change in the other one. The most common assumption has it that this can happen, because QW particle-events don't live in the same space as we do. Their space is *Hilbert space*. This space expands Euclidean space to space with any finite or an infinite number of dimensions, capable of patterning the strange nature of QW (Kline 1980).

Ironically enough it was Schrödinger, antagonistic to the end regarding Bohr's interpretation of quantum theory, who coined the term 'entanglement'. He defined it as follows:

When two systems, of which we know the states by their respective representation, enter into a temporary physical interaction due to know forces between them and when after a time of mutual influence the systems separate again, then they can no longer be described as before, vis., by endowing each of them with a representative of its own. I would not call that *one* but rather *the* characteristic trait of quantum mechanics. (1935: 555, in Aczel 2001: 70)

Einstein would have nothing to do with entanglement. In an effort to debunk the idea, he developed a series of ‘thought experiments’, most famous of which is the EPR argument of 1935 named after Einstein, Boris Podolsky and Leon Rosenfeld, against Bohr’s interpretation of quantum theory and what came to be known as ‘entanglement’. But to no avail. Bohr, after a period of frustration, managed to come up with an effective rebuttal. And the controversy raged on. In 1964, John Bell published a paper, later going as ‘Bell’s Theorem’. It set out the conditions according to which quantum interconnectedness (and hence entanglement) must be either correct or incorrect (Bell 1993). Then in 1982 Alain Aspect and his team at the European Center for Nuclear Research (CERN), conducted an experiment on the basis of Bell’s Theorem, demonstrating quite conclusively that interconnectedness is indeed correct (Styler 2000, Zajonc 1993: 309–13).

Amir Aczel writes that, given the nature of entanglement:

Quantum theory taxes our very concept of what constitutes science – for we can never truly “understand” the bizarre behavior of the very small. And it taxes our very idea of what constitutes reality. What does “reality” mean in the context of the existence of entangled entities that act in concert even while vast distances apart? (2001: xii)

Einstein held that if quantum theory is on the right track, then the world must be insane; it appears that Einstein might have been right: the world is apparently insane. It defies the imagination, it denies any and all attempts to explain it in ordinary language, and it mocks our every attempt to understand it.

A problem with the term ‘entanglement’, Brian Clegg writes, has ‘subtly negative connotations’ in English, but in its original German, the word is more neutral. It is ‘about enfolding, crossing over in an orderly manner’. A piece of string that is inextricably knotted can be considered in English ‘entangled’. But the German *Verschränkung* has a different meaning; it is much like a ‘carefully woven tapestry’. Actually, Clegg goes on, quantum entanglement doesn’t exactly fit either of the two meanings. It may lack the disorder implied by the English word, and it is less structured than the German words suggests (2006: 3). For sure, quantum entanglement as a ‘carefully woven tapestry’ doesn’t offer an image of process. Process is the bugbear of expressibility and understanding, which quantum entanglement and to an extent the world of our everyday experience share.

With this observation, let us take a look at the LW counterpart to QW entanglement.



### 8.2.1. Semiosic entanglement anybody? – a modest suggestion

Quantum entanglement lets us know that our concrete everyday LW experience does not equip us with the capacity to comprehend what goes in the QW. It would seem that entanglement allows some nature of different particle-events to act as if they were in two places at once. This seems impossible in LW, but in QW, where there is *both* here *and* there and *neither* here *nor* there, there's no problem.

However, with respect to the premises underlying this essay, there is a form of 'semiosic entanglement': it involves the interdependent, interrelatedness of virtually infinite possible possibilities suggested by Figure 1.<sup>60</sup> Within the range of all possible possibilities, *either* here *or* there, as well as *either* now *or* then have no meaning, for there is no meaningful *is*, since nothing has been actualized. The complexity of this entanglement within '0 ∞ . . .' also defies comprehension, for it has nothing to do with our world of actualized signs and their OAHs the likes of apples, aardvarks, antiballistic missiles, or whatever. This is in large part because '0 ∞ . . .' is incomprehensibly populated – albeit with no more than possible possibilities. Any and all minuscule collections of signs and their respective OAHs are in comparison no more than impoverished local domains. Nevertheless, I will attempt to offer a rough idea of *semiosic* entanglement.

Everything is *i-i-i-* and *CCC* with everything else, from subatomic wave-signs and particle-signs to galaxy-signs. As put forth above regarding quantum entanglement, once two subatomic particle-events become entangled, whatever happens to one of them will have a direct effect on the other one within the QW context, and that effect will have consequences, however minuscule and virtually infinitesimal, on the corresponding LW. This cannot help but give us a queasy feeling; it seems so bizarre. The main reason for this strangeness is that QW entanglement takes the universe in terms of *possible possibilities* and *actualized possibilities* as One: it is *global*. *Semiosis* as One should also give us a sense of strangeness, for, although LW includes time – timespace contextualization – whereas QW doesn't, in a sense, the very idea of *semiosis* must include both QW and LW: it is also *global*.

This is to say that as Many, *semiosis* includes the collection of all *possible* and *actual local* processes; as One, it also includes the vast range of all unactualized *possible possibilities*. However, our particular LW insofar as we can

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60. The notion of 'semiosic entanglement' is admittedly the yield of speculation on 'quantum entanglement' and Peirce's philosophy with respect to continuity and its logic, the universe's and the universe of mind's complexity, and interconnectedness (see in general CP 5.264–317, 6.102–213, 272–85, 318–427).

perceive and conceive it within our particular timespace contexts, can be no more than stringently limited and *local*. Whatever idea of *semiosis* we might garner, insofar as we can know it and relatively effectively say it, must also remain inextricably *local*. But *semiosis* itself is *global* in the most *global* sense. This leads me to suggest that entanglement must have a *semiosic* counterpart to QW entanglement; similarities among their differences are capable of bringing about their coalescence, complementarily and however contradictorily. Of course the whole of *semiosic* entanglement, like QW entanglement, severely taxes our descriptive faculties. With this in mind allow me, in the very least, to offer a concrete everyday example of LW entanglement. Perhaps by analogy it can give us a feel for *semiosic* entanglement.

If within your LW you are crossing a street and a car is suddenly bearing down on you, you need not consider the car's correlations with the stop light, the other cars on the street, the people on the sidewalk, the store fronts, the mannequins behind them, a hundred or so ants on the curb that found part of a candy bar tossed aside, and even the sucrose molecules the ants are chowing down on. Your entire timespace context at this moment contains a myriad collection of signs. Some of them are *actualized*, but the vast majority of them remain as *possible* signs, ready and waiting for their *actualization* at some propitious moment. All these signs, *actualized* and *possible*, are entangled, *semiosically speaking*. At any moment any one of the *possible* signs, however insignificant, stands some chance of responding to your beaconing call, and if it perchance becomes *actual*, it will bring about a change in all other signs within your timespace context, both actual and possible. In other words, the *global* whole of *semiosic* entanglement, including the range of all *possible possibilities* and *mere possibilities* and *actualities*, is *i-i-i-*, *CCC* and *BSO*. And the same can be said about your particular *local* timespace context regarding *local possibilities* and *actualities*.

In this manner, taking a cue from Polanyi once again, your *focal* attention to signs can at any moment take in or suffer displacement by *subsidiary* or possible signs, for those *possible* signs always exercise an influence, however slight, on the whole of all other *possible* signs and *actual* signs within their particular timespace context. But in your frightening experience of a car rapidly heading in your direction, few *subsidiary* possible signs will likely be *actualized*, for you have one *focal* objective and one only: Get the hell off the street! This, in brief, is a concrete *local semiosic* LW counterpart to QW 'action at a distance' entanglement. They are not the same, of course. In fact, they are in a sense mutually exclusive. Yet, I would suggest, *local semiosic* LW and QW complement one another, much in the sense of Bohr complementarity within QW. Back to your terrifying LW experience.

At that particular moment, I must emphasize, there's no need to measure the positions and momentum of the pedestrians, the other cars, or the clouds in the sky and a few pigeons flying around. Much less is it necessary, or even possible, to do the same with the collection of ants mauling the piece of chocolate – the insects and the pigeons are for you virtually nonexistent anyway, unless you happen to jeopardize your life by focusing on them. By a comparable token, in a secondary school physics lab it is well-nigh impossible to detect the QW effects of entanglement in the motion of a voltmeter, a white streak in a cloud chamber, or the click of a Geiger counter. The various instruments used in the physics lab are operating like your experience of the car rapidly approaching you, and everything else, in your LW. However, QW entanglement hasn't disappeared just because the student in the lab is looking for something else as he follows his lab guide. And QW entanglement with respect to your LW experience is still there, even though your sole interest rests with the car, while everything else has ceased to have any experiential importance for you.

### 8.2.2. *The possible and the actual, regarding semiotic entanglement*

Yet LW entanglement there is, in the sense that everything is *i-i-i*, CCC and BSO. Your becoming aware of the car, the student's becoming aware of the voltmeter needle's position, are *focal* experience (actual signs). All else is *subsidiary* (possible signs). Nevertheless, they are all complementary; they mutually influence one another.

This is like a baseball colliding with a bat that sends it out into the stands. There are flies around the hotdog vendor's merchandise, a 15 mile per hour wind, a passenger jet flying above, heat waves rising from the floor of the stadium, screaming fans standing up in unison, all of which alters, to at least a minuscule extent, the ball's trajectory. But the fans are oblivious to virtually everything except the object flying through the air. QW entanglement is apparently 'real', yet it is by and large of little consequence with respect to the vast majority of our LW experiences in our concrete everyday living. Yet it's 'real'. And concrete LW *semiotic* entanglement is 'real', I would suggest, though we are by and large unaware of its influence.

A problem with entanglement in the QW sense is that a fog permeates it – and it also permeates the whole of *semiotic* entanglement. In quantum wonderland, everything is uncertain, ambiguous, veiled. Much of this apparent confusion is due to the mysterious *superposition* principle: there is 'both here and there', and there is 'neither here nor there', for there is always the possibility of somewhere else. To cite an LW world example, suppose there is a wall in front of you with two holes in it, and if you successfully try to throw a baseball

through one of the holes, it slams against the wall, or if you're lucky, it goes through one hole but not through the other hole, and certainly not through both holes simultaneously. As we've noted regarding the QW 'double-slit' experiment, in contrast, if the *superposed* possibility of a photon of light is projected toward a screen with two holes in it, the wave amplitude passes through *both* holes simultaneously such that when it strikes a barrier, there will be evidence of two photons as a result of the wave amplitude's passing through *both* holes, rather than *either* one hole *or* the other one, as would normally be expected.

But as we've also become aware, this is only half of the perplexity. The most bizarre nature of the QW event is that *both* quantum phenomena, the one projecting through one hole *and* the one projecting through the other hole are, and will remain, entangled, such that at any given future moment, no matter by what distance they've been separated, a change in one of the phenomena will have an immediate effect on the other phenomena. They are intimately linked because they emerged by some process that bound them together such that there is no way to characterize one of them without including the other one.

LW entanglement is tame in comparison, for after all, our classical Newtonian-Cartesian logic and reason and the world-version they entail have over the centuries become quite comfortable within our entrenched forms of everyday language use. Yet there is still something uncanny about the vague notion regarding the whole of *semiosis*. This is primarily because it is *process*, and our everyday language is basically designed for and limited to *product*, to things that presumably *are* what they *are* (Identity), and they can't be *other* than what they *are* (Non-Contradiction), for there can be no third option (Excluded-Middle). In contrast to the relatively static idea of *product*, the ever-changing *semiosic* entanglement *process* begins with '0', or 'emptiness', which is inexpressible enough. To make matters worse, when it flows into ' $\emptyset \rightsquigarrow \sqrt{\bullet} \rightsquigarrow \pm \rightsquigarrow \Psi \rightsquigarrow \dots$  Signness', there is ultimately inclusion of the *global* and the *local*, the *focal* and the *subsidiary*, and within particular timespace contexts, the Many and the One: doubly confounding inexpressivity.<sup>61</sup>

### 8.3. Is our LW also weirder than we bargained for?

The very idea of co-participation, as briefly outlined above, at least indirectly ushers in that magical world of 'subjective idealism', most notable in Bishop

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61. This is precisely and profoundly the focus of Schrödinger's meditations on the One and the Many, the Arithmetic Paradox, and the problem of locality and the whole in his thoughtful essay, 'Mind and Matter' (1967).

Berkeley's *esse est percipi* (colloquially putting it, 'What you see is what there is'). This sounds a lot like Wheeler's dictum, 'No phenomenon is a phenomenon until it is an observed phenomenon', even though he wanted nothing to do with 'subjective idealism'.

We recall the infamous 'tree-in-the-forest' question comics tease us with, philosophers make a comfortable living with, and physicists would rather forget. But it's there, staring us in the face. If a tree standing proud and tall in the woods happens to fall and there's nobody around to experience it, does it make any sound? Here are a few possible answers:

1. The tree's falling interacts with everything present with which it is *i-i-i*, and it creates what *might possibly have been experienced* by some organism as a loud crash (present, Firstness).
2. If some organism was in the proximity of the tree, and it fell, trillions and trillions of wave amplitudes *would have combined* into a composite wave amplitude collapse, and the organism *would have experienced it* (past, Secondness).
3. If no organism happens to be present when the composite wave amplitude collapses, and if there is some mediating instrument – a recorder – the sound of its fall is there, such that it *potentially will have been experienced* by somebody (future, Thirdness).

Notice that according to these possibilities, either the sound *is experienced* (present), it *would have been experienced* (past conditional), or it *will have been experienced* (future conditional). Somebody experiences the sound, and it is 'real'; it is 'sight' and 'sound'. Nobody experiences it, but there is nonetheless a possible 'sight' and a 'sound' that, had somebody been there, she *could have experienced it*, and it *would have been 'real'*. Or, it is recorded, and later, somebody listening to the recording *will have experienced it*, and it *will have become* emergent into into LW of the 'real'. Now, what about the QW?

Assume you are investigating radioactive decay in a laboratory we both share. You leave for the day, letting your radioactive material run its course. There is a 50/50 chance that there will have been decay of the material when you return the next morning, and if so, the decay will have been recorded in a measuring instrument. With this in mind, consider the following scenario:

1. You enter the laboratory and observe that the instrument sports a positive recording.
2. I later enter the laboratory and you explain your finding to me.
3. At lunch a colleague asks you about the experiment. You repeat your explanation.

4. Six months later your paper about the experiment is published in a leading physics journal.
5. Four years later as a science writer you publish a best seller on quantum physics.
6. Ten years later you win the Pulitzer Prize for your second layperson's book on quantum entanglement.

Now, the question is: When can we say the QW event became a LW event? – something that happened within a concrete physical world context. When the atomic decay occurred? When the instrument recorded it? When you observed the recording? When I asked you about the result of your experiment? When you told your colleague about it? When your paper was published and read by other physicists working on comparable QW phenomena? When you published your first book which includes the results of your experiment? When you won the Pulitzer Prize? Surprisingly, all of the above, Wheeler tells us in so many ways (1980a, 1984). What is absolutely necessary is an ‘irreversible act of amplification’ (a ‘collapse’ of the ‘wave amplitude’ into an ‘event’). And yet, the answer is ‘All of the above’, for the event wasn’t a genuine event until it was recorded, until it was observed and some meaning of the recording was forthcoming, until this meaning was disseminated to me and to your colleague in technical language, until the language was modified and made accessible to a wider reading public, until you won the Pulitzer Prize and your laboratory work garnered an even grander moment of fame.

### 8.3.1. *Is ‘real’ real?*

What was ‘real’ with respect to this convoluted history of a QW event? Everything, in a manner of speaking. Everything, because had the radioactive decay occurred and there was no instrument to record it and nobody to observe it, then its impact on LW would have been nil. Everything, because had you not told me and your colleague about it, and had you not published the article and written a couple of books and cornered the Pulitzer Prize, that humble QW event would have been destined to oblivion, and its effect on the LW would have been relegated to the vast realm of unknowing. Everything, because you, your work, and the QW, is on the minds of thousands of readers of your work, and on the minds of those readers of the New York Times and other newspapers and magazines and CNN and other newscasts after you won the prize.

You experience a QW event in some present moment, your present. But once you’ve experienced it, it is in the past, and it could have been experienced by you at a different moment, or by somebody else. But you experienced it, in

a particular 'here' and 'now'. Then, from your present moment of experience forward, it 'will have been' becoming, over a period of a few years, the object of collective experience on the part of a multitude of people, and, assuming that as a result of your prize your book is published in a dozen or so languages, it 'will have been' becoming experienced by potentially millions. So, what is 'real' regarding the solitary radioactive decay event? Nothing more than the event? No. Everything is 'real'. What is 'real' regarding the tree that happens to fall? Nothing more than a falling tree? No. Everything, every *CCC* and *i-i-i*-specifying every *OAH*, is 'real', regarding the range of all possible possibilities, mere possibilities, and actualities.

Wheeler writes that time and space, or timespace, as a mathematical construct, is an idealization. It is not 'real', as far as our concrete *LW* is concerned. In this sense, the question to ask is not 'Why does space have three dimensions?' or 'Why does time go from past to present to future?', but rather, in co-participating manner, 'How does the world manage to give the impression it has three dimensions?', or 'How is it that time seems to go from past to present to future?' Wheeler goes on: "Physical spacetime is not mathematical spacetime" is the one lesson of mutability; the other is, "physical law is not ideal mathematical law" (1994: 283). According to Wheeler, law that emerges at the beginning of time and fades away at the end of time cannot be immutable. Mathematics as immutable is an ideal that can be used to describe timespace and physical law. But the 'real' is not immutable; it is process, according to Wheeler and the premises in this inquiry. Which is to say that mathematics as immutable is one way of accounting for what is 'real' in *QW* and the *LW*. But it isn't necessarily the only way – for instance, pliable, amorphous topology, or plurimorphy, as an alternate account.

Eugene Wigner, certainly no slouch in physics as well as mathematics, writes that a 'possible explanation of the physicist's use of mathematics to formulate his laws of nature is that he is a somewhat irresponsible person' (1969: 131). He continues:

The miracle of appropriateness of the language of mathematics for the formulation of the laws of physics is a wonderful gift which we neither understand nor deserve. We should be grateful for it and hope that it will remain valid in future research and that it will extend, for better or for worse, to our pleasure even though perhaps also to our bafflement, to wide branches of learning. (Wigner 1969: 139)

Wheeler implies much the same. He also adds that there is no absolute line of demarcation between the *QW* and our *LW*. Thermodynamics, and especially the Second Law or the Entropy Principle according to which the universe is

‘running down’ – its islands of energy concentration are disseminating such that everything will be equally ‘cold’ – ultimately ‘rests upon the random motions of billions upon billions of molecules’. Wheeler offers an imaginary situation comparable to a child’s make-believe world – but, of course, it was imaginary situations such as these that led Wheeler, Einstein and others to their profound insights:

Ask any molecule what it thinks about the second law of thermodynamics and it will laugh at the question. All the same the molecules, collectively, up-hold the second law. The genera and species of the kingdom of life go back for their foundation to billions upon billions of accidents of mutation. The fantastically elaborate organization of plants and animals is of nothing but higgledy-piggledy origin. The laws of physics themselves, coming into being and fading out of existence: in what else can they have their root but billions upon billions of acts of chance? What way is there to build law without law, field without field, substance without substance except “Individual events. Events beyond law. Events so numerous and so uncoordinated that flaunting their freedom from formula, they yet fabricate firm form?” (Wheeler 1994: 283)

I won’t take up the question of chance as Wheeler formulates it, a polemic and heatedly debated issue these days. The important point Wheeler articulates as a pair of questions is: ‘Events beyond law?’, and ‘Law without law?’ ‘Law without law’, Wheeler tells us, as well as a ‘Field without a field’, ‘Substance without substance’, and, we might add, ‘Language without language’ and ‘Meaning without meaning’, are, like mathematics, alternate means of comprehending our QW and our multiple LWs.<sup>62</sup>

Would the modest event of radioactive decay in the above example be what it is without you, me, your colleague, your technical article, its readers, and so on? No. The QW event is what it is, for sure. As such, it is no more than Firstness having become a particular item of Secondness. But the process can’t end there, for the event is an event in the order of *CCC* along the lines of *i-i-i-* and in the process of *BSO* which includes any and all OAHs, all of which also includes you and me and your colleague and your article and its readers and everything else. In the present, the Firstness of the event, what emerged, emerged. As a moment of the present, it *is what it is*. But it *will have been* your experience, your telling me about your experience, your telling your colleague, your writing your article, the readers reading it, and so on. This *will have been*

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62. I now pluralize LW, for each culture, and indeed, virtually each generation within a given culture and every individual within those cultures, create their own variations of imaginary ‘world-versions’ (Goodman 1978, and apropos to the tenor of this inquiry, see Putnam’s comments on Goodman in Putnam 1996).



(as Thirdness), forever alters what the solitary event *is* (as a present Firstness), and then *was* in the past (as Secondness).

This convergence of OAHs in timespace bears witness to our co-participation with our world (of QWs and LWs) and our world's co-participation with us.

#### 8.4. When we and our world co-participate, we are interpretant signs

Wheeler tells the story of a surprise version of that well-known parlor game of '20 Questions' – which I have used on other occasions. The normal game has one person leaving the room while those remaining decide on a particular person, place or thing in the room as an *implied object*. The absent member of the group re-enters, and her task is to guess the object's identity by asking up to twenty questions that can be answered with a simple 'Yes' or 'No'.

If the object of the game is, say, the table lamp at the end of the couch, the questions might go something like this: 'Is it alive?', 'No', 'Is it on the wall?', 'No', 'Is it supported by the floor?', 'No', 'Is it hanging from the ceiling?', 'No', 'Is it smaller than that reclining chair?', 'Yes', 'Is it that vase over there?', 'No', and so on, up to the twentieth question. If after she asks the twentieth question and she still hasn't guessed what the designated object is, then she has to leave the room again and the game begins anew. If she identifies the object after twenty or fewer questions, then the person who had to respond 'Yes' to her last question must leave the room to become the next victim.

What we have in this game is: (1) a *subject* (the person whose task is that of questioning her environment in order to create a 'game world' [a 'world-version']), (2) *possible objects* (some of which the subject actualizes as a consequence of the responses she receives, which bring about the emergence of what *will have become* the game-world for her), and (3) an *implied object* (the central *object* of the game world decided on by the group, and the *object* she must discern in order to create her version of the game world). She asks questions regarding what for her is a possible game world. The possible responses to each of her questions, either 'Yes' or 'No', bring about this game world's emerging, and she learns by knowing what various aspects of the game world's becoming *are* or *are not*, such that at the end of the question and response session, she can successfully name the central *object* of her possible game world, and her actualized game world emerges as that which had been *indirectly* – mediately, reconcilably, arbitrarily, adjudicatingly – the focus of the group's attention. The important point is that the group knew the nature of the game world all along; she did not. Now for Wheeler's surprise version of the game.

Suppose it is your turn to leave the room as the game's *subject*. In your absence, we decide that *no implied object* will be chosen. Rather, we will allow your questions to determine the nature of the final answer. The only rule is that each of us must have some object from among all the *possible objects* in the room in mind when you answer 'Yes' or 'No', and the object must not conflict with the 'Yes's' and 'No's' that were given to previous questions. So we must have all the previous questions and answers in mind when formulating our next question for you. In other words, we are all bringing the game's world into existence as the game proceeds. If the first question is 'Is it a piece of furniture?' and the response is 'No', then we know what the object *is not*, but we don't yet know what it *is*. And so on, as the game goes on, until the twentieth question, to which your response must be 'Yes', at which point the nature of the game world becomes apparent.

Throughout this version of the game, from the object's Firstness as possibility, it took on Thirdness as the most probable outcome in view of what transpired in the past, and it is finally actualized into Secondness, what *is*, to bring about the emergence of the game world. The important point is that you and me and everybody else, and all possible objects in the room, are *CCC* and *i-i-i-*, and we are all co-participatorily entangled; we make up a *self-organizing* whole. Unlike the conventional version of the game, at the outset of Wheeler's version, nobody knew what the nature of the game world eventually might be. We created it, as the game proceeded, such creation made possible by way of Wheeler's '20 Questions' metaphor for QW entanglement, and as an example of concrete, living LW entanglement. According to Wheeler, in the terms of this inquiry we create our actualized world-versions; the whole of them, past, present and future, make up a set of LW and QW possible world-versions, any and all of them having been selected from the range of all possible possibilities.

#### 8.4.1. Or is the real merely 'real'?

We learn from twentieth-century physics that the idea of a world 'out there', independent of the observer, is no longer valid, either for quantum theory, for Peircean sign theory, for human communication, or most importantly, for the becoming of our world-versions. As Wheeler (1980a, 1980b) puts it, quantum theory replaces the *observer* of 'reality' with *co-participator* in the emergence of 'reality'. It demolishes the idea that the universe exists 'out there', as fixed essence.

In Wheeler's '20 Questions' variation, nobody could know what the object was, because until the end of the game there was no object in their co-participatory world in the process of self-organization. This is to say that every-

thing was there in the room as possibilities, for sure. But those objects alluded to in the first nineteen questions *were not yet* actualized in the game-world; they remained as possibilities. Yet, within the game-world, these objects *would have been* emerging from possibilities into the self-organizing, co-participatory actual world of the gamers when the final object of the game-world *entered into the process of becoming* emergent.

Wheeler's 'thought experiment' does not simply entail Berkeleyan 'subjective idealism' according to which there is no tree and no crash when it falls in the forest unless somebody sees it or hears it. With respect to the '20 Questions' game in progress, there was no implied object in the game-world, not yet at least. In other words, there was not yet any implied object *as* a sign *for* the sentient organisms present *with* some meaning. There were plenty of possible objects in the room, and sentient organisms were there as well. But the necessary information that might compel a particular implied object to emerge, replete *with* some meaning *within* the context of the game-world, awaited some sequence of questions and responses in the process of their being created at every step of the way. Considering the game-world in terms of the process of world becoming, there was no meaningful emergent object until the game's conclusion. When that object emerged, it emerged as a consequence of: (1) everything that *had emerged* in the past, (2) what *was emerging* in the present, and (3) what *would have been emerging* in the future, according to the expectations created in the minds of the self-organizing game-world's co-participants during each and every step of the way (Davis 1997: 249).

Now, it behooves us to be mindful that the Copenhagen interpretation of quantum reality is not some empirical form of 'constructivist idealism' as a substitute for 'subjective idealism'. That form of idealism would begin with the assumption that something exists 'out there' only insofar as some perceiver is constructing it. There simply is no existence of anything substantive 'out there' in the quantum world: quantum theory does share at least that much with 'idealism'. However, according to quantum theory, 'out there', there *is* an elaborate set of 'wave functions'. Each wave function entails a massive set of possibilities, a sort of holistic sense of pre-Firstness. There is nothing substantive, but there is surely something: a wave function. Something substantive comes into existence only after a local wave function 'collapses' and 'something' emerges (a wave 'collapses' and a 'particle' arises: the complementary wave/particle nature of the quantum world). In Wheeler's conception, this occurs only when what *is becoming* what it *will have been becoming* – the 'itness' of some aspect of quantum reality – *is detected, distinguished, marked out, and given meaning of some sort*. This requires something or someone else as co-participant within the interrelated whole.

It is in this manner that the quantum condition, according to Wheeler, is metaphorically like the '20 Questions' variation. The game-world – analogous to our *local* world-versions – was eked into existence through questions asked and responses given, that is, through the creation of information regarding: (1) the possibilities that were there at the outset, (2) those that remained after some of them had been discarded, and (3) those that would have been in the process of becoming when the game drew to a close and the game-world emerged, for all to contemplate.

Rather than quantum theory as philosophical idealism, it comes closer to Peircean pragmatism. Peirce calls his particular strain of pragmatic philosophy 'objective idealism', as briefly described above.<sup>63</sup> It is 'idealistic' in the sense that nothing becomes, in and of its own, without someone or something else. It is 'objectivist' in the sense that that someone or something co-participates with what *has been in the process of becoming, is becoming, and will have been becoming*. In a roundabout way, Peirce qualifies his 'objective idealism' with the pragmatic maxim. The maxim has it that the knowing process is possible solely through one's becoming aware of the future consequences (Thirdness) of some imagined, contrary-to-fact situation (Firstness) regarding some OAH in question when something happens to it (Secondness) during the process of its becoming – when it comes into interaction with something else. The process is to an extent 'idealistic', since the co-participating subject must imagine ('idealize') some possible situation in order to carry out the first step of the maxim. And it is to an extent 'objective', since someone must take the second step by constructing a hypothetical contrary-to-fact situation, and then take the last step by putting it to the test ('objectivizing' it) in order to see if it holds water.

Once again, is this not comparable to what happened in our '20 Questions' variation? If you are the question asker, at each and every step, (1) you imagine in some present moment a possible implied object in the room, by (2) canceling all the objects that, when you asked in past moments if they were the object of the game, the response was negative, and by (3) choosing what seems a likely candidate for a positive response in the following moment. Finally, after you have asked nineteen questions and, with a massive dose of doubt you venture tentatively to ask the twentieth question, to your surprise you are met with an affirmative 'Yes'. And the game comes to a close, as laughter breaks out as a result of the folly.

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63. For further discussion of 'objective idealism' and its bearing on related topics, see Anderson (1987), Hookway (1985), Hausman (1975), Rosenthal (1994, 2000), Engel-Tiercelin (1992, 1998).

On the one hand, your purely imaginary mental fabrications won out in the end. That's the 'idealistic' side. On the other hand, your interaction with the possible objects in the room brought you in co-participation with them and them with you such that you were in the process of knowing and they were in the process of *BSO* as a consequence of your knowing. That's the 'objectivist' side.

### 8.5. Within the Peircean context

Reconsidering Copenhagen 'idealism' in light of Peirce's 'objective idealism', then, it would be a mistake to assume the Wheeler-Copenhagen interpretation is nothing more than 'idealism' or that it reveals some essential 'idealistic truth'. 'Idealism' often assumes 'ideas' somehow exist 'out there', that they have some form of 'real' existence as universals, that this 'out there' is some other aspect of the mind 'in here'. The Copenhagen interpretation denies all this. Whether or not there are 'ideals', they are of no importance to quantum theory, until there is something 'registered' or 'observed' (selected, distinguished and demarcated).

This, I must reiterate, bears on Peircean pragmatism. Whatever 'truth' there may be is a matter of the 'practical outcome' of what is felt and sensed and perceived and conceived. Only through experiencing the world's OAHs, and the consequences of their *CCC* and *i-i-i-* with everything within concrete timespace contexts, can we get an idea of what (we think) there *is*, and of our co-participation with it. Knowing what is knowable always involves what is experienced along with its practical consequences. Experience and the consequences of what is experienced are incorporated in the pragmatic maxim, and in abduction in addition to induction and deduction, as briefly qualified above.

What are the consequences with respect to living process? In search of a response, allow me a digression on the nature of the pragmatic vision of things.

## Chapter 9

### More on Peirce, and pragmatism

‘Textualism’, to the exclusion of bodymind thinking, has recently become rampant in contemporary scholarship in the social sciences and the humanities. This chapter illustrates how the concept of bodymind thinking becomes effectively delineated in regard to *completeness* and *consistency*, *vagueness* and *generality*, *ongoing process* and *fixed product*, and *overdetermination* and *underdetermination*, all of which move against the current ‘textualist’ trend. It also reveals how process, specifically of Peircean origin, is caught up in various paradoxes of age-old vintage. These paradoxes actually need not give us headaches, but rather, they are basic to the very idea of process; hence we naturally learn to cope with them in our concrete everyday living, which is at the heart of bodymind feeling and sensing, action and reaction, and thought and contemplation, in contrast to Cartesian mind to the exclusion of body and world.

#### 9.1. Where Peirce is now

Peirce is becoming increasingly recognized in Europe and the American continent as an important early contributor to geology, weather mapping, logic, mathematics, topology, linguistics, semiotics, phenomenology, process philosophy, and even anthropology and the sociology of symbolic interaction, in addition to his role as creator of pragmatic philosophy. He was among the first intellectuals of the later nineteenth-century effectively to point out inconsistencies, uncertainties, and incompleteness in Newtonian mechanics, Darwinian Theory, and mathematics and logic. Yet, he is more often than not shoved aside by many (neo)pragmatists. He is criticized regarding his passion for systematic philosophy, especially by Richard Rorty (1979) who remains an ardent advocate of ‘edifiers’ rather than ‘systemetizers’.

Peirce was aware that his obsession with taxonomic schemes, and especially his triadomania, in a sense belied his belief that all that *is*, is process. Peirce’s systematizing, which seems to go against the current of his enchantment with process, is like Zeno’s Arrow Paradox. It says that what *is*, is nothing other than what it *is*, and it can be what it *is* nowhen and nowhere else; hence it cannot become other than what it *is*. This soothes the mind in search of certainty. Yet experience tells us that the arrow is in a continuous process of movement. Like everything, it is in incessant transition.

Permanence, and process. Parmenides and Heraclitus, the ancient antagonists. In a manner of speaking, Peirce attempted to bring the two together. He wanted his universal categories of Firstness, Secondness, and Thirdness, his discontinuous pigeon-holes making a place for everything, his classifying neologisms with which to label virtually anything. At the same time he wanted a physical world and mind and thought characterized by continuity, becoming, process, emergence of the always new. He wanted his binary logic. But he wasn't satisfied with its limitations. He also wanted his 'logic of relations', of 'vagueness', and wanted that hoary, well-nigh unfathomable 'logic' he called the 'logic of the universe' (*CP* 6.185–238, see also Chauviré 2008). He wanted clarity of meaning, yet he propagated meaning's elusiveness; he wanted completeness of meaning, yet he believed meaning is never so complete that it cannot be extended a bit further; he wanted consistency, yet he enthusiastically embraced a number of contradictions. He held faith in either/or imperatives; yet he conceded that the Principles of Excluded-Middle and Non-Contradiction don't always hold for *general* signs and *vague* signs.

Peirce, as is notorious, never resolved these dilemmas to his satisfaction. The best he could apparently do was suggest a convergence theory of knowing, by way of what in mathematics is called the 'asymptote' – it's like Zeno's Achilles successively halving the distance between himself and his competitor, the tortoise, without being able to catch him short of passing through an infinity of spatial increments over infinite time.<sup>64</sup>

## 9.2. The many faces of (neo)pragmatism

(Neo)pragmatism after Rorty's *Philosophy and the Mirror of Nature* (1979) tends to look beyond that popular infatuation with French and certain other European intellectuals some of whom are by and large as provincial as their North American analytic philosophy counterparts – outside obvious exceptions

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64. Mark Johnson comments on the Principles of Non-Contradiction and Excluded-Middle, telling us that they 'are based on habits of inquiry. They are summaries of habits of thinking that have moved inquiry forward and kept it more or less successful under certain perceived conditions' (2007: 106). However, he goes on, these principles are geared toward maintaining the mind/world distinction, or representation in the sense of the mind-as-a-mirror-of-nature metaphor, and intimating that they are no more than 'habits of mind' – much in the Peircean sense – that cannot or at least should not be categorically divorced from either body or the world (Boler 1964).

such as Gilles Deleuze, Félix Guattari, Jean-François Lyotard, and others. Well and good.

Many – though not all – of the (neo)pragmatists would do well, however, to heed the implications of science, of Bohr's complementarity, of Heisenberg's uncertainty, of the import of Einstein's relativistic perspectivism, of Wheeler's co-participatory universe, of Ilya Prigogine's fusion of the life/nonlife distinction, of order out of chaos, of artificial intelligence and artificial life, in addition to recent scholarship in the humanities and social sciences. They would tune in on Darwinian and neo-Darwinian and anti-Darwinian views of molecular biology and the story they have to tell about societies, from bacteria to ants to humans. They would be especially keen on the 'loss of certainty' – as Morris Kline (1980) puts it – in logic and mathematics, given the inconsistency, the incompleteness, the undecidability, of any and all products of mind's conceptions.

They would become aware, for example, of what Paul Stoller (1997) calls 'sensuous scholarship' and David Abram (1996) labels the 'spell of the sensuous', of June Bennett's (2001) 'enchantment' and Susan Spretnak's (1997) 'resurgence of the real'. They would take interest not only in literary texts, but in all the arts – Goodman (1976) set an early example in this respect – as well as feminism and cultural studies. In short, they would be on the road toward becoming polymaths, as was Peirce. They would live philosophy, philosophize living, engage in co-participatory philosophizing; they would get in tune with concrete living (Shusterman 1992, 1997).

One of today's problems is that some (neo)pragmatists still tend to write as if the only philosopher worth her salt is a dead philosopher who left a jumble of texts behind for eager philosophical aspirants to pore over. On the continent this spirit also tends to prevail. Derrida tells us that the language of textuality, with its equivocations and inevitable undecidabilities, plays havoc with reason; thus texts invariably and secretly parody themselves; nevertheless, the good deconstructionist carries out his function in life by filling blank pages with words, words, and more words, thus perpetuating the dissemination of tragically flawed texts (1974, 1978). Richard Rorty, certainly never at a loss for words, writes that 'conversation' is the answer, if the interlocutors would just talk the talk long enough and try to see other peoples' views without getting hot under the collar (1982, 1989).

But if Rorty's and other (neo)pragmatists' alliance with certain aspects of post-structuralist 'textualism' is taken straight and without a chaser, then meaning and value are partly or wholly indeterminate, and the only available truth is found in what our sentences say. I would tend to disagree, given the concept of polymorphous bodymind promoted in this inquiry.



### 9.3. What, then, should (neo)pragmatism look like?

John Dewey, among early pragmatists, was anything but a ‘textualist’. His passion was participation, not just conversation, civic activity, not so much verbal loquacity. He believed in the process of doing what needs to be done, not merely writing about it or sitting down and amiably chattering over it.

Unfortunately, many of today’s popular (neo)pragmatist notions of the self as a web of narratives, of human beings as vocabularies incarnate, of mind as sentential, smacks of a strong dose of what we might call ‘textualist essentialism’.<sup>65</sup> Perhaps they should look more seriously at concrete experience, that which Dewey lionized and Rorty replaced with language. I allude to ‘sensing corporeally’, or what Richard Shusterman (1992, 1997) calls ‘somatic’ sensing and experiencing, following William James and Dewey. I also allude, once again, to the work of Merleau-Ponty. Kinesthetic, somatic, proprioceptive, visceral, corporeal awareness is a matter of everyday experience. It is polymorphous bodymind experience. It is with us in all walks of life – and this includes reading and writing books, and pontificating in the classroom as well. Indeed, in the beginning there was not the Word, but exceedingly more humble kinesthetic, somatic, proprioceptive visceral awareness and corporeal functions and bodily moves and rhythms, swings and swerves (Sheets-Johnstone 1999). It would behoove us to concede that before shutting our eyes, ears, noses, tongues and bodies to concrete living and pronouncing death to the body in order to lay it to rest with the deceased subject, and before obsessively textualizing everything, we might ask why (neo)pragmatists so often resist extralinguistic sensing and experiencing. Why don’t they, why can’t they, give bodymind its due? (Sheets-Johnstone 1992).

One response is that sensing and experiencing seem to place us squarely within the ‘myth of the given’, of ‘presence’. That seems to be lurking behind Rorty’s response. For sure, the bodymind option is ignored by Rorty’s argument for banishing nonlinguistic experience. He fears that introducing somatic experience into philosophical practice would undermine philosophy’s distinctive role and logical space by confusing between causes and reasons. This argument again concerns the ‘myth of the given’. For in this myth, nondiscursive

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65. However, it bears mentioning that Rorty, most particularly, advocates a nominalistic and anti-essentialist brand of ‘linguistic’ or ‘textual idealism’ (1982). He would have his readers believe that what we know is what we say and write, that ‘truth’ is embodied in our sentences, that the furniture of our world is the product of our ‘web of sentences’, and a matter of contextualized interpretations, much in the Nietzschean sense, according to which there is no fundamental distinction between things as (we think) they are and how we describe them (Hall 1994).

bodily sensation – which may be the antecedent *cause* of knowing something (e.g. a burning sensation resulting in awareness that the plate is hot) – is falsely taken for a sort of *reason* that justifies such knowledge, a *reason* that seems irrefutable by its brute immediacy. But nondiscursive experience cannot, as such, play a role in language-games of epistemological justification, whose regimentation has always been philosophy’s distinctive task. Nondiscursive experience may give rise to knowledge, but it isn’t exactly the breeding ground for discursive knowledge. The breeding ground, I would submit, rests in our concrete physical world and concrete living.

To his credit, Rorty has little use for justification and legitimation of knowledge through reason and discourse, classically defined. His aim is to create new vocabularies and transform our ways of speaking, not to ground those vocabularies already in place. He believes that once we dwell on how we can gravitate from one vocabulary to another, from one root metaphor to another, reason and justification and legitimation will hardly be of any consequence. Following Rorty, if we take (neo)pragmatism not as philosophy in search of groundings but in pursuit of more satisfying living experience, then we can begin to lose sight of ethereal discursive truth, and abstracted, fleshless language-games and their legitimation. Philosophy can then become involved with concrete human practices, especially embodying practices within everyday life.

Granted, textualist-linguistic invention provides a handy tool for self-expression and community expression within concrete human practices. However, I must emphasize that kinesthetic, somatic, proprioceptive, and even visceral experience, should take no back seat to ‘textual idealism’. On the contrary, concrete experience is prior to language. In writing this, I am by no means claiming that polymorphous bodymind experience is foundational, for it is every bit as vague and elusive, as incomplete and/or inconsistent, as is verbal and written language. The problem with what I’m proposing, admittedly, is that in today’s academic world, it isn’t usually considered proper to break from. . .

#### **9.4. Textualism’s persistent stranglehold**

Textualism hold that whatever lies outside language lies outside thought and understanding. Wilfrid Sellars (1963) claimed awareness is a linguistic affair. Gadamer (1975) stressed the linguistic nature of all human experience. Derrida (1974) tells us that what for us is ‘real’ is invariably textual and nothing more than textual. Rorty (1979) asserts that we humans are no more than sentential attitudes. And so on.

Textualist ideology has helped sway philosophy from that rather utopian quest for absolute foundations. But in making this therapeutic point while propagating the ubiquity of language, textualism also encourages identifying concrete human practices solely with linguistic activity, and in doing so it neglects or textualizes nondiscursive corporeal feeling and sensing. Textualism, the contemporary counterpart of nineteenth-century idealism in Rorty's words, disdains materiality, hence also the very idea of bodymind. Textualism, unfortunately, tends to encourage the idea that we can still exercise a modicum of control over our surroundings, that we are outside the world and now in textuality, and that even though we are always in the text, given language's contingency, we can still to a degree bend it to suit our purposes.

So what is the relevance of this overriding obsession with language of recent? In an increasingly complex world, perhaps language is where we can feel we are comfortably in control of our means of expression and of our world. As an alternative, I would suggest, as does Richard Shusterman among others, a return to genuine pragmatic concerns for concrete everyday living and engagement in nondiscursive experience, with stress on the importance of sensing corporeally. This 'corporeal turn' can reveal our co-participating role in our concrete world. It can show how everything is *B*SO by way of *CCC* and *i-i-i-*, and how we are *in*, not merely *of*, our world. Philosophy, as concrete living practice, would enter into the stream of practical bodymind affairs.

How can this come about? I would respectfully put forward, by . . .

### 9.5. Trinary, or better nonlinear and n-ary, rather than bivalent thinking

Nobel laureate physicist Steven Weinberg once quipped that the more the universe seems comprehensible, the more it seems pointless. Following his advice regarding a possible (neo)pragmatic way, we might say: the more concrete living seems incomprehensible, the more it begins seeming meaningful. The diagram inserted in this text in the form of Figure 8 might initially appear incomprehensible enough. But can it be meaningful?

Questions immediately arise. 'Why the odd concoction of terms in Figure 8? Why are they so squiggly as to defy reading? Why the swirls between them?' The terms in Figure 8 are a matter of concrete, everyday experiential process. Yet I rather artificially and apparently arbitrarily cut and mutilated these experiences into abstract terms and slapped them into a rectangular frame. This has little to do with concrete experience. How can I apparently talk out of both sides of my mouth?

Actually, I would like to think, Figure 8 implies what is significant regarding the timespace context I have put myself into at this juncture. With this in

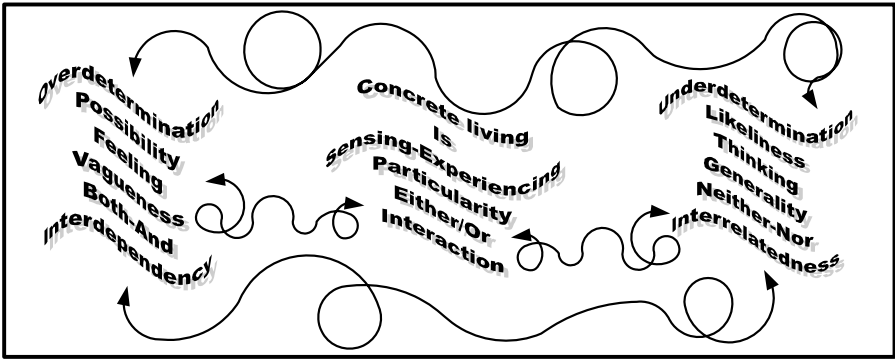


Figure 8. Semiotic interconnectedness

mind, I've tried vaguely, tentatively, and tenderly fallibly, to image process, by showing *impermanence*, *interconnectedness*, *process*, *flow*, by vaguely suggesting three-dimensionality on a two-dimensional plane. So much for apologies. Let me turn to the diagram itself – and, forgive my hyperschematic qualification of it, for limited time and space allow for evocation and provocation rather than detailed explication.

*Overdetermination* finds its way into Figure 8 by following that nonlinear pathway offering Peirce's sense of the possibility of all possibilities, or of all 'possible worlds' in the sense of Goodman's (1978) 'ways of worldmaking', of making 'world-versions'. *Underdetermination* pays homage to Peirce's (CP 6.102–63), Willard V. O. Quine's (1969), and Karl Popper's (1972) notion that no matter how final a given world of our perception and conception might become, the phenomena we are given can belong to an indefinite array of alternate worlds, many of them contradicting one another, and some of them becoming acceptable for some community at another time and place; and they all adequately account for the phenomena from some vantage point or other.

*Possibility*, from the Peircean purview, is just that, the *possibility* of the process of some concrete OAHs emerging into the world from the range of *possible possibilities* to bear witness that the world is always *BSO* through *CCC* and *i-i-i-* (CP 1.300–21, 2.233–42). What *is becoming* is also just that: it is what *is becoming*, even though it might often have been taken for a relatively permanent fixture. *Likelihood* depicts the inevitability that whatever is taken to be what is, it will give way to something else somewhere along the stream of life – Peirce used terms like 'necessity', 'law', and probability in this regard (CP 6.102–63). However, there can be no more than a *feeling*, a fuzzy premonition, of the possibility of something's entering into the onstreaming process of what is *BSO* (CP 6.18–20, 342–44). Call it tacit or implicit expectation if you

will. It is the feeling of what might emerge at some timespace conjunction. Whatever is taken as the way things are is what is cut out of the world and *sensed* and *experienced* before it is subjected to *thinking*. I leave the idea of possibility at that, as a possible object for your musement.

Peirce often alluded to his notion that what is possible as I have tentatively qualified possibility is inordinately *vague*. When some possibility emerges into the light of day, it is at the outset no more than a *particularity*. Then, and only then, can it be conceived and articulated in *general* terms. This notion of *vagueness* and *generality* comes straight from Peirce (*CP* 5.441–66). As I have intimated at various junctures above, in a twentieth-century context, *vagueness* and *generality* are a rough rendition of Gödel's *inconsistency* and/or *incompleteness* of any and all sufficiently rich outpourings of the human mind. The combination of *vagueness* and *generality* also suggests what Howard DeLong (1970) terms the 'limitative theorems', of the sort taken up by Hilary Putnam (1983b) in the guise of the 'Löwenheim-Skolem paradox' and Donald Davidson's (1984) use of Alfred Tarski's (1956) 'semantic paradox' – as well as paradoxes authored by Alonzo Church, John von Neumann, Emil Post, and Alan Turing (Bolter 1984; Pagels 1988; Poundstone 1989).

The range of all possible possibilities contains *both* one term and its perception-conception *and* its contradictory. Nevertheless, they are quite congenial, within the flow of *semiosis*: they become a matter of *both-and*, in a warm, liquid embrace of the effervescent, scintillating array of possible possibilities one or more of which can emerge as Firstness. Secondness, including the world of particulars, cut out by human hands and minds, makes a dogmatic slash between erstwhile partners such that they will never again meet on equal terms: they are split into *either/or*, for good or for evil. *Underdetermination* suggests that whatever happens to be accepted at face value in some timespace context as either what *is* or what *is-not* will at some future timespace conjunction realize an opening of its *Excluded-Middle* and the appearance of something else emerging from the *Included-Middle*, the 'middle way'. This implies acknowledgment of *neither-nor* thinking and the emergence of novelty (i.e. the center of the universe is neither the Earth nor the Sun but at least for now conceived as some alternative).

At this point I might also mention that Peirce's three categories of feeling, of the world, and of mind and thinking, are the basis for my organizing the terms as you see them (*CP* 1.300–53). Then we still have our now familiar *CCC* and *i-i-i* processes staring us in the face. Possibilities are interdependent; particularities are interactive, and they give rise to generalities that are interrelated in such a way that they are always in the process of *BSO*. The three terms are swimmingly interlaced. They are incongruously, contradictorily,

complementary. Now what do I mean by that? The concept owes a massive debt to Buddhist philosophy, especially, as we've noted, by way of Nāgārjuna and the Tetralemma, combined with Bohr's meditations on the holistic nature of the quantum world and Wheeler's notion of our co-participatory universe – though he might reject my putting his view of the universe beside Buddhism.<sup>66</sup> With this curt and rather cryptic note, on with the topic at hand.

## 9.6. The paradoxical face of a holistic view

Indeed, what, then, of pragmatism with respect to Figure 8? Don't ask the question and you feel you know what the answer is; ask the question, and you become tongue-tied. Perhaps the best I can do is attempt answering the question with a string of paradoxes straight from living and breathing life situations – pragmatic counterparts to Zen Koans?<sup>67</sup>

Why paradoxes? Paradoxes, for if I flaunt pragmatism as a practicing philosophy of living learning, of learning living, and if life, like the world of quantum theory and relativity and complexity theory, is replete with quandaries, many of them apparently counterintuitive, then pragmatism must offer a recipe for learning to live with and within paradoxes. Paradoxes, for, like life itself, they obstinately fly in the face of classical logic and clear and distinct thinking. And paradoxes, for without them, life wouldn't hold much interest for us. In a life devoid of surprises, how could we become aware of something we didn't previously (think we) knew? How could we comprehend the subtleties of our languages? How could we get the punch line of a joke? Create art? Fall in love? Indeed, without paradoxes, how could our imagination even get out of the starting blocks in the first place? *Paradoxes*: without them there would be no life as we know it.<sup>68</sup>

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66. For an overview, Barnham (1994), Cheng (1995), Foshay (1994), Gangadean (1981), Gudmunsen (1977), Lee (1996), Loy (1989), Mansfield (1989), Odin (1996), Nishitani (1990).

67. The word 'paradox' comes from 'doxa', opinion, and 'para', beyond to yield 'beyond opinion', or that which is capable of making shambles of opinion. As cyberneticists Richard Herbert Howe and Heinz von Foerster put it, 'orthodox attempts to establish the orthodoxy of the orthodox result in paradox, and, conversely, the appearance of paradox within the orthodox puts an end to the orthodoxy of the orthodox. In other words, paradox is the apostle of sedition in the kingdom of the orthodox' (1975).

68. For more detail regarding the following subsections, from a technical standpoint, Rescher (2001), Sainsbury (1995); for the interested lay reader, Clark (2007), Fall-etta (1990), Poundstone (1989), Sorensen (2005).

### 9.6.1. Our learned ignorance

First we have the Knowability Dilemma. Peirce believed the world is knowable, in principle. Rorty and others do not. Peirce knew his ‘in principle’ principle implies an infinite regress, for whatever is known is never known so completely that it cannot be subjected to further knowing. So there is no absolute knowability in the flow of everyday life. Rorty and others often conveniently ignore this aspect of Peirce.

The problem, as I see it, is this. If we say there are truths that can never be known in practice, even though they are knowable ‘in principle’, and if  $x$  is such a truth, it is impossible to know that  $x$  can’t be known. If we could know  $x$  can’t be known, it would be in that particular sense both known and unknown. What is the answer, then? Peirce’s response was: become ignorant. Before we can know something, we must become aware that there is something with respect to that something we don’t know. We are caught by the surprise that something out of the ordinary popped up before us, and then we try to account for that surprising feature of our world.

In other words, it’s like Merleau-Ponty said in endnote 54 of Chapter 7: as empiricists we can’t know what we’re looking for ‘out there’ in the big wide world, for if we did, there wouldn’t be any need to continue the quest for knowing, and since we don’t, there’s no self-consistent knowing that we’ll know what we need to know when we find it. As rationalists we don’t want to admit that there’s something we don’t know ‘in here’ – in the mind – so why bother to continue questing; but if we don’t, there’s no way to know our knowing is *incomplete*. According to the assumptions in this essay, we shouldn’t think we know without a shadow of a doubt what is either ‘out there’ or ‘in here’; our knowing cannot indubitably be both *consistent* and *complete*, and there is likelihood that it is neither entirely *consistent* nor *complete*.

How, then, can we know? By initially imagining what would be the consequences of a contrary to fact condition – something we have not hitherto known – in order to create an explanation for some surprising turn of events. In other words, by using the pragmatic maxim, by abducting a possible explanation, creating a hypothesis compatible with certain everyday experience, and trying it out.

In this manner, the first qualification of pragmatism would be: *Willingness to express acknowledgment of our ignorance with awareness that whatever knowledge we might (think we) have happened upon is no more than a minuscule island surrounded by a vast sea of ignorance.*

### 9.6.2. *Life is a dream we recreate at every step*

Next, the Fictionality Paradox. Before we can think, before we can know some OAH, we must take a leap of faith. We must suspend our disbelief and provisionally embrace some possible response to the OAH in question. We believe it is such-and-such, in which case we know it anew; yet we entertain the possibility that our belief is mistaken. We believe, yet we disbelieve; our belief is ‘as if’ we knew the phenomenon in question, yet we know the ‘as if’ is no more than hypothetical or conditional, so deep down we don’t really believe it.

The situation is like a bunch of screaming kids at a horror movie: they know the action on the screen is not real, but they react to it as they would a real life experience; the action is for them at the precise moment of their letting out a scream both real and nonreal – it is play acting in the above sense. Our entertaining a possibility more often than not does a juggling act between *inconsistencies*. But we give this problem no mind, and get on with life. It’s what we do at virtually every step of the way, so why dwell on it?

The second qualifying feature of pragmatism, then, would be: *We must make the best with what we have, and above all, practice musement; then, when the time is ripe, improvise, on the spur of the moment, for whatever happens to pop up is becoming other than what it is.*

### 9.6.3. *We recreate the dream, for every step is new*

Suppose there are 100 possible explanations to some perhaps unexplainable phenomenon. We have only one of all the possibilities. Will we have the winning answer, the one and only legitimate explanation? Chances are, no. So we believe in all likelihood we won’t have the answer. Suppose 99 other people have their own answers, and these answers coincide with the other 99 possibilities. Each of the hopeful winners comes up with our conclusion that his chances are pretty slim. But put all the answers together, and there is surely a winner, at least for now.

So, what’s the problem? The problem is that, taken together, the answers make up an *inconsistent set*; but given the *underdetermination* principle, over indefinite time and indefinitely altering contexts, any number of the possible answers may prove to be a winner. This is a variation of what is called the Lottery Paradox. Within a Peircean *community of knowers*, someone among us may be right, so we can all be right if we follow the lead of the smartest among us. Not so?

Well, not really, if we take the Preface Paradox, our next focus of attention, into account. This paradox says that an author writes a book and in the preface



reveals her sense of Peircean *fallibilism*, that there will inevitably be a few errors in what she has written. This seems a reasonably modest admission. So we begin reading the book. Is the first sentence correct? Apparently so. We read the second sentence, and reach the same conclusion. As we continue reading, page after page, we have lingering in our mind the expectation that there is an error, somewhere. We're primed for a mistake, but we charitably allow our author our faith that the next sentence will be correct until we prove it erroneous. This is another *both-and* situation. However, if we rephrase our author's admission as 'Some sentences in this book are incorrect', and if the preface is included as part of the book, then is her admission correct or incorrect? Here also we have the Liar Paradox in different garb. And a *neither-nor* situation besides. *Inconsistency* once again raises its smiling, rather benign, countenance.

The third qualifying feature, in this regard, would be: *We should forget the imperative that if what we did once and it worked we can do it again, for, flowing along with the universe's process, given CCC, i-i-i-, and BSO, novel contexts and situations always stand a chance of popping up and revealing that our knowing is inexorably fallible.*

#### 9.6.4. *Knowing anew, from within the flow*

This brings us back to our initial moment of surprise. Let's just take our author for her word and expect at least one error in her book. Will we be surprised to find the slip? Suppose it's the last sentence on the last page. We can't be surprised, for if we haven't found a blunder before that point, it must surely be this sentence. So we discard the sentence as a likely candidate.

Well, then, can it be the penultimate sentence? No, because, since the last sentence was eliminated, this one must also be thrown out as well, for if it contains an error, we won't be surprised. And so on, until we get back to the first sentence of the book. Will we be surprised to find it is faulty? Hardly. So there can be no surprise, at least according to the 'logic' we've used. This Surprise Paradox is a spoof on the so-called Prisoners' Paradox. It is also like Samuel Beckett's character in *Malone Dies* (1959) who was surprised that he was not surprised by his surprise. The very idea of surprises regarding thwarted conceptual schemes and presumed knowledge, and their concomitant acknowledgment of ignorance, entails *inconsistency*.

Fourth qualifying feature: *We must become as aware as possible of differences that make a difference, which aids us in coping with an ever-changing socio-cultural milieu; in other words, we are once again within Peircean signs*

*the interpretation of which can never be so complete that they will be exempt from further interpretation.*

#### 9.6.5. *Life is vague*

The next apparent quandary revolves around the Sorites Paradox, or the paradox of the heap. It goes like this. Suppose we agree that 200,000 grains of sand in a pile make up a heap. We remove a grain. Is it still a heap? Of course. We remove another grain, ask the same question, and give the same response. There is no absolute point at which we can convert a pile of grains from a heap to a nonheap by the removal of another grain.

This is to say that if we continue removing grains, one by one, we are eventually left with a solitary grain, which, we must concede by our own admission, is a heap. But, of course, we are simply unwilling to concede that one grain of sand makes up a heap. In a variation of this paradox, we might ask at what height a lad would be considered tall. If he were 5'10", 5'11", 6'? In some cultures 5'10" might be considered tall; in other cultures 6' might be considered only slightly more than average. What constitutes a young man's tallness or nontallness?

The words 'heap' and 'tall' are *vague*, in the Peircean sense, depending on the culture and the context. This is to say that a lad of 5'10" is possibly *both* tall *and* nontall, hence the *inconsistency*. Our knowledge regarding *vague* terms we wish to elevate to the category of *generality* is also inevitably *incomplete*; since we can never know exactly under which conditions the lad in question is *either* tall *or* nontall, it might well be the case that he is *neither* tall *nor* nontall in some collection of particular contexts. So, the fifth qualifier: *We must be mindful that within incessantly variant socio-cultural timespace contexts, intricately entangled by way of CCC, i-i-i-, and SBO, the meanings of our words are invariably consigned to a greater or lesser degree of fuzziness – which is obviously an extension of the fourth qualifying feature.*

#### 9.6.6. *Within life, there are no generalities that can be judged good for all time*

Lastly, we have what we previously saw as a variation on Carl Hempel's (1945) Raven Paradox which we entertained in Chapter 5. Hempel demonstrates how the statement 'All ravens are black' is logically equivalent to its counterpositive, 'Nothing that is nonblack is a raven'. To say 'Lemons are yellow' is in a roundabout way to say 'Ravens are black', because lemons are nonravens and they are nonblack, and so if they are nonblack then can't be ravens.

How can we absolutely verify ‘All ravens are black’? We can’t, neither in your lifetime nor mine nor that of anybody else. This, then, attests to the *incompleteness* of knowing. Sixth qualification: *We must resist that smug feeling we know something, for whatever we might happen to know, in the Peircean sense it is either misguided and inconsistent, or it is hopelessly incomplete and inadequate for the purpose of practicing philosophy and of concrete living.*

We have now completed the circle.

### 9.7. Articulating a genuine sense of pragmatism: a hopeless task?

What is to be made of this talk about paradoxes? I would hope it leaves us with the notion that through the idea of entanglement – thanks to Peirce’s original concept regarding what pragmatism should be – we have a *holistic* view, however vague, given our limitations. Well, then, if we are inextricably caught up in *inconsistency* and *incompleteness*, why not give up the ship and be done with it? In other words, nihilism, from Nietzsche and others to the present. That is one response. Another response, common to many Buddhists and to pragmatists and as well in the face of paradoxes and various and sundry dilemmas of all sorts, is a healthy attitude toward ignorance and error and our inherent *fallibilism*.

By and large, ‘we pragmatists’ – as Rorty likes to put it – learn to take paradox, quandaries, and intellectual and existential dilemmas – all complexly and marvelously entangled – in our stride. We embrace them, tolerate them, ignore them, or simply forget them, whatever seems best, as we navigate along the stream, musing, and constantly improvising. For sure, we don’t dwell on them or let them make nervous wrecks of us. Rather, we make do the best way we can with what we have. This must certainly be a letdown after my build up. But there it is: practicing philosophy, living philosophy, living learning and learning living, within the onstreaming process of the world.

In this light, allow me to summarize the general nature of the pragmatic, concrete everyday life entangled *interconnectedness* of what is possible, what (we think) there is, and what could be, as follows:

- (1) Everything is entanglingly *i-i-i-* with everything else. . . .
- (2) Everything is incessantly *CCC* and *BSO*; hence everything is *impermanent*. . . .
- (3) Nothing is of no consequence whatsoever; nothing is simply waste, but rather, everything is *BSO*, because it provides the wherewithal for *concrete living*. . . .

- (4) Nothing is simply meaningless, for everything has its perpetually altering place in the whole of *concrete living*, and there is a perpetually altering place for everything within that whole. . . .
- (5) Everything is *immanent*, within the whole of nature; nothing can exceed or lie totally outside nature.

If all that is, is flux, and if everything is entangled with everything else, then polymorphous bodymind and its world must be an ecological matter.

Why ecological? Because just as bodymind is always becoming, so also nature. This is to imply that bodymind's interaction with nature alters each and every process of becoming within nature, and as a consequence of this interaction, nature reciprocally alters bodymind's process of becoming. If bodymind is at peace with itself and in good health, nature responds benignly; if bodymind perceives and conceives itself and nature in negative terms, the interactive process is more often than not none other than negative.

Allow me a sort of parable for illustration: a spider is spinning its web. The web is becoming part of what the spider was becoming. Spider and web are becoming one. In fact, the spider's entire world-version, including itself, is a matter of two-dimensional web-world becoming. If an intruder happens by and becomes trapped within the web-world, our spider strikes, and puts the extraneous substance away for future consumption. Eventually, the foreign substance becomes part of the spider's becoming and part of what the web-world was once becoming. Now the foreigner is one with the spider-web-world. Spider, web-world, and foreigner interdepend, interact, and interrelate; they make up a nonlinear continuous whole. This interconnectedness expands, without terminal point, eventually to include the whole of our world, and our world's interconnectedness includes the web-world as well. In a word: *entanglement*.

### 9.8. Does complexity plus simplicity yield *complicity*?

If we are willing to accept the five 'ecological assumptions' listed above, perhaps we can take a giant step by interrelating those five assumptions to the following – and in the process, we might begin to enter a world commensurate with that of our spider.

- (1) We might wish to peer out over our world as if we were in possession of a God's-eye view. But what we perceive and conceive can be no more than *culture-dependent*, a collection of timespace contexts. . . .
- (2) The common assumption has it that everyday sensing and perceiving are a matter of the ability to name the phenomena within our environment. But

to name them, to say what they *are*, is to say what they *are not*, for they are always *BSO*. . . .

- (3) Knowing in the genuine sense is knowing regarding the impermanence of all things; genuine knowing senses that everything is process that has interdependently emerged from that which nothing simply *is*, in fixed fashion. . . .
- (4) Consequently, a sense of *becoming* accompanies knowing. This is a musing vision, an artistic vision through and through. . . .
- (5) Compassion for the world's becomingness and for other humans accompanies knowing. This compassion evolves from the concession that everything is interconnected, making up a self-reflective whole, with neither definable center nor circumference, and with neither knowable origin nor ending.

If we could acquire a genuine sense of the above two lists of five assumptions, we might be of a disposition to embrace the idea that nothing is simply what it is; it is in the process of becoming along with everything else in new ways. Our becoming genuinely aware of this, I would suspect, implies awareness of polymorphous bodymind union, of ego-‘I’ union, of a union between ourselves and others, and of a union with the entirety of nature: *entanglement*.

In the final analysis, I would say ‘Yes!’, complexity plus simplicity yields *complicity*, for in the most positive way we are accomplices with the world’s process, for life is co-participation between our self and its *other* inner self, between our self and *other* selves in our social world, and between our self and our physical world.

## Chapter 10

### Process patterned through topology

Through a series of figures, this chapter offers diverse allusions to multiple renditions of temporal-spatiality, from Euclidean to non-Euclidean, from what I label ‘Lineland’ to ‘Sphereland’ and beyond, from a point to a hypercube, and from the figure ‘8’ to the Möbius-band to the Klein-bottle. These moves reveal the paradoxical complexity of the notion of process, especially in view of the virtually infinite range of possible possibilities, regarding science, the arts, and concrete life situations, given their inherent vagueness and baffling ambiguities.

#### 10.1. On a concretely abstract introductory note

Comes the time for some imaginary topological constructs, for, I would suggest, they can give us insight into our place within the whole.<sup>69</sup> As I have intimated often in this essay, the strange yet enchantingly entangled world emerges from ‘nothing’, or ‘emptiness’. I allude to no cosmology created *ex nihilo* by some supernatural being. Rather, what I have to offer is as commonplace as counting: from zero, one emerges, then two, and three, and many.

In other words, I wish once again to evoke the ancient Hindu and Buddhist concept of zero, that embodiment of ‘emptiness’, which nonetheless contains the possibility for the engenderment of all numbers, on the right side the positive ones, and on the left side the negative ones. Nothing could be simpler, it might seem. In the topological sense, what we have is the image offered in Figure 9. We begin with a solitary point of zero dimensions. The point engenders an infinite number of points in linear sequence to yield a line; the line extends itself laterally through infinite reiterations to give a plane; the plane reduplicates itself infinitely, producing a cube; and the cube enters the fourth dimension by the same operation from three-dimensional space to create a hypercube.

The problem is that a hypercube taxes the imagination. Another way of depicting the hypercube is by means of a ‘tesseract’ – an alternate version of the

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69. With respect to the following sections, I owe a debt to the seminal and thought-provoking work of Steven Rosen (1994, 2004, 2006), as well as that of Paul Ryan (1993).

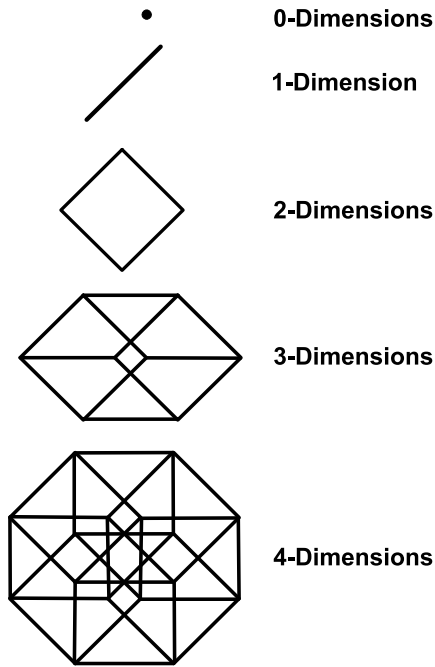


Figure 9. Dimensionalities

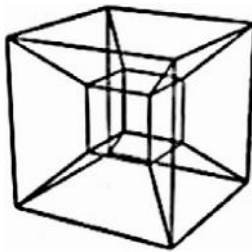


Figure 10. The tesseract

hypercube depicted in Figure 9 (see Figure 10). The inner cube is given an infinite number of expansions to yield the outer cube, just as a point stretches itself out along an infinite number of points to form a line, a line does the same to form a plane, and a plane to form a cube. Points, lines, squares, cubes and hypercubes. It all appears neat and orderly. But that's not what Peirce is all about. Peirce was a triadomaniac. Everything must come in threes. Why? One reason among many is because three breeds not simple orderliness but tension,

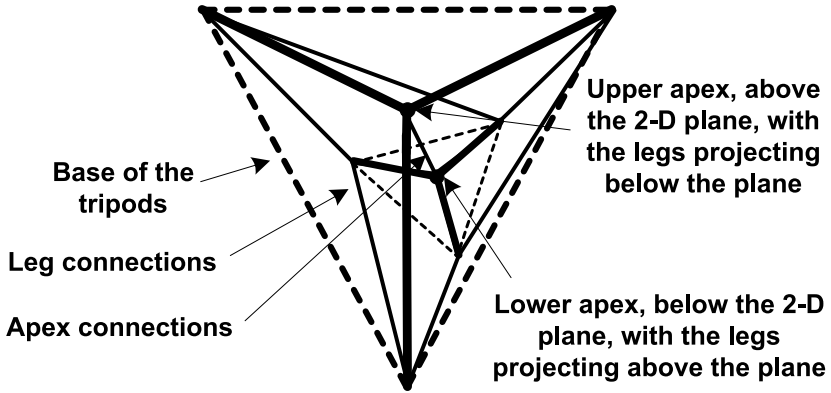


Figure 11. The hypertripod

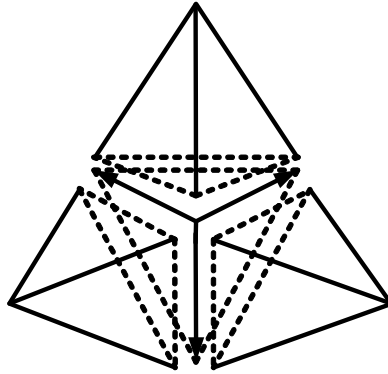


Figure 11a. The hypertripod extended

and hence it becomes the author of change. How so? The number one, like a circle or a sphere, is wholeness, perfect symmetry. No matter how you rotate it, it remains the same. The numbers two and four are also relatively symmetrical, though their symmetry is blemished somewhat, since they have lost some of their rotational symmetry. Three, in contrast, is able to offer relatively little symmetry. And that is what Peirce wants. Asymmetry, imbalance, such that perpetual movement – change – is necessary to keep things on a more or less steady keel. But in order for this to be possible, there must be improvisation, that is, change of change as timespace contexts vary.

So, more in keeping with Peirce's triadology, consider a sort of multiply variegated 'hypertripod' as a counterpart to the 'hypercube' (Figure 11). Actually, the figure should be construed as three-dimensional, with the small tripod



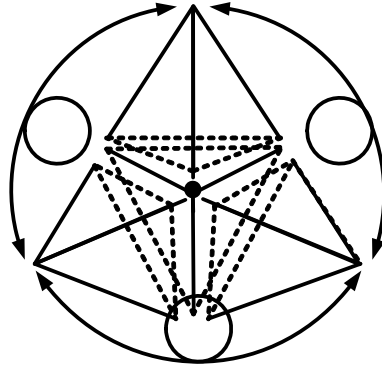


Figure 12. Semiotically modeling the hypertripod

inside the large tripod in the order of the tesseract. This image also stretches the imagination somewhat. For that reason I will reformulate it in the order of Figure 11a. The ‘tripods’ consist of a point from which three equidistant lines project out at 120 degree angles. In order that the whole concoction might self-organize, it must begin as a point at the peak of one of the tripods, then extend outward, creating three equidistant lines; then the extremity of each of the three lines must make a 120 degree turn in order to form an equilateral triangle traced out by the dotted lines, and we have a tripod in three-dimensional space. If the tripod extends itself in all directions, a ‘hypertripod’, embedded within an extra dimension, eventually emerges.

Rendering the hypertripod more compatible with the Peircean sign model, we have Figure 12. This diagram offers: (1) our familiar Figure 1 image, a two dimensional object carrying the implication of three-dimensionality (a tripod), (2) the central ‘vortex’, ‘•’, implying ‘democratically’ oriented CCC and *i-i-i-*, (3) implication of the progression from EZ to pre-signness ( $0 \rightsquigarrow \emptyset \rightsquigarrow \sqrt{\bullet} \rightsquigarrow \pm \rightsquigarrow \Psi \rightsquigarrow \dots$ ), which portrays all possible possibilities before an actual sign has begun its emergence to take its place among the actual signs that are always *BSO*, and (4) a ‘hypertripod’, as the depiction of another dimension encompassing all the above. But things are still not as cut and dried as Figure 12 might lead us to assume. Dimensions do not simply come in terms of whole integers. There are, in addition, ‘fractal dimensions’ (‘fractals’).<sup>70</sup>

Questions immediately arise. ‘Does the idea of fractal dimensions not open up a can of worms? Do we not find ourselves caught up in mind-paralyzing

70. Fractal dimensions have to do with recursive application of algorithms in a theoretically never ending series (see Briggs 1992; Mandelbrot 1977, 1983, 2004)

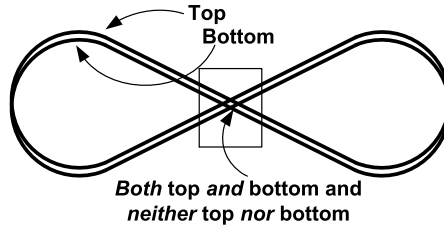


Figure 13. Lineland's zany world

complexity again?' Not really. That is, if we begin by availing ourselves of the strange but enticing imaginary worlds of Edwin A. Abbott's *Flatland* (1952 [1879]) and Dionys Burger's *Sphereland* (1965). First we have 'Pointland'. However, since it is of zero dimensions, pure 'nothingness' or 'emptiness', we can hardly begin there with anything that might be intelligible. So we take up the idea of 'Lineland', which Abbott evokes as precursor to 'Flatland'. Lineland consists of an infinite series of points set out in linear array to form a line – as in Figure 9. The inhabitants of Lineland consist of line-segments of varying lengths according to their social standing, all in proper marching order, with the Line-King at the head leading the whole parade.<sup>71</sup>

Now let's suppose Lineland is not set out as a simple straight or curved line, but rather, it is in the form of a horizontal figure '8', or the symbol for infinity: '∞' (see Figure 13). Actually, the figure consists of two slightly separated lines, with a thin sliver of space between them. But the two lines should ideally be fused into one line. I've constructed the '∞' image in this manner so as to give

71. Entertaining the notion of Lineland, Flatland, and Sphereland evokes a host of topological images (see also Rucker 1977; Stewart 2002). Topology is a branch of mathematics that studies the properties of forms in space that are preserved through deformation, twisting, and stretching. For example, an ellipse is topologically equivalent to a circle; it is a slightly 'flattened' circle. In Euclidean geometry a block can be moved around and rotated, but it can't be stretched out. In topology, the block can be stretched out and smoothed to form a rod, while its topology has remained intact. Look at a dinner plate from above and it looks like a circular plate; look at it from an angle and it has become an oval plate. It's the same plate; only the perspective has changed. The plate and the dish are ordinarily construed to be different. But topologically they are the same; the dish can be flattened into a form identical to the plate. A circle, however, can't be folded over itself to form a figure eight and retain its topology. Although the circle can be squashed in the middle until one side is joined with the other side, its topology has been altered, since to separate the union and form a circle once again requires a 'break', a 'discontinuity' of the line. In other words, in order to preserve a form's topology, the form must be continuous throughout; discontinuities are categorically barred (Tucker and Bailey 1950, Connor 2004).

a better idea of Lineland, which, after all, must bring implications of very slightly more than mere one-dimensionality, as far as the more perceptive Linelanders are concerned. For, what is a line? An infinitesimally thin, invisible extension made visible.

Draw a line on a piece of paper, and it has enough ‘thickness’ so as to render it visible; it is a ‘world’, a ‘Lineworld’ or Lineland. Now construct a figure ‘8’ without raising your pen from the paper’s surface. That’s the imaginary depiction of Linelanders’ world. It consists of one dimension very tentatively – ‘fractally’ – easing into the bare initiation of the next dimension. Why the initiation of another dimension? Because at the center of the figure ‘8’, the line crosses itself, ‘passes over’ itself, or ‘cuts’ or ‘pokes a hole’ in itself, so as to pass through itself or over to the other side. An infinitesimally thin imaginary projection becomes doubly infinitesimal. It is now ever-so-slightly ‘thicker’ than it was; yet it is the same, infinitesimally thin. It is *both* ‘thicker’ *and* it is not; it is *neither* ‘thicker’ *nor* is it not. That is, imaginarily speaking, we can suppose it is ‘fractally thicker’. It very slightly enters into the next dimension. This is the case, since according to fractal theory, what there *is*, could not *be*, without a fractal line of demarcation, separating it from everything else, gently pushing into another dimension.

In this manner, Linelanders inhabit an exceedingly compacted, elongated world, like an unimaginably thin band. In Figure 13 this band has imaginary ‘sides’. That is to say, the ‘sides’, as well as the ‘top’ and the ‘bottom’ of the line, can be no more than ‘imaginary’ for the Linelanders, but we can see them as clear as day. We could imagine the Linelanders might have an inordinately vague idea of some ‘top’ and some ‘bottom’ of their world-line. From our three-dimensional vantage point, we can see that their perspective is no more than *local*, while we can see the whole *global* affair of their world. Thus, from our perspective, we can without difficulty see that what is ‘top’ and what is ‘bottom’ is arbitrary, depending on the perspective – especially given the line’s ‘cutting’ and ‘mutilating’ itself, or ‘passing over’ itself, in order to form the figure ‘8’. In contrast, as far as the Linelanders are concerned, their world is as continuous as can be.

At any rate, when their thinking cap is properly placed, the Linelanders might have some vague conception of ‘top’ and ‘bottom’. But what about the ‘mutilation’ or ‘overlap’, where the line passes ‘over’ or ‘under’ or ‘through’ itself? That’s the crux of the issue. At that point, there is *both* ‘top’ *and* ‘bottom’, and, in a manner of speaking, there is *neither* ‘top’ *nor* ‘bottom’. If the line passes over or under itself or if it goes through itself, then it has entered into a fractal dimension – very minimally and faintly more than one-dimension. If it goes through itself, it must drill a point-hole in itself, penetrating and

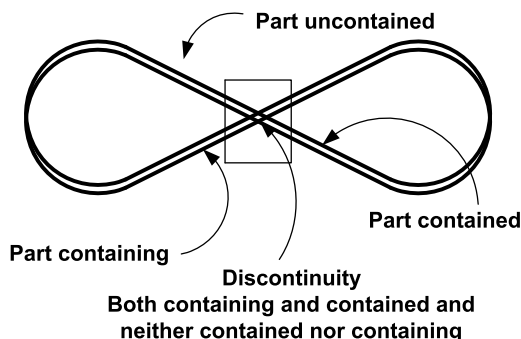


Figure 14. Lineland's contained, containing and uncontained

mutilating itself, thus creating a rupture, a discontinuity, in the continuity of the line-world. In a practical and metaphorical manner of speaking, that's how fractality comes into the picture. Our Linelanders don't inhabit a world limited to mere one-dimensionality at all. It is very slightly more; its existence as a figure '8' line-world could not be possible, were it not for a higher dimension, a fractal dimension, within two-dimensionality.

Further consideration of Lineland leads us to the idea that the Linelanders' world is *contained* within the boundaries of their line-world. In this case, at the point of transition in the central portion of the figure '8' there is, by means of the discontinuity, evidence of the boundary itself, which *contains* the *contained*. And, given the line-world's fractality, whatever lies outside the *container* and the *contained* must be the limitless – at least limitless as far as the Linelanders can tell – sphere of the *uncontained* (see Figure 14).<sup>72</sup>

So much for a summary qualification of one-dimensionality easing into two-dimensionality.

72. Steven Rosen argues that the 'discontinuity' or 'mutilation', comparable to that of figure '8' (and, by extension, the Möbius-band and the Klein-bottle, as we shall note shortly), composes the 'ontological dimension of human being', that it is 'not just another framework for reflection but a dimension that entails the prereflective depths of Being' (2006: 33). I was originally tempted to critique, or at least avoid, the problem I saw in taking up the *ontology* issue, which, I assumed, entails substance rather than process. By email, Rosen set me straight, however, writing that 'in late Merleau-Pontyan and Heideggerian ontology, Being is hardly substantial but can be understood in a deeply processual way (*Be-ing*)' (October 4, 2008). My deference to Rosen's expertise in phenomenology, and, I should mention, I remain convinced by Rosen's Ryan-inspired trio of concepts, contained (object), containing (space), and uncontained (subject) (Rosen 2006: 34; Ryan 1993).

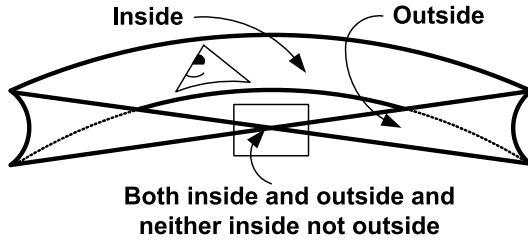


Figure 15. Flatland emerges from Lineland

## 10.2. Repeat the operation, and you enter into untold worlds

We expand the line, and we create a plane. Now we're in Flatland, depicted by a Möbius-band, where Ms. Triangle felicitously glides along her world, oblivious to the fact that her two-dimensional universe is actually twisted within a higher spatial dimension, for, like the Linelanders within their figure '8' world, her Möbius-band world could not exist as such were it not for the distortion in three-dimensional space (see Figure 15).

Granted, comparable to the Linelanders, she might create the vague premonition of some sort of orthogonality by moving upward or downward in a third dimension outside her two-dimensional world – Abbott goes to great length in an attempt to give us an idea of the painful process she must undergo in arriving at this idea. This premonition might come about after her contemplating the nature of an imaginary discontinuity, a 'slit' – counterpart to the 'puncture' in Lineland – where the 'twist' occurs in the Möbius-band. At this 'slit', where the strip passes through itself into the 'other' side, there is *neither* 'inside' *nor* 'outside', or there is *both* 'inside' *and* 'outside', according to our way of taking it. At any rate, it is there, in the 'slit', where the discontinuity occurs, where the two-dimensional band enters three-dimensionality. And it is there, where Ms. Triangle might possibly become aware of the 'twist' through an imaginary higher spatial dimension and through a painful process of contemplation and inferential thinking – although it's all as clear as can be for us. Within Figure 15, we have an extension comparable to that of Figure 14 with respect to Lineland, with implications of *part contained*, *part containing*, and *part uncontained* (see Figure 16). The 'cut' in Lineland, the 'slit' in Flatland: zero-dimensionality giving rise to the implication of more than one-dimension in Lineland, one-dimensionality giving rise to the implication of more than two-dimensions in Flatland. Obviously the next question is: What about our Sphereland, our three-dimensions of space within which we dwell? Is there any

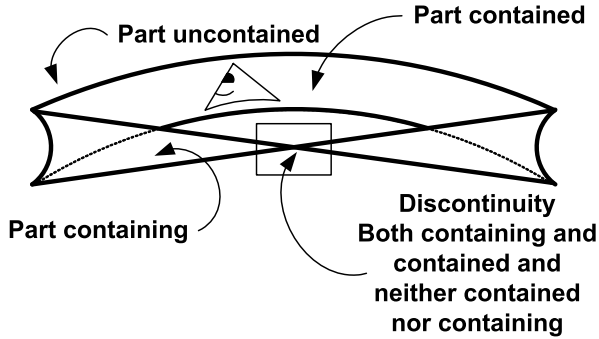


Figure 16. Flatlander's dilemma

equivalent of the twist in the Möbius-band or the overlap in the figure '8' or ' $\infty$ ' image? If so, how can we know it?

Notice. If Lineland requires a zero-dimensional 'point-cut', and if Flatland requires a one-dimensional 'slit', then it would be reasonable to assume that Sphereland must require a two-dimensional 'hole-rupture'. A 'hole-rupture' can be illustrated by what is known as a Klein-bottle. This topological oddity consists of a self-contained 'bottle' made up of a two-dimensional surface forming a three-dimensional object that maims, ruptures, and mutilates itself within three-dimensional space in order to create its four-dimensional self-containment by virtue of that very mutilation. The Klein-bottle can be constructed according to Figure 17. Begin with a tube, bend the tube around until it meets itself, then introduce the upper opening of the tube into itself through a hole you've cut in it, move the extremity toward the tube's lower opening, and connect them. And there you have it (see Figure 18).

Simple as pie, not so? No, not really. For the Klein-bottle actually to exist as a continuous whole, there must be a fourth-dimension, just as there was a third-dimension for construction of the Möbius-band and a second-dimension for construction of the ' $\infty$ ' image. Where is this fourth-dimension? It's always *here*, within which our lower three dimensions are contained. But there's no simple manner of 'seeing' the fourth-dimension, for us at least. Recall our problem



Figure 17. Constructing a Klein bottle

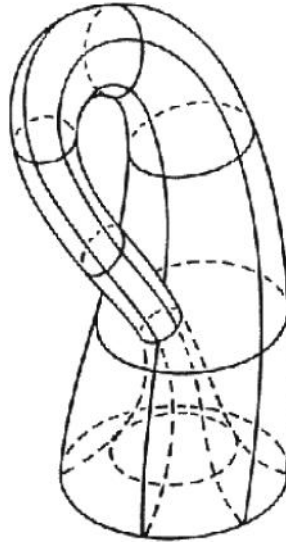


Figure 18. The Klein bottle's topology

with the hypercube, which we partly remedied with the tesseract. In fact, take another look at the tesseract, if you will. It consists of eight cubes: the central cube, the four cubes made up of connecting lines of either more than or less than 90 degrees, and the outer cube containing all the inner cubes. Here also we have *contained* – the seven inner cubes – the *container* – the outer cube – and the *uncontained* – everything that is outside the tesseract.

Now, if we stretch these tesseract cubes out in six directions, we can form the object in Figure 19, which, by the way, is given enchanting artistic rendition, *Christus Hypercubus* (1954), by Salvador Dalí. Dalí's painting consists of the Figure 19 form, and a Christ-like image, in mid-air in front of the hypercube that is projecting out toward the spectator. Christ is there, outside the hypercube, as if in a fifth-dimension. He is there, with outstretched arms, as if imaginarily impaled at the four corners of the outer square of the projected cube, with his face painfully turned upward to the right, projecting outward into the empty fifth-dimension, as if toward 'nothingness'.

The Christ image is partly *contained*, partly *containing*, and partly *uncontained*; or, we might surmise, he is *all of the above*, *contained*, *containing* and *uncontained*, and he is *none of the above*, that is, strictly speaking, neither *contained* nor *containing* nor *uncontained*. As the embodiment of the triadicity, Christ is, in other words, the supreme cosmic mediator. But I hesitate. How can I be so presumptuous as to place that Peircean concept, 'mediation', in such

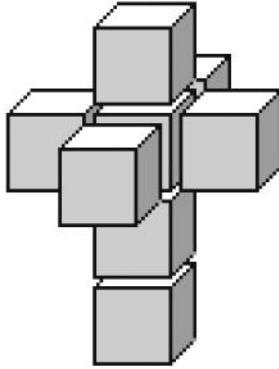


Figure 19. The Dalí hypercube

a context, unless I assume the sign – and I as interpreter of the sign to boot – possesses some ‘transcendental’ quality? How can I make such a quantum leap of introspection? So, after taking a dose of prudence, I limit myself to more modest contemplation, while simply musing over the possibilities. In the very least, with Figure 19 and the Dalí image, we are perhaps better able to get a feel for the tesseract, and perhaps even some sense of the cubes’ multiple projections into an added dimension.

However, there’s still a problem with respect to the Klein-bottle. Construction of the object in Figures 17 and 18 was given on a two-dimensional plane, but the object is three-dimensional, and the rupture is within a four-dimensional manifold. The two-dimensional depiction simply can’t do justice to the subtlety of the Klein-bottle image. An image of the Klein-bottle sporting three-dimensional depth, as in Figure 20 might help somewhat. Yet there’s still some-

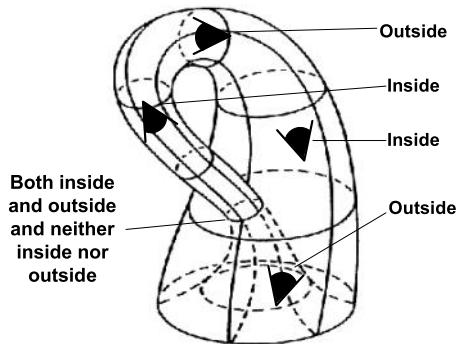


Figure 20. The Spherelander’s dilemma



thing that eludes us, something we can't quite grasp in spite of our best efforts. We can begin to understand Ms. Triangle's dilemma when she was striving to comprehend the nature of three-dimensional space.

Jorge Luis Borges's (1970) extraordinary tale, the 'Aleph', comes to mind. Argentino Daneri receives word of a marvelous object, the Aleph, consisting of a golf-ball size sphere that contains the entire universe, past, present, and future. On inquiring about the location of this miraculous object, to his surprise, he discovers it is in the basement of a friend's home. He enters the room, and there it is, glowing with exceeding intensity, and Daneri bears witness to all that was, is, and will have been in the entire universe. Later, he attempts to render textual account of this mystical apparition, but he quickly becomes aware of language's impoverishment, and he drops the project. The problem here, of course, is that the Aleph contains all: it is the contained as the entire universe; hence there is no possibility of any uncontained. But Daneri is somehow uncontained; he is 'out there', gazing at the Aleph, as if he were privy to a 'view from nowhere', a God's-eye view, so to speak. But he can't be in possession of such objectivity, because he is part of the universe: he is in the Aleph.

In somewhat the manner of Christ in Dalí's painting, Daneri is *both* contained *and* uncontained and he is *neither* contained *nor* uncontained, and his perceptual grasp of the Aleph involves *both* the container *and* the contained and at the same time *neither* the container *nor* the contained. It is as if he, like Dalí's Christ, were in a fifth-dimension.

### 10.2.1. *Qualifying the Klein-bottle*

Now, following Rosen (2004, 2006) and Ryan (1993), let us give the Klein-bottle a simpler planar rendition in order more effectively to account for its intrigue and its enigma, such as we see in Figure 21. The discontinuity breaks the continuity of the two-dimensional sheet to create an *overlap*, which would be possible solely within three-dimensional space.

For that reason, broken lines are necessary in order to create a complete image of the form, since the part contained, which presumably lies within the bottle, would otherwise remain concealed. But is this actually the case? Assume the two-dimensional rendition of a Klein-bottle makes up Ms. Triangle's world. She moves along the neck of the bottle in a counterclockwise direction, and within the part set off by the rectangle, she passes through a rupture of the border of her world, that is, through the part which is *neither* contained *nor* containing. Then she glides along to the lower extremity of her presumed world, passing through the part contained and beyond. But she's now no longer within her world. She is now in the part uncontained! But this is impossible,

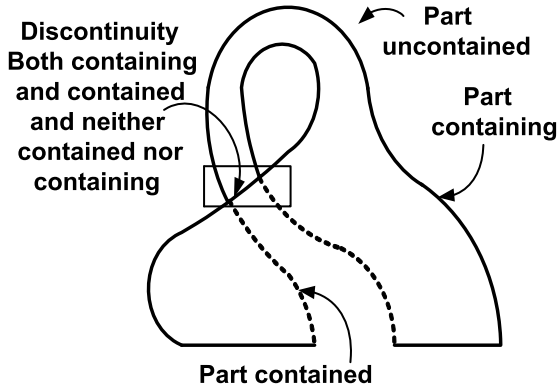


Figure 21. The Klein bottle depicted as two dimensional

given the premises underlying this essay according to which her world, like ours, is immanent: self-contained, self-reflexive, and self-sufficient. Yet, it *is* possible, from within an extra dimension.

In this sense, as far as she is concerned, there is actually no part contained with respect to her world, for there is no boundary separating part contained from part uncontained; hence she cannot be aware of any part contained. These distinctions are available solely to a Spherelander, like us, from a three-dimensional perspective. We can sympathize with her, caught up in her pathetic plight, but we ordinarily remain oblivious to the fact that, like her, we are inexorably caught up in a comparable dilemma within a fourth-dimension.

This is to say, the part contained in our own world, exemplified through a three-dimensional depiction of the Klein-bottle, must remain concealed from us, like the ‘twist’ or ‘slit’ in the Möbius-band remains concealed from Ms. Triangle, who felicitously believes she skates along her two-dimensional world as if it were continuous. If we existed on the surface of the Klein-bottle we wouldn’t be, we couldn’t be, aware of that zone where the ‘hole’ separates part containing from part contained – just as Ms. Triangle is unaware of the transition from ‘outside’ to ‘inside’ through the ‘slit’ in her world. In other words, I must re-emphasize, just as the creation of a Klein-bottle image is impossible on a two-dimensional plane, so also it is impossible in three-dimensional space if that three-dimensional space is to remain intact, as does the two-dimensional space making up the Möbius-band. Thus we once again become aware of our circumscribing limitations within three dimensions, like the Flatlanders in two dimensions and the Linelanders in one dimension.

In this regard, Rosen observes that:

[W]ith the self-containing Kleinian vessel, the categorial separation of contained object, containing space, and uncontained subject is surpassed. In penetrating itself, the Kleinian container brings these three terms into intimate involvement with one another . . . The Kleinian bounding vessel can be said to constitute space itself (rather than a mere object in space), but a space that is a far cry from the structureless symmetrical juxtapositionality of the classical continuum. (2006: 103)

The Klein-form ‘oscillates’ from contained object to containing space and to contained subject, and back again to contained object. It unites containing and contained from within the uncontained timespace manifold, bringing them, and itself, together as if in three-dimensional space. But there is more than three-dimensional space. There is *both* three-dimensional space *and* a ‘higher’ dimension; yet the self-contained, self-reflexive, self-sufficient object is *neither* exclusively within three-dimensional space *nor* can it be, as conceived from within three-dimensional space, within a ‘higher’ dimension. It is like Borges’s Daneri, who is outside the Aleph looking into the Aleph, which contains him looking at himself. This is all inordinately convoluted. Let me try to articulate the problem from a different angle.

### 10.2.2. From the Peircean point of view

Ms. Triangle remains unaware of the uncontained, which is ordinarily outside her two-dimensional perceptual and conceptual capacity, trapped as she is within her Möbius-world. And we remain unaware of the uncontained with respect to our own Klein-world, since the ‘hole’ is likewise outside our perceptual and conceptual capacity. Rosen has some choice words regarding the phenomenological importance of this Klein-form, when he writes:

The tangible fact about the Klein bottle that is glossed over in the higher abstractions of modernist mathematics is its *hole*. Because the standard approach has always presupposed extensive continuity, it cannot come to terms with the inherent *discontinuity* of the Klein bottle created by its self-intersection. Therefore, all too quickly, “higher” mathematics circumvents this concrete hole by an act of abstraction in which the Klein bottle is treated as a properly closed object embedded in a hyper-dimensional continuum. Also implicit in this modernist approach is the detached subjectivity of the mathematician before whom the object is cast. (2004: 191)

The ‘hole’ isn’t simply an abstraction. It is concrete. It is with us; in a sense we are in it; it is as if we were trapped within it; through it, we are somehow in tune

with uncontainment, even though we can't directly experience it – once again, it seems we are caught up in Lispector's 'It'.

So how is it possible to account for the uncontained from within our own world? Metaphorically speaking, by means of Figure 1, I would suggest, since the uncontained entails that sphere of possible possibilities, or 'pre-Firstness', and it owes its becomingness to the source from whence it emerged, the 'zero point', or 'emptiness'. In other words, it's back to the beginning, or '0', and it's forward, that is, Figure 1 re-iterated, . . . and re-iterated again, . . . and again, . . . In other words, in regard to our actual signs, our physical world, and our interpretations, and, given our finitude and our fallibilism, there is no 'zero point' – the range of all possible possibilities – nor is there any end – re-iterations . . . *n*. Yet, Figure 1 can somehow give us some feeling – albeit inordinately vague – with respect to what the uncontained is all about. Paradoxical, all this. Temporally-spatially paradoxical, like the very existence of the Klein-bottle. Regarding dimensionalities, paradoxical as well.

In an effort more properly to place the notion of dimensionalities and their fractions within the context of this essay, let us return to Peirce's categories anew. If we construe Figure 21 with somewhat of a metaphorical grain of salt: (1) contained space is bounded and finite; it is the world of our feeling and sensing, of experience and perception, chiefly of Firstness and Secondness, (2) containing space is that which holds Firsts and Seconds together, generalizing them and rendering them the presumed building blocks of our world, chiefly the function of Thirdness, and (3) uncontained space, which is unbounded yet finite, is that which can give rise to the myriad possible possibilities of signs, some of which can, within particular timespace contexts, and through musement, begin their becoming. And, like we have noted with respect to comparable forms within two-dimensional and one-dimensional space, at the juncture where the Klein-form tear occurs and where the uncontained makes its play, there is *both* contained (inside) *and* containing (outside), and at the same time there is *neither* the one *nor* the other, strictly speaking (recall the nature of Figures 2 and 5). In other words, the 'hole' in the Klein-form is continuity within four-dimensional space, like the twist of the Möbius-band is continuity within three-dimensional space (Rosen 2006: 49).

In fact, Rosen goes even further in this regard. He asks us imaginarily to bisect a Möbius-band down the middle, and in so doing we construct a form with two twists that return it back to a two-sided structure called the 'lemniscate'. The operation creates a right-hand and a left-hand twist – above and below – thus yielding two enantiomorphic images, one the mirror image of the other, the combination of which returns the band to its original two-sided form by means of the left-hand-right-hand symmetry (see Figure 22). However, the

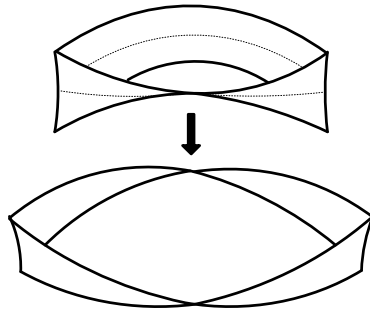


Figure 22. The lemniscate

cutting operation – depicted by the dotted line in Figure 22 – can occur only within three-dimensional space, which is to say that the asymmetrical two-dimensional band becomes a symmetrical lemniscate in three-dimensional space by virtue of the operation.

Rosen’s concocted term, ‘synsymmetry’, accounts for the lemniscate as *both symmetrical and asymmetrical*, from the two-dimensional view, and *neither symmetrical nor asymmetrical*, but *synsymmetrical*, from the ‘higher’ three-dimensional view (Rosen 2006: 60–62).<sup>73</sup>

### 10.3. We’re on/in/of the Klein-bottle

Yes, that is what I meant to write. We’re on/in/of the Klein-bottle. But let’s begin on a more benign note: the Möbius-band world of the Flatlanders. As they travel along the surface of their world, from our proud perspective we can gather that they oscillate between inside and outside and back again. We can also comprehend how it is that at the slit – wherever that is; it can be anywhere and everywhere, arbitrarily speaking – they are *both* inside *and* outside and they are *neither* inside *nor* outside (Figures 15 and 16).

Within our Sphereland, or Kleinland as it were, we have functionally the same situation, but structurally it is more complex, which is to be expected, given the extra dimension. We are *on* the surface of our Kleinland world, and as such we can in a metaphorical manner of speaking be outside it. And we can oscillate between inside and outside as we pass through the portals of the Klein-bottle at its lowermost portion in Figures 20 and 21. In this manner, we can become aware of our status within our world, for we are *of* our world in

73. As an aside, Elizabeth Grosz (1994) uses Jacques Lacan’s Möbius-form as an analogy in her effort to dissolve binary oppositions. She would have done well to have taken the Klein-form into consideration.

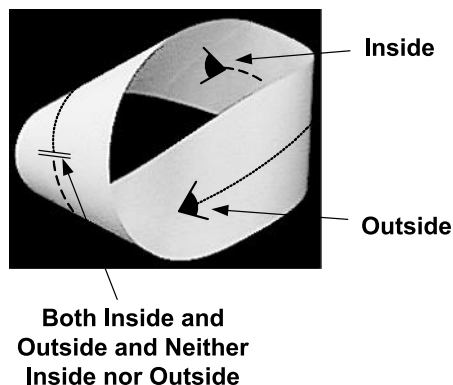


Figure 23. Within the Klein bottle

addition to our existence *in* it. What lies outside our awareness is that zone when we are *both* inside *and* outside the surface of our world and we cross through the ‘hole’, the mutilation, which can be discernible solely from within the fourth-dimension (of course we can see it, because we are gazing at a two-dimensional rendition of the three-dimensional form in four-dimensional space collapsed into a two-dimensional plane).

Now that we are contemplating the Klein-bottle form in two dimensions (Figure 21) in the same manner as we’ve contemplated the Möbius-band, the basic distinction between the two forms should become more apparent. If we take a pencil and begin tracing a line along the two-dimensional band, describing a trajectory not unlike that of some imaginary Flatlander, our tracing will continue continuously as if there were no twist in three-dimensional space, from ‘inside’ to ‘outside’ and back again (Figure 23). By the same token, if we trace an imaginary line along a path that circumscribes the Klein-bottle, there should be no indication when, exactly, we pass from ‘inside’ to ‘outside’ or when we pass through the ‘hole’ (in Figure 20), where the continuous form is punctured. In other words, both the Möbius-form and the Klein-form are self-contained, self-reflexive, and self-sufficient when considered strictly within two-dimensional space and three-dimensional space respectfully. Thus, from within, there is no indication of any zone of uncontainment, nor is there explicit indication of any containing or contained. That is to say, with respect to the Klein-form, strictly within the surface, that infinitesimally thin skin, an inhabitant in three-dimensional Sphereland sees her world as continuous, and she thinks she can describe it in clear and distinct terms. However, it behooves us to take the processual nature of Peirce’s categories into more comprehensive account with respect to our forms.

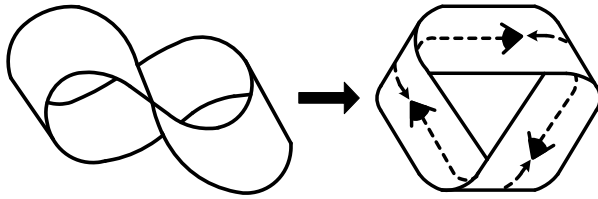


Figure 24. A flattened Möbius band

#### 10.4. Temporal-spatialities

The self-contained, self-reflexive, self-sufficient form is Firstness. But there is the part uncontained: everything outside the form; it is pre-form, nothing of which has been formed. This is tantamount to the possibility of all possible possibilities, as symbolized within Figure 1.

If we flatten the Möbius-band, as in the transition in Figure 24, and if we imagine a Flatlander traveling along the surface of her world, we of course come to the realization that she can only very painfully become aware of the ‘slightly-more-than’ two-dimensionality of her world, and that she can hardly be privy to the discontinuity at the point where the band is twisted in three-dimensional space. As far as she is concerned, her world is all there is. In other words, the *whole* of her world is tantamount to Firstness, and from *within* her world, the notion of ‘otherness’ presents no problem, for any and all forms of ‘otherness’ begin their becoming within her planar world.<sup>74</sup> In contrast, since we can catch a glimpse of her world from an outside vantage point, it has already become, for us within our three-dimensional existence, Secondness.

74. At this juncture I must include a few words on the temporal-spatial nature of bodymind *i-i-i-* and sign making and taking with respect to OAHs, which is antecedent to language. This bears on much of psychoanalyst Daniel Stern’s (1985) work with infant behavior. Stern tells us that nonverbal bodymind behavior is temporal and dimensional rather than categorical. Intercorporeal temporal-spatial dynamics are nonlinear in contrast to language’s tendency toward linearity; they are richly subtle and vaguely suggestive rather than clear and distinct; they have fuzzy rather than precise borders; they mediate language rather than language mediating them, as is often the opinion. Bodymind experience creates language; language does not construct experience. In the terms of this essay, the process is from Firstness to Secondness to Thirdness, from pure space to temporal-spatiality, from a point to a line to a plane to a cube to a hypercube, from figure ‘8’ to Möbius-band to Klein-bottle, and from feeling to sensation and experience prior to thought, conceptualization, and linguistic window dressing (see also Sheets-Johnstone’s work on Stern in 1990, 1999).

Moreover, her world, as a sign of itself, and its ‘otherness’ of which we have become aware from our perspective, can be brought into mediation through our idea of Flatlander’s impoverished existence within her planar prison to offer us a sense of Thirdness. We collaborate and co-participate with this Thirdness of the sign as we engender an interpretant of her world as signness. And a relatively genuine sign emerges, *for* us, of the sort that would have been well-nigh impossible for Ms. Triangle, the Flatlander.

How, then, should we qualify our own existence with respect to the Klein-form? The outer surface of the bottle delineates the part containing; the inner surface delineates the part contained; both of them are in interrelationship of Secondness with one another. The part contained includes three-dimensional space, the inside of the bottle; that space is contained by the containing space, which is also three-dimensional. We can interpret the *CCC* and *i-i-i-* of containing and contained spaces in terms of Thirdness, which was, itself, engendered by virtue of the part uncontained, the sphere of all possible possibilities, ‘emptiness’ – Figure 1.

But, once again, there’s that cantankerous ‘hole’ in the Klein-form. It is containing, because, as a ‘hole’ – that is, as a periphery – it contains the two-dimensional space, within the ‘hole’; it is also contained, because, as a ‘hole’ it is contained by the three-dimensional space above and below the tube that ‘cuts’ the larger tube making up the Klein-form. Since we’re on/in/of the form, we’re not ordinarily aware of the ‘hole’. But it’s there, by the grace of the four-dimensional manifold. We’re within three dimensions of space and a time dimension, all wrapped up into one. At each moment within the time dimension we’re in the present (Firstness). There were past moments, memories (Secondness) – all somewhat distorted – and there are anticipations of future moments (Thirdness) – hopeful and fearful premonitions of things to come. Yet we’re always on/in/of the present, as we crawl along our time-line within our three-dimensional space. Like the planar depictions of Flatland and Sphereland, our own bodies are a two-dimensional surface, with holes, passages from containing and contained by virtue of the uncontained. Thus, just as we cannot entirely know the Klein-form, so also we cannot entirely know our own bodies, nor can we entirely know any three-dimensional object within the four-dimensional manifold.<sup>75</sup>

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75. Phenomenological and hermeneutic studies have convincingly demonstrated this aspect of our perceptual and conceptual limitations. See especially Rosen (1994), and, from a diversity of views, Cataldi (1993), Ihde (1986), (1999), Low (2002), Merleau-Ponty (1962, 1968), and Ricoeur (1974).



### 10.4.1. Surface appearances

All this is to say that we're on/in/of the surface of the Klein-bottle, like the Flatlanders on the Möbius-band, and, like them, we can't know the discontinuity except by an imaginary act, a musing act. For a Flatlander, the barrier is in two dimensions marked by a one-dimensional 'slit'; for us, the barrier is in three dimensions marked by a one-dimensional line creating a two-dimensional 'hole' – but we live in three dimensions. The part containing is a two-dimensional surface paradoxically containing three-dimensionality, as we travel along the surface on a one-dimensional line, our 'world-line'. The three-dimensional part contained is that which is contained by the surface (and opens out to the four-dimensional uncontained) by 'cutting an imaginary hole' and becoming, itself, *self-contained* – that is, the uncontained, if considered within a four-dimensional frame of reference.<sup>76</sup>

But our world-line can't go past the 'hole', the intersection in the Klein-bottle, without becoming, itself, *self-contained*, folding around and into itself, like the snake eating its tail. This transformation, topologically as it were, is purely imaginary. This is like the Linelander, who at the fold of the Möbius-band imaginarily goes from 'inside' to 'outside'; but there is no 'inside' or 'outside' on the two-dimensional plane. We, likewise, metaphorically speaking, go from 'inside' to 'outside' of the 'hole', the intersection; but there is no 'inside' or 'outside'. If we could pass through the 'hole' we would be in the 'tunnel' – the area enclosed in the dotted lines of the Klein-bottle in Figure 21 – that, when it enters the uncontained, it does so through a 'hole' that is neither in the container nor in the contained.

Of course, we must constantly remind ourselves that we are normally on the 'outside' surface of the Klein-bottle, like the Linelander is normally on the 'outside' of the Möbius-band surface. To all appearances, the Linelander can assume, her world is as flat as can be. And, one might continue, our own spatial experience is to all appearances as Euclidean as can be. Appearances, however, often conceal rather than reveal. Mathematician Henri Poincaré gives us an example shortly after the turn of the twentieth century:

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76. All this bears on what are called *hypersurfaces*. A hypersurface is an  $n$ -dimensional manifold contained within ' $n + 1$ ' dimensional space. A one-dimensional curve can be graphed on a two-dimensional plane (the figure '8', Lineland), a two-dimensional fold exists in three-dimensional space (the Möbius-band, Flatland), and a three dimensional involuted form exists in four-dimensional space (the Klein-bottle, Sphereland).

Let us imagine to ourselves a world only peopled with beings of no thickness [our Flatlanders], and suppose these ‘infinitely flat’ animals are all in one and the same plane, from which they cannot emerge. Let us further admit that this world is sufficiently distant from other worlds to be withdrawn from their influence, and while we are making these hypotheses it will not cost us much to endow these beings with reasoning power, and to believe them capable of making a geometry. In that case they will certainly attribute to space only two dimensions. But now suppose that these imaginary animals, while remaining without thickness, have the form of a spherical, and not of a plane figure, and are all on the same sphere, from which they cannot escape. What kind of geometry will they construct? In the first place, it is clear that they will attribute to space only two dimensions. The straight line to them will be the shortest distance from one point on the sphere to another – that is to say, an arc of a great circle. In a word, their geometry will be spherical geometry. (Poincaré 1952: 37–38)

Whatever geometry we hold, according to our conventions, is the geometry that was once chosen, and eventually it became part of our conventions, our appearances. Our conventional geometry is neither a matter of ‘synthetic *a priori* intuitions nor experimental facts’. Rather, it depends on choice from among all the possible geometries. ‘What then [asks Poincaré] are we to think of the question: Is Euclidean geometry true? It has no meaning’ (1952: 50).

Prior to the twentieth century, Euclidean geometry was the standard, and it was generally taken as ‘true’. Einstein demonstrated that Riemannian curved space geometry would be a more reliable candidate. It is now the standard, at least for the physics community. How can we handle this apparently conflicting condition? Must alternate possibilities be mutually exclusive? Must we be willing to accept whatever alternative that might happen to pop up because it is more convenient, even though it comes into conflict with our present standards and conventions? In answer to the last two questions: Yes, and yes. In answer to the first question: The sciences, the arts, and our concrete life situations in general, have often met with such paradoxical situations. And we’ve generally found ways to cope. Cope, by taking vagueness and ambiguity and conundrums and paradoxes seriously. But not too seriously, for we usually have a knack for coping with them, from within them, and getting on with life.

Enough of this. I really must get back to the central issue at hand.

## Chapter 11

### How past, present, and future entangle living

The notion of interconnectedness calls for continuing attunement toward (1) further implications of Figure 1, and (2) QW-LW complementarity through consideration of Heisenberg's and Schrödinger's interpretations of QW, by way of (3) a 'thought experiment' illustrating LW and showing how it can possibly have a bearing on QW principles. Peirce's categories once again enter the scene, along with one of his own 'thought experiments', which evokes further allusion to Gendlin's ruminations on the limitations of language. The motive is to provide (1) an enhanced sense of how process is able to perpetuate itself, (2) a notion of how time, change, and the emergence of novelty can semiotically come about, and (3) a possible idea as to how spontaneity, improvisation, and creativity, all by way of musement and abduction, can begin in the first place.

#### 11.1. More simple and at the same time more complex than meets the eye

How do we – or any other object for that matter – get from one place to another? The answer, we would ordinarily be prone to think, is simple. We follow a path, preferably the shortest distance, between the point of departure and the end. But not so simple, as Heisenberg demonstrated. At least not so simple, if we are in QW.

By way of a beginning, allow me to suggest that if we consider QW as antecedent to LW, to our empirical living and breathing world as we (think we) know it, we might be surprised when we find out where it takes us. According to classical mechanics, objects are most effectively described in terms of trajectories in time and space, trajectories that are conveniently mapped out on the Cartesian plane to give a picture of what is going on. Within QW, in contrast, the picture of a 'trajectory' or 'path' is deceptive: there is no picture, for, in a manner of speaking everything is everywhere at once. There can be no picture, for there isn't really any *everything*; there is only *no-thing*, until some-*thing* begins the process of its becoming. Timelessly speaking, before this *something* begins its becoming, it is *everywhere* and *nowhere*, as QW possible possibility. In a nutshell, this is the nature of Heisenberg's 'matrix mechanics' insofar as I understand it.<sup>77</sup>

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77. Although, as I mentioned above, I taught chemistry and physics for six years, admittedly, my understanding of QW remains limited. I trust, nevertheless, that I am not

‘Matrix mechanics’ attends to interconnected interrelations, not things, and interrelations entail interdependence and interaction (*i-i-i-*) of all things, not as actualized entities but as possibilities – or ‘potentiality’, in Heisenberg’s (1958) words. Heisenberg didn’t use numbers to specify locations of things in space and their trajectories in time, as in classical mechanics. He used collections of numbers making up abstract ‘matrices’. Within the world of these matrices, things might be anywhere; yet they are nowhere, because they are only possibilities. Heisenberg’s matrices are not limited to space, however. They also deal with possible velocity or momentum in time. A particular possible *some-thing* has an entire array of possible resting places and a range of possible momenta. Thus, there are no paths along which that *some-thing* travels continuously from its beginning to its destination. The *some-thing*, as possibility, has no timespace specificity; it is everywhere, and it is nowhere. It is somewhere, *somewhen*, only after it has entered into *CCC* and *i-i-i-* with *some-thing* – or *some-one* – else. Semiotically speaking, that *some-thing* (or *some-one*) else is *CCC* and *i-i-i-* with the initial *some-thing*, and in the process the *some-thing* is rendered a possible sign; that is, a sign-becoming.

This entails process, for sure. But it is process only during the moment when the range of possibilities from which the *some-thing* in question emerges, and then, with respect to the next moment, there is a range of possibilities for its becoming *some-thing* *some-where* else, in an indefinite number of directions with respect to where it happens to be. The timespace context of this *some-thing* during a successive moment is uncertain – i.e. Heisenberg’s Uncertainty Principle. But I’m getting ahead of myself. Back to Heisenberg’s radically taking his leave of classical mechanics.

Newton’s equations tell us the story of our object’s path from somewhere to somewhere else within a specific temporal increment. It tells us the object’s location during a particular moment, and it tells us its momentum, which informs us regarding where it’s going and where and when it will be at a future moment, barring the object’s coming into conflict with some other object. All in proper order. In contrast to this picture, Heisenberg’s Uncertainty Principle does away with paths altogether. If a position is pin-pointed for *some-thing*, its momentum cannot be precisely specified, and vice versa. Heisenberg’s position and momentum do not apply to actual *some-things*, we must constantly bear in

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doing semantic violence to the subtle intricacies of QW when I interrelate it with the following Peirce-inspired LW-based ‘thought experiment’, guided by expositions from reliable quantum physicists (Pagels 1988, 1989; Penrose 1989, 1996, 2005; Smith 1995; Walker 2000), and by popular ruminations from Bohr, Heisenberg, Schrödinger, and others.

mind, but to possibilities or ‘potentialities’. No-thing, simply *is*, strictly speaking. But it might be in the process of becoming at some future timespace juncture, and when this process begins, it might be within one of a possible infinite number of timespace contexts.

In regard to a QW-LW interpretation of sign processes, we must be mindful that Heisenberg’s concerns were with QW, while Newtonian mechanics remains within our actual concrete LW. Nevertheless, if we take Heisenberg’s results in terms of signs as possibilities, along with their possible ‘semiotic objects’ and their interpretations (or interpretants), we have the makings of pre-Firstness (Figure 1), or what might be possibly emerging into the light of day as signness, actualized signs *of some-thing for someone in some respect or capacity*. In physicist Evans Harris Walker’s words:

Heisenberg was able to reexpress the classical equations of motion and to give them a new meaning in terms of arrays or matrices of possible locations and possible motions. His formulation does not follow the particle from one location to another but, rather, creates an array of values representing all possible measurement results that might be found when a measurement is carried out on the object. It is as though the way in which an object gets from one place to another, from one energy to another, or from one orientation to another matters much less than the idea that eventually the object will be observed, and that when it is observed, it may be found in any one of a whole collection of possible states. Physics no longer describes where, but the potentiality of where; not how energetic, but the possibilities for an object’s energy. (2000: 56)

Analogously speaking, Peirce’s signs, their ‘semiotic objects’ in our physical world or the world of our conscious mind, and their interpretations, consist of a range possible timespace contexts (‘possible states’). Rather than signs simply as they are here-now and there-then, the range of possible timespace contexts holds an equal range of possible values or interpretations with respect to those signs in CCC and *i-i-i-* with some-thing or some-one else *in some possible respect or capacity*. It is as though the manner in which a sign and its ‘semiotic object’ get from one place to another and from one interpretation to another or ‘from one orientation to another matters much less than the idea that eventually the’ sign, its ‘semiotic object’, and its interpretation ‘may be found in any one of a collection of possible states’. Regarding ‘possible states’, we should not be concerned with the where and when of the sign and its ‘semiotic object’, but with the possibility of where and when, and with the multiple possibilities of its interpretation any-where and any-when.

Another complaint pierces the air: ‘Yes, but what practical bearing does this have on the concrete world of our semiotic coming and going?’ Brief meditation on Schrödinger ‘wave mechanics’ might give us a clue.

## 11.2. From a complementary point of view

Heisenberg's 'matrix' interpretation of quanta was complemented by Erwin Schrödinger's 'wave mechanics'. Heisenberg described the quantum world by sets of numbers specifying possibilities for the emergence of particles. Schrödinger described every-*thing* possible in terms of 'wave amplitudes' from which possible particles might emerge. Together, they are different ways of talking about the same quantum events.

Schrödinger's work entails introduction of a new symbol, ' $\Psi$ ', specifying the 'wave amplitude'. This 'wave amplitude' doesn't involve ordinary waves, like ripples on the surface of a pond, but 'imaginary' waves. It contains an 'imaginary' factor, the 'imaginary' number, ' $\sqrt{-1}$ ', commonly written as ' $i$ '.<sup>78</sup> Semiotically speaking, I have symbolized ' $\sqrt{-1}$ ' by ' $\sqrt{\bullet}$ ', which in Figure 1 becomes the third leg of the tripod, ' $\Psi$ ' – tantamount to  $i$  – when playing the role of mediator. Notoriously, the square root of minus one has no solution. The answer is neither '+1' nor '-1'. Yet, when the number '-1' in the square root sign is multiplied by itself, it impossibly yields '-1'!

Actually, Schrödinger's ' $\Psi$ ' consists of a mixture of integers called 'complex numbers'. These numbers are of the form ' $a + bi$ ', where ' $a$ ' and ' $b$ ' are real numbers and ' $i$ ' is the imaginary number. This 'complex' nature of ' $\Psi$ ' doesn't mean that it is purely imaginary and therefore has no real existence. The 'imaginary' in mathematics has nothing to do with nonexistence as we often think of the word 'imaginary'. 'Imaginary' in mathematics and wave mechanics means that there is something absent that might possibly be present. But there's still a problem, it might seem: ' $i$ ' implicitly bears a negative sign – of course that's why it is 'imaginary' – so how can we put it in tune with the physical world (LW)? That is to say, how can there be 'minus something' in LW?

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78. It bears mentioning that Schrödinger uses ' $\Psi$ ' as a symbol for his 'quantum wave function'. According to physicist Louis de Broglie:

The  $\Psi$  function, . . . does not represent something which would have its place in a point of space at a given instant; it represents, taken in its entirety, the state of knowledge of an observer, at the instant considered, of the physical reality that he studies; there is nothing surprising, therefore, in the fact that the function varies from one observer to another. (Broglie 1955: 131)

If we replace de Broglie's 'state of knowledge' with 'knowing process', 'observer' with 'knower', and 'physical reality' with 'object of knowing', his words suggest that in its most basic form, signifying processes are remarkably in tune with life processes and physical world processes.

By signing a ‘possible semiotic object’, as in Figure 1, I would like to think. The process unfolds like this. If the possible sign is ‘+’, if the possible semiotic object is the sign’s *other*, ‘-’, and if ‘ $\Psi$ ’ as possibility provides the necessary mediating function, then the semiotic ‘ $\Psi$ ’, like ‘ $a + bi$ ’, has a possible ‘real’ part (‘ $a$ ’) and a possible ‘imaginary’ part (‘ $bi$ ’). The possible sign is possibly ‘real’, and the possible semiotic object is *other*, or ‘imaginary’, at least until ‘ $\Psi$ ’ mediates the two possibilities. And an actual sign that has emerged from the range of possible possibilities, consisting of a representamen (R), a semiotic object (O), and an interpretant (I) (recall Figure 1a), brings the object in question into the ‘semiotic world’ as a genuinely signed object. The merely possible semiotic object is ‘imaginary’, because the sign can interact and interrelate with its *other* in that *other*’s absence. When a possible sign emerges as a ‘real’ or actual sign, whose object is not present but either past or future, the ‘imaginary’ is in the process of making its play.

For example, if I say ‘The Berlin Wall came tumbling down’, I allude to a now absent event that occurred years in the *past*. It ‘was real’ for sure, *then*, but *now*, it exists in my memory bank to be evoked as an image I once saw in the newspapers and magazines, on TV, and such. It is ‘imaginary’. If ‘Berlin Wall’ is the sign, it is a sign *of* something, the image, *for* someone, *in* some respect. The ‘*in* some respect’ calls for mediation of the ‘real’ (sign) and the ‘imaginary’ (image or unmediated or ‘imagined’ semiotic object) in order to ‘realize’, to make ‘semiotically real’, the ‘imaginary’ component of the sign. Then the sign and its ‘semiotically real’ object are mediated, an interpretant emerges, and the sign is in the process of becoming.

When creating her ‘imaginary world’, the physicist squares the ‘complex number’, ‘ $\Psi$ ’. In other words, the ‘imaginary’ number, ‘ $\sqrt{-1}$ ’, accompanying ‘ $a$ ’ and ‘ $b$ ’ in the ‘complex number’, doesn’t exist, but when ‘ $\sqrt{-1}$ ’ is squared, it becomes ‘ $-1$ ’. Thus squaring ‘ $\Psi$ ’, as in ‘ $|\Psi|^2$ ’, yields what is called the ‘probability density’ of the wave amplitude, and it sets the stage for its possible ‘collapse’ into a ‘particle-event’. The physicist’s equation regarding QW is a purely abstract mathematical formality, while the semiotic model (Figure 1) entails an abstraction that can be concretely ‘realized’ in LW.

In both cases, however, there is the ‘real’, the ‘imaginary’, and the CCC, *i-i-i*, and BSO process bringing about mediation. The physicist’s ‘ $\Psi$ ’ implies (1) ‘possibility’ as wave amplitude, (2) ‘actuality’ after the ‘collapse’, and (3) ‘realization’ of the ‘quantum event’ after the ‘collapse’ has been duly recorded – and interpreted. In metaphorically comparable fashion, the semiotic ‘ $\Psi$ ’ entails (1) a ‘possibly possible sign’, (2) a ‘possibly – and “imaginarily” – actualized semiotic object’, and (3) mediation, which creates an interpretant once the sign has been duly acknowledged. I repeat, there is no QW phenomenon unless

it is a recorded phenomenon, and there is no genuine LW sign unless it is an interpreted sign – having taken on its respective interpretant. (Of course I'm using metaphorical allusions here, in order to illustrate my point regarding the nature of the Peircean sign in view of its antecedent illustrated in Figure 1.)

Enough abstract ruminations. A concrete 'thought experiment' is in order.

### 11.3. Getting down to earth

Suppose I'm feeding 100 young hogs that at this stage of their lives are worth an average \$100.00 each (no insult to the swine is intended, but this paltry price conveniently fits the story I'm telling). Before I can fatten them up for market, unfortunately, 36 of them catch cholera and die. To my dismay, I'm left with only 64 hogs.

If I still had all the hogs, I'd be \$3,600.00 richer, but as it is, I'm only worth \$6,400.00, and I have a lot of expenses to cover in the future. My bank account 'imaginarily' registers the absent 36 hogs that could have been there but they aren't, an absence that affects, as well, my conception of the remaining 64 swine. My memory bank also contains the absent hogs, that can be evoked as an 'image' (the 'imaginary' component) as an unwanted complement of the 64 present hogs and my felicitous memory of the original 100 animals.

In 'complex number' LW terms, we might say that after losing over a third of my investment, what I'm left with is complementary with the QW sign,  $|\Psi|^2$ . In other words, in some past timespace context I started out with 100 hogs. That's the real number (' $a$ '). But, of course, it could have been 99, 101, 98, 102, or one of many other possibilities had my decision been something other than what it was. At present, I'm left with 64 hogs, and that number could have been 63, 65, 62, 66, or whatever, according to what destiny had in store for me and my investment. The 36 absent hogs, whose demise is now in the past, are 'imaginary' (' $bi$ '). Yet they are certainly a factor in my perception and conception of the remaining hogs, and as an 'imaginary' value in my memory bank, they will in the future continue to be a factor.

Schematically put, my situation is this:  $100$  (or  $10^2$ )  $+ 36i$  (or  $6^2i$ )  $= 100 + (-36) = 64$ . My original sign (R) was '100 hogs' (' $a$ '). The 'imaginary' value, as a past object (O), consists of the 36 deceased animals (' $bi$ '). Now, what has become the sign (R) is 64 hogs; the present object (O) is 64 'actual' grunting beasts; and the interpretant of the present sign consists of past possibilities, (' $a$  [100]  $+ bi$  [36]  $\rightsquigarrow \Psi$ '), that have been actualized as a sign (R-O-I). The past includes the entire train of events leading to the present situation that will have had a bearing on my consideration of the sign, which necessarily includes my



memory, ‘image’, of the original 100 hogs (*‘a’*) and the 36 deceased animals (*‘bi’*). In this sense, the semiotic *psi* symbol, ‘ $\Psi$ ’, metaphorically complementary with that of Schrödinger’s equation, would be tantamount to: ‘ $R + O_i (= \Psi) \approx R-O-I$ ’. That is, if we include present, past, and future.<sup>79</sup>

The interpretant of the surviving animals in question (64) will have been no genuine interpretation without inclusion of the original animals (100) and the ‘imaginary’ factor, the absent animals (36). With respect to these animals, both present and absent, 100 is not 100 in the concrete sense without 64 and 36, 64 is not what it is without 100 and 36, and 36 is not what it is without 100 and 64. In other words, the numbers (signs), and the animals they denote, are all *CCC*, *i-i-i-*, and *BSO*. In a manner of putting it, just as the formal ‘imaginary’ component is necessary in Schrödinger’s QW equation, so also, and complementarily, the once concrete but now ‘imaginary’ value is necessary in LW. And just as no phenomenon can be a QW phenomenon unless it is within some future timespace context recorded, so also, no sign can be genuine unless it becomes at some future timespace context interpreted (in light of *CCC*, *i-i-i-*, and *BSO*). *Past*, both ‘real’ and ‘imaginary’, has a bearing on the *present*, or the ‘collapse’ of ‘possibles’ into ‘actuals’, and they flow toward the *future*. Moreover, QW and LW are themselves equally *CCC*, *i-i-i-*, and *BSO*; they complement one another (see Herbert 1987, and especially Smith 1995, for further substantiation of this interconnection between QW and LW).

At least I would like to suggest so much.<sup>80</sup>

### 11.3.1. *The model, geometrically depicted*

‘Now what, once again’, I’m immediately asked, ‘does this have to do with anything? And what essential bearing does Heisenberg’s “matrix mechanics” and “uncertainty principle”, and Schrödinger’s “wave mechanics”, have on your story about your swine signs, or any other signs for that matter? Why do I need your cute allusions in order to derive meaning from my signs?’.

Yes, of course. So, consider Figure 25, a graphic illustration of my swine dilemma. As the once proud owner of 100 animals I assumed economically I

79. By the same token, semiotically speaking, if I had bought 150 instead of 100 hogs, those extra 50 hogs are at present ‘imaginary’ insofar as they could have been ‘actualized’ but were not, and if of the 150 hogs I had lost 86 instead of 36, those 86 hogs would now be ‘imaginary’ in terms of my memory of what might have remained ‘actualized’ in the present but is not.

80. This is a bizarre way of looking at ‘ $\Psi$ ’, I must quickly admit, but in a metaphorical (that is, semiotically ‘real’, or LW, rather than QW ‘real’) manner of speaking, that’s the crux of the issue.

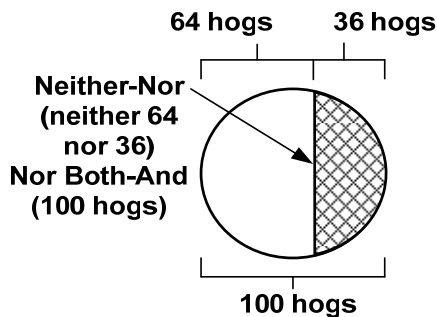


Figure 25. My swine dilemma

was in fine shape. When the number was reduced to 64, my pecuniary standing was in trouble. The subdivided circle represents my plight. The circle itself separates my swine situation abstracted from everything else in my life. However, what is the meaning of the line separating the circle from everything else? And what is the meaning of the line subdividing the circle? Peirce, we've noted, had some seminal remarks in this respect. The straight line, like all lines of this nature, are necessary lines of demarcation distinguishing something from something else. But what, more precisely, is a line? In a geometric sense, as noted with respect to Figures 2 and 5, it is an infinitesimal nothing that must be endowed with some visible designation in order that its function may in practice be carried out. So actually, a line is 'nothingness' that is nonetheless an indispensable 'somethingness'. And as 'nothingness', it is by no means completely devoid of meaningness, hence it must be some-thing of utmost importance. And it is.

But what is this meaningness? It rests in the line's *CCC* and *i-i-i-* with the two areas it distinguishes. Does the line represent 64 hogs? No. Does it represent 36 hogs? No. Does it represent the sum of 64 and 36? Negative also. But in a sense it does represent the sum. It 'imaginarily' carries the implication of 64 hogs and 36 hogs, or the total, 100 hogs. How so? Because as Non-64 (the line does not represent 64 hogs) it shares meaning with 36 (which is Non-64, not part of the 64 animals), and as Non-36, the line shares meaning with 64. So even though the line is neither an indication of 64 nor of 36 hogs, in another respect it negatively indicates both 64 and 36 hogs. This is to say that: (1) possible interpretation of *present* signs interrelates with signs that in the *past* possibly could have been actualized in place of those signs *present* but were not, and it interrelates with signs and their interpretants that possibly *will have been* actualized within some *future* timespace context, (2) all signs are *CCC*, *i-i-i-*, and *BSO*, and (3) *CCC*, *i-i-i-*, *BSO* and sign possibilities are dependent on '0  $\approx$

∅ ∞ . . .', that is, on 'emptiness', 'nothingness', inherent in the line of demarcation as illustrated in Figure 25. This, I would respectfully submit, is why we need the metaphorical semiotic counterpart to QW in order to fully understand LW sign processes.

Of course we saw so much in Figures 2 and 5. So let's move on with a further word from Peirce in a comparable respect.

#### **11.4. It all emerges from the line, the Included-Middle, the 'middle way'**

Peirce writes that the process of actuals emerging from possibles is 'a process which extends from before time and before logic' (*CP* 6.193). Consider the 'thought experiment' he offers to illustrate his point. A clean blackboard can provide the image of a vague set of 'imaginary' possibilities; in fact it can depict an infinite number of possibilities, since it consists of an infinite number of points. It is continuity, an indeterminate multitude of possible dimensions and points, just as the ideal continuum is an indeterminate multitude of possibilities.

If we draw a line on the blackboard, a discontinuity (mark of distinction) comes into existence. But this discontinuity is itself a continuity (an infinity of points in the relation of side-by-sideness) complementary with the continuity of the blackboard. But the chalk mark is not really the line, for a line is ideally an invisibility of infinitesimal thickness. As we've noted the line is a white strip, a thin elongated plane, which severs and displaces a segment of the black surface:

Thus the discontinuity can only be produced upon that blackboard by the reaction between two continuous surfaces into which it is separated, the white surface and the black surface. The whiteness is a Firstness – a springing up of something new. But the boundary between the black and white is neither black, nor white, . . . It is the pairedness of the two. (*CP* 6.203).

The blackboard, the original continuum, is broken by a first mark. This mark, however, is the product of an arbitrary act, for it could have been drawn in an infinite number of different places. After having been drawn, it can be erased, and after erasure, it will not interfere with a subsequent mark drawn in another place.

Placing Peirce's words in the Figure 25 context, the line separating the circle into two categories, textured and non-textured, is itself neither textured nor non-textured. Yet as not-non-textured, it possesses a property shared with textured: it is not-non-textured. And it also shares a property with textured: it is non-textured. In a manner of speaking, then, the line is both textured and

non-textured. Since it is not-non-textured, it must be in some sense *as if* textured, and if it is not textured, it must be in some sense *as if* non-textured. But the line is actually nothing at all, a mere nonexistent ideality, an ‘imaginary’ construct. It is ‘nothingness’, ‘emptiness’. Which is to say that it could have been, like the line drawn on the blackboard, placed at a host of different places within the circle. In other words, the quantity of pigs that suffered from cholera and died ‘imaginarily’ could have been 35, 37, 34, 38, or whatever, and the number of animals I had originally acquired ‘imaginarily’ could have been 99, 101, 98, 102, or whatever. Circumstances led to my purchasing 100 animals, and to 36 of them having deceased. My destiny being what it was, the line was drawn in the Figure 25 circle accordingly.

Now, if the line is ‘nothingness’ or ‘emptiness’, its function is comparable to that of zero along the series of positive and negative integers. Zero is not an integer, for it has no sign of positivity or negativity. It is a non-number, a non-sign. Yet, though it is ‘nothingness’ or ‘emptiness’, it contains, within itself, the wherewithal for engendering the infinite series of positive and negative integers. But the mindfully musing mind doesn’t go directly from ‘emptiness’ to somethingness, as if from zero to one. There is an intermediary stage. For illustration of this intermediary stage, reconsider Figure 1 in the form of Figure 26.

We begin with ‘emptiness’. In view of prior discussions surrounding Figure 1, ‘emptiness’ is the absolute ‘emptiness’ of anything and everything. The im-

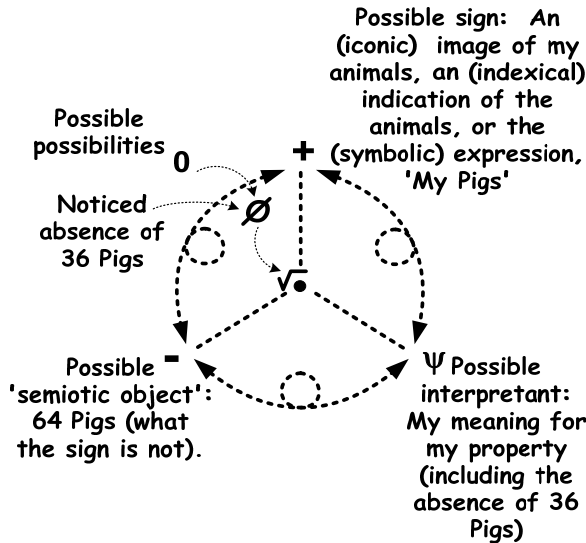


Figure 26. The dilemma semiotized

possibility of saying what ‘emptiness’ *is* or *is not* is notorious. So best we just think about ‘emptiness’ like mathematicians think about ‘0’, and let it go at that. Then we have the ‘empty set’, ‘ $\emptyset$ ’. The musing mind is obviously not in tune with ‘emptiness’, where the mystical mind fears not to dwell, but perhaps at least it can have access, albeit in a metaphorical way of putting it, to the ‘empty set’. The ‘empty set’ is the ‘noticed absence’ of something that was there but no longer, or it is the ‘absence’ of something that was never there at all but might be there at some future moment. In other words, it is definitely something: a container that happens to be empty, and when something is put in it, it is what it is in terms of its context, and its *CCC*, *i-i-i-*, and *BSO* with everything within that context.

Subsequently we have ‘ $\sqrt{\bullet}$ ’. The square root of minus one, like ‘ $\sqrt{\bullet}$ ’, has no direct re-presentation in the physical world; yet, embedded within certain sets of mathematical equations, it is capable of accounting for some aspects of that selfsame physical world. It embodies *both* what *is* and what *is not*, or *neither* what *is* nor what *is not*, without any possibility of deciding which should be foregrounded and which backgrounded (as suggested by the Tetralemma). However enigmatic ‘ $\sqrt{\bullet}$ ’ and ‘ $\sqrt{-1}$ ’ may be, they make up the eye of the swirl we see in Figure 26, where there is oscillation between two conflicting values ‘+’ and ‘-’, and the third symbol in the oscillating tripod, ‘ $\Psi$ ’, has no value, either positive or negative. It just *is* what it *is*.

Thus Figure 26 is a precursor to signhood; it makes up the fountainhead of any and all concrete signs regarding my particular pig dilemma. It is one among all possibly possible signs as depicted in Figure 1, the imaginary precursor making up the stage upon which the spontaneous, relatively uncommitted, musing mind, relatively free of presuppositions, preconceptions and prejudices, unfolds its play. The play unfolds before the musing subject has slapped prioritized, privileging, hierarchized, discriminatory signs on the presumed world ‘out there’ or on the world of mind. The play is free of logical justification and rational legitimation. Without logical cogency or rational aplomb, the subject, within the play of musement, swims in what would ordinarily consist of multiple inconsistencies and contradictions, in paradoxical undecidabilities. But such reason and logic is of no consequence for the muser. She is in the process of becoming; in a manner of speaking, she is *letting herself go*, just *letting go*, with nary a whit of those self-seeking, self-indulgent, ego-centered values in the actual world of hard-rock competition for power and control.

On this stage, positivity, ‘+’, is what takes its place in the tripod as a sign of Firstness. Negativity, ‘-’, is some *other*, that which the sign *is not*, as Secondness, some possible object, act or event, or the ‘semiotic object’ with which the sign enters into interaction. If we have only positivity and negativity, there is no

more than an undecidedly oscillating ‘+/-/+/-/+/-/+/- . . . n’ at the core of the Figure 26 sign map where we find ‘ $\sqrt{\bullet}$ ’. This timeless effervescence is *both* stasis *and* movement and it is *neither* stasis *nor* movement, as ‘+’, ‘-’, potentially mediated by ‘ $\Psi$ ’, gyrate around it. It is scintillating dance; but it is *only* dance, feeling without form, form without content. From pure dance, everything we take to be what *is*, is in the process of emerging and becoming something other than what it was becoming.

Figure 26 in this sense precedes concrete LW, like QW at least in this respect precedes any and all actual quantum phenomena. Without the ebullient, rhythmic, flowing Figure 26 dance, there is ‘nothing’; there’s just ‘emptiness’.

### 11.5. The relevance of it all

But let’s get a bit more down to earth.<sup>81</sup> Figure 25 provides us with: (1) the *function* of ‘ $\emptyset$ ’ (the original set of 100 animals has dwindled, and now, there is the ‘noticed absence’ of what there was but no longer is), (2) the sign as a generality, ‘Pigs’, (3) the ‘semiotic object’ (64 actual grunting survivors out of 100), and (4) my particular meaning with respect to what I consider part of my livelihood (but the 36 non-survivors, those absent ‘imaginary’ animals, whose past loss is now present, will have always exercised an influence on whatever meaning I might garner with respect to those surviving present animals). All the sign components are, entanglingly considered, *CCC*, *i-i-i-* and *BSO* with respect to memories of the sign’s past, its present state, and expectations for the future. All the signs are interconnected with all other signs within past contexts, the present context, and contexts to come.

Comes another challenge: ‘Heisenberg’s position/momentum uncertainty to which you’ve often alluded in this regard holds hardly any relevance for your LW semiotic scheme. Why, then do you need QW at all? Is it not just a lot of unnecessary window dressing?’

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81. In this section I elaborate further on the metaphorical – or allegorical, if you wish – implications of Heisenberg-Schrödinger with respect to sign processing. I must confess at this juncture that I certainly do not wish to imply that there is any direct correspondence between QW as specified by quantum theory and the nature of Figure 1 and the narrative surrounding it. Rather, the interrelationship between QW and Figure 1 is analogical-allegorical, and as such, I would hope that it can give further insight into the richness and complexity of Peirce’s conception of the sign and the *semiosis* process. If, as Lakoff and Johnson (1980) argue, human thought processes are largely metaphorical, I trust my hope will not be in vain.

I would tend to agree, that is, if I chose to limit myself to mere mention of Heisenberg's Uncertainty Principle. But there's more to the issue than some hazy allusion to uncertainty of the sort occasionally found among scholarly texts in the humanities and social sciences. What is important is not simply Heisenberg's principle evoked for the purpose of providing uncertainty presumably with an impressive degree of scientific respectability. Rather, what's important is what forms the basis of the uncertainty principle, 'matrix mechanics', and its complement, 'wave mechanics'. Schrödinger's equations make use of the *psi* symbol in specifying the possibility of a 'collapse' of the wave amplitude into a 'quantum event'. I have been so impetuous as to choose that same symbol, ' $\Psi$ ', as part of the expression of the range of *possible possibilities* one or more of which can *emerge* ('collapse') as an *actual* sign or signs. My maneuver is for a specific purpose: Figures 1 and 26, the semiotic counterpart of Schrödinger's wave mechanics, I would suggest, are no more than schemes for depicting *possibly possible* signs; they are by no means *actual* signs. Allow me an attempt toward exemplification of this pre-semiotic notion.

Roughly putting it, in order to obtain the probability that an electron can be found within a particular timespace context, for example, close to the nucleus of the atom, the physicist must first solve the Schrödinger equation for the problem. To accomplish her task, she mathematically describes the collection of particles and forces that interact on the electron within that timespace context. She puts the data at hand into the Schrödinger equation. Then she carries out the math needed to obtain ' $\Psi$ ' (that is, to get the results in the form of ' $\Psi$  = what will have been actualized as a consequence of the QW probability factor'). If she specifies a particular location in time and space and puts the proper numbers into the formula for Schrödinger's wave amplitude, ' $\Psi$ ', then she has a symbolic value for the wave function at that location.

Regarding the sign, a semiotic agent, within some concrete living world timespace context, brings about the emergence of an interpretant – that is, she selects a particular possibility from among all possible possibilities, and it emerges as a sign: ' $0 \rightsquigarrow \emptyset \rightsquigarrow \sqrt{\bullet} \rightsquigarrow \pm \rightsquigarrow \Psi \rightsquigarrow \text{R-O-I (signness)}$ '. In other words, she calls up a sign from the possible possibilities culminating in the emergence of ' $\Psi$ ', and the sign surfaces. But that sign, as suggested above, is metaphorically tantamount to a 'complex number' made up of a 'real' part and an 'imaginary' part. Thus the whole *CCC*, *i-i-i*, and *BSO* process is that of a possibly possible sign, ' $0 \rightsquigarrow \emptyset \rightsquigarrow \sqrt{\bullet} \rightsquigarrow \pm \rightsquigarrow \Psi \dots$ ', plus actual sign becoming, ' $\dots \text{R-O-I} \dots$ ' (or perhaps more adequately stated, ' $\rightsquigarrow \dots \text{R} \rightsquigarrow \text{O} \rightsquigarrow \text{I} \rightsquigarrow \dots$ '). In capsule form, we have, once again: ' $\text{R} + \text{Oi} (= \Psi) \rightsquigarrow \text{R-O-I}$ '.

Still another challenge: 'Why is the semiotic object linked to the "imaginary" value in your abstruse formulas? Shouldn't the sign be the "imaginary"'

element in your semiotic triad? For, especially in the case of symbols, the sign bears neither a resemblance (via iconicity) to its respective object nor is there a natural, causal, metonymical, hyperbolic or contiguous link to its object. Rather, the symbolic link of sign and object is by way of convention, which has become customary according to the form of life within the community in view of its laws, rules of conduct, modes of thought, ethical standards, and aesthetic tastes’.

Yes. Once a sign within its social context has entered into *CCC*, *i-i-i-*, and *BSO* with its respective mental or physical ‘reality’, by convention it stands a chance of becoming relatively stable. ‘Swans’ were for centuries considered ‘white’ and of no other naturally occurring color. That was considered the very nature of ‘swans’. Then a member of the British society spied a ‘black’ swan during one of his explorations. And the object of ‘swans’ suffered an abrupt shift. The physical sign, ‘swan’, remained relatively stable, but its object changed its attributes, and hence the meaning of the sign changed in order to accommodate the object’s modification. Thus the sign’s counterpart to a ‘complex number’, ‘ $a + bi$ ’ is ‘ $R$  (present, Firstness) +  $Oi$  (past, Secondness)  $\approx$   $I$  (future, Thirdness)’.

A very important difference between *QW* and *LW* semiotic processes rests in the interdependence of past, present, and future in *LW* with respect to co-participating semiotic agents’ expectations and surprises as discussed above. The presence of ‘black swans’ is *CCC*, *i-i-i-*, and *BSO* with the past dictating ‘white and nothing but white swans’ and a futurity specifying ‘usually white but occasionally black swans, . . . or perhaps swans of some other color’. In comparable fashion regarding my business venture, the presence of ‘100 minus 64 pigs’ is *CCC*, *i-i-i-*, and *BSO* with the past including ‘100 pigs’ and the futurity signifying ‘64 pigs – or perhaps fewer – plus the absence of 36 pigs – or perhaps more’. My expectation of selling ‘100 properly fattened hogs and reaping a handy profit’ collapsed, and it could have subsequently collapsed anew, within some still-in-the-future timespace context. The Europeans’ expectation of ‘white and nothing but white swans’ collapsed, and there’s no absolute guarantee that it will not in the future collapse anew.

Synthetically put, if I may repeat myself, such transitions involve the sphere of all possible possibilities, ‘ $0 \approx \emptyset \approx . . .$ ’, from which there emerges a set of possibilities specified as a ‘semiotic complex’, ‘ $\sqrt{\bullet} \approx + \approx - \approx . . .$ ’, symbolically depicted in terms of an ‘imaginary’ value, ‘ $R + Oi (= \Psi) \approx R-O-I$ ’, from which a possible or perhaps a likely candidate is selected by some semiotic agent for entry into her world as a sign subsequently to be interpreted: ‘ $0 . . . \approx R \approx O \approx I \approx . . .$ ’.



In this sense, ‘ $\Psi$ ’, as the principle character making up ‘complex *semiosis*’, flies in the face of private, autonomous individual and by and large solipsistically intuitive, sign processing as handed down by authority, or tradition, and it even apparently goes against our ordinary commonplace understanding. In my LW pigs example, there’s no problem, if we construe my dilemma in terms of  $100 - 36 = 64$ , or  $\$10,000 - \$3,600 = \$6,400$ . These are conventional signs, signs used as a consequence of tacit and collective agreement on the part of the members of a particular human community.

In the Schrödinger QW equation, squaring ‘ $\Psi$ ’ yields a QW probability factor; in my business venture, it is a matter of the LW probability of 36, 37, or 35 or whatever number of pigs. The probability factor told me that, given the conditions that include cholera microbes, it is highly improbable that all the pigs would die or that none of the pigs would die, and relatively improbable that even as many as half of them would kick the bucket. But 36 or 37 or 35? Those numbers are quite likely. And when the facts were known, the lucky number, at least for 64 of the beasts, was 36. The important point is that the probability factor bears interconnection beyond ‘ $\emptyset$ ’, and when ‘ $\emptyset$ ’ enters center stage, I was already primed to put the consequences of my unfortunate local cholera epidemic into play and place something in the ‘empty set’ – 64 pigs – while missing those that could otherwise have been placed there, but they are now out of the picture.

In Schrödinger’s equation, the complex number within ‘ $\Psi$ ’ tells us the probability that we will find an electron in a particular timespace condition, which is obtained from the squares of the ‘real numbers’ and the ‘imaginary number’ representing the wave function. But semiotic probability is LW statistical rather than QW statistical.<sup>82</sup> Yet, when we include possible possibilities (Figure 1) in the LW equation, the ‘imaginary’ factor enters, and with it, a form of semiotic uncertainty that, I would suggest, is complementary with QW uncertainty. In this sense LW bears an *overdetermined* range of possibilities (‘black’, ‘green’, . . . *n*’ swans) one or more of which might emerge, and it bears an *underdetermined* range of likely possibilities that what has been perceived and conceived as respectable OAHs in the past might become something other than what they were within some future timespace context.

Of course LW semiotic uncertainty isn’t mathematically computable, as are QW probabilities or even classical Newtonian mechanical LW statistical prob-

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82. This entails the difference between an LW coin toss, and a QW – imaginary – coin toss, as described in section 1.5. In the latter toss there is neither heads nor tails until the coin-as-wave-function ‘collapses’ into an ‘actual’ coin; then, and only then, can either ‘head’ or ‘tail’ show up.

abilities. Rather, semiotic uncertainty is a matter of past experience having developed *expectations* that bear on present experience with respect to what, according to those *expectations*, will likely have occurred during future experience. Then, minimal deviations from what was expected will go unnoticed, and a given sign will be taken as ‘more or less the same’ as other comparable signs from the past. In contrast, when within some future timespace context radical deviations pop up, *surprise* becomes a factor, since there is something other than what there might otherwise have been, and the search begins in order to account for this *surprising* difference that made a difference. This process requires a deep dive toward ‘0’ in order to come up with a pearl of thought, an abduction, that perhaps might afford some insight; then a possible solution (or hypothesis) is created and tried out for good measure, and everyday life is to at least a minimal degree created anew.<sup>83</sup>

Protests surface yet again. ‘Why go to all this trouble. It’s all form and no content. Your semiotic “equation” specifies nothing. It’s just a set of symbols that have no meaning until you have the signs – pigs or whatever – in your “semiotic world”, as you put it. Why not take the pigs into consideration after whatever was to happen actually happened, and analyze your semiotic world in normal and reasonable fashion? You’ll come up with the same results without all the extraneous hassle’.

Correct, that is, if we wish to consider only the concrete signs we have at hand in each and every situation. However, we should not, we cannot, simply ignore that which could have happened but didn’t, for it was part of our expectations coupled with our surprise, if and when a surprise comes about. And that which could have happened but didn’t, even though absent, nonetheless plays a role in our understanding of what actually happened, and it will play a role with respect to our renewed expectations and what we will select and what we will reject within future contexts with respect to what will have happened. What we select as a possible candidate for signness is so selected from the sphere of all possible possibilities, which is to imply that no matter what is selected, there remains a virtually uncountable number of possible possibilities that could have been selected but were not, and at some future moment, one of a vast number of those possible possibilities stands at least an outside chance of emerging and replacing that which had been selected. The upshot is that all

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83. This is fundamentally the pragmatic maxim put into practice. The ‘maxim’ doesn’t begin with signs we have before us, already at least partly interpreted, with their baggage replete with presuppositions, predispositions and prejudices. Rather, the ‘maxim’ draws from the ‘0’ degree through ‘▲’ and on to the formation of creatively abducted signs, and then the practical hands-on activity begins.

signs are *CCC* through *i-i-i-*, including entanglement of past signs, present signs, and signs that will have emerged, all of which entails *BSO*, and the interconnected whole of all OAHs and their respective signs. Plurimorphy all this; or in other words, mind-boggling, entangled complexity.

In an attempt to render further account of this entangled complexity, allow me to take Figures 1 and 26 to another level.

# Chapter 12

## Complexly entangled timespace

Further meditation on Figures 1 and 26 demands a more intensive pitch of abstraction. With some trepidation, and not without certain feelings of inadequacy for the task, in this brief chapter I nevertheless attempt taking another step into the consequences of Figure 1. This entails: (1) introduction of what is called the Argand plane, that makes use of ‘imaginary’ and ‘complex numbers’, (2) a concrete ‘thought experiment’ in an effort to exemplify these concepts, and (3) further words on Peirce’s categories and his notions of *vagueness* and *generality*. Ultimately, these considerations bear on the concept of complementarity as it is gradually becoming fleshed out.

### 12.1. An orthogonal shift reveals new worlds

Figure 27 offers the frontal image, ABCD, of the Necker cube, and we have a view of the cube’s face, as well as planes AEBF and BFDH. But we are unable to get a complete glimpse of planes AECG, EFGH, or CGDH. They are possible views from other possible angles, but from our angle, none of those possibilities have been actualized. So if we wish to be entirely honest with ourselves, we must concede that there is no cube at all, only a two-dimensional surface.

By either turning the cube or by imaginarily walking around it, we can enter into other perspectives and see the cube as a genuine cube. But on so doing, we are availing ourselves of orthogonal views, at  $90^\circ$  with respect to one another,

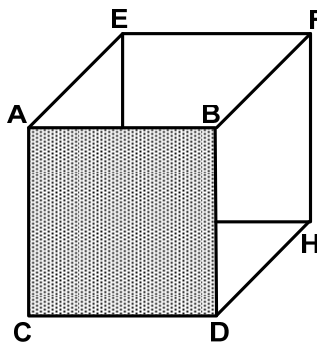


Figure 27. Perspectives of the Necker cube

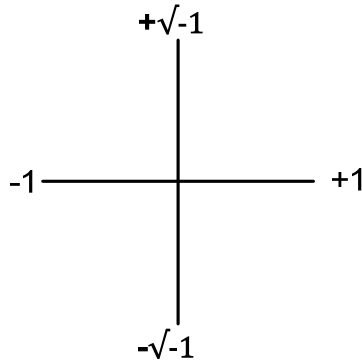


Figure 28. The Argand plane

within three-dimensions. A special type of orthogonality goes by the name of the Argand Plane. Its structure is comparable to the Cartesian plane, with  $x$  and  $y$  axes, the intersection of which is 0, with positive integers ordered to the right on the  $x$  axis and upward along the  $y$  axis, and with negative integers strung out to the left and downward from the 0 point. The Argand plane also sports two axes, but with ‘real numbers’ along the horizontal axis and ‘imaginary numbers’ along the vertical axis, as in Figure 28. It is as if we had three axes intersecting at the central point within the Necker cube, with horizontal and vertical axes,  $x$  and  $y$ , representing the positive and negative integers in Cartesian fashion, and the projecting and receding axis,  $z$ , representing the positive and negative ‘imaginary’ numbers, in Argand fashion. Back to Figure 27 for a moment.

ABCD could be our particular view of the cube’s face, while the infinite number of imaginary planes behind the opaque surface could represent all the other possible planes extending back toward EFGH to flesh out the cube. Now assume Ms. Triangle inhabits ABCD. That plane is the whole of her world. All the other parallel planar worlds lined up from ABCD to EFGH are outside her consciousness. They might possibly be the object of myths, folktales, or fantastic literature, or they could be merely the figment of her imagination. If we consider ABCD in terms of the Cartesian plane made up of  $x$  and  $y$  axes, the ‘complex plane’ or Argand plane, could be constructed, along a  $z$  axis, with the negative values ( $-\sqrt{-1}$ ) projecting out of the page and the positive values ( $+\sqrt{-1}$ ) projecting back toward EFGH. These ‘imaginary’ axes are no problem for our conceptual faculties, accustomed as we are to our three-dimensional world. Ms. Triangle’s perceptual and conceptual ways, as we’ve seen, are another matter entirely. The ‘imaginary’ axis is no more than the stuff her musings might be made of: it is literally ‘imaginary’.

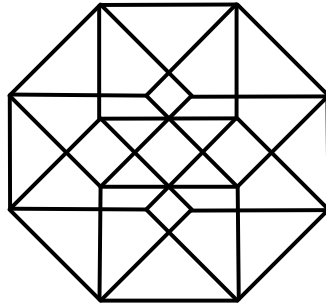


Figure 29. Hypercube becoming

Regarding our own physical existence, we're of course by and large limited to three spatial dimensions as far as our own percepts and concepts go. Mathematics, however, can account for many, and in fact an infinity, of possible dimensions. If we take our cube in Figure 27 and expand it in all six directions orthogonal to the six sides, we will have a hypercube, as illustrated in the center of Figure 29, which is the final form in Figure 9. In fact, if we rotate the six cubes in question, as viewed in that same figure, we will have eight different versions of the Figure 27 cube from eight different perspectives (Figure 30). In other words, if we imagined we could somehow see the cube from all eight vantage points simultaneously, we would perceive the hypercube. We would be

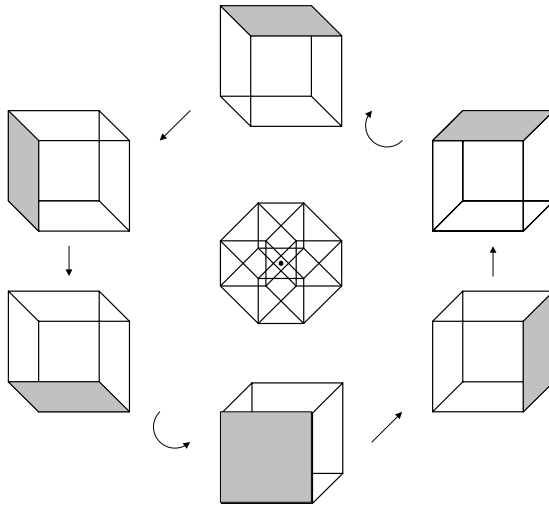


Figure 30. Hypercube perspectives

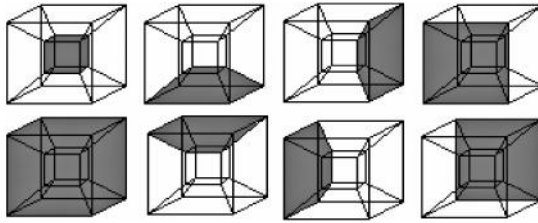


Figure 31. The expanded tesseract

in control of each face and its orthogonal or perpendicular counterpart all in one glance.

But, just as according to current psychological studies it is doubtful that we can actually view the Necker cube as both one possible cube and the other one in one perceptual grasp, so also it's surely out of the question to suppose we can catch a glimpse of all the cubes within the hypercube in the same instant (Blake and Sekuler 2005, Einhäuser, et al. 2004, Marr 1983). In fact, we've noted that the hypercube contains an infinite number of cubes projecting outward. For, just as a 0-dimensional point can engender an infinite string of points to compose a one-dimensional line, the line can engender an infinity of lines either up or down to compose a two-dimensional plane, and the plane can engender an infinity of planes either forward or backward to make up a cube, so also the cube must spread itself out in all possible orthogonals in order to construct a hypercube. Understandably, the task of 'seeing' a four-dimensional object is daunting.<sup>84</sup>

We've also seen that another way of portraying the fourth dimension is by way of the tesseract (Figure 10), consisting of a box within a box, and the two are connected to one another at the corners by eight lines – each line consisting of an infinity of points strung out between these corners, to imply an infinity of infinitesimal expansions of the smaller cube such that it is transformed into the larger cube. We have an expanded model of the tesseract in Figure 31 as an alternative to Figure 30, with the shaded areas depicting the infinite number of expansions in six directions to yield the plenum, with the full form depicted at the lower left hand side. Figure 31 affords us a better grasp of our hypertripod in Figure 11. If in the hypertripod we could darken all the triangles that emerge

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84. Perception of objects within the fourth dimension was precisely that which obsessed C. Howard Hinton, latter nineteenth-century thinker. He developed a set of elaborate schemes that, according to his way of thinking, can allow one to gain access to higher levels of consciousness. Whether he succeeded or not, to say the least the results are fascinating (Hinton 1987, 1988).

when the legs and apices of the two tripods are connected, we would be able to get a sense of the one-dimensional lines making up three-dimensional tripods, the two-dimensional triangles making up three-dimensional pyramids, and the three-dimensional pyramids making up a four-dimensional object impossible to grasp from within a three-dimensional purview.

So much for abstractions, and back to concrete living within which my hog dilemma was unfolding in Chapter 11.<sup>85</sup>

## 12.2. Processing the form

If I wish to ruminate about my modest swine venture, I have: (1) what *is* – 64 precarious four legged investments running around – (2) what *could have been* – 66, 65, 63, 62, or some other number of the obnoxious animals – and (3) what *will have been* – the number of investments I will haul off to market when they are sufficiently plump, that is, if cholera doesn't get to more of them.

My status at the moment is 'My investment, less the loss', for the loss plays a hand in the game. The 'semiotic object', like the sign, could have been other than what it is at present, and at some future moment it will have been becoming what it was becoming between the now right here and that future moment. In other words, it is tantamount to saying 'My investment will have found success, or not, depending on what transpires between this now right here and some future moment somewhere else, for what transpires in the future, and my interpretation of it, will also play a hand in the game'. In a manner of speaking, from '0' to 'Ψ', everything at every here and now has some bearing, however minute, on everything else in all the heres and nows: *entanglement*. Insofar as possible on a two-dimensional plane, we have the entire *CCC* and *i-i-i-* process in Figure 32. Thus, from a possible sign, having become actualized as a representamen (R replacing '+'), along with the semiotic object (O replacing '-'), and the interpretant (I replacing 'Ψ'), we have that possible sign's meaning, at least from our perspectival frame, which is relative to all other possible perspectival frames. But this meaning does not stand alone. All possible meanings that could have been engendered from other possible signs from the myriad array of possible perspectival frames, as absent, nonetheless have some bearing, however minute, on the meaning that was emerging, is emerging, and will have been emerging.

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85. I would hope that it is becoming increasingly apparent that what I've been constructing throughout these pages is a *model* of the *semiosis process*, and that I'm following the Peircean tradition of 'semiotic modeling' (Anderson and Merrell 1991).



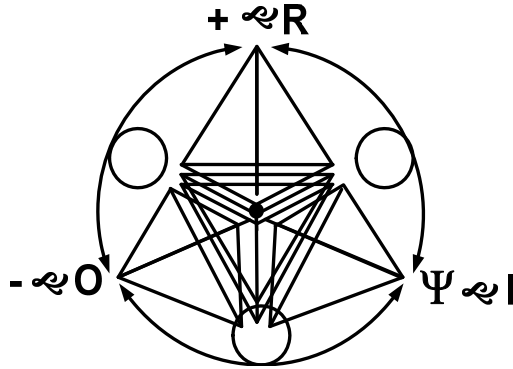


Figure 32. Hypersign becoming

This is to say that no matter how *general* the meaning of the sign that actually emerged may be, and no matter how determinate that sign may appear, there is invariably some degree of *vagueness*. This is as if, in Walker's words, the cube (in our thought experiment) had a picture painted on each of its six faces, and if:

the cube were under the surface of some murky water, then turning the cube could bring only one of the pictures up even with the water's surface. In that case, we would not see the picture until it was even with the surface, and the other pictures would not be visible at all. That is how it really works. That murky water world is like the imaginary quantity that appears in the mathematical expression. Rotating the cube is the same as rotating the mathematical function out of the imaginary space. It lets the function become real so that we can see an image. This is something like the process of measurement, or of observation. (Walker 2000: 64).

The image is 'murky', that is 'vague', until it comes into focus. Then we see it, still a little vaguely, but we can at least make it out enough to identify it. However, all we see is a two-dimensional surface. There are other surfaces on the three-dimensional object, each surface with its own picture, its own perspective. Rotating the cube, then getting rid of some of its murkiness by bringing it into focus, we can make out another aspect of the cube. Taking a gander at all the cube's outer surfaces, we can likely get a fair picture of the object in three-dimensional space. But we've seen nothing of what it might hide from us, concealed underneath the surfaces. In order to get behind these surfaces, we need a fourth dimension, available through the hypercube – or the hypertripods in Figures 12 and 32, as it were. Fine. If we could perceive the cube from the four-dimensional perspective, we would have everything in our grasp. But that grasp

depends on the hypercube, which confounds us with a glut of possible perspectival frames. Back to inordinate *vagueness*, then. In the Peircean sense, we desire forever expanding *generalities*, but we can't escape *vagueness*.

However, what about an actual God's-eye view of the hypercube, a view from the entire plethora of all perspectives in an instant? This would be the topological equivalent of the final passage in Jorge Luis Borges's brief tale, 'Everything and Nothing' (1962). An actor dedicated his life to playing out the roles of other people on stage, and at the end of his life he comes to the realization that he is all the characters whose identity he has taken on, but in the final analysis he realizes he has lost his own identity. He implores to God that his identity might be known to him, after which God informs him: 'Neither am I anyone; I have dreamt the world as you have dreamt your work, my Shakespeare, and among the forms in my dream you are, who like myself are many and no one' (Borges 1962: 249). The answer to our desire for a view of all possible perspectives in simultaneity lets us know that we will have nothing to see: all possible orthogonals will cancel all equal and opposite orthogonals to reveal everything, which is to say that it will leave nothing at all. Zero, or better, the central point about which the central actor in the Figure 1 tripod revolves. The central dot is nothing, yet it is the fulcrum point giving rise to all possibly signs.

If we expand Figure 1 to include the Argand plane and the engenderment of an actual sign, we have Figure 33. Metaphorically speaking, from the *semiotic* counterpart of the Argand plane, a sign eventually emerges, and then other signs, and those signs become other signs, and so on, until . . . and into the inaccessiblely remote finality toward the irretrievable beginning, the circle is com-

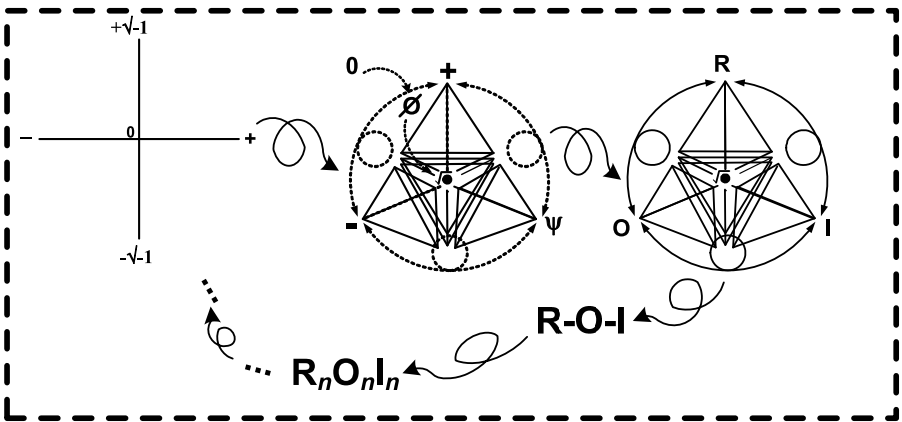


Figure 33. Arganding the hypersign

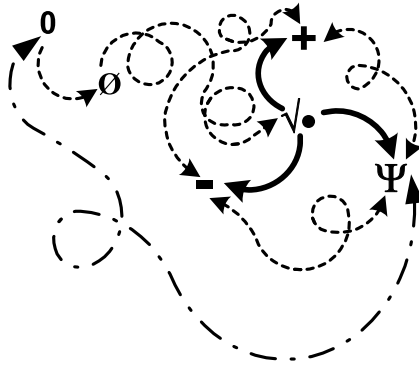


Figure 34. Semiosically swirling the possible sign

pleted. Simplifying the scheme considerably, we would have the effervescent, rippling, swirling image in Figure 34. Just as each sign in its most primitive form is a sign of itself, self-contained, self-reflexive and self-sufficient, so also the entire sphere of *semiosis*.

As I remarked at the end of the previous chapter: mind-boggling complexity. Yet, perhaps it can reveal a sense of *semiotic process*.

### 12.3. No *generality* without *vagueness*, and vice versa

The objection now surfacing surely has it that: ‘This level of abstraction – or *generality* as it were – is too much. What happened to the promised turn to concrete, down to earth exposition?’ However, implications of concreteness lurk behind any and all abstractions, and there is no concreteness that doesn’t hint of some form of abstraction or other. No matter how we cut the cake, in the Peircean sense we are inevitably left with at least a tinge of *vagueness* in our *generalities* and with some implication of *generality* in the *vaguest* of our signs.

That is to say, the range of all possibilities is that of the pre-sign – Figure 1 – but from there, signs emerge, concrete signs, signs of feeling and sensing and perception and conception, without conceivable end. This process begins in *vagueness* in the most pristine state, that of the pre-sign. Signs emerge and take on *generality*. General signs can be such only after a particular set of signs has been actualized as particular signs (of Secondness) to take their place among those symbolic signs (of Thirdness) that carry the implication of classes of particular ‘semiotic objects’. However, particular sets of actualized signs are signs that have been selected – or happen to have emerged – from among a host of

other possible signs that could have been selected – or that could have emerged – but were not.

In my modest business venture, for instance, I might have ended up with 65, 63, 66, 62, or whatever number of swine, or in the beginning I could have decided to purchase 101, 99, 102, 98, or whatever of them. But I didn't. It was my decision, within the timespace context at the moment. 100 hogs were purchased, and 36 died. Quantitative and categorical schemes are always to an extent arbitrary, according to the conditions that prevail when decisions are made, and they can later be altered, amended, or tossed in the trash can when other conditions happen to prevail. To reiterate, regarding arbitrariness – of taxonomic schemes in this case – 'fish' as a general term once included 'whales', but no longer; 'swans' were all once 'white', but no longer; 'atoms' were once 'solid spheres', but no longer. And so on. Our *generalities* are invariably *incomplete* in one respect or another, and our *vagueness*, insofar as it involves signs and words with which we are familiar, evinces some degree or other of *inconsistency, contradiction, or conflict*.

By their very nature, signs of generality are destined to suffer a fate complementary with that of signs of vagueness. In this spirit, 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 equally vague and general from the same perspective and from within the same timespace context, 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* 1.463–69, 5.447–57). By no means, however, do I wish to imply that Firstness has a monopoly on vagueness, or that Thirdness pertains exclusively to generality. Rather, vagueness and generality, to a greater or lesser degree pervade any and all signs.

It bears mentioning that the interrelationship herein implied between vagueness and generality is not customarily forthcoming in philosophical discourse. William James highlighted vagueness in his 'radical empiricism' (1967, Gavin 1992). Bertrand Russell (1923) related the law of excluded-middles exclusively to vagueness. Quine (1953, 1960) focused almost obsessively on underdetermination with respect to scientific theories, and by extension, natural languages (Føllesdal 1975). Hilary Putnam (1971, 1983a) propagated vagueness as an 'alternative logic' capable of guiding his 'internal realism'. More recently, Robert Cummings Neville (1992) emphasized vagueness as fundamental to

process philosophy. And Donald Davidson (1984) threw vagueness into the same bag with generality and incompleteness without showing how they are agonistically set apart and at the same time intricately intertwined (Evrine 1991: 105–14).<sup>86</sup>

That much said, the inevitable tinge to massive dose of vagueness and generality of all signs suggests that every sign is at least partially determined, and its partial determination is contingent upon its varying degree of context-dependent vagueness and generality. Peirce puts the issue this way:

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 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). And a sign, ‘however determinate, may be made more determinate still, but not . . . absolutely determinate’ (*general*) (CP 3.93). This is to say that if a sign could be totally determinate, it would always be as it is, its attributes remaining intact and changeless. And if a sign could be totally indeterminate, it could not have become an actual sign (of Secondness) *for* some interpreter *in* some sense or other.

#### 12.4. More on semiotic indeterminacy, and complementarity

In everyday situations, when the plethora of potentially variant timespace contexts comes into the picture, the possibility of any absolutely determinate sign

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86. For vagueness as a topic coming into its own during the latter decades of the twentieth century, see Hyde (2008), Keefe (2007).

dissolves. There was once a sign, President Bill Clinton, 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 members of the opposite sex yet still morally upstanding, and more recently, Bill Clinton is ex-president and knowledgeable observer of the global scene and once campaigner for his wife's presidential nomination and later a – perhaps somewhat reluctant – supporter of President Barack Obama.

Bill Clinton, like all signs, can be many things to many people. Like all signs, he simply cannot stand still. Were a changeless sign actually to exist, it would be absolutely autonomous, individual, and indivisible. However, such absolutes 'can not only not be realized in sense or thought, but cannot exist, properly speaking. For whatever lasts for any time, however short, is capable of logical division, because in that time it will undergo some change in its relations' (*CP* 3.39 n1).

Vagueness, given its nature as indefinite, ambiguous, and indeterminate, takes the terms 'possibility', 'chance', 'spontaneity', and 'novelty' into its embrace. Generality includes the terms, 'potentiality', 'convention', 'necessity', 'conditionality', and 'regularity' – all of the category of Thirdness – which imply 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's meaning in its most general sense.<sup>87</sup> While generality entails interrelations between signs and their 'semiotic objects', vagueness bears no definite form or fashion of interrelatedness of signs with other signs established by some semiotic agent. Pure vagueness is the superposition of all possibilities without any of them (yet) having been actualized. However, vagueness of actual signs requires their concrete contextualization and their being interrelated with other signs. Such actualized signs, according to their interpretation, can now take on generality. It is for this reason that 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, further determination of a vague sign depends upon

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87. 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 of Peirce, Hausman 1993).

further revelation and specification of its meaning by its author and the context of its engenderment.

In sum, vagueness and generality are in this sense complementary forms of *semiotic uncertainty*. Given this complementarity of vagueness and generality, 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; vague signs must take on at least some modicum of generality according to their interpreters' inevitable beliefs, habits, presuppositions, prejudices, and preconceptions. If any form or fashion of Peirce's envisioned 'logic in the broadest possible sense' there may be, it must include both vagueness and generality. Thus, insofar as we semiotic agents are concerned, generals should 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. Thus also, Peirce's concepts of vagueness and generality reveal LW (*semiosic*) entanglement, that is, CCC through *i-i-i-* and BSO in any and all accounts of our world (OAHs) – including my swine dreams, wherein any and all actual and possible hogs, and hogs that were and are and will have been, are radically interconnected.

## Chapter 13

### The tacit dimension again

A turn to more specific issues of Peirce's processual semiotics in view of his categories, and especially his ten classes of signs, is now apropos. What (we may think) *has become* is due to its *having been becoming*, while *we were in the process of becoming aware* of OAHs in their interaction with other OAHs, while we were co-participating with those OAHs in our concrete world. Our signs' becomingness and the becoming of our awareness involve signs of which we are focally aware as well as signs of our tacit or subsidiary awareness. In this light, I bring much of what has been suggested in previous chapters to bear on various imaginary semiotic situations, as illustrated by way of two art works, Velázquez's *Las Meninas* and Escher's *Print Gallery*, in order to illustrate complementary processes of becoming.

#### 13.1. Fluid categories

We cannot know that which is merely possible, Firstness (counterpart to the 'wave amplitude'), or Firstness during its *moment of becoming* (the 'wave amplitude' in the process of 'collapsing'). Nor can we know the *becoming of discrete signs*, or Secondness, here-now ('particles'), because they are not (yet) available to our *consciousness becoming of them*. Nor can we know signs in the process of *becoming mediated*, or Thirdness (the consequent 'particle-event') which is sporting a certain set of characteristics, because they are always *BSO*; that is, they *are what they are* and yet they *are not what they are because they are always becoming something other than what they are* (the semiotic Uncertainty Principle). Nor can we know signs in terms of their Identity, because what they *will have become* at some future moment for us is always their *becoming*, and what they *are becoming* is never for us a *having become*; in other words, there is, for us, no more than the *becoming of being* and the *being of becoming*: we cannot put signs precisely as they *are* and as they *are becoming* into the same bag at the same moment. Consider this the Semiotic Complementarity Principle, if you will.

We can't know with certainty what our signs are doing; but actually, they're not doing anything in terms of a linear train of events; they're a nonlinear interdependent arrangement of myriad possibilities. These possibilities are a scintillating frenzy, the silent excitement of signs waiting for the moment of their



birth into the light of day so as to fulfill their *i-i-i-* role. Once signs are born, they exist, for sure; but they are always in the process of passing on into something other than what they are. This sign paradox is the semiotic counterpart, I have suggested, to the ‘wave-particle’ paradox. It cloaks more mysteries than we are perhaps capable of resolving. Whether these mysteries have any form of resolution or not, what must be acknowledged is that all the possible possibilities that could have been emergent but weren’t, nonetheless, exercise some influence, no matter how small, on whatever possibilities were selected and emerged into the light of day to become signs becoming more signs.

Signs, their respective ‘objects’, and their interpretants, work in strange ways. The very notion of a ‘semiotic object’ that is never identical to the ‘real’ object of the ‘physical world’, which is what it is in spite of what we may think of it, is vintage Peirce thinking. The ‘semiotic object’ is in this respect what we think it is, according to our way of thinking it; yet what we think of it is not what it actually *is*, for it is always *BSO*. This is, once again, much like play acting, to which I alluded above with respect to Gödel: at each and every rivulet along the *semiosic* stream, what (we think) there *is*, is what we make of it when we pretend we know what it *is*, but it *isn't* what (we think) it *is*, for it is *BSO*. Which is tantamount to a sign’s saying of itself: ‘I am not what I am’, or in the Gödelian mode, ‘I am not provable’. In this sense we don’t know it just as it *is*, but according to how we imagine it, and what it *is*, is what it might possibly *become*, for us, at some future moment – ‘in principle,’ ‘in the long run’.<sup>88</sup>

The sign is like that point placed on Peirce’s blackboard. As a point, it is no more than an imaginary, infinitesimally minute, nothingness, or geometrically speaking, an imaginary creation (it is an abduction, imagined possibly to be of some hoped for quality). But, like all signs, as possibilities, actualities and likelihoods or probabilities for becoming genuine signs, this sign-point is by no means fixed. It is destined to travel through semiotic timespace. Like a point on the surface of the blackboard, its travels can take it from that point in timespace in any of an infinite number of directions. It is like a ‘point-octopus’ with no more than possible ‘tentacle-lines’, an infinite number of them, stretching out in every possible direction toward somewhere, somewhen.

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88. Peirce is non-Kantian in this respect insofar as he insists that, at least ‘in principle’, the ‘real object’ of the world ‘out there’ is accessible to thought, in signs, since all thought is in signs, which is to say that the ‘real object’ is knowable. But what does he mean by this ‘in principle principle’? That in the ‘theoretical long run’ the ‘real object’ is knowable, but that this ‘long run’ is asymptotic, infinite in extension; so it is not in practice absolutely knowable.

Now, assume you're precisely at that point on the blackboard's surface. You have unlimited possibilities before you. Each possible line emanating from where you are along some possible direction allows you a set of possible consequences, given the conditions of your particular timespace context at the moment. In other words, your possibilities are forthcoming from: ' $0 \rightsquigarrow \emptyset \rightsquigarrow \sqrt{\bullet} \rightsquigarrow \pm \rightsquigarrow \Psi \rightsquigarrow \dots$ ' (or in abbreviated form, ' $\blacktriangle \rightsquigarrow \dots$ '). But as yet, there is no sign, only pure possibility. There is no value, either positive or negative, or better, there is both positivity and negativity as possibility. So you decide to select a possible direction, and you boldly strike out into the unknown. Your choice was a matter of either this direction or some other direction. What then transpires will have been the likely consequence of your choice.

You will now have a sense of 'this' (sign) instead of 'that' (sign), but this sense of something instead of something else will be from no more than some local perspective of a sign that as far as you are concerned *has become*, as if it were a fixed product rather than process. From the global perspective, in contrast, there is no clearly delineable 'this/that'. It is like the Möbius-band example. From some locale in three dimensions, one can see an 'inside/outside' distinction along an imaginary line where the twist occurs, and one can see that 'inside' becomes 'outside' and vice versa. But from the global view, there is no 'inside/outside'; it is all one, comparable to Firstness prior to any mark of distinction. The global perspective plays a mediating role: it brings about a merging of 'this' and 'that' such that they are no longer distinct but different, and the difference makes a difference such that the merging brings about the creation, through the mediating function's 'middle way', of signification, meaning, interpretation. This fluidity regarding the categories makes itself known through collaboration with some knower, some co-participating semiotic agent, through the semiotic agent's collaboration with the sign's becoming. Back to ' $\blacktriangle \rightsquigarrow \dots$ ' for a moment.

As a pre-sign possibility, ' $\blacktriangle \rightsquigarrow \dots$ ' contains all the configurations or ephemeral states within all the possible timespace contexts as they pass on in terms of their *BSO*. These possibilities make up a virtually unlimited collection of signs, their 'semiotic objects', and their interpretants, that can be imagined, invented, or created. We imagine, invent and create them as we go along in our everyday world in order to deal with whatever timespace context happens to be our temporary and presumed resting place or state of affairs for the moment. This is our world, our concrete everyday world, our form of living (LW). This world was imagined, invented and created from an unlimited concoction of possibilities, all of them interdependent upon their equal and opposite counterparts, which is to say, the sphere of possibilities is shot through and through with inconsistencies, since *both* the one possibility *and* its antagonistic counterpart are 'there', as apparently quite congenial processes.

Swans as possible possibilities are ‘white’, and they are also ‘black’, ‘green’, ‘blue’, or ‘grue’ or ‘bleen’, until a particular swan – and the collection of all swans seen in the past – is observed. Prior to the observation, all possibly possible swans existed as a complex, entangled whole, which also includes the observer or semiotic agent as the possible witness of some swan, somewhere, somewhen. When the agent witnesses a swan, she co-participates with the whole entangled complex, and it co-participates with her, to bring about the emergence of a ‘white swan’, and the emergent ‘white swan’ co-participates with her in bringing about her own emergence that is in the process of bearing witness to a ‘white swan’. This is the nature of the co-participating, self-organizing semiotic universe in Wheeler’s conception. Thus we go on, co-participating with our form of life and it with us, imagining, inventing and creating, and making choices, from among the host of concrete *either/or* possibilities we confront at every turn.

### 13.2. It is what we do, and who we are

Problems inevitably pop up. So we imaginarily abduct anew; we invent the conditions we think we need to in order to remedy the problem situation and bring a modicum of order back to our daily affairs; and if things go as expected, we create an altered picture of our world. This new creation was *neither* the one *nor* the other of the choices and actualities that exist in the present or had existed in the past, but rather, something else, some new, emerging to take its place in this brave new world.

The continuous emergence of novelty bears witness to the perpetual incompleteness of any and all creations that exist or have existed; it bears witness to the semiotic universe’s, and indeed, to the physical universe’s self-organizing capacity. And yet, given our obstinate effort to grasp the whole complete and consistent global sphere of signs becoming signs, we inevitably get ourselves involved in inconsistencies. Inconsistencies, because our human limitations prevent our encompassing the whole, for we are part of that which we wish to encompass. Our limitations can be sensed through works by that supreme baroque painter, Diego Velázquez (1599–1660) and the supreme creator of visual paradoxes, Maurits C. Escher (1898–1972).

#### 13.2.1. *Las Meninas*

In Velázquez’s *Las Meninas* (1656) the artist, Velázquez himself, appears to be facing us, the spectators. He is properly standing in front of a large canvas with

easel and brush in hand. But we see only the back side of the canvas. And yet, it is obviously the work in progress, *Las Meninas*. However the children of the Royal Family, *las meninas*, are to the painter's left side – and our right side – facing either other people of the group within the painting, or us, outside the painting, while the painter can see no more of them than their backside or profile. Then how is it that Velázquez can be painting them if he isn't facing them? First anomaly: heterogeneous spatial frames of reference.

At the back of the room there is a mirror, which reflects two people, male and female, apparently the Royal Couple. The king and queen must be imaginary spectators standing here, more or less where we are, reflected in the mirror, and obviously gazing at the work in progress. To our right side of the mirror, a doorway is open, and a man is standing in it. His gaze, like the painter's, is directed toward us, the spectators. Or is it toward the Royal Couple imaginarily behind us which we can only see in the mirror? Of course we are real spectators while the King and queen are merely imaginary. Velázquez's gaze is focused on them. Or is it on us? No, it can't be us, for our reflection doesn't appear in the mirror, whereas theirs does. So that's it! They are imaginary, part of the painting, but we, as real, must remain outside. Yet there's Velázquez, looking squarely at us. So how can we remain simply outside? Second anomaly: spatial inside/outside fusion into a homogeneous whole.

But perhaps I have it all wrong. Has Velázquez already finished *Las Meninas*, and now he's in the act of painting the Royal Couple before him? Then the work we see was already finished, and the painter has put himself within it while in the act of painting the Royal Couple. So is it the case that the work we are gazing at would have been in progress after Velázquez had finished this very work, *Las Meninas*? If so, the children are simply going about their daily playing and romping as a matter of course. Then, the man standing in the doorway: Is he gazing at the Royal Couple in the process of being painted posterior to the completion of the painting we are gazing at? Or is he looking at us, the spectators, while we are in the act of gazing at a finished work that reflects a posterior work that would have been painted after the painting we are now viewing? Has Velázquez painted himself in *Las Meninas* as he would have been painting a picture of the Royal Couple after the fact of having painted *Las Meninas*? Third anomaly: a timespace knot, blending homogeneity and heterogeneity.

Disconcerting, all this. The children, the Royal Couple, Velázquez, the individual in the doorway, and we the spectators, are all in some way or other both inside and outside the picture. Time and space, and fiction and the real, are wrapped into one: oneness, that has doubled back on itself to reflect itself, an infinite *progressus* as well as an infinite *regressus*. There is no way to unravel

this convoluted, twisted and entangled four-dimensional knot. The painter and all subjects within the picture are centrifugally shifted outside, and we and the Royal Couple outside the picture are centripetally sucked into the picture. We are all fictitious and real, real and fictitious. We are inextricably inter-linked; we are within the whole *CCC* and *i-i-i*-process. We are actors and acted upon.

Michel Foucault writes that at the outset the locus of Velázquez's work appears simple: it is a matter of 'pure reciprocity'. The initial appearance soon dissipates. And perplexity enters:

[W]e are looking at a picture in which the painter is in turn looking out at us. A mere confrontation, eyes catching one another's glance, direct looks superimposing themselves upon one another as they cross. And yet this slender line of reciprocal visibility embraces a whole complex network of uncertainties, exchanges, and feints. The painter is turning his eyes towards us only in so far as we happen to occupy the same position as his subject. We, the spectators, are an additional factor. Though greeted by that gaze, we are also dismissed by it, replaced by that which was always there before we were: the model itself. But, inversely, the painter's gaze, addressed to the void confronting him outside the picture, accepts as many models as there are spectators; in this precise but neutral place, the observer and the observed take part in a ceaseless exchange. No gaze is stable, or rather, in the neutral furrow of the gaze piercing at a right angle through the canvas, subject and object, the spectator and the model, reverse their roles to infinity. And here the great canvas with its back to us on the extreme left of the picture exercises its second function: stubbornly invisible, it prevents the relation of these gazes from ever being discoverable or definitely established. The opaque fixity that it establishes on one side renders forever unstable the play of metamorphoses established in the centre between spectator and model. Because we can see only that reverse side, we do not know who we are, or what we are doing. Seen or seeing?' (1970: 4–5)

Velázquez's masterpiece offers a visual image that, itself, mirrors the premises behind each and every page of this essay. Sign, mind, time, space: *CCC*, *i-i-i*-, *BSO*. Möbius-form and Klein-form dimensionalities of time and space, including ourselves as signs becoming signs, reflect and reciprocally collaborate with one another. It's a matter of Figure 1, mere possible possibilities mushrooming out into a myriad complexity of signs. We are in this prison-house of signs, which, nonetheless, is as far as we are concerned, no prison at all. Through time, we are apparently free to move around in our three-dimensional spatial world pretty much as we please, though we are constrained by social rules, regulations, laws and conventions. Yet we are usually able to make and take our signs and give them indeterminately variable interpretations, according to the whims of our wishes, whims, and customary ways.

But there's more to the story, at least a portion of which is available to us through Escher's work.

### 13.2.2. *Print Gallery*

Escher's *Print Gallery* (1956) could have been as simple as could be: a young man is standing in an art gallery looking at a picture. But it isn't simple at all. Much in the manner of Velázquez, it is a self-contained, entangled timespace knot of the sort to which this essay has alluded time and again.

Bruno Ernst gives us a brief description of the *Gallery* as follows:

At the lower right-hand corner we find the entrance to a gallery in which an exhibition of prints is being held. Turning to the left we come across a young man who stands looking at a print on the wall. On this print he can see a ship, and higher up, in other words in the upper left-hand corner, some houses along a quayside. Now if we look along to the right, this row of houses continues, and on the far right our gaze descends, to discover a corner house at the base of which is the entrance to a picture gallery in which an exhibition of prints is being held. . . . So our young man is standing inside the same print as the one he is looking at! (Ernst 1976: 31)

Once again, a convoluted, reciprocally reflexive, virtuously rather than viciously circular scene. The young man is gazing at the picture; the picture merges with the river, which merges with the sidewalk, and that with the street and the buildings of the city outside; the city in its own turn merges with the gallery's architecture and the entire gallery itself, which wraps around and includes the young man gazing at the picture. Ernst doesn't mention, however, that we the spectators are, as we were in regard to *Las Meninas*, sucked into the work. We are looking at the young lad within the print he is observing, a two-dimensional world, while he seems to be oblivious to the fact that he is within a three-dimensional manifold that is given a network of Möbius-band twists such that he is included within what he takes to be his objective world 'out there'. He isn't aware that, were he to gaze along the curved three-dimensional manifold, his gaze would eventually double back and meet his backside, while his front side remains concentrated on the scene before him (see also commentary on this work by Varela 1984).

We give a three-dimensional slanting look at Escher's *Print Gallery*, and on so doing we create the visual paradox, within our own three-dimensional world. Is this to say that, in the Möbius-band sense, we are looking at the young lad as contained within the containing while we, from an outside vantage point, are, 'transcendentally' speaking, uncontained, agents of pure reflection? Not at all. For we, like he, are also generally unaware of our three-dimensional existence

within our four-dimensional timespace manifold. Within this manifold, according to Einstein's timespace continuum, if we were able to gaze long enough and hard enough in the same direction, our gaze would double back on itself to include us, the gazers: we would be both subjective gazers and the objective target of our gaze! (Kaku 1994). Thus, from 0 to a point, a line, a plane, a solid, a hypersolid, or from our figure '8' to the Möbius-band to the Klein-bottle and beyond, we are, once again, both authors of our world and signs and, as signs, we are authored by our world and signs.

Significantly, in the center of the *Gallery* there is a blank circle, a 'white hole', so to speak.<sup>89</sup> The 'hole', metaphorically 'emptiness', is devoid of color; there is nothing, except the author's signature. And if we look somewhat askance at the young lad in the *Gallery*, we cannot help but sense that he is gazing precisely at the 'hole' rather than at the picture. This 'hole' is the 'groundlessness' of his experience, of our experience, which, nonetheless, has become the presumed basis for our perception and conception of our world. But at the same time, there is that familiar infinite *regressus* and infinite *progressus* implied by the *Gallery*, which forces upon us, once again, a delirious sense of our limitations.

This condition is like Escher's woodcut, *Dragon* (1925). The dragon has stuck its head through an imaginary rectangular opening on the two-dimensional plane to bite its own tail. But this is logically impossible, without a third dimension, just as it is impossible for us to protrude outside our three dimensions. Douglas Hofstadter remarks on the Dragon's plight in *Gödel, Escher, Bach* (1979: 474), that 'we could tear [the dragon] out of the book, fold it, cut holes in it, pass it through itself, and photograph the whole mess, so that it again becomes two-dimensional. And to that photograph, we could once again do the same trick. Each time, at the instant that it becomes two-dimensional – no matter how cleverly we seem to have simulated three dimensions inside two – it becomes vulnerable to being cut and folded again'. Like the dragon, within its two-dimensional prison, we find ourselves within a three-dimensional prison, and there is no door leading outside; there is only the 'hole'; there is only 'emptiness'. We have no world save for that which we have invented over the years due to a smattering of inherited traits, to cultural inculcation, to social convention, and to our own private idiosyncrasies. In this manner, we are always in the middle, somewhere, somewhen, with no retrievable origin and without conceivable ending.

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89. The term 'white hole' comes from astrophysics. 'White holes' are the counterpart to 'black holes'; they are gushers issuing forth everything, in contrast to 'black holes', cosmic vacuum cleaners sucking everything in (Gribbin 1977).

Consequently, the ‘hole’ is of the nature of the mutilation in the Klein-form. It is a tunnel to the unbounded yet finite; it is the uncontained, which gives rise to the containing and the contained. It is ‘0’, from which ‘ $\emptyset$ ’ emerges, along with ‘ $\sqrt{\bullet}$ ’ and ‘ $\pm$ ’ and ‘ $\Psi$ ’, and then signs, but signs that confound and perplex. For, that ‘white hole’ in the center of the *Gallery* sucks us in, as if it were a ‘black hole’. It sucks us in. It sucks our present timespace context in, and with it everything that has been, is, and will have been. It is the part – but there is no part, for there is just ‘emptiness’ – that contains, and is contained by, the whole – but there is no whole, given our limitations, there’s just a ‘hole’, a rough metaphor for ‘emptiness’.

On this note, I leave Velázquez and Escher to your further contemplation. For the moment, back to some further speculation on the role of signs, and on our role as signs.

### 13.3. Doubting certainty, certain doubting

If I might be allowed to appropriate the vocabulary of uncertainty in quantum theory, insofar as I understand it, and regarding the notion of the ‘semiotic object’ (as singularity), within the same timespace context, exact specification of what is (location, or identity, here-now), and precise specification of what is, inasmuch as it is *BSO* (momentum, or change, where-when), has no meaning.

Either what (we think) the ‘semiotic object’ is or what it is becoming can be ascertained, but not both in the same moment. In another manner of putting it, the ‘semiotic object’s’ momentary Firstness becomes momentary Secondness, and when its Secondness has become past, it will have become Thirdness at another moment. What *is*, Firstness, what *was*, Secondness, and what *will have been*, Thirdness, is affected by the superposition of all possibilities. With respect to my disappointing business venture, 36 pigs died, but before the demise of any one of them, the number might have been 33, 34, or 35, or 37, 38, or 39, or something else. All possibly possible deceased swine remain entangled with the number of those that passed on, and with the number of them that could have passed on. Thus the disaster could have been greater or lesser than what it was. The very idea of entanglement necessarily includes Firstness, Secondness and Thirdness, and it includes the ‘superposed’ sphere of all possible possibilities.

This is quite relevant. For the problem, when incompleteness, inconsistency, and emergence of the new come into consideration, is this: (1) classical science takes the world as objectively fixed, and does not consider the subject – it is like a ‘view from nowhere’, a ‘God’s-eye’ view, and (2) traditional notions of signs



(most specifically Saussurean-based) take them as if they were divorced from the physical world, including the body which is equally divorced from the mind, so there are signs and talking and thinking heads, and no more. Problem (1) entails ‘objectivist materialism’, while problem (2) entails ‘idealism’ – and ‘nominalism’ to boot. From another point of view, (1) entails ‘realism’, ‘naïve realism’, while (2) entails ‘solipsism’, with respect to individual sign knowers, and ‘incommensurabilism’ with respect to communities of sign knowers. Both (1) and (2) are indelibly ‘dualistic’: there is mind, ‘in here’, and there is what mind is not, ‘out there’, as categorical opposites, and Identity, Non-Contradiction and Excluded-Middle reign.

The present inquiry, in contrast, flows along the ‘middle way’ between the two horns of each and every dichotomy. We don’t have to choose between (1) and (2), for something new is always emerging such that both (1) and (2) interpenetrate and merge into one another: they are always becoming something else. In other words, what is emerging is emerging as *interdependently* possible signs in *interactive interrelation* and *co-participation* with their knowers, and during the process they and their signs become agents in *co-participation* with their concrete *timespace* physical world contexts. Signs-knowers, signs-world, and knowers-world more often than not tend to abide by the Principles of Identity, Non-Contradiction and Excluded-Middle (as Secondness). But there’s more, much more; there’s always the flowing ‘middle way’ between any and all presumed distinctions; there’s always the Included-Middle, such that what *is* becoming (as Firstness)—which is always other than what it *was* becoming—can emerge into the light of day (as Thirdness).

Sandra Rosenthal (1986) writes that after Peirce rejected ‘dualism’ and ‘materialism’, he remained with a touch of ‘idealism’. However, she goes on, Peirce’s posture is not ‘idealism’ in the subjectivist sense; it is ‘objective idealism’. His philosophy includes mind and matter, bodymind and the physical world, ‘materialism’ and ‘idealism’, and ‘objectivism’ and ‘dualism’. His philosophy is *both* the one term *and* the others, and at the same time it is *neither* exactly the one term *nor* the others. It is tantamount to the ‘middle way’ allowing something spontaneous and new to seep up from the Included-Middle. In other words, it is . . .

#### 13.4. Not a matter of what *is*, but what *will have been* emerging

After a sign has emerged, its qualification is available by way of a representamen (R), a semiotic object (O, or OAH), and an interpretant (I), all of which have emerged through mediation by the good grace of ‘ $\Psi$ ’.

Table 1. Peirce's 10 classes of signs

Sign	Common example
$R_1O_1I_1$	Feeling of blueness. . .
$R_2O_1I_1$	Vague sense of a form or shape (a spherical object). . .
$R_2O_2I_1$	Vague awareness of something, but it is still indefinite (a sense of the sphere of more or less billiard ball size)
$R_2O_2I_2$	Awareness that a spherical blue object is on a flat green background. . .
$R_3O_1I_1$	Consciousness of a white sphere coming into contact with the blue sphere. . .
$R_3O_2I_1$	A spontaneous evocation: 'There!' . . .
$R_3O_2I_2$	A commonplace expression: 'Right on!' . . .
$R_3O_3I_1$	A word: 'Corner!' . . .
$R_3O_3I_2$	A sentence: 'I knew it was going in.' . . .
$R_3O_3I_3$	An argument or text: 'The cue ball hit it slightly to the right, it angled to the left, and straight as an arrow, into the corner pocket. . . .'

This process of signs becoming signs is never fixed; it is just that: *process*. However, what we can be aware of is what is happening after a sign's emergence began happening, after the 'collapse' of the realm of possible possibilities into some combination of actuals. This act of awareness is an euphemism for consciousness *of* the sign, which cannot exist with respect to the *qualisign*, ' $R_1O_1I_1$ ', but at some split second thereafter, when the representamen, now having become ' $R_{2 \text{ or } 3}$ ', enjoys some other, now ' $O_{2 \text{ or } 3}$ ', as well as mediation, now ' $I_{2 \text{ or } 3}$ ', that is, when the 'observer' herself is in the process of becoming a co-participant with the sign's process of becoming.

Indeed, let us take Peirce's ten classes of signs into consideration as process (see Table 1).<sup>90</sup> From the *qualisign* ( $R_1O_1I_1$ ), wherein each sign component sports no more than Firstness, the sign can develop into  $R_2O_1I_1$ , and  $R_2O_2I_1$ , wherein 'R' and 'O' have attained greater semiotic complexity but 'I' remains

90. Development of the ten signs as process can only occur in time, from sign ' $R_1O_1I_1$ ', to ' $R_3O_3I_3$ ', (for further, merrell 1995a, 1995b, 2000a, 2003, 2007). In a 'biological' way of putting it, an individual sign realizes 'ontogenetic' development, from qualisign to argument or text, and an entire system of signs within a human community realizes 'phylogenetic' evolution from the most simple to the most complex sign type.

undeveloped. Without further development of ‘I’, there can be no genuine other; there is not yet any awareness on the part of the semiotic agent of any mediated ‘semiotic object’. Then as the sign develops into  $R_2O_2I_2$ , and  $R_3O_1I_1$ , it comes into interaction with some ‘semiotic object’, its respective other, and the semiotic agent is in the process of becoming increasingly aware of the signs as other. From that point onward – to signs  $R_3O_2I_1$ ,  $R_3O_2I_2$ ,  $R_3O_3I_1$ ,  $R_3O_3I_2$ , and  $R_3O_3I_3$  – the sign and its semiotic agent, mediately and co-participatingly by way of *CCC* and *i-i-i*, develop into genuine signs.<sup>91</sup> This entire process, it bears mentioning, transpires from the beginning, from EZ. After all, the sign’s ‘collapse’ – the beginning of its mediation – in the process of becoming a genuine sign is only possible after the observer has become one with the sign and the sign has become one with the observer.

All told: (1) our semiotic world includes ourselves, our conscious and self-conscious selves, as signs among signs, (2) development of our signs patterns our becoming conscious and self-conscious of our signs as other others in addition to our awareness of those signs’ others in the physical world, consequently, (3) given semiotic uncertainty, our conscious awareness cannot include multiple sign possibilities and at the same time actual signs that have ‘collapsed’ from among those possibilities, and (4) the whole, containing possible possibilities, possible signs, and actualized signs is entangled, such that all signs are *CCC*, *i-i-i*, and *BSO* along with their respective OAHs.

#### 13.4.1. An illustration, if you will

Assume you’re waking up from an afternoon nap. You have the vague feeling of a sound. It continues for no more than a fraction of a second. That’s all. You just feel it. You are not really consciously aware of it, nor can you (yet) identify it with any sound with which you are familiar, for at that moment you are not aware of any other sounds with which you can compare and contrast it. The sound just *is* what it *is*. Nothing more. It is a bare sign of possibility, a *quali-sign*,  $R_1O_1I_1$ .

A split second after hearing the first sound segment, another sound wiggles your eardrums. It is something like *da da*, . . . in a sort of bouncy way. The first *da* leaps slightly up the scale to meet the second one, it seems, though the interrelations between the two sounds remain vague: sign  $R_2O_1I_1$ . With cobwebs

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91. Using formal terminology, Peirce classifies the final three signs, chiefly of symbolic nature, as ‘terms’, ‘propositions’, and ‘arguments’. However, on occasion he alludes to these signs in a less formal context as ‘words’, ‘sentences’, and ‘books’ (or ‘texts’) (*CP* 5.73).

still in your mind as you are trying to get in tune with your environment, you hear *da da, . . . da da, . . .*. Suddenly you feel you are onto something. But not really, not yet at least. It's somehow familiar, but you can't (yet) attach a label to it and categorize it: sign  $R_2O_2I_1$ . Now your attention is *on* the sign and turned *to* the possibility of some linear string of sounds flowing along from the initial *da da, . . . da da, . . .* toward something else. It goes on, like *da da, da da, da da, da da, da da, da da, da da, da daaaaa, . . .* What is it? It's, . . . uh. Oh! Is that what it is? That familiar tune. You know what it is, but you still can't quite put your finger on it: Sign  $R_2O_2I_2$ . Ah yes! – the first indication of Thirdness of the sign enters your mind. Yes, it must be 'The Pink Panther', you sense. But at this stage you're only aware of the tune's familiarity, and no more. You haven't (yet) had a chance to slap a linguistic label on the string of notes. The string doesn't (yet) have a name. You've barely entered sign  $R_3O_1I_1$ .

Suppose you're now committed to the hazy process of lifting yourself up from the sofa where you were taking a snooze and you catch a glimpse of your roommate, your spouse, or a friend. You are wondering where the couple of bars of music came from and why they didn't continue. You blurt out: 'That!' – in reference to the notes you heard. The other person responds: 'That what? What do you mean?' You emitted a solitary pronoun, which doesn't say much: sign  $R_3O_2I_1$ . Yet it implies a more developed sign. You pay no attention to the inquisitive look sent your way, as if you had no clue with respect to what you had in mind when you blurted out 'That!'. But you know, and you know you know. So you tell your companion: 'I knew it'. You knew what? You're still not saying much, no more than a simple commonplace expression: sign  $R_3O_2I_2$ . So you move on, with a name: 'Mancini'. Now you are into more explicit symbolic signs: a solitary word, or sign  $R_3O_3I_1$ . But 'Mancini' doesn't qualify the series of musical notes you heard. So you utter a sentence: 'That's "Pink Panther" by Mancini', sign  $R_3O_3I_2$ . Your companion inquires. You accommodate her/him with an explanation: 'Well, I was still napping when I heard. . . , and then. . .', sign  $R_3O_3I_3$ .

This example patterns the 'ontogenetic' development of an individual sign. It involved your conscious and self-conscious awareness of the sign *as* a sign of something *in* some respect, the sign's respective *other*, which entails complexification of the original iconic sign when emerging into indexicality and symbolicity. 'Phylogenetic' evolution of signs follows a more general path regarding conventional signs in the human community, from roughly hewn icons to indices to spoken and written symbols, all having become properly entrenched and habituated. In order for this process to be possible, everything, including possible possibilities, possible signs, actual signs, and signs having attained a developed stage of symbolicity, must be intricately entangled.

This sense of entanglement is a far cry from dualism, which pervades Identity, Non-Contradiction and Excluded-Middle. And it is completely alien to Cartesian mind/matter and mind/body splits. This is not to say that entanglement is monistic. The whole is One, for sure. But, of course, as One it is outside our purview and our conceptual grasp. Paul Churchland, for example, argues for monism through a critique of Cartesian introspection that involves mind's self-reflexive pondering over the ways of matter:

The argument from [Cartesian] introspection is a much more interesting argument, since it tries to appeal to the direct experience of everyman. But the argument is deeply suspect, in that it assumes that our faculty of inner observation or introspection reveals things as they really are in their innermost nature. This assumption is suspect because we already know that our other forms of observation – sight, hearing, touch, and so on – do no such thing. The red surface of an apple does not look like a matrix of molecules reflecting photons at certain critical wavelengths, but that is what it is. The sound of a flute does not sound like a sinusoidal compression wave train in the atmosphere, but that is what it is. The warmth of the summer air does not feel like the mean kinetic energy of millions of tiny molecules, but that is what it is. If one's pains and hopes and beliefs do not introspectively seem like electrochemical states in a neural network, that may be only because our faculty of introspection, like our other senses, is not sufficiently penetrating to reveal such hidden details. . . . The argument from introspection is therefore entirely without force. (Churchland 1984: 15)

But Churchland's words are somewhat misleading. The 'red surface of an apple does not look like a matrix of molecules reflecting photons', because that *is not* all it *is*. The same can be said about the 'sound of a flute' that does not 'sound like a sinusoidal compression wave train' or the 'warmth of the summer air' that 'does not feel like the mean kinetic energy of millions of tiny molecules'. Actually, physics can determine the nature of the object that reflected photons of wavelength 6000 to 7000 angstroms into the eye as the matrix of molecules on the surface of the apple. But the two descriptions – the color 'red' and photons of certain wavelength – are by no means the same. One involves the process that brought about the emergence of neural stimuli; the other involves the mere possibility of neural stimuli. The color 'red' is a matter of feelings and sensations, actual qualisigns that can then develop into complex symbolic signs; photons of certain wavelength are no more than possible possibility of signness. The one is the 'collapse' of one possibility from among the range of all possible possibilities; the other is the effervescent, scintillating, vibrating entangled concoction offering itself up to the process of signs becoming signs as we feel them, sense them, experience them, and cognize them.

Henry Mancini's orchestra playing 'Pink Panther' is indeed a complex wave train in the air passing from the loudspeakers to your inner ear. But the sound you experienced was not a wave train, and it wasn't simply located in the timespace context between the loudspeakers and your inner ear. It began in the timespace context of your bodymind with respect to the range of all interdependent possible possibilities; then, from *qualisign* to more developed signs, it was related to the timespace context insofar as it is interrelated and interactive with what is 'out there', and finally, it reached the culmination of Peirce's sign decalogue, sign  $R_3O_3I_3$ . In other words, semiotically speaking, it was comparable to Wheeler's trillions and trillions of quantum 'wave amplitude collapses' – the emergence of actual signs from possible possibilities – that create our co-participation with the universe's process of becoming – our co-participation, as signs, with the world of signs becoming signs.

### 13.5. What are we that we may know?

Now comes the query: 'If we are co-participants with everything that is becoming while we are becoming, if we cannot step out of ourselves and our world, then how can we know, and how can we know that what we know is what other people know?'

Is another person's 'green' my 'green'? As a possibility, perhaps yes, or maybe no, or, if we wish, according to the nature of Firstness as possibility, both yes and no. If we could check with the next person, we should be able to know whether the answer is yes or no. But that would be pointless, for it would give us no answer at all. The word 'green' attached to, for example, an 'emerald', would be used with respect to something presumably existing in the material world. Acknowledgment of that material world is already Secondness, and use of words, 'green' and 'emerald' with respect to that world is already Thirdness. What we want to know is if the other person's Firstness, *qualisign* or *qualia* if you wish, is the same as ours. The other person says the 'emerald' is 'green', and we see it's 'green', and leave it at that. We're communicating aren't we? So after all, we must share some aspect of the material world, at least enough to allow us to communicate. But what about the Firstness of our respective worlds? Is it really the same? The answer? Possibly yes, and possibly no. Perhaps we can hardly go any further than that (Damasio 2000; Edelman and Tononi 2001; Flanagan 1992).

In a nutshell, materialist philosophy tells us that: (1) the physical world 'out there' causes us to receive certain stimuli, which are basically the same for everybody with normal perceptual faculties, (2) inductive inference is reliable

for establishing knowledge of the regularities governing this physical world, which are expressed in language as generalities with respect to classes of like OAHs, and (3) logical or conceptual ‘atomism’ is valid for proper linguistic descriptions of this physical world, such that to say ‘This emerald is green’, if presumably endowed with inductive validation, is true of all ‘emeralds’ anywhere and at any time. These three premises boil down to: (1) objectivism, (2) empirical verification of particulars, and (3) extrapolation from particulars to generalities (see Putnam 1990).

Obviously, given the assumptions underlying this essay, some or all of these premises must be discarded. If we reject (1), (2) and (3) become atrophied; the objective physical world ‘out there’ dissolves, as does Secondness, and we are left with a radical form of idealism, perhaps even subjective idealism. If we reject (2) and remain with (1) and (3), we have no more than words and a teeming stream of OAHs. There is no firm ground to stand on. Our world is no more than words attached to OAHs with *neither* regularity *nor* generality. Each word would apply to each OAH that happened to pop up. We would all live in our own virtually solipsistic world, a sort of hyper-nominalistic world. We would be like Funes the Memorious of that charming tale by Borges (1962), who cannot think, cannot conceptualize, cannot fabricate generalities, and for whom all that exists is a confusing, chaotic concoction of particulars. Rejecting (3), we are left with *i-i-i-*. This might appear to be the most viable option. If we reject (3), we can salvage a bit of objectivity, (1), and we can hold onto a comforting degree of (2). But if we are genuinely co-participants with the world and our world of signs, then how can we fit into the picture?

Peirce, we’ve observed, opts for ‘objective idealism’. Embracing this posture, we hold to a dose of objectivism, but with certain reservations; we would like to think that in our practical everyday coming and going, and according to our mode of thinking, we can conduct our affairs as if there were a world ‘out there’. We also concede to a dose of idealism, but with complementary reservations; we wish to avoid dualisms of body/mind and mind/world under the assumption that we are in and of the world, as co-participants with the becomingness of everything that is becoming, and everything that is becoming co-participates with our becomingness. In this sense, our world is just that, *our* world, the world we (think we) know. The semiotic agent must be included as part of the physical world (as if it were a world of objectivism), and at the same time, as co-participant, she must collaborate in the world’s and in her own becomingness (as if she were the subject of idealism).

So we have: (1) EZ, and interdependent Firstness plus a possible, co-participating, semiotic agent (a bit of idealism), (2) interactive Secondness, including a semiotic agent, the sign, and its object (an OAH, which entails a bit

of objectivity), and (3) interrelative Thirdness, including the semiotic agent as mediating interpreter-interpretant with respect to *CCC* and *i-i-i-*, for whom the sign is something with respect to something else in some sense or other as representamen-object-interpretant in co-participation with that semiotic agent, all of which is *BSO* ('objective idealism'). Our semiotic equation derived from Figure 1 once again makes itself known. We, as possible semiotic agents, are no more than Firstness until we enter into co-participation with signs and they enter into co-participation with us. There are no genuine signs without conscious mind, there is no mind unless there is body to make up bodymind, and there is no semiotic world without signs.

Meaning lies beyond and beneath language, beyond and beneath the linguistically oriented conceptual, propositional, and representational accounts of meaning forthcoming from analytic philosophy or the philosophical of language, beyond and beneath first generation cybernetics and artificial intelligence that separated mind as a ghost in the machine from brain with the assumption that the latter is no more than a computer in terms of structure and function, and beyond 'textualist' obsessions coming from deconstruction, post-structuralism, and certain strains of neo-pragmatism. Meaning, interpretation, and understanding, beyond and beneath language, are 'embodied' processes, as Varela, Thompson and Rosch (1993), George Lakoff (1987) and Mark Johnson (2007) effectively argue, in concert with scholars mentioned above, namely Abram, Bennett, Gendlin, William James, Dewey, Merleau-Ponty, Sheets-Johnstone, Shusterman, Stoller, and Spretnak.

In this sense, I would suggest that: (1) possible signs from EZ emerge and give way to (2) feeling and sensation, from the five senses plus kinesthetics and proprioception and somatics, then (3) perceptual inferences arise, merge into one another, and (4) move toward conception and meaning and interpretation and understanding, all *CCC* as *i-i-i-* within *BSO* processes that include bodymind and OAHs, temporally-spatially contextualized.

Let's see where this takes us with . . .

### 13.6. A bit more Peircean input

Suppose we go out to lunch. I take a look at the menu with the remark: 'Let me see, what am I going to eat?' You say: 'You can't eat'. My response: 'What do you mean? That's what we're here for, isn't it?' You inform me: 'Only body can eat, but it doesn't eat without mind'. I blurt out: 'Ah, yes. Now I get you. The menu, the plate of vittles they bring me, my body, bodymind, are all signs. That's why when I asked you, "What do you mean?", what I meant is that you



can't mean *anything* by simply uttering words and leaving it at that, for the words aren't what the meaning that *you* wish to convey *is*'.

What do '*I*' mean by this exchange? – as if *I* could tell *you* with words, which *I* cannot do, but after all, *I* have no other recourse, so *I'll* have to do the best *I* can. 'Steak' is only a word, like '*I*' is a word and 'eat' is a word. They are symbolic signs. They are 'It', in the Lispector sense. But of course there can be no symbolic signs without the prior existence of indices and icons, which are embodied and at least implicit in all symbolic signs. This we noted in our discussion of sign development and sign evolution. The word '*I*' isn't what *I am*. The word is just '*I*'. What *I am* is in the process of *BSO*. And this process itself is always *BSO*. Hence nothing can stand alone; everything is *CCC* through *i-i-i*, having emerged out of *EZ*. Everything is contextual.

Just as fire can't burn itself and the eye can't see itself, so also words can't say what *OAHs* are without dissolving into that which is the very *CCC* and *i-i-i* process the word is hopelessly attempting to say, for the saying is always grossly incomplete without the entire context of the saying. This futile effort of words to say what *is*, is like the Buddhist monk who appeared before his colleagues during the opening of a new monastery with a vase of water, which he placed on the floor, while asking who could most profoundly reveal what it is without uttering its name. The chief monk among them said 'It is not what anybody would call a wooden shoe'. Apparently the wrong answer. Another monk walked over to the vase, tipped it over with his foot, and left the room. The chief monk, infatuated with language, lost, and the younger, more subtle, monk soon became master of the monastery.

The younger monk saw the object for what it was. Simply experience, contextualized experience. To make the experience manifest, he didn't just yap about it; he demonstrated it by co-participating with the vase's changing nature and with the other monks present. He created a new experience, in the process of the vase's emerging into Firstness, and then it entered into the experience of the other monks in the order of Secondness, and Thirdness in their own minds, but without words. Words slay Firstness and conceal it within the function those words are in the process of carrying out. In this very process, words create cuts in the seamless fabric, the whole, the oneness, of Firstness; they create distinctions, classifying and categorizing and separating experience into bits and pieces. What oneness is, is Firstness; words separate Firstness, and Secondness arises, then words usher in Thirdness, a mediating, but also a dividing and distinguishing, and occasionally mutilating, Thirdness.

As a Buddhist saying goes: Before studying Zen, mountains are mountains and rivers are rivers; then, while studying Zen, mountains aren't mountains and rivers aren't rivers; and finally, after enlightenment enters, once again

mountains are mountains and rivers are rivers. The first mountains and rivers are the product of words: ‘mountains’ and ‘rivers’. Then the limitations of words are revealed. Eventually, experience, or Firstness, is felt and sensed, and mountains are now just what they are and so are rivers, because they have engulfed the enlightened one and he has engulfed them, as a co-participant with them and they with him (Laycock 1994, 2001, Loy 1989, Mansfield 1995). In other words, from Firstness (monism) to Secondness or Otherness (dualism) and Thirdness saying what otherness presumably is (via triadic mediation), after enlightenment, the cycle completes itself: Firstness becomes that which *is* as it *is*. This by no means diminishes the importance of Secondness and Thirdness. On the contrary. They are absolutely necessary for interacting and getting along in our practical everyday affairs (LW), and for interrelating with the OAHs making up our world and talking and writing and listening and reading about them. The important point is that one should never ignore the more fundamental role of Firstness.

In short, what *is*, is the *blue sky* and also a *set of frequencies* that when impinging on the retina give a sensation of *blueness*. What *is*, is the *first note of ‘Pink Panther’* and also a *series of diffuse and compact air pockets* that bring about vibration of the ear drums to give the sensation of those familiar sounds. What *is*, is the *smell of fine perfume* and also a *combination of aromatic chemical compounds called esters*. And so on. All this, before there is any *other* (of Secondness) and before the sensations have been named (as Thirdness), before there is any conscious awareness *of* the sensations *as* so-and-so and before there is any cognizing *of* those particular sensations *as* what they are due to the fact *that* they are of such-and-such a nature. At the preliminary phase of the process, there is not (yet) any ‘out there’ (Secondness, indexicality, objectivism), not (yet) any mind/body (dualism), not (yet) any words that distinguish and classify (Thirdness, symbolism). There is only what *is* as it *is* (*is becoming*).

### 13.6.1. Peircean input extended: a digression

EZ, OAHs, CCC, *i-i-i-*, and BSO, or in other words possible possibility, signs becoming signs within the semiotic world’s becoming, and mediation: all qualify as process. If all is process, then the traditional metaphysical dichotomy between *being* and *becoming* ought to be reformulated as: what *is*, is *becoming*, and what is *becoming*, *is*. In other words, to reiterate, it is a matter of the *being* of *becoming* and the *becoming* of *being*.

How can there be any antithesis, any dualism, of being and becoming, if what *is*, is always BSO, and if what is becoming is all there *is*? All there *is*, is

arising from EZ and entering into *CCC* and *i-i-i*, bringing about the emergence of signs always in the process of *BSO*, and their respective OAHs, and, by mediation, meaning, concepts, thought, and interpretation. Although what *is* might customarily be taken as permanent, it is perpetually changing; although it might ordinarily be considered what simply *is*, it is difference, diversity, plurimorphy, entanglement; if it is assumed to be determinate, it is radically indeterminate. If it is thought to be complete, it is nonetheless incomplete; if consistency is presumed, there is inconsistency. This paradoxical nature of what *is* and *is becoming* lives in the processual nature of *CCC*, *i-i-i*, and *BSO*.

If all is process, how can there be any opposition between mind and body, mind and world, or especially between bodymind, world, and thought. Thinking is also what is becoming. Indeed, thinking is the prime mover of mediation – the action of Thirdness – of signs and their OAHs, of bodymind and world. We should reformulate Descartes' 'I think, therefore I am', as 'I am feeling and sensing and experiencing and thinking my becoming, therefore I *am* my becoming'. I am nothing if I am not process, a center of co-participating interactivity. Thus, there is no absolute contradiction between any pair of the traditional dichotomies. There are differences, but no opposites; there is heterogeneity, but no dichotomies; there is a desire for and a move toward homogeneity, but in the final analysis heterogeneity manages to pervade. What there *is*, is undivided wholeness and division into what is *CCC* and *i-i-i* within the *BSO* process: plurimorphy, entanglement. In a manner of putting it Peirceanly: there is radical monism and radical perspectivism, radical objectivism and radical idealism, that is to say, there is 'objective idealism'.<sup>92</sup>

'Objective idealism', as suggested, entails methodological 'realism'. We conduct our lives at work and play as if it were all as 'real' as can be, though whatever our fashioned world may be, it is 'semiotically real', a world from among many possibilities, which can never be absolutely coterminous with The World (the collection of all possible 'world-versions'). And it entails ontological and epistemological 'idealism' – for the reason that our particular 'semiotically real' world is but one 'version' from among many possible 'versions'. In writing what I wrote I don't deny the phenomenal world as such, but its essentialization. For, if what *is*, is always *BSO*, the process isn't digitalizable into substantive entities, or into self-contained, self-sufficient wholes. It is, itself,

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92. I write 'putting it Peirceanly', aware that Peirce purists might throw up their hands and suggest I throw in the towel. However, I would venture to say that 'putting it Peirceanly' is in the spirit, not the letter, of Peirce, in honor of Peirce's notion of the vagueness inherent in all signs, not the dream of constructing generalities to end all generalities.

whole, the whole that is not what it simply *is*, because it is always *BSO*. In this manner, it is always greater than the sum of the digitalized parts that can be cut from it and distinguished as entities within some ‘world-version’ or other.

So-called OAHs in our experience are enduring foci or vortices of change, the arising and actualizing of which, and the articulating of which, brings forth mountains, rivers, rocks, trees, table and chairs and apples and pears and planets and stars and galaxies: the virtually innumerable variety of our phenomenal world. Those enduring foci or vortices are centers of process, the forebears of perceived mountains, rivers, and so on. Attribution of thingness, of essence, to these phenomena as if they were what *is*, is the product of what Whitehead terms ‘misplaced concreteness’, a form of mistaken identity, which bars anything and everything else, and thus bars contradiction and excludes anything and everything else from the identity of what presumably *is*. This delusion is motivated by the product of the obsession to cling to the supposed thingness of things, which becomes a soothing pillow satisfying the ego’s exigencies, as it tries to swim against the perpetual movement of plurimorphity.

This obsession, this ego-driven desire, is the *will to power over nature*, nature that must be fixed. Will to power is the mania for grasping, for holding onto, for controlling, that breeds the deluded notion of determinateness in all things. In contrast, acknowledging self-reflecting, self-transforming, incessantly changing process, involves the subject as center of the interdependent possibilities (Firstness) within the process in an act of creating particularities (Secondness) and bringing about mediation of them within the range of possibilities from which they emerged, such that continuously interrelated and changing ideas and thoughts and meanings (Thirdness) may pour forth. *BSO* all, through entangled plurimorphity.

# Chapter 14

## From the mark of distinction's source

It's back to the future. Back to the range of possible possibilities with respect to EZ, CCC, and *i-i-i-*, and on to musement and the bare beginning of signhood by the grace of abduction. And forward, through the process of BSO and the universe of signs becoming signs, ourselves included as bodymind processes, without conceivable end, which is to say, back to the long lost irretrievable beginning. This chapter attempts to account for beginnings, from our perspective at the 'middle', somewhere, somewhen. A daunting task, for sure. But a task which, when at least attempted, may hopefully render our knowing what paltry little we can know a bit more revealing than concealing. The task will be unfolded with the aid of another Wheeler 'thought experiment' illustrating the progression from '0' to acts of signness within the concrete world of OAHs.

### 14.1. The imaginary revisited

With each re-iteration of a form, it re-enters its own space. If we take '+' as 'true' (T) and '-' as 'false' (F), then on the horizontal axis of the Argand plane, we will have F values on the left side of '0' and T values on the right side, and on the vertical axis we will have a T,F oscillation at the upper portion (as a consequence of the irresolvable  $+\sqrt{-1}$ ) and F,T oscillation at the lower portion (as a consequence of  $-\sqrt{-1}$ ). This combination, given multiple re-entries, will yield a never-ending set of circles re-entering themselves (see Figure 35). It becomes a 'hypercircle', since the oscillations are destined to continue, without conceivable end (if you wish, look ahead to Figure 43 for an image of the 'hypercircle').

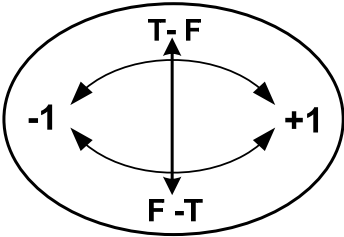


Figure 35. Re-entry

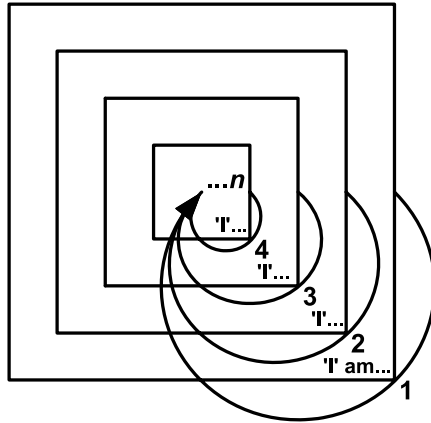


Figure 36. The self-informing form

This ‘imaginary’ oscillating, stuttering process as described by George Spencer-Brown (1979), Louis Kauffman (2002), Francisco Varela (1975, 1979, Kauffman and Varela 1980), and Michael Schiltz (2002, 2007), among others, is that of a form which re-enters itself, thus producing a potentially infinitely variable image of itself. If you look at yourself in a mirror, you see yourself as you are. Right? Well, not exactly. You see yourself from your particular vantage point in terms of how you were a split second ago, for your act of processing your self image occupies about 2/10 second. Spencer-Brown likens this self-informing form to imaginary numbers, according to the transition: ‘ $X = \sqrt{-1} \rightarrow X = +1|-1|+1|-1|+1|-1 \dots n$ ’. The imaginary number offers no solution; it presents a quandary, a paradox; it can do no more than oscillate, vibrate; it remains caught up in scintillating, quivering, indecision. This self-informing form can be portrayed as Figure 36, with its value oscillating from ‘+’ to ‘-’. Indeed, space, the space of form, is what we would have if there is a mark of distinction; time is what we would have if there is oscillation.<sup>93</sup>

Compare Figure 35 to the Figure 1 sequence, ‘ $0 \rightsquigarrow \emptyset \rightsquigarrow \sqrt{\bullet} \rightsquigarrow \pm \rightsquigarrow \Psi \rightsquigarrow \dots$ ’, where the combination of ‘0’, ‘ $\emptyset$ ’, and ‘ $\sqrt{\bullet}$ ’ corresponds to the vertical line of demarcation in the Figure 35 oval, and ‘ $\pm$ ’ corresponds to the oscillations. The demarcation is the motor behind the vibrating positive and negative values, ‘ $\pm$ ’, which ultimately yield the third leg of the tripod, ‘ $\Psi$ ’. Positivity and negativity, or ‘ $\pm$ ’, would remain static, inert, dead, were it not for this mediating third leg, which brings them together in the same way it brings itself

93. From various comments on this process, see Herbst 1993, Robertson 1999, Kauffman 1998, 2002, Kauffman and Varela 1980, Engstrom 1999, 2001.

together with them. Thus if we flattened the three-dimensional tripod to a two-dimensional plane, it would need a mark of distinction, a border, between the two values, like the composite form, '+ ← √• → -', making up the first two legs of the tripod.

Where is the co-participating subject with respect to Figure 35? He is within the space; he is also a self-re-entering self, *within*, not aloof *from*, the oval. Like Wittgenstein's eye, he sees what's within his space but not himself within that space. In this respect he remains at the periphery. He, as co-participating subject, as mind-form, or better, bodymind-form, is a 'border phenomenon'. He is at the margin, and if he wants to see himself, he avails himself of a mirror. But that doesn't do the trick, for his mirror-image artificially places him outside his space. But he can't genuinely 'transcend' his space, for he is within it. He is 'immanent'.<sup>94</sup>

Mikhail Bakhtin once wrote in regard to the mirror reflection to which I alluded:

A very special case of seeing my exterior is looking at myself in a mirror. It would appear that in this case we see ourselves directly. But this is not so. We remain within ourselves and we see only our own reflection, which is not able of becoming an immediate moment in our seeing and experiencing of the world. We see the *reflection* of our exterior, but not *ourselves* in terms of our exterior . . . I am in front of the mirror and not in it. The mirror can do no more than provide the material for self-objectification, and even that not in its pure form. (1990: 32)

This quote reveals the condition of the co-participating subject. Looking into a mirror, he sees himself from 'outside'. But there is no pure 'outside', for he is also at the same time 'inside'; he is the image and it is him. He sees himself 'inside'. But there is no pure 'inside', for he is 'outside' looking in. He is both 'inside' and 'outside' and he is neither 'inside' nor 'outside'. There can be no more than oscillation from one value and perspective to the other. If he is

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94. Indeed, the very idea of an initiary 'mark of distinction' recalls Wheeler's words in Chapter Six: 'Looking at an empty courtyard, we know that the game will not begin until a line has been drawn across the court to separate the two sides. Where, is not very important; but whether, is essential'. This mark distinguishes between 'observing equipment and observed system; but the line of distinction can run like a maze, so convoluted that what appears from one standpoint to be on one side and to be identified as observing apparatus, from another point of view has to be looked at as observed system' (1994: 292). Thus, Wheeler's quantum co-participation, Spencer-Brown's 'Laws of Form' and scholars subsequently working with his concept of 'forms', and Peirce's blackboard 'thought experiment' cited in Chapter Eleven, are implicit in Figure 1 as the 'root metaphor' of this entire essay.

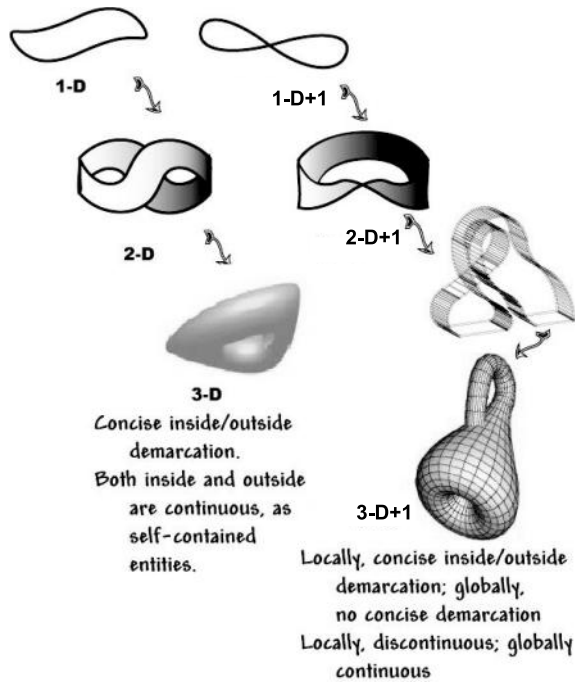


Figure 37. Möbius and Kline borders

anywhere-anytime, he is within the *border*, the *boundary*, on the two-dimensional infinitesimally thin surface of Figure 35 that separates ‘inside’ from ‘outside’.

What there is, in the final analysis, is: ‘*inside | outside | inside | outside | . . . n*’, and the boundary condition or the border (that is, in the terms of the Figure 1 tripod, ‘ $0 \rightsquigarrow \emptyset \rightsquigarrow \sqrt{\bullet} \rightsquigarrow +|-+|-+|-+|- \dots n \rightsquigarrow \Psi$ ’). This effervescent, scintillating whole, this possible possibility of some actualized Firstness, Secondness, and Thirdness, is the silent yet ubiquitous force behind the forming, the co-participating self-organizing, of actuals. With respect to mind, self, and ‘I’, this is tantamount to a re-informing of the perpetually altering ‘I’: a difference that makes a difference.

Likewise, as we noted above, there is no ‘inside’ or ‘outside’ to the Möbius- and Klein-forms. Figure 37 shows, on the left-side, construction of a one-dimensional line, a two-dimensional band, and a three-dimensional Torus. In each case there is a clearly delineable ‘inside’ and ‘outside’. The figure also sports, on the right-side, a one-dimensional line folded onto/into itself in two-dimensional space to form a figure ‘8’, a two-dimensional strip twisted in three-dimensional space to form a Möbius-band, and two Möbius-bands, one left-



hand and the other right-hand, joined to construct a three-dimensional Klein-bottle space within four dimensions. In each of these cases, at some arbitrary point, 'inside' becomes 'outside', and vice versa. Yet there is a fundamental difference between the two sets of forms. In the first set, locally, 'inside' and 'outside' are continuous, while globally, their combination forms a distinction, 'inside/outside'; in the second set, locally, there is no delineable 'inside/outside' distinction, while globally, the entire form is continuous.

In other words, there is, in the figure '8' and the Möbius- and Klein-forms, an indeterminate border, oscillating between the one value and the other, as possibility of either the one or the other. The border entails neither the observer-subject nor the entirety of the figure '8', or the Möbius- or Klein-form. Rather, it is a Janus-faced vibrating act between the becoming of being and the being of becoming, so to speak. The border, consequently, is a paradoxical, self-informing process: its value repeatedly re-informs itself. Taking this into consideration, and in the Peircean mode, the 'I', the self, the subject, is a sign among signs. It is also a border, an in-betweenness that is always *BSO*. Where, when, what is 'it', then? It *is* – what it *is not* – and it *is not* – what it *is*, within the process ('0 ∞ ∅ ∞ √ • ∞ ± ∞ Ψ ∞ . . .').

Moreover, it is – in the best of all instances – always open to possible possibilities, that is, novelty, new knowing, through an unfolding of itself and its world in different ways. As cited in footnote 54, Chapter 7, Merleau-Ponty (1962: 28) writes, 'empiricism cannot see that we need to know what we are looking for, otherwise we would not be looking for it'. Indeed, in our quest for knowing more, there is a hope that we will be able to latch onto some possibility – albeit inordinately vague – from the range of all possible possibilities. This hope of actualizing some possibility is the hope that it will be there, somewhere and somewhen, waiting to emerge in the twinkling of an eye, to enter the scene as an abduction created through co-participation with the abducting subject, the 'I'. And the abducting subject is a possibility for co-participating with the abduction in order to bring it into the light of day – so in a sense, the abducting subject knows what he's looking for, because he's part of, and co-participant with, what he needs to know.

Merleau-Ponty goes on to write that 'intellectualism [in the guise of rationalism] fails to see that we need to be ignorant of what we are looking for, or equally again we should not be searching'. The abducting subject is ignorant, though he is never totally ignorant as to the possible abduction, for there is the 'I' of the subject as a possibility for co-participation with that abduction such that it may spring forth and put on its best show. There is, then, no absolute distinction between subject as possibility, sign as possibility, and context as possibility. They are all there, within the range of all possible possibilities,

ready and waiting for their appropriate actualization; and when actualized, they all enter into the *CCC*, *i-i-i-*, and *BSO* process.

#### 14.1.1. In this respect, a further word on abduction

The process of abduction begins with an *image*: not ideas or thoughts, not concepts or meaning, not a lot of verbiage going on, but a merely humble image, no more and no less.<sup>95</sup> The image comes ‘like a flash’ (*CP* 5.181). It is there, and either satisfies expectations or comes as a surprise, and if a surprise, then a possible reason for the surprise appears as another image.

This image can be virtually any OAH in everyday life. Reconsider Peirce’s abducting from his sensing an azalea in full bloom, as described in Chapter 5. The abducted image springs up, and the process comes into play, as the image is set apart from the imager and the seen or the imaged as something other than the imager’s self; then it is set apart from other objects in its vicinity and it is related to a general class of objects belonging to the same species; then a word appears; then a sentence, and then, if necessary, an entire text specifying the object, the class to which it belongs, its properties and characteristics, and so on.

The azalea in Peirce’s garden is not simply *seen*. At first sight, many of its details are compacted, compressed – the deciduous evergreen shrub, growing in relatively dry soil, the colorful variety of flowers. The azalea-image is given impressionistically, its details remaining submerged, yet they are flowing together with other images. Within an increment of time – a mere fraction of a second – this image, as a set of possibilities, this vaguely greenish and colorful haze, begins developing into a more definite form. A green cloud becomes a profusion of distinct leaves, and colorful flowers, although nothing is (yet) distinguished and seen *as so-and-so* – an azalea – nor is it (yet) conceptualized as *so-and-so* because it evinces *such-and-such* a set of characteristics. In another split second, leaves regiment themselves into vein-patterns and distinctive edges. Details emerge from a sea of indistinctness, like the shower of scintillating sensations from an explosion of details. And this emergence, this coming-to-notice, accompanies the emergence of an abducted and induced and deduced generality: ‘Azalea’.

It is as if the variegated qualities and relations of the azalea were held in by a sort of effort, and as if, in relaxing into detail, the bush exhaled its relief, scat-

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95. I should reiterate that when I write ‘image’, I allude to the range of all possible images by way of the five basic sensory channels plus somatic, proprioceptive, and kinesthetic feelings and sensations, in the manner of Antonio Damasio (1994).

tering details everywhere. Merleau-Ponty reminds us that '[t]here really is inspiration and expiration of Being' (1964: 167). In Merleau-Ponty's vocabulary, Peirce's abducting and sensing and perceiving the azalea, *for-itself*, is not the spectator of progressively atomized details; rather, he is witness to the azalea's very exhalation of the inhaled *in-itself*. Peirce is not the witness to a decompression of the azalea's myriad details into a generality, 'Azalea'. He is witness to decompression itself; he senses and abducts and cognizes generality. (Compare this becoming of abducted awareness of the azalea, and the thought and meaning of the general term, 'Azalea', to the progression from sign  $R_1O_1I_1$  to sign  $R_3O_3I_3$  at the end of the previous chapter.)

We saw in Chapter 2 that musement converges directly upon no particular OAH 'out there (the world)' or 'in here (the mind)'. It is merely a beacon of illumination, pouring forth without obstruction from a fathomless abyss (EZ). At the moment of musement, there is nothing – *no-thing* – to see. Its light is neither absorbed by opacity nor remitted by reflectivity. As the bare initiation of a vague feeling, it is a relatively indistinct haze of quality, a vague something striving to announce itself as presence. Consciousness, by no means absorbed in its presence but merely beginning to get a co-participating feeling for its presence, is on the path toward abducting an emerging image, and from that moment it is beginning the process of interactively co-participating with it and generalizing it as a *CCC* image in *i-i-i-* with other like images, all of which are *BSO*. The image transports us; it sweeps our own *BSO* along as it sweeps the *BSO* of our co-participating signs and world along.

## 14.2. Feeling and sensing, OAHingly speaking

However, what I hear, smell, taste, touch, see, or feel is not an OAH 'out there' or 'in here', in objectivist fashion, as if I were grasping its essence, its nature, in one fell swoop, categorizing and conceptualizing it accordingly. At the outset there is no OAH, objectively speaking. Within my particular timespace moment, I, that is, bodymind, merely feels it.

Bodymind is affected by it, through its auditory, olfactory, gustatory, tactile, or visual contact with it, according to how bodymind's proprioceptive, corporeal feeling takes it in, how its somatic sense attunes to it. Bodymind merges with the OAH at the same time that the OAH merges with bodymind. OAH and bodymind become mutually interpenetrating. I – bodymind and the OAH – become one within that particular timespace context. The OAH is *BSO*, and so is bodymind. I am co-participating with the entire context, and indeed, with my world – OAH *within* the world, bodymind's version *of* that world.

Only then do I – bodymindingly – begin categorizing and conceptualizing. The OAH, now as if it were some-*thing*, takes on some countenance, *for* me. I sense it (a particularity) *as* so-and-so, because I have classified it according to its particular collection of attributes I have become accustomed to attaching to this particular type OAH, which now becomes a generality; it becomes a member of a class of OAHs according to their qualification in my memory bank. This entails the progression: ‘. . . Bodymind-OAH (as unified, interdependent possibility)  $\approx$ . . . Bodymind/OAH (as if the two were categorically and interactively distinguished)  $\approx$ . . . Bodymind-OAH (as interrelated generality) . . . *n*’.

This signifying act is a far cry from Ferdinand de Saussure’s (1966) ethereal, autonomous, differential sign system (*langue*) as possibilities, bits and pieces of which can be selected and spoken (actualized) within social contexts (*parole*). Possibilities in this essay, in contrast, include all possibly possible world-versions and all of their possible interpretations. They include all possibly possible signs that might be the most likely candidates for actualization, according to the timespace context of a particular moment. And they include all possibilities of my – bodymind’s – contradictory complementary coalescence, interdependently, interrelatedly and interactively speaking, with whatever possible signs might be most appropriate for actualization. The keyword is *possible possibilities* for differentiation of timespace contexts. It has to do with (1) virtual *boundarylessness* (Firstness), (2) *boundariedness* (Secondness), and (3) *boundarying-but-readiness for re-boundarying* (Thirdness).

This is to say that in the beginning the process is pre-signifying; yet it is process, before it has been felt and sensed, distinguished and indicated, and recognized and categorized and conceptualized. This is of the nature, once again, of Figure 1. It includes (1) the possible possibility of my feeling ( $\approx +$ ), (2) the possibility of my selecting and distinguishing and indicating some OAH as if it were objectively ‘out there’ ( $\approx -$ ), and (3) the possibility of my conceptualizing the two possibilities by mediation of positive and negative possibilities and mediating between those possibilities and the possibility of interpretation such that a sign might take its place among other signs ( $\approx \Psi$ ). All this, entailing CCC, *i-i-i*-, and BSO.

Cognizing an OAH is in this manner also far from the objectivist’s ‘representation’, by signs, of a pre-given world ‘out there’. It is the bringing forth, the co-participatory emergence, of a world through a collusion of past timespace contexts, the present situation, and expectations of possible future timespace contexts that will likely have been emerging. Traditional empirical notions of ‘representation’, ‘reference’ and ‘correspondence’ have no place in this scheme of things. Rather, in the first split second, there is possible possibility, regarding

bodymind, sign, and timespace context, which knows of no divisions, only possible differentiation. In the next split second, there is selection and actualization of one or of some set of concrete possibilities, which gives at least the illusion of division and distinction. Then, the 'imaginary' dyadic values ('+', '-') are mediated (' $\Psi$ '), such that those values will have been in the process of *B.S.O.* And then, enter concrete signs.

In his perspicacious study, *Processes and Boundaries of the Mind* (2003) Yair Neuman evokes Bakhtin, who puts the boundarying process of signs becoming signs this way with respect to the subject and other subjects:

When I contemplate a whole human being who is situated outside and over against me, our concrete, actually experienced horizons do not coincide. For at each given moment, regardless of the position and the proximity to me of this other human being whom I am contemplating, I shall always see and know something that he, from his place outside and over against me, cannot see himself: parts of his body that are inaccessible to his own gaze. . . , the world behind his back, and a whole series of objects and relations, which in any of our mutual relations are accessible to me but not to him. As we gaze at each other, two different worlds are reflected in the pupils of our eyes. (Bakhtin 1990: 22–23; quoted in Neumann 2003: 150–51)

In order to go with the flow of this process, the subject cannot be privy to some neutral, objectivist view; she is at heart at one with the other, with the OAH engulfing them, and with the images, the signs, and their respective meanings. To reiterate myself in light of Bakhtin's remark, in the beginning, they are all one (Firstness emerging from possible possibilities). In the next moment of the process there is distinguishability: they are one, but different; their timespace context is the same but different, and the OAH they share is different yet virtually the same (Secondness emerging). Then, in another moment the process is becoming interpreted as something slightly other than the way of its becoming interpreted in the previous moment (Thirdness emerging). With respect to this third moment, Bakhtin writes that he must 'project' himself into another human being (1990: 25).

Project himself into another human being? Put himself in the other's place? Create a sense of place outside the other? Does this not belie much of what I've written in the preceding paragraphs? No. That is, not really, if from my interpretative posture, and within my particular timespace context, I turn the process around and backtrack to the indications and distinctions I processed and then take a dive into my almost-immediate feeling and sensing of possible possibilities just beginning their emergence into my processual world. At that phase of my return to some beginning where there was no clearly delineable

beginning, if I am genuinely attuned to the processual features of my concrete timespace context and the nature of alternate possible timespace contexts, I might be able to feel and sense the other's processual flow within her timespace context.

Bakhtin attempts to put the process in linguistic dress, which, as far as the premises of this inquiry go, is severely limiting and already a giant step removed from concrete feeling and sensing. Nevertheless, it bears quoting from Bakhtin, who never ceases to provoke his reader: 'The point . . . is precisely how to accomplish the task of translating myself from inner language into the language of outward expressedness and of weaving all of myself totally into a unitary plastic and pictorial fabric of life as a human being among other human beings' (1990: 31). How is this possible? To put an answer succinctly, by passing through the inverse sequence: ' $\Psi \rightsquigarrow \pm \rightsquigarrow \sqrt{\bullet} \dots$ ' (or the line of demarcation in Figure 35), and then possibly ' $\rightsquigarrow \emptyset \dots$ ', but no further than the metaphorical equivalent of the 'empty set'. This act entails untying and unmediating what was mediated, leaving unmediated positive and negative possibilities and the scintillating, vibrating, oscillating functor, which reveals a hazy premonition of what there was, and what there might have been as a set of alternatives that never quite managed to bear fruition. Returning to this 'beginningless beginning', then, and resurfacing with a proud abducted image, the *semiotic* process recommences.

Bakhtin intimates that this 'backshadowing' process is a reversal of 'foreshadowing' and expectations of what is likely to come is a matter of language, and thinking:

Thinking has no difficulty at all in placing *me* on one and the same plane with all *other* human beings, for in the act of thinking I first of all abstract myself from that unique place which I – as this unique human being – occupy in being; consequently, I *abstract* myself from the concretely intuited uniqueness of the world as well. (1990: 31)

Abstract thinking? Abstracting oneself from the concrete world? Well, yes, if we construe the act of abstracting as ab-stracting, that is, taking away from, separating from, removing, dissociating, rather than as conceptual obfuscation, theoretical condensation, schematic illustration, or linguistic complexity and abstruseness. Ab-stracting takes away the signifying window dressing leaving a bare minimum, the mannequin shorn of its luster, yet revealing what is most relevant for development of the entire showcase. There, at the heart of the process, the subject has more open access to possible alternatives, to the possibility of projecting herself into other signs and other bodyminds.

### 14.3. From feeling to cognizing: emerging process

Where, then, are the all-or-nothing lines of demarcation drawn? From within Secondness, one might wish to respond with neither hesitation nor any tinge of dubitability. Not so, however. Even when the need for clear-cut distinctions is called for, and indeed, at times necessary for survival purposes, there are no clearly delineable boundaries. Gregory Bateson effectively points this out:

Suppose I am a blind man, and I use a stick. I go tap, tap, tap, tap. Where do I start? Is my mental system bounded at the handle of the stick? Is it bounded by my skin? Does it start halfway up the stick? Does it start at the tip of the stick? But these are nonsense questions. The stick is a pathway along which transformations of difference are being transmitted. The way to delineate the system is to draw the limiting line in such a way that you do not cut any of these pathways in ways which leave things inexplicable. If what you are trying to explain is a given piece of behavior, such as the locomotion of the blind man, then, for this purpose, you will need the street, the stick, the man; the street, the stick and so on, round and round. But when the blind man sits down to eat his lunch, his stick and its messages will no longer be relevant – if it is his eating that you want to understand. (1972: 459)

Suppose the subject in question is eating his lunch. His fork goes tap, tap, tap, tap, as he discerns the morsels of food on the plate. Fork impales a wedge of potato; it moves upward while the potato wedge remains intact; mouth opens, potato wedge disappears as lips close; fork slips out and moves down in the direction of the plate. The same question must be forthcoming: where is the boundary? At the tip of the fork? Where fingers come into contact with it? At the contact between fork and food? There is no clearly distinguishable boundary.

Neumann (2003: 157) avails himself of this Bateson quote, and thereafter reveals that Merleau-Ponty cites the example of a blind man in his argument about the same process in his recontextualization of phenomenological processes, all of which entails a large dose of Peirce. Just as there is no clear and distinct line of demarcation between mind and brain, mind and body, mind and world, and feeling – by way of the walking stick's contact with the world – and cognizing – signs constructed from the stick-world contact – so also there is no crisp categorical boundary between Firstness, Secondness and Thirdness, or iconic, indexical and symbolic signs. They are all in the process of *BSO*.

In fact, Neumann critiques Descartes' seeking an Archimedean point by means of which to locate consciousness and the source of knowledge *within* the observer, or better, *within* the mind. Descartes was by no means willing to embrace any belief as valid simply because society dictated it. Nor did he have any faith in appearances regarding the world 'out there'. That was the empiricist's

dream for which he had no use. Descartes was willing to accept nothing short of an Archimedean point ‘in here’, *within* the individual, presumably an individual enjoying acute divining powers. This aspect of Descartes, of course, has been discredited for some time, and I’ll leave it at that. Yet the question remains: Where, then, can the/an Archimedean point be found, if at all?

Rationalism tell us that the Archimedean point is ‘in here’ and nowhere else, for mind is the author of all knowing; for the empiricism it is surely ‘out there’, for the experienced world is the source of knowing. What we apparently have is a pair of incompatible doctrines in well-nigh irremediable conflict. We need a ‘middle way’. So . . .

#### 14.4. Back to Wheeler

We can find a possible expression of the ‘middle way’ in Wheeler’s quantum interpretation. Wheeler tells us that the source of knowing is no Archimedean point at all, as ordinarily conceived; rather, it is ‘nothingness’, or ‘emptiness’. It is, at one and the same time, *everywhere* and *nowhere*, and its equation is: ‘ $0 = 0$ ’. The immediate reaction is that this flies against all reason, experience, and common sense. However, if we contemplate the notions of musement and abduction, the range of all possible possibilities, and the nature of EZ and BSO, can we honestly conclude otherwise? Allow me to illustrate Wheeler’s ‘ $0 = 0$ ’ through his ‘thought experiment’ – of which I will offer a variation (for previous renditions of this ‘thought experiment’, see merrell 2008, 2009).

Suppose we are in a dugout canoe powered by a small, well-used, 2-cylinder outboard 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 still 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.

But what’s this? Without foreseeing the consequences of our naïvely navigated meanderings, we find ourselves in a blind alley nature put before us. We’re trapped among the dense, partly submerged foliage. We can’t power our way out, since the ancient outboard motor can project us only forward; and to paddle our way backward with our hands would be an arduous task – we seem to be up that proverbial creek without a paddle. How can we get out of this mess? Elementary, we conclude. After some deliberation, we decide on the following: (1) if we slowly navigate our craft to a fairly open spot, (2) if we take the center of the dugout as a fulcrum point, and (3) if at one end, with my hands



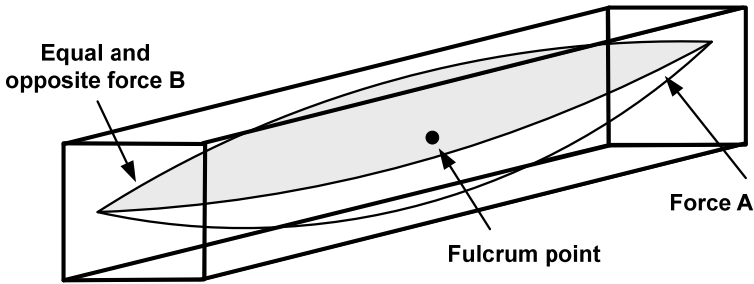


Figure 38. The fulcrum point as ‘border of borders’

I paddle away from the craft, and you do the same at the other end and on the opposite side in an effort to turn it around 180 degrees, then, (4) with luck, we might be able to maneuver the dugout around while the fulcrum point remains stationary, and the motor can then put the craft in motion in the reverse direction. After the expenditure of more time and effort than we bargained for, we finally accomplish our task.

Figure 38 gives us an image of the maneuver. The canoe is contained within an elongated version of a 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 of the prism; you rotate your face. Little by little we turn the object 180 degrees. Mission accomplished. Feeling smug about ourselves, we begin making our way back to the base camp. But actually, what did we accomplish? You brought about a rotation of the craft in one direction. I, with expenditure of an equal but opposition quantity of energy, rotated the craft in the opposite direction. We add up the sum of the rotations, with a positive sign attached to one end and an equal but opposite negative sign attached to the other end. The sum? Zero! Zero? Yes, zero! Zilch! ‘ $0 = 0$ ’.

The ‘fulcrum point’, the motionless center, like the center of that chimerical Buddhist wheel, was the source engendering all the action, while it remained actionless. The sum of all our time and effort rendered us zilch at that particular point! 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 canceled out all energy expenditure to leave ‘emptiness’ at the fulcrum point. What’s going on here? Was our frantic movement for naught? Not at all. In a Buddhist way of putting it, we can conclude that: *from ‘emptiness’ everything emerges and to ‘emptiness’ everything returns*. Between the moment of

emergence and the moment of re-submersion there is no more than effervescent, scintillating, oscillating, set of possible possibilities.

‘But how’ – one would wish to insist – ‘is it possible to account for the energy expended, the action, the movement and change, as a result of our maneuvering our canoe in your cute Wheeler thought experiment?’ Metaphorically speaking, at the two-dimensional surfaces of the rectangular prism in Figure 38, which incorporates the sum of the action. At the boundaries, the borders, that separates our water craft from everything else. ‘But this involves separation, dichotomization: rampant dualisms all! Is that all there is?’

Not really. Granted, the surface of the prism separates the canoe’s timespace context from everything else, ‘inside’ and ‘outside’. However, there would be no such *either/or* distinction without the range of possible possibilities and Firstness as possibilities. In other words, we could have stubbornly insisted on paddling our canoe backward and eventually out of the tangle of vegetation; we could have left the canoe, made our way to the bank, and gone for help; we could have screamed out, hoping someone was in the vicinity. There was *both* the one possibility *and* all the others making up an interdependent whole, before we decided on a plan of action by abductively selecting one of these possibilities and bring *either/or* interactive Secondness into the mix. Then, by applying the pragmatic maxim, deductively and inductively we reasoned out our strategy and put it to the test, and interrelated Thirdness emerged into the light of day. Had our plan not met with success, then we would have become aware that *neither* the one method *nor* the others but something else, something new and different, must be added to the mix. And from whence would it have come? From what, following Wheeler, we might call the *border of borders*, from ‘ $0 = 0$ ’, ‘emptiness’ ( $0 [= 0] \rightsquigarrow \emptyset \rightsquigarrow \sqrt{\bullet} \rightsquigarrow \pm \rightsquigarrow \Psi \rightsquigarrow \dots$ ; or, ‘EZ  $\rightsquigarrow \blacktriangle \rightsquigarrow \dots$ ’).<sup>96</sup>

In other words, what we have here is, once again, the makings of Figure 1, where the plus side and the minus of the Figure 38 rectangle, as *borders*, unite at the fulcrum point that has emerged from the *border of borders* ( $0$ ), as in the above equation: ‘ $\dots + \leftarrow \sqrt{\bullet} \rightarrow - \dots$ ’. Considering the ‘+’ and ‘-’ poles, *either/or* bivalence holds. But at the ‘fulcrum point’ it’s a *both-and* and *neither-nor* proposition; and going to the extreme at either end, we have inconsistent vagueness and incomplete generality, as often illustrated in the preceding chapters. Taking the entire picture into consideration, the Non-Contradiction Principle dangles its impotence, as does the Excluded-Middle Principle, for there is always at least a ghost of a chance that something different can begin emerging from the Included-Middle, at the *border of borders*.

96. For further on this concept of the *border of borders*, see merrell (2005a, 2007), also, work that bears on this issue in Rosen (1995, 1997).

We have, in sum: (1) the range of all possible possibilities (Figure 1, or pre-Firstness), (2) a set of concrete timespace contextualized possibilities (Firstness), (3) possibilities selected and actualized into distinguished particulars (Secondness) where the interaction is, and (4) the perpetually incomplete, ongoing, processual, general consequences of the interaction (Thirdness). In a more formal manner of putting it, with a nod to Figure 37, 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. This combination is tantamount to *Yin-Yang* complementarity. *Yin* is one vectoral force: ' $\Leftarrow$ '. *Yang* is the complementary vectoral force: ' $\Rightarrow$ '. Put the two together and we have the whole package: ' $\Rightarrow\Leftarrow + \Leftarrow\Rightarrow = 0$ '. But it is hardly anything we can call a package at all. For, what do we end up with when all is contemplated, said, and done? 'Emptiness', the 'emptiness' of anything and everything. Where is the meeting place? At the border, or better, the border of borders, the line separating *Yin* from *Yang*, or, ' $0 = 0$ '. The border of borders, 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, into ' $0 = 0$ '. The point, the ultimate Archimedean fulcrum point, the eye of the hurricane.

There is, ultimately, no more than one principle of organization, which is actually no principle at all. The principle is that the border of a border is zero. Actually, the breadth and depth of the austerity-clad principle, the border of borders, is actually comforting. Why? Because 'nowhere will we find that principle operating more beautifully, more simply, and with more direct ties to everyday experience than in the warping [of timespace] around a spherically symmetric sphere of attraction' – that is, the point, 'emptiness', the border of borders (Wheeler 1990: 121).

But enigmas remain. There are too many loose ends, so 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? By happenstance, it would appear, we might find ourselves once again on Peirce's home grounds. There is musement, then something emerges, a sign, then it becomes, is becoming, a sign *of* something *for* some semiotic agent *in* some respect or capacity. Now, Peirce shows us an entirely different countenance; it seems somehow to hold promise. We become enchanted with this new, hitherto unknown Peirce. He mesmerizes us. He's 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 'emptiness', and dimensionalities.

In order to develop this notion, a few further words on Wheeler's perplexing equation, ' $0 = 0$ ', is in order.

## Chapter 15

### Neither here nor there nor now nor then

This chapter includes further enigmatic words on the idea of ‘emptiness’, and multiple allusions to the *polysemeous* nature of signs, given their complexly emerging and diverging timespace contexts, which are non-Euclidean and non-linear, temporally and spatially speaking. Illustration of polysemy comes by way of rhetorical devices, especially *portmanteau* phenomena, and additional allusions to differences that make a difference and contradictory coalescent complementarity (*CCC*). This might appear at the outset as a blasphemous return to language priority and ‘textuality’ the likes of which I’ve criticized. However, when push comes to shove in the arena of scholarly interpretation, there is hardly any way out of the prison house of language. Thus I use rhetoric in an effort to illustrate how language, and by extension all signs, is always within the *BSO* process.

#### 15.1. ‘Emptiness’, one more time

If, as illustrated in Figure 38, the Archimedean point for any and all knowing can be none other than ‘ $0 = 0$ ’, then it is neither ‘in here’ nor ‘out there’, and at the same time it’s both ‘in here’ and ‘out there’. This ‘emptiness’ is tantamount to what I’ve dubbed the ‘border of borders’.

However, I must re-emphasize: ‘emptiness’ has nothing to do with the word’s ordinary connotation in English, such as the ‘emptiness’ of the ‘empty set’. The ‘empty set’ entails awareness that there was something but now there is nothing, or there was never anything but there could be something. ‘Emptiness’ as qualifying term for ‘0’, in contrast, is absolute absence; ‘emptiness’ is ‘empty’ of everything and anything. And that’s the problem. The idea of anything and everything ordinarily connotes ‘things’, in the actualized sense of material OAHs ‘out there’ or imaginary mental OAHs ‘in here’. But ‘emptiness’ is incommensurable with ‘things’; it is mere *possible possibility*. It is *neutral possibility*, which precedes the *possibility* of Firstness as a bare image of some-thing. ‘Emptiness’ is purely the possible possibility of something that *might possibly* come into *CCC* and *i-i-i-* with something else that is also possible possibility. Which is to say that ‘emptiness’ contains the possibility for the engenderment of anything and everything; but it is no-thing at all; it is absolutely ‘empty’.

In this respect, '0' gives a fair sense of 'emptiness'. '0' isn't a genuine number, since it has neither a positive nor a negative sign. And it 'contains' no number; yet it is the wherewithal for the creation of all numbers. Thus the ambiguity of the word 'contain'. Ordinarily the word would connote something 'contained' within something else. But there is nothing to 'contain' and there is nothing to be 'contained'. Perhaps the best I can do is write that 'emptiness' is the possibly possible emergence – or 'arising', in many Buddhist translations – of something new. With reason, 'emptiness' finds its way into diverse forms of mysticism; it leads us into that blind alley where words can't say what *is and isn't*, or what *neither is nor isn't*; we have hardly any recourse but to remain silent. I must, nevertheless, strive to articulate what needs to be said.

Consider a metaphorical example. Jane enters a bakery and orders a dozen donuts. She is told that they ran out of donuts and only donut holes are available. So she orders five dozen donut holes, assuming the content will be about the same. A minute or so later she is given an empty package with the bill. The attendant took the metaphor literally; the client took the metaphor as metaphor. But that's not the point, which is: a donut isn't a donut without the hole; the hole defines the donut, and the donut defines the hole; without the one, the other isn't, and vice versa. In another way of putting it, the donut implies a bit of emptiness ('empty space', not the 'emptiness' of '0'), while the emptiness (the hole) implies the donut. Without the donut, there is no emptiness; without emptiness, there is no donut. The combination, donut and hole, makes up a complementarity. You can have either the hole or the donut; yet, as mere possibility, there is *both* the possibility of a donut *and* the possibility of a hole, and there is *neither* the possibility of a donut (without the hole) *nor* the possibility of a donut hole (without the donut). That is to say, donuts and donut holes are perhaps most properly qualifiable as *CCC* and *i-i-i-*. In the final analysis, then, what is behind this complementarity? Pure possible possibility, that is, 'emptiness'. From 'emptiness', both donuts and donut holes can emerge into the light of day. The moral to the story? Don't try to sell 'empty donut holes', for pure possible possibilities simply don't cut the cake with customers.

That much said, we also had a 'hole' under consideration in previous pages: that of the Klein-bottle example as metaphor-model (Figure 39). The Klein-bottle's 'hole' is where uncontained is becoming contained. Uncontained is 'emptiness', possible possibility. In order for it to become contained, there must be a cut, a penetration, a difference that makes a difference. Uncontained can become contained when a boundary is imaginarily created for the purpose of drawing a distinction specifying something where there was nothing. This occurs at the Klein-bottle 'hole', which is contained, yet to be contained, there must be something containing and something uncontained. The 'donut' doesn't

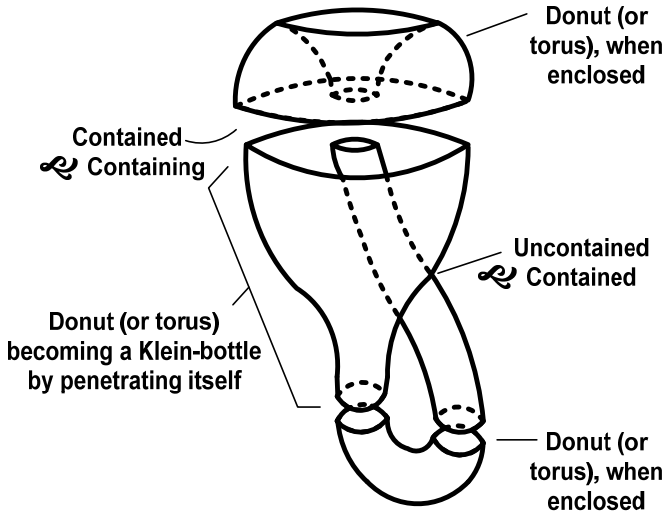


Figure 39. On Klein bottles and donuts

perforate itself, like the Klein-bottle; yet the ‘donut hole’ becomes what it is becoming as the ‘donut’, that is, the containing, becomes what it is becoming with respect to the uncontained. Uncontained (‘emptiness’) intercedes from the fourth dimension and becomes contained during construction of the Klein-bottle. Uncontained need not intercede during the ‘donut’s’ construction, since the ‘donut’ can live quite comfortably within three dimensions. Yet, in order that the ‘donut hole’ might be specified, uncontained must be implied. Thus we have the complementary pair, ‘donut’ and ‘donut hole’; the ‘hole’ complements the ‘donut’ as they coalesce within the uncontained.

Where does this uncontained reside? Elsewhere, just as the uncontained with respect to the two-dimensional Möbius-band implies a third dimension and with respect to the three-dimensional Klein-bottle implies a fourth dimension, elsewhere.

## 15.2. When *déjà vu* is more than just the same damned thing all over again

Consider anew the notion of re-entry, as in the figure ‘8’, the Möbius-band, and the Klein-bottle in Figure 37. Geometrically speaking, some of the most attractive re-entry forms are of the ‘Golden Rectangle’ sort, whose ratio is  $1:1/2(1+\sqrt{5})$  (Figure 40).

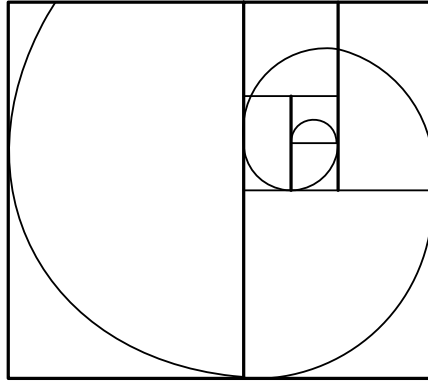


Figure 40. The Golden Rectangle

The ratio specifies an operation consisting of cutting the rectangle by successive reiterations, which culminates in a spiraling sequence of similar rectangles. A given rectangle is of basically the same form as the rectangle preceding it and the rectangle following it. This identity of the part in the whole appears time and time again in nature, where the whole can be seen in all the parts and at any scale. Forms of this sort have been investigated thoroughly, especially since Benoit Mandelbrot (1977) revealed his study of what are known as ‘fractals’. Such forms consist of recursive re-entries of the dynamic sort, such as those engendered by ‘complex numbers’ consisting of a combination of real numbers and imaginary numbers the prototype for which, we’ve noted, is: ‘ $a + bi$ ’. These re-entries make up an enchanted realm breeding wave-form patterns. Since the square root of minus one has no answer, it can do no more than oscillate between ‘+1’ and ‘-1’. Iterated, this is the equivalent of the series: ‘+1|-1|+1|-1|+1|-1|. . .’. Or, more formally, it would be like what is called a ‘wave train’: ‘ $\updownarrow\updownarrow\updownarrow\updownarrow$ . . .’. There is, in principle, oscillation from one value to the other and back again, with no end in sight.

The graphic illustration of a wave train evokes the idea of binary ‘on’ again, ‘off’ again transformations. This is like the ‘hysteresis loop’ in Figure 41. In an abstract sense, the 90 degree angles entail timeless switches between ‘+’ and ‘-’, or ‘on’ and ‘off’, to produce a wave train-like series. Actual transformation in the concrete world from the ‘on’ position to the ‘off’ position does not occur instantaneously along the wave form, however. Rather, there is a certain ‘lag’, a slight ‘delayed response’, such that the system does not go from ‘on’ to ‘off’ in an instant. The change entails the emergence, over an increment of time, of the one in the process of its becoming from the other. If we expand the hysteresis loop into a wave train function as illustrated in Figure 41, we have

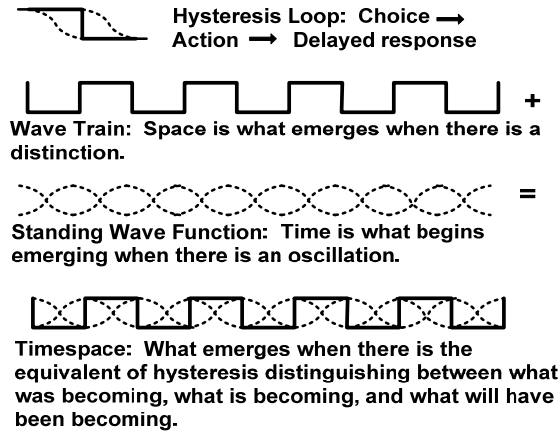


Figure 41. The hysteresis loop

timespace, with the wave train depicting space and the wave function depicting the becoming of time. Transition from ‘on’ to ‘off’, ‘+’ to ‘-’, ‘yes’ to ‘no’, through time, includes the time lag in the transition, wherein there is ‘yes’ and then there is ‘no’, and in between there is not mere ‘nothingness’, because there is something becoming. There is in a manner of speaking *both* ‘yes’ and ‘no’ and *neither* ‘yes’ nor ‘no’.

This time-bound transition is implicit in the figure ‘8’, the Möbius-band, and the Klein-bottle, where the equivalent of the wave train is found in the arbitrarily placed crossover, the twist, and the hole, respectively. But actually, crossover, twist, and hole are not one instant absent and the next instant present. There is crossover-becoming, twist-becoming, and hole-becoming, during which drops of time there is *both* ‘inside’ and ‘outside’ and there is *neither* ‘inside’ nor ‘outside’. In other words, from what might otherwise be considered pure timeless space or pure spaceless time, there is timespace, contextualized timespace. The one is a function of the other, and vice versa. Significantly, since the crossover, the twist, and the hole, appear arbitrarily within timespace, with each new manifestation of the distinction created by the crossover, the twist, and the hole, there is no mere distinction in terms of just another iteration, but rather, there is a difference that makes a difference.

‘But what is the importance of this obsession over ethereal abstractions?’ Paradoxically, it is the suggestion of a need, nay, the imperative, of a return to the concrete. Early in the twentieth century William James identified the late modern condition as ‘vicious intellectualism’, purely conceptual, mind-driven Cartesian thinking purportedly divorced from concrete everyday living (1967: 150). Alfred North Whitehead called it the ‘fallacy of misplaced concreteness’



(1929: 10). And John Dewey called for a return to concrete living, feeling and sensing, as concomitants to, and complementary with, fleshless abstract intellection (1934, 1963). Concrete living is never clearly and distinctly a matter of *either/ors*, but rather, there is always fuzziness, vagueness, between categories and their respective values. It is like those Wallace Stevens lines: ‘After the final no, there / comes a yes, and upon that yes / the future world depends’ (1972: 190).

In sum, concrete living is beyond absolute good and absolute evil, beyond yes and no, beyond ‘+’ and ‘-’, beyond ‘inside’ and ‘outside’, and beyond Nietzsche’s ‘will to power’ (1967). Rather than perspectivism in the Nietzschean sense, there is no more than perspectiveless perspectives. There is ‘emptiness’, as I have rather futilely attempted to qualify it in the preceding pages.

### 15.3. Arganding the form?

Like the wave train and oscillating wave function, the complex number prototype oscillates between ‘ $a + b$ ’ and ‘ $a - b$ ’. If we represent complex numbers on the Cartesian plane using the values ‘ $a$ ’ and ‘ $b$ ’, we construct the Argand plane (Figure 42), which is of the nature of a ‘standing wave form’.<sup>97</sup>

If the wave is put into oscillatory activity, it plays itself out on the one side and the other as the oscillations continue, and soon we have a dancing series of re-entries from one point to the other of the circumference of the initial circle situated on the real number axis (Figure 43). This process entails re-entry of the form, the form folding into itself, becoming enfolded, rather than unfolded, to form the ‘hypercircle’ (Kauffman and Varela 1980). What is of interest for the purpose of this inquiry is the re-forming of the *form* as the *content* of the *form* changes. Form and content do not make up a dichotomy, contrary to the common assumption. To force them into a dichotomy is to commit the error of the ‘third dogma’ of empiricism according to Donald Davidson (1984).<sup>98</sup> Form is

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97. An electric buzzer is a practical example of this phenomenon. The buzzer operates on this principle: (1) the power source sends a charge through the wire to a relay coil, (2) the coil acts as an electromagnet, *opening* its contact and thereby breaking the circuit, (3) the electromagnet, now deactivated, *closes* its contacts, returning to its original state, (4) the electromagnet *opens* its contact, and (5) the procedure is reiterated, over and over again, to produce the oscillating wave form. If we designate *open* as ‘+’ (or true) and *closed* as ‘-’ (or false), we have the equivalent of ‘ $\sqrt{-1}$ ’ (King 2007: 93).

98. Davidson’s ‘third dogma’, the ‘form/content’ (or, more specifically in Davidson’s terms, scheme/content) distinction, is an addendum to Quine’s (1953) ‘two dogmas’ of empiricism, ‘reductionism’ and the ‘analytic/synthetic distinction’.

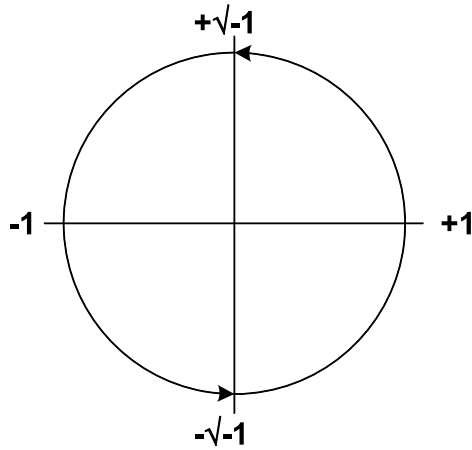


Figure 42. The Argand standing wave form

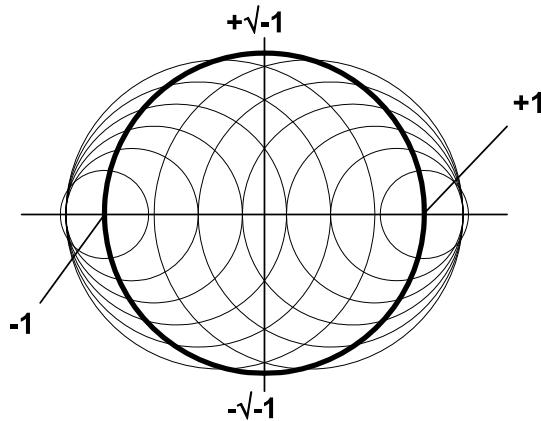


Figure 43. The hypercircle

amorphous, and content is always *BSO*. Form and content are, in their unity, *CCC* and *i-i-i-*. Like *Yin-Yang*, there's form in the content and there's content in the form. In a manner of speaking, form *is* content and content *is* form. But there's really more to it than that: they are complementary.

The ultimate import is that there is nothing unchanging under the sun, and you can never place your foot in the same river even once, for there is no such thing as the 'same' river. Thus Figure 43 offers an image of re-entering, of in-forming of the same, but there is no sameness; there is only re-forming; there

are only differences, and differences that make multiple differences. For, whatever is in the process of informing is *BSO* through *CCC* and *i-i-i-*, and it is always in tune with *EZ*. It would seem that there is no resolution to the paradox that has put this re-iterative process in action. However, the equation folding into itself is like a sign re-entering itself so as to appear for itself one more time. The form is in the process of *BSO*. In other words, a form emerging is the unfolding of a form which is to a lesser or greater degree new.

The process is comparable to what is called the ‘baker’s fold’ in ‘chaos theory’. The baker kneads the bread dough by folding it over and back into itself. After the first fold the two halves of the mass of dough are roughly the same. Then she folds it again, . . . and again. With each successive fold, the halves interpenetrate, through *CCC* and *i-i-i-*, such that there is the one in the other and vice versa. The process begins flowing along nonlinearly, as the two halves become more and more disorderly, until chaos threatens. At this point there’s no way to determine where a line can be drawn distinguishing what was originally in one half and the other half. It has all become vague, uncertain.

This example bears witness to the inevitably and oftentimes inordinately messy characteristic of our cultural world and of nature in general. In our perception and conception of forms, and in our attempt to in-form ourselves with respect to these forms, caught up in the frequent dis-information that threatens to throw everything in dis-array, we nevertheless push on, in a considerably less than perfect world. Whatever order there is consists of tiny rivulets within minuscule islands surrounded by an unruly sea of chaos. We covet these rivulets; we attempt to maintain them intact, holding onto them for dear life. But they slither free and leave us with a fist full of water, and we strike out in search of another patch of order. Our believing we’ve found order consoles us with a sense that chaos has after all been vanquished. Yet it never ceases to threaten (see Mlodinow 2008).

#### **15.4. How, more adequately, can I express this timespace process?**

Mathematician Louis Kauffman offers a helping hand. He alludes to Peirce’s ‘sign of illation’ which he coined in his search for a more adequate symbolic logic. This sign combines the otherwise contradictory and mutually exclusive properties of addition and subtraction. Kauffman calls it a ‘portmanteau sign’, much like those words such as the jabberwocky word ‘slithy’, a fusion of ‘lithe’ and ‘slimy’. It’s like a suitcase that can hold dirty clothes after one’s trip to a professional conference and a box of chocolates as an offering to one’s spouse; it’s like a pervert’s flash drive that contains his hope of a groundbreaking essay

$$\begin{array}{c}
 \neg \\
 \vdash \\
 \overline{A} \vdash B = \overline{A} + B \\
 \overline{A} = \text{Not-}A
 \end{array}$$

Figure 44. The illative sign

when it is published along with a healthy dose of pornography he just lifted from the internet. Or regarding language, it's 'smog', a CCC convergence of 'smoke' and fog', 'wavicle', the meaning of which includes the concept of a 'wave' and a 'particle', or perhaps 'Ying', which depicts Yin that reveals a little bit of Yang and Yang that reveals a little bit of Yin.

Peirce's 'illative' portrayal of a 'portmanteau sign' with a pair of meanings is found in a Kauffman-inspired figure (see Figure 44).<sup>99</sup> The portmanteau sign combines a minus sign, which is the upper horizontal portion, and a plus sign, which is the vertical portion, with a cross so as to appear much like the sign for addition. This mixed sign, of both addition and subtraction (or negation) can be: (1) *either* plus *or* minus (in good bivalent fashion), (2) *both* plus *and* minus (which in classical Aristotelian logic is ordinarily prohibited by the Principle of Non-Contradiction), and (3) *neither* plus *nor* minus (ordinarily prohibited by the Principle of Excluded-Middle). In other words, the portmanteau sign condenses plus and minus into one, and thus we might wish to call it 'plinus', or 'mus' – in good keeping with Goodman's portmanteau *grue/bleen* quandary. Moreover, in view of the previous observation that a sign's multiple re-iterations puts it in a wavering, swerving, spiraling nonlinear path rendering it a series of differences that make a difference, that sign, as the bearer of *both* one meaning *and* another one and at the same time *neither* one meaning *nor* another one, eventually emerges as a radically different sign, which falls in line with the premises of this essay according to which everything is always *BSO*.

In addition to portmanteau phenomena, Kauffman suggest a cousin term, 'pivot duality' (or 'polysemy'), which consists of a non-portmanteau word with two or more meanings. So we have two or more signs and their meanings condensed into one sign, and one non-condensed sign with two or more meanings.

99. The angular symbol is derived from Spencer-Brown's (1979) 'Laws of Form', which ultimately entails the becoming of time from what in this essay goes as 'emptiness', or metaphorically speaking, a blank sheet upon which a 'mark of distinction' – the angular symbol in Figure 44 – can be drawn. Spencer-Brown's calculus, which begins with nothing more than 'emptiness' and ends with the initiation of time, lies behind the whole of this essay, and indeed, it has been with me since my early work in semiotics (merrell 1982).

A metaphor for a sign with ‘pivot duality’ is a claw hammer that can be used to pound a nail into a board or, when turned around one-hundred and eighty degrees, can be used to remove the nail; or a dinner fork, that can be used to hold a filet mignon while it is being cut or to scoop up a half-dozen or so peas. Kauffman finds use for both types of signs, since one type condenses two meanings into a sign and the other type expands the meaning of one sign, thus creating a differentiated sign. He suggests that it is important to find portmanteau and pivot phenomena in formal systems and logic due to the fact that:

[T]he very attempt to make formal languages is fraught with the desire that each term shall have a single well assigned meaning. It cannot be! The single well-assigned meaning is against the nature of language itself. All the formal system can actually do is choose a line of development that calls some entities elementary (they are not) and builds other entities from them. Eventually meanings and full relationships to ordinary language emerge. The pattern of pivot and portmanteau is the clue to this robust nature of the formal language in relation to human thought and to the human as a Sign for itself. (Kauffman 2001: 85)

Kauffman observes that the grin of the Cheshire cat is ‘the quintessential pivot, yet it is not a portmanteau’. He goes on:

In mathematics the grin without the cat is often obtained through a process of distillation. The structure is traversed again and again and each time the inessential is thrown away. At last only a small and potent pattern remains. This is the grin of the cat. That grin is a pattern that fits into many contexts, a key to many doors. It is this multiplicity of uses for a single symbolic form that makes mathematics useful. It is the search for such distillation of pattern that is the essence of mathematical thought. (2001: 85)

The grin: a pattern, ideally fit for any and all occasions and specified by a single symbol. That, in the name of abstraction in the purest sense, is: mathematics.

Of course neither natural languages nor even logic can hope to hold a candle to what is ordinarily taken for pristine purity of mathematics. In this light, it might behoove us to consider a couple of loaded words in a natural language, and how they operate in regard to a combination of *portmanteau* and *polysemy*: *space*, non-Euclidean space where portmanteau phenomena dwell, and *time*, a loaded word if there ever was one, which is replete with polysemy-becoming. Let us, then, combine *space* and *time* for the purpose of illustrating how. . .

### 15.5. Symbols converge, as they grow

Put in pedestrian terms, the classical Euclidean-Newtonian conception of space involves parallel lines that never meet: space is ‘straight’. In the non-Euclidean-

Einsteinian conception, space doubles back and eventually meets itself: space is ‘curved’ – the general image is that of a finite, but unbounded, sphere. Classical time and space are separate categories: ‘space’ is ‘space’ and ‘time’ is ‘time’, and the twain shall never meet. Einsteinian time and space are not separated; they are wedded to one another to form a four-dimensional continuum. In other words, there is neither ‘space’ nor ‘time’, separately considered, but ‘timespace’.

Now, let’s *portmanteaulate* the Einsteinian view and juxtapose it with the classical view:

1. Newtonian: Space/Time.
2. Einsteinian: Space/Time  $\approx$  Space-Time  $\approx$  Spacetime  $\approx$  ‘Spime’ (much in the order of Wave/particle  $\approx$  ‘Wavicle’, or Green/Blue  $\approx$  ‘Grue’)<sup>100</sup>

Like the mouth that both eats and speaks, and the throat that both drinks and breathes, *Timespace* or *Spacetime*, as one word, has various functional meanings. Portmanteaulating Spacetime into ‘Spime’, as has perennially been the standard portmanteaulating poetic practice of writers – Lewis Carroll and James Joyce are prime examples – we have a condensed, distilled sound and a visual image capable of conjuring up a basic distinction between the Newtonian and Einsteinian world views. Each of the two words, space and time, in separation, is polysemeous. By portmanteaulating them, a more economical linguistic rendition is forthcoming. Moreover, since all that *is*, is *CCC*, *i-i-i-* and *BSO*, after portmanteaulation, something new will have been emerging into co-participating minds.

Protests are undoubtedly forthcoming: ‘Is this not over-reductive? Does the naïve portmanteau combination not trivialize two complex and sophisticated world views to the extreme? Why the need for this spurious word play anyway?’

Of course. I should spell my motives out more clearly and distinctly. But that is precisely my point. Clarity and distinction threaten to end up in unwanted vagueness and generalities with presumably firm foundations that inevitably falter and fall. Kauffman reveals that logic, and even mathematics, have from the time concealed a most subtle and most earth-shaking portmanteau phenomenon, which was marvelously revealed through Kurt Gödel’s sentence that asserts its own unprovability. The Gödel sentence contains a double

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100. Inspired by Goodman’s *portmanteaulating* Green/Blue into ‘Grue’, elsewhere (merrell 2007) I offer an ‘alternate logic’, as an account of portmanteau phenomena, for explaining what therein I call ‘contradictory complementary ethnoconvergent’ processes regarding certain aspects of Brazilian and Mexican cultures.

meaning; hence it is polysemeous. It says something about the properties of certain numbers, and at the same time it says something about its incapacity to prove its own truthfulness. In Kauffman's words, these two meanings 'interlock in the compound Sign in the Gödel sentence, to form a portmanteau that has forever changed our understanding of the nature of formal systems' (2001: 109). In this sense, we have what is in the process of becoming combined with what could otherwise have been in the process of becoming from the vast range of possible possibilities. Or in other words we have what *is* and what *is not* passed off as what *could be* or *would be* according to some set of alternate conditions – in the order of 'play acting', from Chapter 5.

In order to develop this theme, I must take up the issue of polysemous and portmanteau signs within the context of vagueness and generality, inconsistency (contradiction) and incompleteness, and overdetermination and underdetermination. But as a preliminary step, I briefly return to the topic of re-entering the form.

## Chapter 16

### Signifying the form

Further specification of re-entry calls for reconsideration of spatiality, with focus on the imaginary act of dwelling in different timespace worlds. This focus keeps an eye attuned to Peircean signs developing out of his three categories, which, significantly, are of the same number as the spatiality of our concrete world. Ultimately, Peirce's concept of the sign entails a re-entry and re-forming of the form commensurate with Josiah Royce's 'Map Paradox' – a map that contains itself. This and other paradoxes alluded to in this inquiry give us no call for anguish, however, since there is always a 'middle way', through signs of polysemy and portmanteau arising out of a fusion of vagueness and generality, and out of the tension between inconsistency (contradiction) and incompleteness, thanks to overdetermination and underdetermination as supreme semiotic processes.

#### 16.1. Linelanders, Flatlanders, Spherelanders, and four-dimensionality

At the outset, a review of some concepts previously developed is in order. How would Linelanders go about re-forming their world into a figure '8'? Simple, we might assume. Take a line, fold it back, stretch it out and over itself, fold it back again in the opposite direction, and connect it to itself.

But not so simple, as we've noted. The only way they can create a figure '8' is by an act of self-penetration of their world in and through itself in order to get to the other side and create a crossing in order to complete their task. Likewise, since they are limited to two dimensions, Flatlanders would have to pass their world in and through itself in order to convert it into a Möbius-band. And, needless to say, we would be required to fold our three-dimensional space into itself by cutting a 'hole' in it from within the four-dimensional manifold, in Klein-form fashion.

The first operation, of one-dimensional nature, forms a *qualisign*, a sign of possibility; it entails Lineland en-folding and re-entering itself, as in the right-hand portion of Figure 45. The dotted lines of the two tripods are lines of possibility. The first tripod, consisting of Figure 1, emerges from merely possible possibility into possibility, and morphs into the second tripod, which has realized an interconnection between  $R_1$  and ' $\sqrt{\bullet}$ ' to become a *possible* sign. This one-dimensional interconnection folds over (or passes through, as it were) and



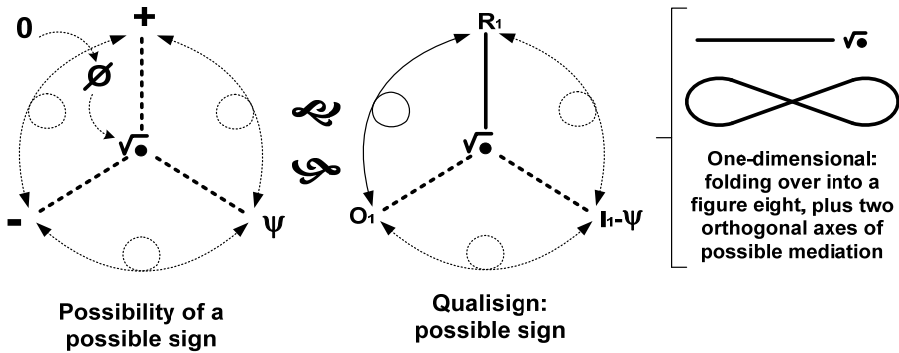


Figure 45. The possible qualisign

en-folds and re-enters itself to form the figure ‘8’, through the imaginary orthogonal axis ( $\pm\sqrt{-1} \approx \sqrt{\bullet}$ ) to create the possibility of mediation (or a *qualisign*, a sign of the nature of Firstness as a *possibly* genuine sign after it has been further developed). Creating a two-dimensional imaginary counterpart to Figure 45, we have Figure 46. This form depicts a *sinsign* (a possible sign of singularity, of particularity, of the nature of Secondness). The sign can actually be formed by the union of two figure ‘8’s out of the two lines connected by ‘ $\sqrt{\bullet}$ ’, where one loop of each figure ‘8’ is ‘folded over’ and placed within the other loop to create a twisted form, an infinitesimally thin band, which, if expanded orthogonally, morphs into a Möbius-band. By these operations, we can get a sense of spatial dimensionalities, through a morphing of one to the other in terms of discontinuity, as viewed from within a local perspective, and continuity, from with a broader global perspective.

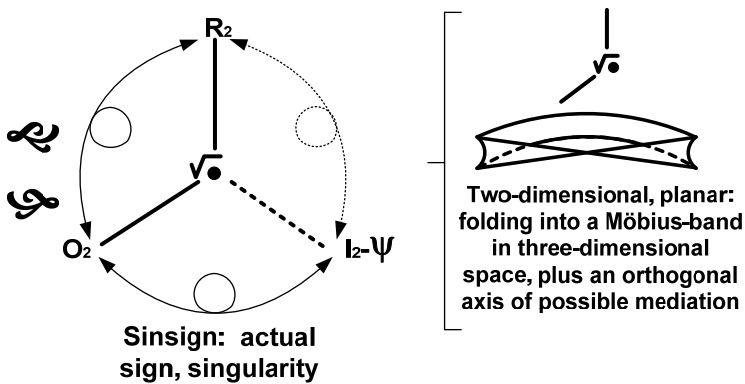


Figure 46. An actual sign (*sinsign*)

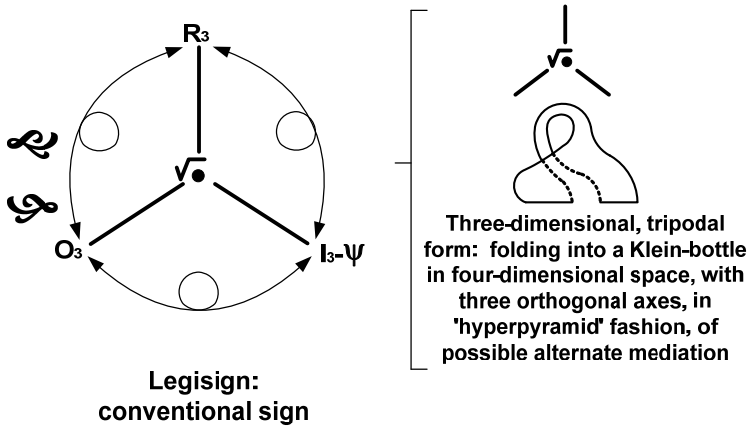


Figure 47. A conventional sign (*legisign*)

Now let's move up yet another notch, as in Figure 47. The tripod of possibility has now emerged. It has morphed into a *legisign* (a sign of generality, depicting the possible Thirdness of the sign's development toward its temporary status as a genuine sign). This three-dimensional tripodal form consists of an en-folding of two Möbius-bands to form a Klein-bottle within four-dimensional space. Thus, just as a one-dimensional form can en-fold and re-enter itself to become a form implying two-dimensionality, and just as a two-dimensional form can en-fold and re-enter itself to become a form implying three-dimensionality, so also a three-dimensional form, by the same recursive step, can en-fold and re-enter itself to become a form implying four-dimensionality.

The important point is that: (1) it's all there, within the original complex range of possible possibilities, and through en-foldment and re-entry of the form, spatialities begin the process of their emerging, (2) our three-dimensional perspective, like the Flatlanders' two-dimensional perspective and the Line-landers' one-dimensional perspective, given our limitations as far as our knowing goes, is, and will remain, incomplete, (3) our limitations nonetheless spell the possibility of signs' unceasing process of *BZO*, after having emerged from *EZ* through *i-i-i-* and by way of *CCC*, polysemy, and portmanteau processes, thanks to the inexorable element of vagueness buried within any and all of our generalities, and (4) overdetermination (of vague possibilities) and underdetermination (of general signs) prepare the way for creativity.

Figuratively speaking, we need a 'hole' in our hopeful continuity in order to gain freedom from our three-dimensional prison; nevertheless, ensconced within our world, we give ourselves the illusion of our world's completeness.

Granted, our world may be completable, from within a global four-dimensional perspective, but not from within our limited everyday three-dimensional local perspectival grasp of things.

## 16.2. How it can happen

In order to get a better feel for completion of this incompleteness, we once again must do a little ‘play acting’ – recall Hintikka’s account of Gödel’s proof of *inconsistency-incompleteness*. This acting involves musement, a free flight of the imagination, the creation of possible possibility; it involves a return to: ‘0  $\infty$   $\emptyset$   $\infty$   $\sqrt{\bullet}$   $\infty$   $\pm$   $\infty$   $\Psi$   $\infty$ . . .’ (that is, Figure 1).

Ultimately, completeness, the whole, is accessible through the ‘hole’ – Alice through the ‘rabbit-hole’, so to speak. We are in the whole, and yet, like Borges’s Argentinian Daneri gazing at the Aleph, we have the illusion that we are outside looking in. The ‘hole’ allows entry, ever so tenderly, into that sphere of higher dimension that allows for completeness and global consistency, although from within our world there can be none other than local incompleteness and global inconsistency. What we have here is comparable to Josiah Royce’s map paradox:

[L]et us suppose . . . that a portion of the surface of England is very precisely leveled and smoothed, and is then devoted to the production of our precise map of England . . . the map, in order to be complete, according to the rule given, will have to contain, as a part of itself, a representation of its own contour and contents. In order that this representation could be constructed, the representation itself will have to contain once more, as a part of itself, a representation of its own contour and contents; and this representation, in order to be exact, will have once more to contain an image of itself; and so on without limit. (Royce 1976: 504–05)

Ideally, a map cannot map its respective terrain without mapping itself (enfolding and re-entering itself), and by extension, the co-participating self cannot be mapped without mapping itself. Hence the regress. However, the map mapping itself suffers a diminution, since something is always lost. The bottomless iteration of images within images converges to a vanishing point, a singularity, the focal point of concentrically receding images, which contains, within itself, the possible possibility of the infinite progress of images. So there is infinite regress and infinite progress, and if the ultimate beginning and the ultimate ending could be fathomed, the one would be tantamount to the

other: ' $0 = \infty$ '; ' $\infty = 0$ ' (or in other words Wheeler's equation, ' $0 = 0$ ').<sup>101</sup> In sum, the map within a map is a self-contained, self-sufficient, self-reflexive and self-organizational *i-i-i*-process emerging from EZ according to the principle of everything always *BSO* in the *CCC* mode.

This reciprocity is also of the nature of Merleau-Ponty's 'paradox of perception' (1968: 148). A hand extends and reaches an object 'out there' that is the object of perception inviting the hand to reach 'out'; yet that very perception takes place 'in here', in the body; yet the hand is part of the body; yet the whole of the body is incorporated in the hand; yet the hand, when grasping the object, incorporates the object as the object incorporates the hand. Perception 'in here', the object 'out there', and the hand 'in here' and 'out there', are *many* and at the same time *one*. Perception is embodied, because the body is one object among others in the physical world. The body is different, because it is both 'in here' and 'out there'. But the object is like the body, since it has its own 'in here', though in the vast majority of instances, what is known by the body is no more than the object's two-dimensional surface, which is how it presents itself to the physical world 'out there'. The body's 'inner' implication and 'outer' explication patterns the object's 'inner' implication and 'outer' explication: in this regard at least, they are identical. And in this manner, attending to broad philosophical issues, *materialism*, *empiricism*, and *objectivism*, in perennial agonistic struggle with *idealism*, *rationalism*, and *subjectivism*, must concede to a 'middle way' that is at once *both* the one *and* the other and *neither* the one *nor* the other, like the line of demarcation separating 'A' and 'B' in Figure 2.

From a complementary point of view, the 'body' and the 'object' functions like a sign and its 'semiotic object', and both pairs of processes are mediated by the *both-and* and the *neither-nor* 'middle way' that brings them together in the same manner in which *both-and* and *neither-nor* merge into one another to create unity. From pure possible possibility, a figure '8' merges, then two dimensions, the Möbius-band, and then three, the Klein-bottle, and so on. There is the global appearance of *continuity*, but local *discontinuity* is the name of the game; there is overdetermination, but underdetermination never ceases to surface here and there; there is inconsistency, but it is most often accompanied by incompleteness; there is vagueness within generality and a tinge of generality seeping into vagueness. *Semiosis*, like life, is never exclusively an *either/or* affair, but also a matter of *both-and*s and *neither-nors*: plurimorphy, entanglement.

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101. This assumption follows the idea that zero and infinity are, reciprocally, two sides of the same coin (Barrow 2005; Seife 2000).

### 16.3. It happens, because that is the ‘way of all signs’, the ‘middle way’

And yet, we would like to think that signs proceed from particularity or singularity to generality and to conventional signs. But there are alternatives along the three legs of the semiotic tripod as modeled in Figures 45, 46, and 47; and sooner or later the time will come for one among many of these alternatives to be selected in order to resolve problem situations that have happened to pop up within diversely emergent timespace contexts. The processual legs of the triangle open doors revealing alternate sign processing and development, from musement to abduction and beyond, toward untold imaginary signs and worlds.

Table 2 sports four rows of parallel rectangles; yet there is *diagonality* – as a consequence of the processual tripod’s ever-polymorphing legs – from the upper left-hand corner to the lower right-hand corner, such *diagonality* creating the possible image of openness to new imaginary signs and worlds.<sup>102</sup> In other words, the whole shebang is *n*-linear or non-linear rather than linear. As I hope to have illustrated in the preceding pages, metaphorically and plurimorphically and entanglingly speaking, Firstness is figure ‘8’ness, Secondness is Möbius-bandness, and Thirdness is Klein-bottleness. The rows in Table 2 are related to one another through reciprocal mirror-symmetry, or enantiomorphism. The Möbius-band consists of two mirror-image figure ‘8’s, and the Klein-bottle consists of two mirror-image Möbius-bands. The figure ‘8’ is bounded by the point-dimension, the Möbius-band is bounded by the line-dimension, and the Klein-bottle is bounded by the planar- or surface-dimension. And, the fourth dimension is the unbounded insofar as it encompasses the Klein-bottle, the third dimension is the unbounded insofar as it encompasses the Möbius-band,

Table 2.

0-D	0 $\rightsquigarrow$ $\emptyset$ $\rightsquigarrow$ Point	
1-D (Firstness)	Figure ‘8’	$\infty$ Points (0-D $\rightsquigarrow$ 1-D)
2-D (Secondness)	Möbius-band	2 Figure ‘8’s (1-D $\rightsquigarrow$ 2-D $\rightsquigarrow$ 3-D)
3-D (Thirdness)	Klein-bottle	2 Möbius-bands (2-D $\rightsquigarrow$ 3-D $\rightsquigarrow$ 4-D)

102. I have developed the theme underlying Table 2 in merrell (1996), where I attempt to elucidate on Peirce’s seminal idea that ‘signs grow’, and that they, like ourselves as signs becoming signs, are living process. It behooves me to point out, in addition, that Table 2 is adapted from Rosen (2006: 75, 2008: 105), who constructs a comparable table he labels ‘Topodimensional Orders of Being’, using his concept of a ‘lemniscatory’ point, a line, and a surface (see Figure 22), which, I believe, complements Table 2 (as well as Table 3) based chiefly on Peirce’s categories.

and the second dimension is the unbounded insofar as it encompasses the figure ‘8’.

Signs becoming signs as process involve Firstness unfolding into Secondness and Secondness unfolding into Thirdness; the becoming of Thirdness incorporates the becoming of Secondness, and the becoming of Secondness incorporates the becoming of Firstness. Moreover, just as dimensionality is never absolutely pure, but to a greater or lesser degree fractal, so also Peircean signs can be subdivided, virtually without end, into 10 sign types, 27 sign types, 66 sign types, and up to  $3^9$  sign types! (*CP* 2.227–308).

‘So how is all this related to your hoary idea of “contradictory complementary convergence?”’ – I’m asked. I would begin by summarizing: the very idea of contradictory complementary convergence (*CCC*), bears on the border of borders (*EZ*), the ‘middle way’ (entailing *CCC* and *i-i-i-*), and processual forms (through *BSO*). Then I would go on, by suggesting that we can handily distinguish the discontinuity in the figure ‘8’ and the Möbius-band, although we usually take our world as continuous – we’re not aware of the ‘hole’ in our Klein-world. When problem situations arise, we can effectively respond on planar (Flatland) and linear (Lineland) levels, but we ordinarily remain bounded within our Sphereland (patterned by the Klein-form). And yet, within Sphereland, there’s that ‘hole’ that opens out to the uncontained, the unbounded. That’s why we see the swerving, wandering return from 4-D to 0-D in Table 3: back to ‘nothingness’, or ‘emptiness’, as it were.<sup>103</sup>

‘This might seem well and good, and even intuitive. But how can an iron-clad argument be made in order to convince the doubting Thomas who might

Table 3.

		Firstness	Secondness	Thirdness
	0-D			
Firstness	1-D	Qualisign	Icon	Word (Term)
Secondness	2-D	Sinsign	Index	Sentence (Proposition)
Thirdness	3-D	Legisign	Symbol	Text (Argument)
	4-D			

103. The nine terms under Firstness, Secondness and Thirdness make up Peirce’s nine sign types, which combine in nonlinear, nonsymmetrical manner to make up his ten basic sign classes as illustrated in Table 1 (see *CP* 2.219–73).

be prone to raise his skeptical voice?’ Not easy. Any time one momentarily taps into ethereal ‘emptiness’, one invariably begins stuttering and stammering, and for obvious reasons that I trust I need not spell out again. But actually, the ‘rupture’ of the figure ‘8’, the ‘slit’ in the Möbius-band, and the ‘hole’ in the Klein-bottle: are they not all escape valves swooshing out into the uncontained, the unbounded, the range of all possible possibilities? If so, would it not behoove us to abandon all customary talk about things and their attributes and signs and their meanings and go directly to the source? That was Peirce’s tactic. He writes:

We start . . . with nothing, pure zero. But this is not the nothing of negation. For *not* means *other than*, and *other* is merely a synonym of the ordinal numeral *second*. As such it implies a first; while the present pure zero is prior to every first. The nothing of negation is the nothing of death, which comes *second* to, or after, everything. But this pure zero is the nothing of not having been born. There is no individual thing, no compulsion, outward nor inward, no law. It is the germinal nothing, in which the whole universe is involved and foreshadowed. As such, it is absolutely undefined and unlimited possibility – boundless possibility. (CP 6.217)

‘Nothing, pure zero’? This falls in line with the implications of Tables 2 and 3, I would suggest. These tables do ‘not’ imply ‘the nothing of negation’, for ‘*not*’ means ‘*other than*’, and ‘*other*’ is second to something else. Negation implies that there is *something* to negate, a First in the very least. There is negation of that *something*, such negation implying *something other than* that something. In order to speak *about* negation, one must avoid Firstness; one must think and say ‘pure zero’, which is ‘prior to every First’, where there is ‘no individual thing, no compulsion, either outward or inward, no law’. That’s the problem with language, for, within language, there is no ‘where’ and there is no ‘there’ and there is no ‘is’ and no ‘it’ – recall Clarice Lispector’s ‘It’ – with respect to this ‘absolutely undefined and unlimited possibility, boundless possibility’.

There is no fool-proof way of thinking and saying ‘pure zero’ or ‘emptiness’. Perhaps the most that can be thought and said is that from ‘emptiness’, the *zero degree*, Firstness arises as if out of nowhere. It is a leap and a bound from sheer possibility and chaos, to actuality (Firstness and then Secondness). This chaos is not the deterministic but unpredictable chaos of ‘chaos theory’. Rather, as far as this form of chaos goes, there is no law; there is only ‘law without law’, as Wheeler (1980b) puts it. In the becoming of ‘somethingness’ from ‘nothingness’, Peirce tells us that a space was severed by a ‘cut’, or a ‘hole’ (potentially a solitary icon, or Firstness as such) (CP 4.512). The ‘cut’ then gives rise to a sign of indication (index, Secondness). The combination of the ‘cut’ and the ‘indication’ that created the ground for emergence of a subject

and an object (a sign and that to which it relates), is a different way of signing what is becoming signs' respective *others*. And from that point onward, signs begin their fluctuating, scintillating, then their self-entering, undulating, flowing journey toward development within the process Peirce dubbed *semiosis* – which meanders, wanders, and often rushes along, at times twisting and turning into whitewater stretches, and on occasion even appearing 'chaotic' (now the chaos of chaos theory).

#### 16.4. When and where there was no when and where

This entire process 'extends from before time and before logic' (*CP* 6.203). In fact, it is purely spatial, but a chimerical spatiality since, caught up in time as we are, it cannot be properly cognized; that is, it is prior to logical, classical linear, bivalent logic.

Reconsider Peirce's 'thought experiment' of a clean blackboard that can model the original vague range of possibilities.<sup>104</sup> For practical purposes it is continuity, an indeterminate multitude of possible dimensions and points. We draw a line on the blackboard, and a discontinuity (mark of distinction, a difference that makes a difference) emerges. However, to reiterate, the chalk mark is not really a line in the pure sense; it is actually a narrow plane, a strip of whiteness that severed and displaced a segment of the black surface. The whiteness is Firstness and the black/white distinction brings in Secondness, but the boundary between the black and white is neither black nor white. 'It is the pairedness of the two. It is for the white the active Secondness of the black; for the black the active Secondness of the white' (*CP* 6.203).

A line, mathematically speaking, has no boundary separating it from something else: it *is* a boundary. However, in order to create the image of a boundary, we draw a line, something we can see in order to get some sense of a distinction: a line of demarcation. The line has certain thickness; it has one side and the other side; either side separates the line from what is outside the line. In this manner, Peirce can write that whiteness *is* (Firstness), and blackness, the sur-

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104. If you allow your imagination to fly freely, think of the two-dimensional plane, the blackboard, as a flat sheet without thickness, border, or any distinctive features, which extends out and eventually doubles back and connects itself to itself to become like a sphere. It is still a flat surface, with an inside and an outside, but it occupies a piece of three-dimensional space; it is as if inhabited by Flatlanders who conceive of their world to be flat and extending outward forever, with no inkling of an idea that their world consists of curved space.



rounding area, is what that whiteness *is not* (Secondness). What separates Firstness from Secondness, or whiteness from blackness, is *both* whiteness *and* blackness, is *neither* whiteness *nor* blackness, is *both* of the above, and is *neither* of the above. In other words, it is nothing, ‘emptiness’, the rupture in the figure ‘8’, the Möbius-band, and the Klein-bottle.

Actually, we saw this in Figure 2, which is an ovular depiction of the *Yin-Yang* form, ☯, but without the tinge of blackness in the whiteness and the whiteness in the blackness. Yet the implication of blackness in whiteness and vice versa is there, in the line of demarcation, the ‘middle way’, or mediation, which could not have emerged had it not been for the originary whiteness as metaphor of zero, nothingness, ‘emptiness’. Then, from the initial mark of distinction, the ‘cut’, and the ‘line’ that is drawn, signness emerges.

It also bears noting that the mark or line on Peirce’s blackboard arbitrarily emerged, for it could have been drawn in an infinity of different ways in an infinity of different places. And after it emerged, it could have been ‘erased’.<sup>105</sup> After ‘erasure’, it could not interfere with any subsequent marks that might have emerged in different ways, for there is no necessary consistency between the ‘erased’ marks and any marks that subsequently might happen to emerge. However, by repetition of similar (though not identical) marks, a Peircean form of ‘habit’ (embedment, entrenchment) can be established such that the original arbitrary, even accidental, mark ‘acquires some incipient staying quality, some tendency toward consistency’ (*CP* 6.204). In other words, through ‘habit’, the mark can come to be perceived as sameness, or even identity, without the sub-



Figure 48. Form-becoming

105. This notion immediately evokes the Derridean (1973) concept of ‘erasure’. The sense of ‘erasure’ of which I make mention here, however, is not that of grammatical or textual vintage, for in my use of the term there is not yet any symbolicity, any hint of linguistic or symbolic signs of Thirdness. There is no more than an inordinately vague premonition of Firstness.

ject's awareness *that* the marks are different and separated by an interval. The distinct line marring the blackboard's surface, in conjunction with a set of similar lines, has brought about a reversed transition from discontinuity to continuity. Or, to use Peirce's graphic illustration, a series of slightly divergent marks produces a new self-enclosing line, which is itself continuity derived, like each of those marks, from the continuity of the blackboard (Figure 48).

The form – a continuity created by divergent continuities that are discontinuous with respect to one another – emerges from a series of marks that are vaguely similar but never identical, and now the form rests in wait of its complementary content. This form organizes itself as a consequence of actuals arising from the range of possible possibilities. As they multiply themselves, the marks making up the form tend gradually to lose their individuality. They become 'more and more obliterated and sink into mere adjuncts' to the newly emerging form in which 'they are individuals' (*CP* 6.260). It is metaphorically at this point that resemblance or sameness can be construed as identity. At this point also, generals can be conjured into what is taken as existence, as the 'real'. Peirce's 'thought experiment' is 'ideal' but it becomes the 'real', that can be none other than in part an imaginary 'reality', since it is never coterminous with the 'really real', the 'physically real' in its totality.

In short, there is both 'objectivity' and 'ideality' (making up Peirce's 'objective idealism'); there is both 'subjectivity' (on the 'idealistic' side) and 'what (we think) there is' (on the 'materialistic' side); there is both 'reason' (on the 'objectivist' side) and the 'empirically' real (which must remain on the 'idealistic' side, for the 'really real' in its totality is not to be had by the finite fallible knower). Where does this take us? To that perennial idea of. . .

## Chapter 17

### The universe: a book to be read?

In this brief concluding chapter, I suggest that Peirce's and Spencer-Brown's 'cut' or 'mark of distinction' that gives rise to *both-and* and at the same time *neither-nor*, the 'middle way' between and through bivalent *either/or*, makes for the possibility of a nonlinear, extralinguistic, overdetermined and underdetermined, inconsistent and incomplete, and vague and general alternative for feeling and sensing, experiencing and perceiving, and conceiving and thinking and reasoning: *semiotic process*. This comes by virtue of another Peirce 'thought experiment', his 'Book of Assertions', and diverse allusions to non-Western thought, all of which (1) are *CCC* and *i-i-i-* with respect to the above temporal-spatial development of topological forms and their complementary contents within their timespace contexts, and (2) support an underlying premise of this essay, that everything, including ourselves as signs becoming signs, is in the *BSO* process.

#### 17.1. The long lost when and where

Reconsider Peirce's notion of the passage from 'nothingness' to Firstness to Secondness in his blackboard example (with an eye attuned to Figures 2 and 3). The empty blackboard contains, within itself, the mark as a possibly possible discontinuity. Since this discontinuity is incompatible with the blackboard's continuous nature, it might be said that the blackboard does *and* does not contain the mark. Once the mark is drawn, however, there *is* a boundary that separates one instance of continuity from another one and establishes a discontinuity by means of which divergent properties arise. This boundary, like the original 'nothingness' or 'emptiness' of the blackboard without any 'cut' or 'hole', is itself 'nothingness' or 'emptiness'.

A question arises: 'What if we cut a hole in the empty blackboard?' Peirce offers yet another 'thought experiment' to illustrate this point. We can imagine the total realm of possible assertions (possible marks) as an empty 'book of separate sheets, tacked together at points, if not otherwise connected' (*CP* 4.512). The first sheet is the standard 'sheet of assertion', a 'universe of existent individuals', different sections of it standing for propositions (signs) asserted concerning that particular sub-universe. A 'cut' ('hole') in the sheet enables one to pass into a successive sheet, into 'areas of conceived propositions which are

not realized' (*CP* 4.512). Further 'cuts' in this and successive sheets then allow one to pass into worlds that, in the imaginary worlds of other 'cuts', are themselves presented as 'imaginary and false, but which may, for all that, be true, and therefore continuous with the sheet of assertion itself, although this is uncertain' (*CP* 4.512). Peirce invites us to regard the 'ordinary blank sheet of assertion' as a film upon which there exists the as yet undeveloped photograph of the emergence of signs of the universe. But this is not a literal picture, for when we consider historically the range of all signs' emergence that have been asserted to be 'true', we must conclude that this 'book' can be none other than a continuum, that:

must clearly have more dimensions than a surface or even a solid; and we will suppose it to be plastic, so that it can be deformed in all sorts of ways without the continuity and connection of parts being ever ruptured. Of this continuum the blank [initial] sheet of assertion may be imagined to be a photograph. When we find out that a proposition is true, we can place it wherever we please on the sheet, because we can imagine the original continuum, which is plastic, to be so deformed as to bring any number of propositions to any places on the sheet we may choose. (*CP* 4.512) (brackets added)

Hence, Peirce goes on, this original photograph is, more appropriately, a map in which all points of a surface interrelate with points on the next surface, and so on successively, and the continuity is preserved unbroken. In this manner, each point, each 'cut', interrelates with the initial sheet of assertion where what is perceived and conceived as the 'real' lies. All successive sheets, then, compose an infinite set of possibilities many or most of which can, at another time and place, become perceived and conceived as 'real'. Entanglement! Mind-boggling entanglement!

However, all this might appear quite 'linguicentric' – that is, prioritization of language over all other semiotic media. But what Peirce is getting at is not 'linguicentrism'. For, basically what has been said in the preceding paragraphs can be said of all signs. Inferences are not necessarily wholly linguistic, for as argued above, they contain, embedded within themselves, abducted signs of indexical and iconic variety. Moreover, olfactory, gustatory, tactile, auditory, and visual signs, and kinesthetic, proprioceptive and somatic signs as well, are all a matter of 'tacit' inferential processes just as are the most explicit and forthright of linguistic and logical arguments. 'Language games' in everyday life apply also. 'Language games' that fall outside the field of rigorously developed arguments are often tacitly played out according to implicit rules. It is a question of gaming, gaming while always remaining on the lookout for those familiar signs, and prepared for the unexpected emergence of certain unfamiliar

signs. It is a question also of Firstness that offers *both* one possible sign *and* another possible sign, . . . and another, . . . and so on.

These are the possibilities presented by the Necker cube as an ambiguous image. Which of the cubes is the ‘real’ cube? *Both of them*, given the context and the way of perceiving the image. When a choice is made, the response is *either* the one possibility *or* the other one. But on down the road, whatever choice was made might be ruled unjustified, such that the opinion now is *neither* the one possibility *nor* the other, but perhaps something else, some newly emergent possibility – the image as a wire box, a cake of ice, or whatever.

### 17.2. How to qualify that when and that where?

Figure 49 is obviously an extension of Figure 1, the possibility of a possible sign, revealing the transition: ‘ $0 \rightsquigarrow \emptyset \rightsquigarrow \sqrt{\bullet} \rightsquigarrow \pm \rightsquigarrow \Psi \rightsquigarrow \dots$ ’. The possibility of Firstness entails *both* one alternative *and* its contrary, contradictory, or otherwise mutually exclusive counterpart. Both, and indeed all possibilities possibilities, are there, as ready and willing candidates to emerge as a sign.

A sign is selected from the range of possible possibilities, as a First. Then it takes its place as a possible Second, its semiotic object. Then a possible interpretant, a Third, emerges – of course, in co-participation with its interpreter – within the entire semiotic context including all possible and actual sign processes. But whatever interpretant might have emerged, it is, and will continue to be, incomplete, and underdetermined, with respect to its meaning. As a consequence of this incompleteness and underdetermination, within some future timespace context, what will appear as a more likely candidate for the sign’s interpretant will emerge onto the scene. And the CCC process continues.

A concrete example is in order. Assume Tweedledum and Tweedledee are gazing at an actual sign, say, Magritte’s remarkably true to life painting of a

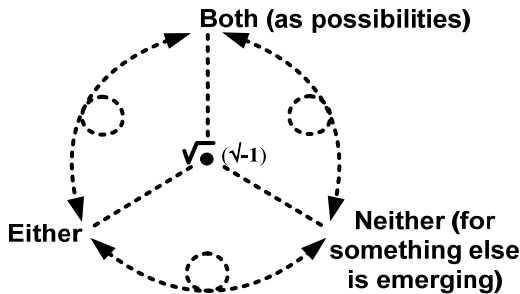


Figure 49. Sign possibility

pipe underneath which the artist painted in the caption: ‘This is not a pipe’ (*Ceci ne’est pas une pipe*). Tweedledum says:

This is not a pipe.  
It is only in the mirror of my mind.  
Or are they one, pipe and mirror?  
Or is there neither pipe nor mirror, but only mind?

Tweedledum is implying that: (1) the pipe (sign) *is not* what it (its semiotic object) *is*, (2) as an actual sign, the image has emerged from the range of all possibilities as a ‘pipe sign’, and mind is capable effectively of mirroring it (‘objectivism’), (3) or perhaps there is no mind/sign/object distinction; perhaps they are one, then in this case, (4) there is perhaps neither ‘pipe-sign’ nor mirror, but no more than the mind’s creation (‘idealism’). Combining these four statements, and we have *both* one possibility, *and* the other, *and* then another. . . , and so on, as possible Firstness in Figure 49.

But Tweedledee muddies the waters by responding:

There is no pipe, nor was there ever.  
Nor is there any mirror of the mind.  
So if neither of the two enjoys real essence.  
Then where, pray tell, is your privileged mind?<sup>106</sup>

Tweedledee’s response implies that: (1) there is no pipe (sign), and there never was (‘anti-objectivism’), (2) nor is there any mirror mind allowing mind to reveal a semiotic world ‘out there’ (‘anti-idealism’), (3) so if there is neither pipe (sign) nor mirror, then (4) how can there be any mind?

The first set of verses roughly suggests Peirce’s ‘objective idealism’ while the second set leaves us with no more than ‘emptiness’. Then is Tweedledee’s poetic rendition a self-defeating whole? No, because in a roundabout way he alludes precisely to ‘emptiness’, which is the wherewithal for all of that which we consider our world and our world of signs. Well, then, do we not find Wheeler behind Tweedledee’s verses? Is this not tantamount to his suggestion that: ‘No phenomenon (possible sign) is a phenomenon (a sign and its semiotic object) until it is a registered (interpreted, as a sign interpretant) phenomenon’? Yes, because, like Wheeler’s interpretation of Bohr’s interpretation of the quantum world, there is neither sign nor semiotic object nor interpretant nor mind unless and until mind – bodymind – co-participates with the range of all pos-

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106. Tweedledum’s and Tweedledee’s lyrics are a variation of some lines by seventh-century Buddhist scholar, Shen-hsui, and his master, Hung-jen, as discussed in Laycock (1994: 1–2; see also merrell 1998).

sible possibilities to bring about the emergence of sign, object, interpretant, and that selfsame mind. So is what we have here not ‘objective idealism’ after all? Is it not ‘objective idealism’ freed of essentialism, and freed of the presumption of anything prior to co-participation?<sup>107</sup> Is this not of the nature of Wheeler’s initiary ‘ $0 = 0$ ’? And is it not ‘law without law’? – since there is nothing for law to be a law of, nothing for law to legislate.

Yes, yes, yes, and yes, if we consider that the ‘Either’ of Figure 49 is the domain of classical logical principles, chiefly of the sphere of Secondness. There, the Principles of Non-Contradiction and the Excluded-Middle usually manage to reign supremely. But ‘ $\sqrt{-1}$ ’ ( $\approx \sqrt{\bullet}$ ) does classical logic one better: it presides over both principles; yet it is virtually nothing at all; it is, in a manner of speaking, hardly more than a bare inkling, a feeling, a premonition, of what is beginning its emergence; but it hasn’t yet emerged and it is at the same instant bidding its farewell to ‘emptiness’, though it hasn’t yet actually left it (in other words, co-participation is no more than on the verge of beginning to make its play).

Thus I must reiterate that strictly defined classical logical principles are incapable of addressing ‘ $\sqrt{-1}$ ’ (or ‘ $\sqrt{\bullet}$ ’), for a solution can be *both* ‘+1’ and ‘-1’ or *neither* ‘+1’ nor ‘-1’, according to our liking. Or we can simply proclaim that ‘ $\sqrt{-1}$ ’ is absurd, meaningless, or nonsensical, and be done with it. For sure, ‘ $\sqrt{-1}$ ’ appears irrational – it isn’t called ‘imaginary’ for nothing. Yet, from another view it is not irrational at all. It simply says that something and its complement cannot enjoy exemplification in the same respect and at the same time. In this vein, Merleau-Ponty writes, that:

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107. Along co-participatory lines, Andrei Linde writes:

I do not know any sense in which I could claim that the universe is here in the absence of observers. We are together, the universe and us. The moment you say that the universe exists without any observers, I cannot make any sense out of that. I cannot imagine a consistent theory of everything that ignores consciousness. A recording device cannot play the role of an observer, because who will read what is written on this recording device? In order for us to see that something happens and say to one another that something happens, you need to have a universe, you need to have a recording device, and you need to have us. . . In the absence of observers, our universe is dead. (quoted in Folger 2002: 48)

Scientifically speaking, the recording device can be any instrument giving QW or LW data; semiotically speaking, it can be a camera, compass, thermometer, yardstick, voltmeter, or any other apparatus that can image or indicate icons and indices, or it can be a computer, telephone, iphone, or any other apparatus that can yield symbolic signs. Both scientifically and semiotically speaking, sense data give us what is recorded, and bodymind does the interpreting.

We arrive at contradictions when we describe the perceived world. And it is also true that if there were such a thing as a non-contradictory thought, it would exclude the world of perception as a simple appearance. But the question is precisely to know whether there is such a thing as logical coherent thought or thought in the pure state. (1964: 18; in Laycock 1994: 4).

Contradictions tend to emerge in our perceived world, I would suggest, because what we take to be our perceived world is always threatened by that virtually unlimited range of possible possibilities one of which can, at any moment, make its play in order to push its way to the surface of our perceived and conceived world. The threat is directed toward what we take to be 'logical coherent thought or thought in the pure state'. In other words, 'simple appearance' is threatened. Behind 'simple appearance' lurks the range of feeling ('Both', in Figure 49) before there is awareness *of* what that feeling is a feeling *of*, before the object *of* that feeling's having been identified *as* such-and-such ('Either'), and before there has been acknowledgment *that* it is so-and-so (which will in all likelihood eventually become 'Neither').

Feeling is, in short, 'pre-logical'. Accusing this 'pre-logic' of contradiction is spurious, since at this level contradiction is no bugbear at all. 'Pre-logic', within the range of feeling, has no compulsion for contradiction-barring, for there is as yet nothing at all *in* consciousness *as* awareness *of* something *as* such-and-such. There is only feeling. If there is any sense, beyond feeling, *of* anything at all, it is the noticed absence *of* something that *was*, but no longer *is*, or that *never was*, but *might be*. But in the moment of feeling there is nothing, yet there is at least some bare premonition of something. Thus accusing ' $\sqrt{-1}$ ' of contradiction is bogus. Contradiction erects a virgule between something and something else. But since as far as ' $\sqrt{-1}$ ' is concerned, there is not (yet) anything at all, there can be no genuine contradiction, and the virgule has no need to push its way between one thing (sign, semiotic object or interpretant) and another thing.

Tweedledum's lines begin like those of an inveterate dogmatist, but end in uncertainty; Tweedledee's lines begin with categorical negation, and end on a dangling note, perhaps of *angst*, perhaps with what could lead to nihilism, or perhaps it is a benign form of relativism. Tweedledum begins the poetic sparring match and feigns a few jabs, then hesitates, indecisively, for a split second; Tweedledee responds with some counterpunches, and then quickly delivers the knock-out blow. Tweedledum would perhaps like to believe in some sort of truth, but falters in the end. Tweedledee has no truck with the search for truth; but he realizes that after all is said and done, the fun is in the rumble, and he would suffer a massive letdown if he happened to finish the match and become the winner, for within the realm of his play there should be neither winners nor



losers. Tweedledum chiefly operates – or at least so he would like us to believe – within *Either/Or* dictates (*A* or Not-*A*), where Secondness exercises its dominion. With a sly wink, Tweedledee nimbly slips in and out of *Both-And* (*A* and Not-*A*), *Either/Or* (*A* or Not-*A*), and *Neither-Nor* (*neither A nor* Not-*A*).

Tweedledee’s way allows for peace of mind. But what mind? Tweedledee pays no mind to mind, so there’s just the matter of peace. But a matter of peace regarding what? – if there is no ‘Whatness’ or ‘Itness’, and if there is no matter that is of any matter or any differences that make a difference. Ultimately, there is just *becoming*. What there *is*, is possible possibility: possible mind co-participating with possible signs and worlds and interpretations, all collaborating to bring about the self-organizing emergence of what *was*, *is*, and *will have been* in the process of becoming. This is, once again, vintage Wheeler in a semiotic context.

### 17.3. The in-forming of the form

‘But what has this to do with the topological forms?’ The answer, I would suggest, is plasticity, pliability: plurimorphity within entanglement. A ‘cut’ is made, if no more than a ‘point’ that can make the otherwise invisible visible. Then the ‘point’ extends itself to form a ‘line’, and it enters into *CCC* and *i-i-i* with other ‘lines’ to form a ‘plane’. A ‘cut’ or ‘hole’ severs the ‘plane’, providing access to the contained, the containing, and uncontained possibilities.

More ‘cuts’, virtually an infinite number of them, can be made – by virtue of BSO – in successive ‘planes’ in the collection of sheets that have extended themselves in three-dimensional ‘space, making up Peirce’s ‘Book of Assertions’. The book can be conceived as a Necker cube stretched out and twisted to form a three-dimensional Möbius-form, like an angular torus (Figure 50).

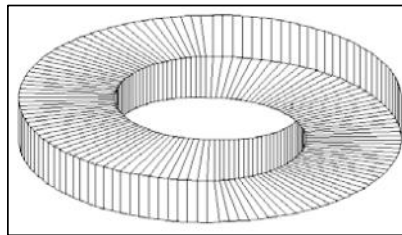


Figure 50. 3-D Möbius form

Two enantiomorphic Möbius-planes can be combined to form a Klein-bottle. Thus the 'book' is actually tantamount to a timespace Klein-form.

It all began with a 'point' and 'cuts' that make up our 'world' as one of an infinite number of possibly possible worlds. That, I would suggest, is the plurimorphically entangled or topological nature of our signs, *of* our world, and *of* ourselves as signs *within* and in co-participation *with* our world.

## Appendix

### Otherwise thinking

In everyday life's processes we frequently confront contradictory information and situations; yet we are usually able to cope quite handily. In doing so, linear, bivalent classical logic often fails to represent our concrete coming and going in our personal life, our social milieu, and our physical world.

Granted, we ordinarily tend to flee from, ignore, or toss inconsistencies in the trash can. Thus the attraction of classical logic, which allows us to deduce solutions for a given set of problematic sentences, ideally giving us a consistent system upon which to base our thinking, reasoning, and action. If new information conforms to the logical norms, it can be included, and nothing changes. But if this new information is inconsistent, it can blow the system to smithereens; hence from the classical view, inconsistency should be rejected, come what may. With respect to our daily affairs, however, this logical paradise simply doesn't fly. Our daily affairs are always to a greater or lesser degree messy; classical logic demands purity. We customarily manage to muddle through, with hits and misses, improvising as we go; classical logical ways and means allow only for *either/or* propositions and will have nothing to do with the variations we often avail ourselves of when just doing what we ordinarily do.

There are 'Other Logics', 'deviant logics', devised to account for classical logic's rejects: 'paraconsistent logic' (Costa 1974, Costa and Bueno 2001, Costa and Krause 2001, 2003, Daniel 2003, Priest 1987, 2004, 2006, Priest et al. 1989), 'logic of inconsistency' (Havas 1993, Iida 1980, Rescher and Brandon 1979), 'fuzzy sets' (Zadeh 1965, 1975), 'rough sets' (Pawlak 1991), and 'non-dual thinking' (Loy 1986, 1989), to mention a few (see also Haack 1978). They allow for varying degrees of ambiguity, vagueness, uncertainty, indeterminacy. They reveal Spencer-Brown's addition to the three dictates of empirical or logical positivism – that an assertion must be either 'true' or 'false', or it is 'meaningless', that is, 'nonsensical'. That fourth possibility is 'imaginary', after the 'imaginary' number, ' $\sqrt{-1}$ ' (or ' $\sqrt{\bullet}$ '). What sets it apart from other numbers is the fact that it is 'undecidable', and hence it should have no place in the pristine domain of classical logic. Putting the four values in order, in view of the premises underlying this inquiry, we have:

1. What our better judgment tells us is '*true*', we see no compelling reason to consider '*false*'.

2. What our better judgment tells us is '*false*', we see no compelling reason to consider 'true'.
3. What we would tend to take as *both* 'true' and 'false', when considered from within different frames of reference, flows against the current of ideal thinking (that which logical positivism and classical logic would brand as '*meaningless*' or '*nonsensical*', for the Principle of Non-Contradiction is not in force). However,
4. What we cannot from within a particular frame of reference pass judgment on, because there is no compelling reason to consider it *either* 'true' or 'false', we might nonetheless embrace it as *imaginary*, maintaining a tolerant countenance toward it (which logical positivism and classical logic would brand as 'inconsistent', and hence must be banned, for the Excluded-Middle Principle is not in force). We maintain tolerance with the idea that perhaps from within some other frame of reference it could lead us to some new idea, concept, or solution to a problem situation.

The four values can be labeled, as has been exemplified throughout the preceding pages and by way of the Tetralemma, in the guise of: (1) '*true*', (2) '*false*', (3) *both* 'true' and 'false' (albeit contradictorily), and (4) *neither* 'true' nor 'false' (for something novel, some third value, can be in the process of emerging from the boundary between 'true' and 'false', thus entailing a Principle of Included-Middle, the 'middle way', in contrast to classical logic's Excluded-Middle). The notion that a value may be 'Both "true" and "false"' is made possible by the fact that both 'true' and 'false' are, when conjoined, just that: possibilities for future distinction, not actuals. One can be actualized, or the other, but not both within the same timespace context.

The notion that a value may be 'Neither "true" nor "false" but something else emerging' is possible via the 'imaginary', which from the view of bivalent 'true/false' imperatives, is a sort of schizophrenic customer, incapable of deciding between the one and the other (given the nature of  $\sqrt{-1}$ ). Yet, to and fro oscillation between the *neither* and the *nor* can allow for creative responses to what would otherwise become, within the sphere of classical logical thinking, humdrum, fastidious, and mind numbing. The convergence of 'true', 'false', 'both "true" and "false"', and 'neither "true" nor "false"' entails, of course, that which I have in this inquiry dubbed contradictory complementary coalescence (CCC).

'But how can we possibly tolerate inconsistency? If the search is on for some alternate program capable of accounting for everyday life's processes, it must surely avoid inconsistency, which cannot be used adequately or usefully in any account of the world. And in spite of whether or not we choose to embrace classical logical principles, why should we accept this mushy Included-

Middle notion? Does it not behoove us to settle for nothing less than crispest of all possible values’.

Orthodoxy, it hardly needs saying, would support this rejoinder. The orthodox assumption has it that accepting inconsistency would open the floodgates to virtually anything and everything, and chaos would rule. Yet, practical affairs, from the sciences to the arts and humanities and everyday living, tell us that inconsistency has frequently managed to enter center stage, and that in spite of whatever discomfort this has created, people have usually found a way to manage, and in the process they often tap their creative juices. No less a scientist than Werner Heisenberg writes that whenever Newton’s concepts can be used to describe nature, his mechanical laws are ‘strictly correct and cannot be improved’ (1958: 88). But when placing Newtonian mechanics alongside Einsteinian relativity theory, we must concede that ‘every word or concept, clear as it may seem to be, has only a limited range of applicability’ (1958: 111). What is ‘true’, according to Newton’s laws within the Newtonian frame of reference, can be deemed ‘false’, according to relativity within the Einsteinian frame of reference. Both are ‘true’ and both are ‘false’, given the frame of reference within different timespace contexts. And, given the changing tides of scientific theory-making – since scientific activity is a matter of ‘flux’ (Agassi 1975) – in the future what is ‘true’ within some ‘imaginary’ timespace context will turn out to be neither ‘true’ nor ‘false’ according to Newton’s mechanics and Einstein’s relativity, but something else, something fresh and new capable of captivating its audience.

This involves – to revive that theme running throughout this essay – *complementarity*. Whatever *theory, idea, or conventional practice* (hereafter TIC) is considered ‘true’ beyond a shadow of reasonable doubt, would under most circumstances tend to follow classical logical principles. This is linear, bivalent inferential thinking. Its goal is to establish what is invariably ‘true’ anywhere and anytime. If a given TIC is embraced by a particular community at a particular time and place, given the perpetually changing contexts of everyday experience, it cannot be expected to find timeless, undeniable ‘truth’, since the conditions are always *B.S.O.* Hence there can be no more than tentative and inevitably fallible ‘truth’, or perhaps in the best of all worlds, approximation to ‘truth’. A given TIC might be found acceptable here and now, but at some future here and now within a variant timespace context, it may be subject to amendments, correction, or relegation to the trash bin. Recognition of this ‘non-classical’ concept entails complementarity regarding any and all TICs (see Rescher 1987).

This concept involves a degree of inconsistency tolerance, and openness to new TICs. Tolerance calls for a willingness to entertain the possibility of some

TIC that flies in the face of whatever TIC might presently be upheld. Joint affirmation of two incompatible and inconsistent TICs would ordinarily be intolerable. But inconsistency tolerance and openness allows for comparison and contrast and appraisal of both TICs from within their respect timespace contexts and between the two contexts. In other words, inconsistency intolerance and closure allow for no contradiction, while inconsistency tolerance follows the path of complementarity, a complementarity that permits contradiction between timespace contexts, and at the same time it engages in a process of entering and leaving the boundary (where the ‘imaginary’, or ‘ $\sqrt{-1}$ ’ dwells) between the *contradictory* contexts.

This boundary, regarding complementarity, is comparable in spirit to that between ‘particles’ and ‘waves’ in Niels Bohr’s conception.<sup>108</sup> Bohr’s meaning of complementarity is notoriously elusive, however. In fact, James Cushing reports him to have stated that ‘it would be reasonable to say that no man who is called a philosopher really understands what is meant by complementary descriptions’ (1994: 32).<sup>109</sup> Gingerly putting a foot forward, I would venture to suggest that complementarity involves mutually exclusive classical perspectives, such that entertaining one perspective necessarily excludes another one.

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108. It bears mentioning at this juncture that Bohr managed to confound many a physicist who wanted nothing to do with ambiguity in their theories. Indeed, classification of Bohr’s metaphysical posture is itself exceedingly ambiguous. Karl Popper labeled him a ‘subjectivist’ (1962: 97–119), while Paul Feyerabend branded him an ‘objectivist’ (1981: 247–93). Dugald Murdoch called him a ‘realist’ (1987) while Jean Pierre Faye writes that he was an ‘antirealist’ (1991). The answer? I would suggest, all of the above (vaguely speaking), that is, *both* the one *and* the other, *and* the other, and so on, and none of the above (generally speaking), that is, *neither* the one *nor* the other, *nor* the other, and so on, but something else that has to do with an entirely different context.

109. Caught up in our bivalent thinking, it is not difficult to understand this bewilderment, confusion, and misunderstanding. D. S. Kothari writes that Japanese physicist Hideki Yukawa ‘was once asked whether young physicists in Japan, like most young physicists in the West, found it difficult to comprehend the idea of complementarity. He replied that Bohr’s complementarity always appeared to them as quite evident: “You see, we in Japan have not be corrupted by Aristotle”’ (1985: 330). I might add that, taking Kuhnian ‘paradigms’ not as mutually exclusive and incommensurable but as mutually exclusive and complementary, would allow for the *CCC* of *i-i-i-* frames of reference such that musing about, pondering over, and appraising and comparing and contrasting two ‘paradigms’, could, under the best of circumstances, allow for the emergence of something new, a ‘blend’, given the nature of ‘paradigms’ as always in the process of *BSO* (see in this regard, Bernstein 1983).

I write ‘classical perspectives’ – which can be couched in ordinary language – not ‘quantum theory solutions’ – which can only be given formal mathematical description – for ordinary language is simply not up to the task. And I write ‘mutually exclusive’, while bearing in mind that two terms might be apparently incompatible, but if they are complementary, they are entangled: they are held together in a processual liquid *Yin-Yang* embrace such that the one cannot be completely absent of the other. They might appear to violate the Non-Contradiction Principle; but not really, for the terms are not simply identical to themselves; they are *CCC* and *i-i-i-*. Strictly speaking, they are *neither* what they are *nor* what they are not, for they are always giving rise to what is *BSO*.

Bohr’s first mention of complementarity occurred at the Como Conference in Italy, September 11–20, 1927, when he stated that:

The very nature of quantum theory . . . forces us to regard the space-time co-ordination, and the claim of causality, the union of which characterizes the classical theories, as *complementary* but *exclusive* features of the description, symbolizing the idealization of observation and definition respectively. (Bohr 1928: 587, reprinted in Bohr 1985) (italics mine)

Two complementary but mutually exclusive phenomena that are nonetheless intricately linked, entangled, interdependent and interrelated, call for complementary descriptions. While the two phenomena and their descriptions can’t be combined into a single timespace context to render an unambiguous account, nevertheless, their entangled *CCC* and *i-i-i-* nature renders them one, much in the sense that the *Yin-Yang* complementarity is one (Mou 2001, Smith 1995).<sup>110</sup> A union of complementary phenomena and their respective descriptions is, with respect to QW, distinct from the ‘classical world’. QW seems to have relatively few problems with contradictions and inconsistencies, and if there is a problem, it doesn’t create havoc, like contradictions and inconsistencies create in the ‘classical world’.<sup>111</sup> Nevertheless, incompatible and mutually exclusive quantum phenomena and their descriptions call for ‘logical’ concepts of a new sort capable of giving a complete account; yet they cannot be comfortably located within the same timespace context; and yet, both separate timespace contexts must be considered, if there is to be a complete account – once again,

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110. Bohr’s observation bears repeating. When there’s an apparently irresolvable glitch in one’s theory, one can only turn to ‘quite other branches of science, such as psychology or . . . to thinkers like Buddha and Lao Tse’ (1963: 28).

111. The ‘classical world’ as I use the term here is not to be confused with the ‘living world’ (LW), which, as I’ve argued, can under many circumstances handle contradictions and inconsistencies quite handily. In this respect at least, LW bears greater similarity with the ‘quantum world’ (QW) than with the ‘classical world’.

like *Yin-Yang*, many within one. It is this nature of Bohr's complementarity that brought Max Jammer to remark that 'Bohr's discovery of complementarity . . . constitutes his greatest contribution to the philosophy of modern science' (1974: 105). And, more recently, R. -G. Englert, M. O. Scully and H. Walther (1994) write that, regarding an interpretation of the 'quantum world' in the most general possible sense, Bohr's Principle of Complementarity has 'greater depth' than Heisenberg Uncertainty.

With respect to the complementary conception of 'particles' and 'waves', Katalin G. Havas (1993) offers the following observation:

1. 'Particles' (cannot be 'waves')
2. 'Waves' (cannot be 'particles')
3. 'Particle-waves' (are 'particles' as well as 'waves')

But, Havas hastens to add, 'particles' and 'waves' in (3) are not 'particles' and 'waves' in the (2) and (1) sense respectively. This is to say, in terms of the present essay, that the timespace context of 'particles-waves' (3) includes *both* 'waves' (2) *and* 'particles' (1) in the positive sense; in the negative sense, it includes *neither* 'particles' (2) *nor* 'waves' (1); and, in addition, from within an even broader, more inclusive context, it implies new and different emergent meanings of *both* 'particles' *and* 'waves', because the two terms are *CCC*, *i-i-i-*, and *BSO*. Consequently, I would include a fourth item to Havas's list:

4. *Both* 'particles' *and* 'waves' (or *neither* 'particles' *nor* 'waves') because their meanings are *BSO* (they are, portmanteaully speaking, 'wavicle'-becoming).

Havas writes how physicist John Bell argued that Bohr didn't use the word 'complementary' in the ordinary sense. The ordinary sense is that of a variation on the original Buddhist story of various monks qualifying an elephant:

From the front she is head, trunk and two legs. From the back she is bottom, tail, and two legs. From the sides she is otherwise, and from top and bottom different again. These various views are complementary in the usual sense of the word. They supplement one another, and they are all entailed by the unifying concept of 'elephant'. (Bell 1989: 363)

This usual sense of the word 'complementarity' considers a 'particle' from one point of view and a 'wave' from another point of view, both views remaining mutually exclusive: contradiction in the classical sense holds them in isolation. Bohr complementarity, in contrast, includes *both* 'particle' *and* 'wave' within the timespace context that we might label a 'quantum event'. A 'quantum event' holds *both* 'particle' *and* 'wave' in its liquid, perpetually becoming



embrace (according to [3] above). Which is to say that ‘particle-wave’ is *neither* what ‘particle’ was in (2) *nor* is ‘wave’ what it was in (1), but rather, *both* are *BSO*: once again, they are ‘wavicle’-becoming (as in [4]).

Bell goes on to write that Bohr’s ‘complementarity’ means ‘contradictoriness’ (1989: 364). This is not hard-core contradiction but a *tendency toward contradiction*, or better, ‘rough’, ‘fuzzy’, or ‘vague contradiction’. It isn’t ‘precise’, but ‘hazy’, ‘blurred’, a ‘formlessness’ that is trying to become ‘formed’ but can’t quite do it. Why can’t it do it? Because it is coalescent complementary contradiction, because in the timespace context of the one value, there is a tinge of the timespace context of the other value – something like a spot of *Yin* in *Yang*, and vice versa. There is no purity of either of the two values, for both inherently hold something of the other. Havas (1993: 33) compares this situation to Jastrow’s ‘rabbit-duck’ image. It is either a rabbit or a duck, but we can’t see it as both in the same instant; yet, there is *both* rabbit *and* duck in the image; and yet, the image is *neither* rabbit *nor* duck, in its composite form: it is ‘dabbit’, or perhaps ‘ruck’, if you will, portmanteau speaking. In other words, ‘dabbit’ or ‘ruck’ is that which is always in the process of emerging from the ‘rabbithness’ version and/or the ‘duckness’ version of the image; it is the ‘middle way’, the boundary that demarcates the distinction between the one and the other; but the boundary itself is *neither* the one *nor* the other and at the same time it is indicative of – it demarcates or distinguishes and indicates – *both* the one *and* the other. As Wheeler would likely put it, the boundary is where the action is, for ‘rabbit’ and ‘duck’, if considered autonomously, are simply static images, but when they are put together, there’s dynamism in the equation.<sup>112</sup>

In brief, contradictions and inconsistencies are not simply ‘meaningless’ or ‘nonsensical’, nor are they entirely useless. They are necessary; they are made necessary by the boundary that distinguishes between the one and its respective other; they are part and parcel of complementary interrelations that usher in process where there would otherwise be static product. Significantly, Havas

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112. In this manner the notion of mutual exclusion in the QW sense and in the semiotic sense as developed in this volume takes its leave of the ordinary meaning of the term. Ordinarily, two or more mutually exclusive signs must be maintained in isolation. In the QW and semiotic sense, *mutual* (two or more signs are in *i-i-i-* with one another) coupled with *exclusion* (two or more signs cannot be simultaneously interpretable – they can’t be *CCC* – within the same timespace context) implies that the signs are *Yin-Yang* complementary. They can’t occupy the same timespace context, but neither are they autonomous; none of them can be given an interpretation as if the other(s) were of no consequence; in other words, they are *i-i-i-*, and *BSO*, and, even though they can’t be *CCC* in the same instant, they are through time, nonetheless, *CCC* in terms of their processual *BSO* nature.

alludes to Wittgenstein's imaginary situation, where people would be 'glad to live their lives in the neighbourhood of a contradiction' and one could even be 'anxious to produce contradictions' (Wittgenstein 1978: 211, in Havas 1993: 35). In this light, and in view of the four qualifying features listed above regarding 'particles' and 'waves', I would venture to include, following Nāgārjuna and the Tetralemma once again, two additional amendments to Havas's trio of propositions accounting for complementarity:

5. *All of the above*, and

6. *None of the above*.

Thus the line doubles back, en-folding and re-entering itself, and it begins consuming itself, eventually becoming a point, that vortex at the center of Figure 1, '√•', where the action begins, with possibly possible candidates in readiness for actualization into the TICs that make our timespace contextualized world what it is, the TICs that we are fashioning in our co-participation with our inner world, our social world, and our physical world 'out there' (recall Table 3).

To sum up, if TICs are considered complementary, they should fall in line with the following characteristics:

- A relatively complete account must include both contradictory and mutually exclusive TICs. They are mutually exclusive, but necessarily so.
- Given the impossibility of two TICs existing within the same timespace context, access to them is nevertheless available via the boundary separating them: the boundary, *both* the one *and* the other and *neither* the one *nor* the other, which accounts for their commonality, their shared quality.
- Those who interpret mutually exclusive TICs are not mere observers, but co-participants; indeed, the interpreters and the TICs they are in the process of interpreting, along with the entire context, and the context of contexts, make up a self-organizing whole.
- The process of bringing mutually exclusive TICs together, including the boundary distinguishing them, is not reducible to classical logic, but requires a 'logic' capable of accounting for vagueness and ambiguity, which is implied by that very boundary.
- Mutually exclusive TICs cannot be mutually absorbed or dissolved into a single, more encompassing TIC, for the boundary, entailing *both* the one TIC *and* the other one and *neither* the one *nor* the other, acts also as a line of demarcation; thus classical logic, forming part of the whole, continues to exercise its *either/or* imperative; otherwise there could be

no possibility of choice between the one and the other on the part of the two TICs interpreter.

- Rather than a synthesis of two mutually exclusive TICs posing as a novel thesis armed to take on whatever antitheses might bound into the scene, something new, spontaneous, and oftentimes improvised, can within some timespace context be in the process of emerging from within the Included-Middle – the ‘middle way’ – between TICs.

Of special note, regarding complementarity – and by extension Peirce’s life-long struggle to mediate between the perennial continuity/discontinuity dualism – Arkady Plotnitsky points out that: ‘The failure of classical theories is not a failure of the idea of continuity as such. It is a failure to engage the *complementarity* of the continuous and discontinuous, and complementarity in general’ (1994: 124). In the Peircean timespace sense, Firstness is continuous. Secondness, ushering in distinction, severing and mutilating the Oneness of Firstness, is discontinuous, and radically so, allowing for, and indeed embracing, any and all dualisms – that is, if it remains intact in terms of its individualism, unencumbered by Firstness and Thirdness, and if Thirdness mediates Firstness and Secondness in the same way it mediates between itself and them. In this regard, Thirdness reveals the complementarity of Firstness and Secondness, and, in addition, the complementarity between itself and them, as it flow along toward continuity (Peirce’s ‘synechism’).

This implies three-way rather than two-way complementarity of the sort we can contemplate in Figure 51. The trio of sign components, Representamen, Object and Interpretant, dynamically swirl around the central vortex, or ‘ $\sqrt{\bullet}$ ’ in previous figures of comparable ilk. Thus it is significant that the three-way

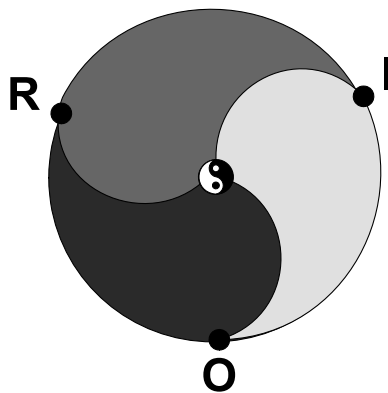


Figure 51. 3-way complementarity

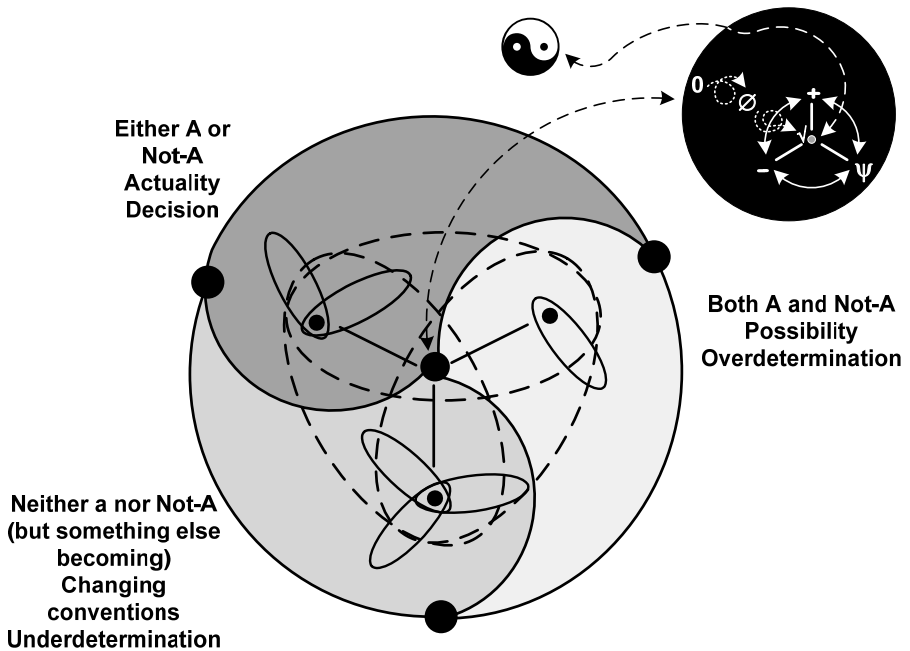


Figure 52. The processual sign

*Yin-Yang* icon occupies the center of the image.<sup>113</sup> The three spaces correspond to the primary colors, which, like these colors, incorporate the possibility for the emergence of all possibly possible colors-signs. Consider any of the three spaces in isolation, and there is continuity; consider any pair of them, and bivalent *either/or* values inhere; consider all three of them, and we have Firstness, Secondness and Thirdness such that their mediated combination – mediation of continuity and discontinuity – yields, ideally, Oneness; so in a certain sense we're back to the beginning (back to the past or to the future, it makes no difference). There's division, for sure, but we make the division. Were we able to continue the process without end, continuity would in the long run be the case. But the implication of this 'long run' is infinity! Infinity is compatible with

113. Da Costa and Krause (2003) demonstrate how Bohr's complementarity is attuned toward a deep principle of indelibly ambiguous meaning, and Simon Saunders (2004) reveals a clue to complementarity applied to the field of biology, both of which are germane to the budding area of research going by the name of 'biosemiotics' (for a survey, see Emmeche 1994; Hoffmeyer 1996; Kull 1998, 2001, 2003; Sebeok 2001; Sebeok and Umiker-Sebeok 1992).

perfection and eternity, but not for mere finite, fallible mortals. Fortunately for us, we have complementarity in the guise of Peircean triadicity, though in an incomplete sense, and more often than not there is some element of inconsistency lurking about as well.

Filling in the details of Figure 51 with Figure 1 as developed above gives us Figure 52. The traditional *Yin-Yang* image merges into the schematic *possible possibility* of a sign, which then transmutes into the tripartite *Yin-Yang* (or the portmanteaulated *YingYan* – through *i-i-i*-) which affords an image of an ‘Other Logic’, that includes as a subset classical logical principles. The entire image yields a glimpse of broken symmetry, consonance within dissonance, balance and harmony gone awry, disequilibrium and dissipation, and then, suddenly, as if from the clear blue sky, there’s emergence of something different, something new and fresh.<sup>114</sup>

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114. If I may repeat myself, I’ve tentatively suggested a form of this ‘Other Logic’ in merrell (2007), by use of the portmanteau process presented in this essay.



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# Index

- Abbott, Edwin A. 148, 151
- Abduction xi, 36, 38, 53, 67–69, 56  
n38, 71, 71 n42, 85, 89, 127, 165, 180,  
195, 215, 219–20, 226, 247. *See also*  
Deduction, Induction
- Abram, David 30 n19, 41 n27.
- Acritical indubitability 71, 71 n42, 72,  
76, 78. *See also* Objective idealism.
- Actuality (Actualized, Actualization)  
vii, 2, 6–8, 13, 16–18, 25–26, 28, 35,  
37, 38–40, 43, 46–47, 52, 55–56, 58,  
60–61, 75, 81, 83–85, 89, 93, 99–101,  
103, 106–08, 113, 115, 117, 121,  
123–25, 147–48, 151–52, 158,  
171 n79, 180, 182, 186, 187, 188,  
189, 191–93, 195, 197, 204–08,  
214, 218–20, 222–23, 227, 229–30,  
243–49, 252, 255–56, 262, 268. *See*  
*also* possibility, probability.
- Agent (semiotic) 9, 43–45, 93, 101,  
110, 177–78, 192–93, 196, 197, 200,  
203, 205, 209–10, 229.
- Albers, Josef 28.
- Ambiguity xii, 21, 27, 49, 78, 80, 82,  
88–89, 99, 101–02, 105, 107, 109,  
117, 144, 164, 192, 231, 255, 261,  
264 n108, 265, 268, 270 n113.
- Analytic philosophy 41, 84, 129, 210,  
235–36.
- Anshen, Ruth Nanda 34 n23.
- Archimedes 225–26, 229–30.
- Argand plane 182, 183, 188, 215,  
235–36.
- Argument (Text) 204, 204 n90, 205  
n91, 207, 225, 248, 254.
- Aristotle 47, 238, 264 n109.
- Bakhtin, Mikhail 217, 223–24.
- Batson, Gregory 11, 225.
- Beckett, Samuel 53, 139.
- Becoming-Being vii, ix, x, xi, xii, 1,  
5–8, 10, 12, 15, 22–24, 29–32, 30 n20,  
34, 40, 43–45, 47–50, 52, 54–55,  
60–65, 66, 72–73, 82–85, 90–95,  
96–110, 112, 117, 121, 123, 124–26,  
128–30, 134, 142–43, 158, 161, 163,  
165–67, 169, 175–77, 182, 184,  
186–87, 194–97, 199, 202–05,  
207–09, 212–13, 215, 217, 219, 221,  
223, 229, 231–35, 238 n99, 239, 241,  
247 n102, 248–51, 253, 259, 266–  
68.
- Bell, John 31 n21, 114, 266–67.
- Bellert, Mara 111 n59.
- Bennett, June 21 n15, 41 n27, 130,  
210.
- Benveniste, Emile 53.
- Berkeley, George 102, 119, 125.
- Bernstein, Richard 33, 264.
- Blackboard (Peirce ‘thought experiment’)  
173–74, 195–96, 217 n94, 250–53,  
250 n104.
- Bodymind xi, xi n4, xii, 1–8, 13, 29,  
36, 40, 41–42, 45–52, 56–58, 66, 76  
n44, 86, 128, 203, 208, 210, 213, 215,  
217, 221–24, 256–57.
- Bohm, David 31 n21, 80, 92, 102.  
Pilot-wave theory 91–92.
- Bohr, Niels ix, xi, 16 n11, 63, 62 n37,  
80, 83, 89, 96, 101–09, 104 n54, 105  
n55, 113–14, 116, 130, 136, 165 n77,  
256, 264–70, 264 n108, 265 n110, 270  
n113, Como lecture 104.
- Book of Assertions (Peirce ‘thought  
experiment’) 253–54, 259.
- Border 155, 161 n74, 207, 218–19,  
227–30, 238, 250 n104.
- Border of borders (Wheeler ‘thought  
experiment’) 227, 229–30, 238.
- Borges, Jorge Luis 155, 157, 188, 209,  
245.
- Both-And xii, 64, 86, 88, 135, 139,  
228, 246, 253, 259. *See also* Either/Or,  
Neither-Nor

- Brandom, Robert 31 n21, 103, 261 n78.
- Brogie, Louis de 16 n11, 102.
- BSO* (Becoming Something Other) vii, 1, 5, 6, 8, 10–11, 16–18, 19, 22–23, 26–36, 40–42, 45, 47, 51–52, 56, 60, 64, 69, 72, 75, 78, 82, 83, 96–97, 103, 105, 108–10, 111–12, 116, 117, 120–22, 127, 133–35, 137, 139–43, 147, 169, 171, 172, 175–81, 193–96, 199, 202, 205, 210–14, 215, 219–23, 225–30, 236–38, 240, 244, 246, 248, 249, 253, 259, 263–68. *See also CCC, EZ, i-i-i-, OAH*
- Buddhism vii n1, ix, 3 n7, 25, 31, 54 n31, 63, 63 n37, 83, 91 n51, 136, 141, 144, 211, 227, 231, 256 n106, 265 n110, 266.
- Burger, Dionys 148.
- Cartesianism 27, 47, 83, 102, 118, 128, 165, 183, 213, 225–26, 234–35.
- Categories (Peirce's) x, x n3, xii, 2 n5, 3, 4–8, 4 n8, 15, 18, 19, 19 n23, 42, 67–68, 73, 83, 85, 94, 96, 98, 103, 104, 108, 119, 119 n64, 135, 140, 148, 158, 160, 161 n74, 165, 173, 182, 190, 192, 194, 196, 206, 225, 235, 242, 249 n102. *See also* Firstness, Secondness, Thirdness
- CCC* (Contradictory Complementary Coalescence) vii, 1, 2, 3, 6, 15, 18, 24, 26–28, 29, 52, 56, 58, 60, 64, 82–83, 96, 97, 103–05, 108, 109 n58, 110, 111, 115, 116, 117, 121, 122, 124, 127, 133–35, 139–40, 147, 162, 166, 167, 169, 171, 172, 175–81, 186, 193, 199, 205, 210–13, 215, 220–22, 230, 231, 236–38, 240, 244, 246, 248, 253, 255, 259, 262, 264, 265–66, 267 n112. *See also BSO, EZ, i-i-i-, OAH*
- Chaos theory 130, 227, 249, 250, Baker's fold 227. *See also* Fractals.
- Chomsky, Noam 12.
- Church, Alonzo 135.
- Churchland, Paul 97, 207.
- Clegg, Brian 114
- Colapietro, Vincent x n3.
- Community (of semiotic agents) x, 7, 10, 16, 21, 24, 29, 30, 30 n20, 40, 70, 71, 72, 73, 93, 110, 132, 134, 138, 164, 178, 179, 192, 193, 204 n90, 206, 263.
- Complementarity Principle vii, ix, xi, xii, xiii, 1–3, 15–16, 29, 32, 38, 50, 56, 80, 81, 85–87, 88, 90, 94, 96, 98, 101–20, 104 n54, 105 n55, 111, 116, 117, 125, 130, 136, 165, 168, 170, 171, 173, 179, 182, 190, 191, 193, 194, 209, 222, 229, 230, 231, 232, 235, 236, 240 n100, 246, 248, 252, 253, 262–70, 256 n112, 270 n113.
- Connery, Sean (as James Bond, play acting 'thought experiment') 64–65.
- Conrad, Joseph 37.
- Consciousness 8, 23, 24, 44, 47, 51, 53, 90, 91, 92, 183, 185 n84, 194, 204, 221, 225, 257 n107, 258.
- Context xi, xii, 3, 6, 8, 12, 13, 15, 16, 24, 26, 27, 28, 37, 41, 44–45, 51, 52, 58, 66, 74, 75, 76, 82, 83, 94, 96, 97, 99, 101, 104–10, 114–18, 125, 127, 131 n65, 133, 135, 138–40, 142, 146, 148, 166, 167, 170–73, 175–80, 190–93, 196, 202, 203 n91, 208, 210, 211, 219, 221–25, 228–29, 230, 243, 239, 241, 247, 253, 255, 259, 262, 263, 267 n112.
- Cook, James 15, 73.
- Co-participation vii, xi, xii, 3, 9, 12, 84, 87, 90–93, 96–100, 111, 112, 118, 121, 123–27, 130, 133, 136, 143, 162, 178, 194, 196, 197, 203–05, 208–13, 217–19, 217 n94, 221–22, 245, 255–57, 259, 260, 268.
- Copenhagen interpretation (of quantum theory) 92, 102, 125, 127.
- Copernicus 6, 17.
- Correspondence 84, 176 n81, 222.
- Costa, Newton C. A. da 261, 270 n113.
- Cushing, James 264.



- Dalí, Salvador 153–55.  
 Damasio, Antonio 3, 208, 220 n95.  
 Darwin, Charles 97 n52, 128, 130.  
 Davidson, Donald 71 n42, 135, 191, 235, 235 n98.  
 Deduction 66–67, 113, 127. *See also* Abduction, Induction.  
 Delayed choice (Wheeler ‘thought experiment’) 90, 91, 94, 233.  
 Deleuze, Gilles 10, 53 n30, 130.  
 DeLong, Howard 135.  
 Derrida, Jacques 14, 130, 132, ‘Erasure’ 173, 251, 251 n105.  
 Descartes, René 203, 225, 226.  
 Dewey, John 121, 210, 235.  
 Dialogue 3, 35, 46, 54.  
 Difference 1 n5, 10, 20, 21, 30, 36, 49, 53 n30, 64, 86, 89, 101, 116, 139, 178, 179 n82, 180, 196, 213, 219, 225, 230, 231, 234, 237, 238, 250, 259.  
 Differentiation 9, 11, 108, 222, 223.  
 Dimensionality 24, 134, 147, 149, 150, 151, 161, 163, 229, 242, 244, 248. *See also* Lineland, Flatland, Sphereland.  
 Disbelief (suspension and unsuspension) 21, 60, 138.  
 Discontinuity 148, 150, 150 n 72, 151, 155, 157, 161, 163, 173, 243, 246, 248, 250, 252, 253, 269, 270.  
 Diversity 30, 31, 77 n45, 172 n75, 213.  
 Double-slit (‘thought experiment’) 89, 118.  
 Dualism 3, 28, 30, 203, 207, 209, 212, 228, 269.  
 Eddington, Arthur S. 16 n11, 80, 84.  
 Einstein, Albert 6 n11, 36, 37, 38, 39, 62, 83, 107, 114, 122, 130, 164, 201, 240, 263.  
 Either/Or xii, 10, 73, 74, 99, 109, 129, 135, 197, 228, 235, 246, 253, 259, 261, 268, 270. *See also* Both-And, Neither-Nor.  
 Emergence xii, 3, 4, 6, 8, 11, 13, 14, 15, 16, 22, 25, 26, 27, 28, 29, 32, 34, 35, 36, 37, 38, 40, 42, 43, 44, 45, 49, 50, 52, 55, 60, 61, 62, 66–79, 80–86, 91, 92, 94–97, 101, 104, 106, 109 n58, 110, 112, 113, 116, 119, 121–26, 135, 143, 144, 147, 151, 158, 162, 164, 165, 166, 168, 169, 173, 177–81, 185, 187–90, 195, 197, 202–04, 207, 208, 210–14, 219, 220, 222, 223, 227–29, 231, 233, 238, 239, 242, 247, 249, 250–59, 264, 266, 270–71.  
 Empiricism 104 n54, 190, 219, 226, 235, 235 n98, 246.  
 Emptiness vii, xii, 24, 25, 32, 51, 52, 63–64, 82, 91–93, 118, 144, 148, 158, 162, 173–76, 201–02, 226–29, 230, 231–32, 235, 238 n99, 248–49, 251, 253, 256, 257. *See also* Nothingness.  
 Empty set vii, 24–25, 54, 175, 179, 224, 230.  
 Entanglement xi, 100, 111, 111 n59, 112, 113–18, 120, 124, 141, 142, 143, 181, 186, 193, 202, 207, 213, 246, 154, 259.  
 Entrenchment 70, 71, 251.  
 Ernst, Bruno 200.  
 Escher, Maurits C. xii, 86, 87, 194, 197, 200, 201, 202.  
 Euclidean geometry 82, 113, 144, 148 n71, 163, 164, 230, 239.  
 Everett, Hugh 102 n53.  
 Excluded-Middle (Principle of) 4, 7, 19 n13, 34, 62, 69, 74–75, 79, 88, 89 n49, 108, 110, 118, 129, 129 n64, 135, 190, 203, 207, 228, 238, 257, 262. *See also* Identity, Included-Middle, Non-Contradiction.  
 EZ (Zero + Empty Set) vii, 24, 26, 27–30, 32, 36, 41–42, 50, 52, 60, 64, 65, 66, 80, 96, 104, 108, 109, 111, 147, 205, 209, 215, 221, 226, 228, 237, 244, 246, 248. *See also* BSO, CCC, *i-i-i*, OAH.

- Fallibilism 129, 141, 148.  
 Fauconnier, Gilles 37 n26.  
 Faye, Jean Pierre 102, 264 n108.  
 Feynmann, Richard 39.  
 Figure '8' 144, 148, 149, 150, 150 n72, 151, 152, 161, 163 n76, 201, 218, 219, 232, 234, 242, 243, 246, 247, 248, 249, 251. *See also* Möbius band, Klein bottle.  
 Firstness x, 3, 5, 5 n9, 6–8, 9 n10, 11–13, 15–18, 19, 21, 23, 24, 26–28, 36, 40, 42–45, 47, 49, 52, 53–55, 54 n31, 57, 60 n36, 61, 62, 64, 67, 68, 74, 75, 78, 81–82, 85, 86, 88, 89, 91 n51, 92, 94, 97, 101, 104, 108, 109, 112, 119, 122–26, 129, 145, 154, 161, 161 n74, 162, 167, 173, 175, 178, 190 194, 196, 202–04, 208–12, 214, 218, 222, 223, 225, 228–30, 243, 247–51, 251 n105, 253, 255, 256, 270. *See also* Secondness, Thirdness.  
 Flatland 14, 148 n71, 151, 152, 156, 159, 160, 161, 162, 163, 163 n76, 164, 242, 244, 248, 252 n104. *See also* Lineland, Sphereland.  
 Flux xi, 7, 41, 142, 263.  
 Focal attention 8, 41, 56, 57, 59–61, 111, 116–18, 194. *See also* Subsidiary attention.  
 Foerster, Heinz von 136 n67.  
 Foucault, Michel 199.  
 Fractals 147, 147 n70, 233. *See also* Chaos theory.  
 Frame of reference 32, 46, 62, 163, 262, 263.  
 Freadman, Anne 53 n30.  
 Gardner, Howard 21 n14, 39.  
 Gendlin, Eugene 30 n19, 41, 44, 46, 46 n28, 165, 210.  
 Generality xi, xii, 5, 15, 16, 18, 41, 58, 58 n33, 59, 60, 62, 66, 68, 69, 69 n41, 70, 73, 75, 78, 79, 128, 135, 140, 176, 182, 189–93, 209, 220, 221, 222, 228, 241, 242, 244, 246, 247. *See also* Vagueness.  
 Global. *See* Local-Global  
 Gödel, Kurt 59, 60, 64, 69 n41, 113, 135, 195, 201, 240, 241, 245.  
 Goodman, Nelson 66, 69, 70–72, 72 n43, 76, 77 n45, 93, 122 n62, 130, 134, 238, 240 n100, 'New Riddle of Induction' 66, 69–73, 72 n43, 75–77, 77 n45, 79.  
 Guattari, Félix 10, 130.  
 Hacking, Ian 4 n8, 33, 77, 77 n45, 103.  
 Hadamard, Jacques 39.  
 Harris, James 33, 66 n38, 71, 71 n45.  
 Havas, Katalin G. 261, 266, 267, 268.  
 Heelan, Patrick 89 n49.  
 Heidegger, Martin 150 n72.  
 Heisenberg, Werner 14, 15, 16, 16 n11, 34 n23, 39, 48, 101, 106, 130, 165–68, 165 n77, 171, 176, 176 n81, 177, 263, 266.  
 Hempel, Carl 66, 72–73, 72 n43, 'Inductivity Paradox' 66, 72–75, 72 n43.  
 Heraclitus 129.  
 Heterogeneity 30, 30 n20, 198, 213. *See also* Homogeneity.  
 Hinduism 54 n31, 144.  
 Hintikka, Jaakko 59–60, 64–66, 66 n38, 225.  
 Hinton, C. Howard 194 n84.  
 Hofstadter, Douglas 59, 69 n41, 201.  
 Homogeneity 198, 213. *See also* Heterogeneity.  
 Hoover, Kevin 66 n38, 71, 77 n45.  
 Howe, Richard Herbert 136 n67.  
 Hume, David 96–97.  
 Hypercircle 215, 235, 236.  
 Hypercube 144–47, 153, 154, 161, 184–85, 187, 188.  
 Hypersurface 163 n76.  
 Hypertripod 136–37, 185, 187.

- Hypothetico-deductive (inference) 39, 67, 77, 95, 99.
- Hysteresis loop 233–34.
- Icon xi, 9, 9 n10, 10, 45, 47, 91, 178, 206, 211, 225, 248, 249, 254, 257, 270. *See also* Index, Symbol.
- Idealism 21, 102, 103, 104 n54, 105, 107, 125, 126, 127, 131 n65, 132, 133, 203, 209, 213, 246, 252, 256. *See also* Subjective Idealism, Objective Idealism.
- Identity (Principle of) 7–10, 19 n13, 34, 88, 108, 118, 123, 194, 202, 203, 207. *See also* Excluded-Middle, Included-Middle, Non-Contradiction.
- Iida, Shotura 63–64, 261.
- i-i-i* (Interdependency, Interaction, Interrelatedness) vii, 1, 3, 5, 7–8, 15, 18, 24, 26–30, 32, 35, 36, 40–43, 45, 47, 50, 52, 54, 56–58, 60, 65, 82–83, 85, 96–97, 103–05, 108, 109 n58, 110, 111, 115–17, 119, 122, 124, 127, 133–35, 139–41, 141 n74, 162, 166, 167, 169, 171, 172, 175–80, 181, 186, 193, 195, 199, 205, 109, 211–13, 215, 220–22, 231, 236–37, 240, 244, 246, 248, 253, 264–66, 267 n112. *See also* BSO, CCC, EZ, OAH.
- Included-Middle 4, 62, 64, 75, 110, 125, 173, 203, 228, 262, 269. *See also* Excluded-Middle, Identity, Non-Contradiction.
- Incommensurabilism 33, 70, 71 n42, 203, 230, 264.
- Incompleteness xi, xii, 5, 16, 17, 18, 41, 50 n41, 74, 75, 77, 94, 128, 130, 135, 141, 190, 191, 197, 202, 241, 242, 245–46, 255. *See also*
- Inconsistency
- Inconsistency xi, xii, 5 n9, 15, 17, 18, 41, 50 n29, 59–60, 66, 69, 69 n41, 73, 74, 77, 94, 130, 135, 139–41, 190, 202, 213, 241, 242, 245–46, 261–64, 271. *See also* Incompleteness.
- Indeterminacy 21, 48, 59, 75, 191, 261.
- Index xi, 10, 16, 47, 57, 201, 212, 215, 248–49, 254. *See also* Icon, Symbol.
- Induction 38, 66–69, 71–72, 72 n43, 95, 127. *See also* Abduction, Deduction.
- Inferential reasoning 65, 151, 254, 263.
- Infinity 1 n5, 25 n16, 31, 58 n33, 88, 129, 148, 173, 184, 185, 199, 246, 251, 270.
- Interconnectedness ix, xi, 96, 114, 115 n60, 134, 141, 142, 165. *See also* *i-i-i*.
- Interpretant 26, 60, 60 n36, 78–79, 92, 123, 162, 167, 169–72, 177, 186, 195, 196, 203, 210, 255–59. *See also* Representamen, Object (semiotic)
- Jammer, Max 110, 266.
- Johnson, Mark 129 n64, 176 n81, 210.
- Kant, Immanuel 102, 195 n88.
- Kauffman, Louis 1 n5, 216, 235, 237, 238–41; ‘Sign of illation’ 238.
- Kinesthetic 3, 5, 40, 41, 42, 44–47, 56, 121, 122, 210, 220 n95, 254. *See also* Proprioception, Somatic.
- Klein-bottle 144, 150 n72, 152–63, 163 n76, 199, 201, 202, 218, 219, 231, 232, 234, 242, 244, 246, 247, 248, 249, 251, 260. *See also* Figure ‘8’, Möbius band.
- Kline, Morris 113, 130, 218.
- Koestler, Arthur 38
- Kothari, D. S. 264.
- Krause, Décio 261, 270 n113.
- Kuhn, Thomas S. 33, 49, 70, 71 n42, 264.
- Lacan, Jacques 150 n73.
- Lakoff, George 4 n8, 176 n81, 210.
- Language games 132, 254.
- Lao Tzu 91.
- Laycock, Steven W. 31 n22, 212, 256 n106, 258.

- Legisign 234, 248. *See also* Qualisign, Sinsign
- Lemniscate 158, 159.
- Linde, Andrei 257 n107.
- Line (of demarcation) 61–62, 64, 92, 111, 112, 121, 149, 172–73, 216, 224, 225, 246, 250, 257, 268.
- Lineland 144, 148–52, 148 n71, 156, 163, 163 n76, 242–45, 248. *See also* Flatland, Sphereland.
- Lispector, Clarice 41–43, 45, 65, 158, 211, 249.
- Local-Global 97, 108, 115–16, 118, 149, 192, 196, 197, 219, 243, 245–46.
- Logan, Robert xi n4, 34.
- Logic ix, xi, 1 n5, 4 n8, 7, 9 n10, 10, 19 n13, 24, 28, 29, 31, 33–34, 34 n23, 37, 37 n26, 38, 39, 47, 57 n32, 59 n35, 61, 63, 63 n37, 64, 66, 68, 69, 71, 74, 77 n45, 79, 88, 89 n49, 97 n52, 109 n58, 110, 115 n60, 118, 128–30, 131, 136, 139, 140, 173, 175, 190, 192, 193, 201, 209, 237, 238, 239, 240 n100, 250, 251 n105, 254, 257–58, 261–71, 271 n114, Bivalent xii, 30, 31, 34, 49, 66, 68, 74, 79, 88, 94, 133, 228, 238, 250, 253, 261–64, 263 n109, 270, Quantum 90 n49, of Vagueness 108 n97, Deviant 261, ‘Other’ 19 n13, 108, 108 n57, 109 n58, 261, 271, 271 n114, Paraconsistent 261, of Inconsistency 261, Fuzzy sets 261, of Relations 129, Rough sets 161.
- LW (Living World, and QW, Quantum World) vii, 80, 80 n46, 84, 85, 94–96, 100–08, 110–25, 165 n77, 167, 169, 170, 171, 171 n80, 173, 176, 176 n81, 177, 178, 179, 179 n82, 257 n107, 265 n111, 267 n112.
- Magritte, René 255–56.
- Mancini, Henry (‘Pink Panther’) 206–08.
- Mandelbrot, Benoit 147 n70, 233.
- McClintock, Barbara 39–40.
- Mediation 6, 25, 26, 28, 32, 43, 55, 60–61, 81, 112, 153, 162, 169, 203–05, 212–14, 222, 243, 251, 270.
- Merleau-Ponty, Maurice 3, 41–42, 104 n54, 131, 137, 150 n72, 162 n75, 210, 219, 221, 225, 246, 257.
- Middle Way xii, 22, 35, 61, 62–64, 88, 88 n48, 135, 173, 196, 203, 226, 242, 246, 247, 248, 251, 253, 262, 267, 269. *See also* Mediation, Nāgārjuna.
- Mignolo, Walter 19 n13.
- Miller, Arthur 36 n25, 39.
- Möbius-band 144, 150 n72, 151, 152, 156–61, 163, 163 n76, 196, 199, 200, 201, 218, 219, 232, 234, 242, 244, 246, 247, 249, 251, 259, 260. *See also* Figure ‘8’, Klein Bottle.
- Monism 30, 207, 212, 213.
- Moore, Henry 38.
- Multiplicity 52–53, 239. *See also* Unity.
- Murdoch, Dugald 102, 264 n108.
- Musement x, xii, 19–28, 36 n24, 51, 59, 103, 135, 138, 158, 165, 175, 215, 221, 226, 229, 245, 247. *See also* Play.
- Nachmanovitch, Stephen 12, 13.
- Nāgārjuna 21, 31, 31 n22, 54, 62, 63, 64, 94, 136, 268, Tetralemma 31, 32, 33, 53, 54 n31, 62, 94, 110, 136, 175, 262, 268.
- Neither-Nor xi, 54, 74, 88, 135, 139, 228, 246, 253, 259. *See also* Either/Or, Neither-Nor,
- Nesher, Dan 68 n40.
- Neuman, Yair x, 223, 225.
- Newton, Isaac 6, 36, 101, 102, 118, 128, 166, 167, 179, 239, 240, 263.
- Nietzsche, Friedrich 131 n65, 141, 235.
- Nihilism 141, 258.
- Nominalism 70, 203.

- Nothingness vii, xii, 24–25, 53–54, 91–92, 148, 153, 172, 173, 174, 195, 226, 234, 248, 249, 251, 253. *See also* Emptiness.
- Numbers xii, 25 n16, 31, 59, 60, 64, 99, 100, 144, 146, 166, 168, 171, 177, 179, 182, 216, 231, 261, Complex xii, 168, 169, 170, 177, 178, 179, 182, 183, 233, 235, Imaginary xii, 25, 168, 169, 179, 182, 183, 216, 233, 261, Real 168, 179, 183, 233.
- OAH* (Object, Act, and/or Happening) vii, 1, 2, 3, 4, 5, 6, 8, 10, 11, 12, 14, 15, 16, 18, 19, 24, 25, 26, 27, 28, 29, 30, 44, 45, 51, 60, 64, 74, 82, 83, 115, 121, 122, 123, 126, 127, 134, 138, 161 n74, 179, 181, 193, 194, 203, 205, 209, 210, 211, 212, 213, 214, 215, 220, 221, 222, 223, 230. *See also* *BSO*, *CCC*, *EZ*, *i-i-i*.
- Object (semiotic) vii, x, 15, 17, 25, 26, 44, 49, 60, 60 n36, 68, 72 n43, 84, 85, 86, 96, 98, 108, 123–27, 135, 147, 152, 153, 154, 155, 157, 162, 167, 168 n78, 169–70, 175–78, 185–87, 185 n84, 189, 191, 192, 195, 195 n88, 196, 202, 203, 204, 205, 246, 350, 255–58, 269. *See also* Interpretant, Representamen.
- Objective idealism xi, 96, 103, 103 n54, 105, 107, 111, 126–27, 203, 209, 210, 213, 252, 256, 257.
- Objectivism 4, 21, 104 n54, 105, 107, 126, 127, 203, 209, 212, 213, 221, 222, 223, 246, 252, 256, 264 n108.
- Orthogonality 151, 182, 188, 243.
- Other (of the sign) vi, x, 1, 3, 5, 6, 9 n10, 11, 22, 27, 28, 29, 30, 32, 34–35, 40, 42, 43–46, 49, 51, 54, 55, 62–63, 72, 74, 80–83, 86, 102, 138, 169, 175, 192, 194, 195, 204–05, 206, 212.
- Otherness 42, 43, 45, 161–62, 212.
- Overdetermination xi, xii, 5, 15, 18, 41, 48–50, 50 n29, 52, 58, 59, 60, 66, 68, 70, 75, 78, 79, 89, 94–95, 128, 134, 179, 241, 242, 244, 246, 253. *See also* Underdetermination.
- Paradox xii, 27, 30, 37, 43, 49, 59, 64, 66, 72, 72 n43, 73, 77 n45, 78, 91, 118 n61, 128, 135, 136–41, 136 n67, 158, 163–64, 175, 195, 197, 200, 213, 216, 219, 234, 237, 242, 245, 246, Knowability 137, Liar 139, Lottery 138–39, Löwenheim-Skolem 135, Possible Liar 68, 78, Preface 138–39, Prisoners' 139, Zeno's 128. *See also* Goodman's New Riddle of Induction, Hempel's Inductivity Paradox.
- Parlor game (Wheeler's '20 questions') 123–26.
- Parmenides 91, 119.
- Particle-event 80, 113, 115, 169, 194.
- Peirce, Charles S. *Passim*.
- Penfield, Wilder 86–87.
- Perception 3, 14, 15, 41–45, 104, 134, 135, 158, 170, 185 n84, 189, 201, 237, 246.
- Perspectivism 33, 120, 213, 235.
- Picasso, Pablo 37, 40.
- Plato 12, 30.
- Play x, 19–28, 30, 59–62, 74–75, 175, 188, 195, 240–41, Play acting 59–62, 59 n35, 74–75, 138, 195, 241, 245.
- Plotnitsky, Arkady 269.
- Pluralism 29–30, 29 n18, 31, 33, 40.
- Plurimorphity x, 29–40, 29 n18, 30 n20, 46, 47, 51, 61, 62, 64, 121, 181, 213, 214, 246, 247, 259, 260.
- Poincaré Henri 163, 164.
- Polanyi, Michael 8, 56, 111, 116.
- Polysemy xii, 230, 238, 239, 242, 244.
- Popper, Karl R. 73, 74, 134, 264 n108.
- Portmanteau (as *semiotic* process) xii, 93, 109 n58, 230, 237–41, 240 n100, 242, 244, 266, 267, 271, 271 n114.

- Possibility (possible sign) x, xii, 2, 7, 8, 15, 16, 17, 17 n12, 24, 25–28, 32, 33, 36, 37, 38, 43, 46, 47, 83, 85, 88, 92, 93, 94, 96, 97, 99, 100, 104, 106–08, 110, 112, 117, 118, 124, 134, 135, 138, 144, 155, 161, 165, 166, 167, 169, 175, 177, 191, 192, 196, 205–08, 212, 218–19, 222, 224, 228, 230, 231, 242–46, 249, 253, 255–56, 259, 261, 163, 268–71.
- Pragmatic Maxim xi, 66, 67–69, 68 n40, 71, 75, 76 n44, 78, 126, 127, 180 n83, 228.
- Pragmatism xi, 103, 126, 127, 128–33, 136–38, 141, 210.
- Prigogine, Ilya 16, 130.
- Probability 15, 17, 101, 134, 169, 177, 179.
- Process *Passim*.
- Proprioceptive 3, 35, 40, 41, 42, 44, 47, 56, 131, 133, 210, 220 n95, 221, 294. *See also* Kinesthetic, Somatic.
- Putnam, Hilary 132 n62, 135, 190, 209.
- Qualisign 204, 204 n90, 205, 207, 208, 242, 243, 248. *See also* Legisign, Sinsign.
- Quantum, theory ix, 3 n7, 17 n12, 39, 60, 70, 80, 82, 83, 83 n47, 84, 87, 89, Quantum event 81, 101, 105, 105 n55, 168, 169, 177, 266, Double-slit 87, 118, Delayed choice 90, 91, 94, Matrix mechanics 165–66, 171, 177. *See also* Wave.
- Quine, Willard V. O. 134, 190, 235 n98.
- QW (Quantum World). *See* LW (Living World).
- Rationalism 104 n54, 219, 226, 246.
- Reason ('styles of reasoning') 4 n8, 33, 34.
- Reference 32, 36, 62, 84, 163, 198, 222, 262, 263, 264 n109.
- Relativity theory 36, 80, 136, 263.
- Representamen vii, 26, 60, 60 n36, 169, 186, 203, 204, 210, 269. *See also* Interpretant, Object (Semiotic).
- Representation 84, 113, 129 n64, 210, 222, 245.
- Rescher, Nicholas 29 n18, 33, 103, 136 n68, 261, 263.
- Rich, Adrienne 48.
- Rorty, Richard 14, 26, 128, 129–33, 137, 141, 192 n87.
- Rosch, Eleanor 4 n8, 210.
- Rosen, Steven 144 n69, 150 n72, 155, 157, 158, 159, 162 n75, 228 n96, 247 n102.
- Rosenthal, Sandra x n2, 5 n9, 29 n18, 126 n63, 203.
- Rothenberg, Albert 21 n14, 36, 36 n25, 37, 37 n26, 38.
- Royce, Josiah 242, 245.
- Ryan, Paul 144 n69, 150 n72, 155.
- Saussure, Ferdinand de 203, 222
- Schrödinger, Erwin 15 n11, 89, 90, 91, 92, 93, 98, 106, 107, 113, 118 n61, 165, 166 n77, 167, 168, 168 n78, 171, 176 n81, 177, 179, Schrödinger's cat 'thought experiment' 89–93, 98, 100.
- Sebeok, Thomas A. ix, x n2, 21 n14, 270 n113.
- Secondness x, 4–7, 9 n10, 11, 12, 13, 15–18, 19, 24, 26–28, 40, 42–45, 47, 49, 52, 53 n30, 55, 57, 60 n36, 61, 62, 65, 67, 68, 73, 74, 75, 81, 82, 85, 89, 91 n51, 94, 99, 101, 104, 108, 109, 112, 119, 122, 123, 124, 126, 129, 135, 158, 161, 161 n74, 162, 175, 178, 189, 191, 194, 202, 203, 208, 209, 211, 212, 214, 218, 222, 223, 225, 228, 229, 243, 247–51, 253, 257, 259, 269, 270. *See also* Firstness, Thirdness.
- Self 9, 13, 20, 23, 24, 42, 54 n31, 131, 143.

- Self-organization xi, 50, 97, 111, 112, 124, 125, 147, 197, 218, 246, 259, 268.
- Shakespeare, William 60, 188.
- Sheets-Johnstone, Maxine 41 n27, 131, 161, 210.
- Shlain, Leonard xi n4, 34, 39.
- Shusterman, Richard 31 n21, 130, 131, 210.
- Sinsign 243, 248. *See also* Legisign, Qualisign.
- Tripod (semiotic) 25, 26, 112, 146, 147, 168, 175, 185, 186, 187, 188, 216, 217, 218, 242, 244, 247.
- Somatic 3, 25, 40, 41, 42, 44, 56, 131, 132, 210, 220 n95, 221, 254. *See also* Kinesthetic, Proprioceptive.
- Spencer-Brown, George 9, 216, 217 n94, 238 n99, 253, 261.
- Spretnak, Susan 41 n27, 130, 210.
- Stapp, Henry 83.
- Stern, Daniel 161 n74.
- Stevens, Wallace 235.
- Stoller, Paul 130, 210.
- Subsidiary (attention) 8, 41, 56–61, 111, 116–18, 194. *See also* Focal attention.
- Superposition 17 n12, 89, 113, 117, 192, 202.
- Symbol xi, 9, 9 n10, 10–12, 25–27, 45, 46, 46 n28, 47, 54, 128, 148, 161, 168, 168 n78, 171, 175, 177, 178, 180, 189, 205 n91, 206, 207, 211, 212, 225, 237, 238 n99, 239, 248, 251 n105, 257, 265. *See also* Icon, Index.
- Tessaract 144, 145, 147, 153, 154, 185.
- Textual Idealism 131 n65, 132.
- Thirdness x, 4–8, 9 n10, 11, 12, 13, 15, 17, 18, 19, 24, 26, 27, 28, 40, 42–45, 47, 49, 52, 54, 55, 57, 60 n36, 62, 65, 67, 68, 73, 74, 75, 79, 82, 86, 89, 94, 99, 101, 104, 108, 110, 112, 119, 123, 124, 126, 129, 148, 161 n74, 162, 178, 189, 190, 192, 194, 202, 203, 206, 208, 210–14, 218, 222, 223, 225, 228, 229, 244, 247–48, 251 n105, 269, 270. *See also* Firstness, Secondness.
- TIC (Theory, Idea, or Conventional Practice) 263, 264, 268, 269.
- Timespace xi, xii, 6, 8, 16, 24, 26, 27, 28, 44, 52, 58, 66, 75, 77, 82, 83, 94, 96, 101, 104, 106, 107, 108, 109, 110, 112, 115, 116, 118, 121, 123, 127, 133, 135, 140, 142, 146, 157, 158, 166, 167, 170, 171, 172, 177, 178, 179, 180, 183, 185, 187, 190, 191, 193, 195, 196, 198, 200, 201, 202, 203, 208, 221, 230, 234, 237, 240, 242, 247, 253, 255, 260, 262, 263, 264, 265, 266, 267, 267 n112, 268, 269.
- Topology 121, 128, 144, 148 n71, 163.
- Turner, Mark 37 n26.
- Uexküll, Jakob von x n2, 29 n17, 66 n39.
- Uexküll, Thur von x n2, 29 n17, 66 n39.
- Uncertainty Principle (Heisenberg) 14, 15, 48, 101, 106, 130, 166, 171, 176, 177, 202, 256.
- Uncertainty (semiotic) 16 n11, 17, 18, 35, 48, 101, 107, 177, 179–80, 193, 194, 205, 258, 261.
- Underdetermination xi, xii, 15, 16, 18, 41, 49–50, 50 n29, 52, 58, 59, 60, 66, 68, 70, 75, 78, 79, 89, 94–95, 128, 134, 135, 138, 179, 190, 241, 242, 244, 246, 253, 255. *See also* Overdetermination.
- Vagueness xi, xii, 4, 11, 14, 15, 17, 18, 27, 41, 57, 58–61, 66, 69 n41, 73, 77, 78, 88, 89, 108 n57, 128, 129, 135, 144, 164, 182, 187, 188, 189–93, 213 n92, 228, 235, 240, 241, 242, 244, 246, 261, 268. *See also* Generality.
- Varela, Francisco J. 200, 210, 216 n93, 235.
- Velázquez, Diego xii, 194, 197–200.

- Walker, Evans Harris 165 n77, 167, 187.
- Wave: Function 81, 102, 102 n53, 103, 125, 168 n78, 177, 179, 179 n82, 234, 235, Standing 235, 236, Traveling 100, Packet 81, 83, 84, 87, 89, Amplitude 17 n12, 84, 85, 100, 101, 102, 103, 113, 118, 119, 120, 168, 169, 177, 194, 208, Collapse 81, 83, 85, 87, 88, 89, 90, 101, 102, 119, 120, 125, 160, 169, 171, 177, 178, 179 n82, 204, 205, 207, 208, 229, Wave train 207, 208, 233, 234, 235.
- Weinberg, Steven 97 n52, 133.
- Wertheimer, Max 39.
- Wheeler, John Archibald ix, xi, xii, 16 n11, 17 n12, 80, 83, 84, 85, 87, 88, 90, 90 n50, 91, 91 n51, 92, 94, 96, 97, 98, 101, 111, 112, 119, 120, 121, 122, 123, 124, 125, 126, 127, 130, 136, 197, 208, 215, 217 n94, 226, 228, 229, 246, 249, 256, 257, 259, 267.
- Whitehead, Alfred North 1 n5, 88, 204, 234.
- Wigner, Eugene 121–22.
- Wittgenstein, Ludwig 19, 19 n13, 20 n19, 99, 217, 268.
- World-version 6, 7, 118, 122 n62, 124, 126, 134, 142, 213, 214, 222.
- Yin-Yang 109, 229, 236, 251, 265, 266, 267 n112, 270, 271.
- Yukawa, Hideki 264 n109.
- Zen 22, 51, 121, 128, 136, 211, 231, 239.
- Zero vii, 17, 24–25, 31, 34, 63–64, 91, 144, 148, 151, 152, 158, 174, 188, 227, 229, 246 n101, 249, 251.