

SEMIOTICS AND CYBERSPACE
BEYOND CHARLES SANDERS PEIRCE

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In 1867 Charles Sanders Peirce detailed a pansemiotic perspective of the world that defines a sign as “something that stands to somebody for something.” The triadic semiotic theory that Peirce developed includes all phenomena known in his time. This dissertation offers an extension of Peirce’s work to include virtual phenomena characterized by simultaneous yet separate realities experienced in cyberspace. Chapter 1, “Thirdness and Beyond,” explores Peirce’s phenomenological theory of semiotics and suggests its extension to include the simultaneous presence and absence which marks virtual entities. Chapter 2, “The Paradox of Discovery,” discusses abduction as the reasoning process that introduces innovation and provides the foundation for revolution in computer technology. It also introduces the concept of *Fourthness* and extends Peirce’s phenomenological categories to include simultaneous presence and absence experienced in virtual realities. Chapter 3, “Toward *Fourthness*: A Necessary Convergence,” elaborates *Fourthness* as a separate phenomenological category that reveals the ontological dynamics of the mutually created virtual environments. Chapter 4, “*Fourthness*: Out of the Void,” applies the new concept to Multi-User Domains, Object Oriented (MOO) and shows virtuality as the source of creativity and the abductive process.

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CHAPTER 1

THIRDNESS AND BEYOND

*You could not step twice into the same rivers;
for other waters are ever flowing on to you.*

Heraclitus, *On the Universe*

St. Augustine, precursor of modern semiotics, introduces the interpreter's mind as a third correlate to modern semiotics. He extends the interpretation of the sign by using indexical signs to unveil God's will in the observable world. In the late nineteenth century, Charles Sanders Peirce built on St. Augustine's work to develop a semiotics underpinned by the principle of *Thirdness*. Peirce, who has been called "one of the great figures of semiotics" and "and the founder of the modern theory of signs," colligated modern semiotics (Nöth 39). Peirce's theory remains undisputed but solidified by Humberto Eco's work *Introduction into the Semiotic* in the last half of the twentieth century (Nöth 40). A summary review of major semiotic principles provides a context out of which this study will extend the philosophical branch of Peircean semiotics to include the concept of *Fourthness*.¹

Hailed as the foremost American philosopher, Peirce devoted his life to developing and elaborating his semiotic, the theory of signs.² Revealing a pansemiotic

¹ *Fourthness* is italicized in this study to conform with Peirce's work.

² Peirce also employs the idiosyncratic spelling *semeiotic* to indicate his theory of signs.

perspective of the world, Peirce's 1867 paper "On a New List of Categories" details the triadic theory that defines a sign as "something which stands to somebody for something in some respect or capacity" (CP 2.230).³ Peirce's theory of the sign built on classical notions that limit semiotics as a discipline to contemplation of natural signs, those occurring freely in nature, as opposed to conventional signs, those designed precisely for the purpose of communication. In the middle ages, St. Augustine recognized the values of subjecting signs to philosophical scrutiny (Nöth 85). He narrowed the focus of the study of signs by recognizing the connection among signs, language, and thought. John Locke found the basis of his logic developed in his 1690 *Essay Concerning Human Understanding* in signifying processes. In Locke's metonymic formula, signs present the world to the mind. He concludes that "since the things the mind contemplates are none of them, besides itself, present to the understanding, it is necessary that something else, as a sign or representation of the thing it considers, should be present to it: and these are *ideas*" (370). However, no complete concept and theory of semiotics appeared until the late nineteenth century when Peirce offered his theories of semiotics.⁴

³ This dissertation adopts the method of numerical reference to volume and paragraph numbers used by most scholarship concerning Peirce's writings; thus, CP 2.230 indicates volume 2, paragraph 230 of the *Collected Papers*.

⁴ Working separately, but at about the same time, French philosopher and linguist Ferdinand de Saussure developed a dyadic theory of semiology that his students and colleagues published from their notes in 1916 as *Cours de linguistique générale*.

Peirce considered his theory complete for the era in which it was conceived, but he recognized its provisionality and the possibilities for its extension. He writes, “I by no means deny that there are other categories. On the contrary, at every step of every analysis, conceptions are met with which presumably do not belong to this series of ideas” (*CP* 1.525). This dissertation extends Peirce’s work to connect virtual signs in electronic media to his semiotics.


Following an explanation and exploration of Peirce’s phenomenological theory of semiotics, an examination of virtual representations in cyberspace extends the concept of *Thirdness* into *Fourthness*. Peirce’s analysis of signs sustains a relationship to linguistics and language as symbolic action, and the connection illustrates the significance of virtual representations as semiotic and rhetorical events. A description of activities, an identification of strategies utilized, and an evaluation of the benefits of those strategies demonstrates their influence upon an audience in object oriented multi-user domains (MOOs).⁵ This demonstration of the use of virtual signs supports common rhetorical and semiotic principles; the unique characteristics of virtual signs used in electronic documents extend classical rhetorical principles. The aspatial nature of cyberspace invites interpretation in light of Peirce’s theory of abductive reasoning. Peirce’s three ontological

⁵Although modern technology includes appliances that allow for partial to full body experiences in virtual reality, this study focuses on visual and aural images available via the Internet and computer.

categories develop the concept of *Thirdness* from St. Augustine and furnish the basis for their extension to include representation in cyberspace as a separate category, *Fourthness*.

A brief synthesis of Peirce's philosophical semiotics clarifies the basis for the extension to *Fourthness*. Peirce defines semiotics as the study of the action of signs. The triadic process by which something functions as a sign includes the *representamen*, the perceptible entity (sometimes called the sign itself), maintains a relation to an *object*, that for which the representamen stands, and an *interpretant*, the meaning or effect created within the interpreter's mind. In Peirce's terms, "a sign, or *representamen*, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign" (CP 2.230). Peirce labels that sign as the *interpretant* of the first sign. He continues by claiming that "the sign stands for something, its *object*. It stands for that *object*, not in all respects, but in reference to a sort of idea" (CP 2.230). Thus, the *representamen* refers to an experienced or observable semiotic reality. That reality ignites an *interpretant*, which allows possible interpretations to decode and explain the representation of reality. Peirce concludes that the *interpretant* must reside in a habit or custom and not in the attendant emotions and images or in the immediate physiological reaction the sign vehicle evoked (*Semiotic* 31). The *interpretant*, then, becomes a sign connecting to other mental concepts, and the triadic process begins anew with the potential for unlimited semiosis (Nöth 43). In discourse, the utterance signifies an interpretation of the encoder's thoughts. The

decoder receives the sign and a series of *interpretants* results based on the decoder's cognitive environment and translation of the signal. John Deely emphasizes the *interpretant's* necessity in the semiotic process as a bridge spanning from sign to another signified, which merges with the interpreter's experience to prompt "the chain of *interpretants* on which semiosis as a process feeds" (26-27). Interaction between the decoder's system of belief and the received signal generates the *interpretant*; therefore, each *interpretant* relates idiosyncratically to each individual decoder. The *interpretant's* relative nature accounts for a sign's multiple and disparate interpretations.

The same principle holds true for non-discursive signs. Though language makes up much of human sign production, non-verbal signs also belong to semiotic systems that perform crucial rhetorical functions. Visual signs such as clothing, body language, architectural structures, images, painting, photography, film, comics, and advertising communicate meanings outside of themselves. In addition, natural signs, nonlinguistic signs such as graphics, rank indicators, and sensory images also communicate meaning and foster interpretation. For example, an individual might perceive a light (the *representamen*) embodied as a heavenly body (the *object*) and interpret the being as a star  (the *interpretant*). The star could bring to mind the Christmas star, a sign that, according to Christian mythology, announced the birth of Jesus Christ. This *interpretant* becomes a sign and might trigger thoughts of the crucifix, a new *interpretant*. The sign of the cross may elicit reflection on cross burnings performed by Ku Klux Klan members as threats of racist violence. The chain of associations could

continue to elicit the assassination of Martin Luther King, which may bring forth the assassination of John F. Kennedy, who was associated socially with Marilyn Monroe. Monroe serenaded the president on his birthday, which potentially leads to recollection of birthdays and cakes, parties and gifts, *ad infinitum*. Another individual might perceive the same light, interpret it as a star, and laugh, thinking of Antoine de Saint-Exupéry's *The Little Prince*. A different series of *interpretants* would ensue. These examples illustrate the potential contained in a sign to generate a sequence of relations relative to each individual interpreter, which may eventually seem quite removed from the initial sign. The possibilities for interpretation of the polysemic signs and the organic nature of signification also led Peirce to conclude that thought, awareness, perception, reasoning, judgment, knowledge, and even humans themselves are essentially semiotic (CP 5.253). In addition, the dynamic nature of signs transforms the *interpretant* into a *representamen* which is in a relationship to yet another *object*, effecting another *interpretant* in a potentially endless semiotic process.⁶ The relationship between the three entities, *representamen*, *object*, and *interpretant*, constitute the actual sign, and their processual engagement constitute Peirce's concept of semiotics.

Peirce's semiotic system functions as a manifestation of a general phenomenon. In his study of phenomenology, Peirce coins the term *phaneron* to indicate "the

⁶ The process is potentially endless because normal life dictates that we sleep, work, etc. The chain can be interrupted, but it can never really be ended (see Nöth 43).

collective total of all that is in any way or in any sense present to the mind” (CP 1.284). The *phaneron* indicates the ensemble of phenomena as they appear to the mind rather than as they manifest themselves to external perception. However, Peirce argues that all phanera occur identically to all observers troubling themselves to examine them (Feibleman 145, Goudge 78). He regards phenomenology as a descriptive discipline concerned with “what appears” and enjoins himself to determine the phaneron’s indecomposable qualities of form and structure (Goudge 78, 83). Peirce does not limit his phenomenology to physical substance, but he includes “whatever appears to normal waking consciousness” such as thoughts, memories, memory-images, constructions of imagination, and material substances (Goudge 90). In order to codify his nomenclature, Peirce conceives new terminology to describe his phenomenological categories:

Firstness, Secondness, and Thirdness.

The realm of *Firstness* includes the phaneron’s unique and irreducible qualities that generally present themselves as sensations or feelings (Goudge 85). According to Peirce, *Firstness* refers to “something which is what it is without reference to anything else within it or without it, regardless of all force and reason” (CP 2.85). Musical notes, tastes, colors, and experiences known only through the senses exemplify *Firstness*, but the quality itself, Peirce argues, suggests “which way to look.” Goudge notes that *Firstness* exists as mere possibility and its abstract nature resists description. Regarding the inexpressibility of *Firstness*, Peirce notes that “It cannot be articulately thought: assert it, and it has already lost its characteristic innocence; for assertion always implies

a denial of something else. Stop to think of it, and it has flown!” (CP 1.357). In illustration, the color red or redness can only be identified upon its application to an object: a stop sign is red, or in contrast to another quality: redness differs from greenness. James Feibleman notes that “If red were green it would not be red; that is all. And any semblance of sanity the question may have is due to its being not exactly a question about quality, but about the relation between two qualities, though even this is absurd” (149). The word *red* denotes a specific, observable manifestation of *Firstness*; however, the concept of redness cannot be observed, but it can be thought. Manifestation of a concept’s nature positions it within a spectrum of *Firstness* and shatters its abstract nature. Thus, *Firstness* stands as a qualitative possibility such as it is in itself without relation or reference to any object.

Peirce’s next phenomenological category *Secondness* entails actualities and brute facts that spawn from relationships. It imparts actuality to the possibility of *Firstness* by placing a quality in some relation to an object whether observable through the senses or known through thought (CP 1.327). Goudge explains that in *Secondness* “The here-ness and now-ness [. . .] constitute an ultimate feature of phenomena, best designated by the word *fact*” (88). The dyadic nature of *Secondness* explains the awareness that occurs when an obstruction inhibits the process of opening a door. Peirce clarifies, “The sense of effort is a two-sided sense, revealing at once a something within and another something without. There is binarity in the idea of brute force; it is its principal ingredient” (CP 2.84). *Secondness* relates one entity to another one. It

examines differences and similarities, temporal and spatial experiences which include transient experiences of acting or being acted upon by another (Nöth 41, Moore 5).

Secondness, then, includes brute fact, mere motion, immediacy, and irrational particularity.

Thirdness, the ambit of general laws, completes Peirce's list of phenomenology's irreducible categories. Peirce argued that *Thirdness* predicts whether events in the future will or will not conform to a particular generalization. *Thirdness*, Peirce asserts, "consists in the fact that future facts of *Secondness* will take on a determinate general character" (CP 1.25). Peirce viewed the relational triad among representamen, its object, and the interpretant as *Thirdness* at its most authentic ("To Victoria" 31). He explained that a third indicates the cognitive results from the relation between a first and a second. Peirce notes, "It appears to me that the essential function of a sign is to render inefficient relations efficient, --not to set them into action, but to establish a habit or general rule whereby they will act on occasion" ("To Victoria" 31). Although not simply a collection of facts, *Thirdness* includes the tendency of conditions to convene in a predictable manner (Sheriff 56). *Thirdness* can also be understood by placing *Firstness* and *Secondness* within a context. Peirce offers the sentence 'A gives B to C' in illustration; the transaction "consists in A's making C the possessor according to *Law*" ("To Victoria" 29-30). The parties must share a common understanding of the concept *to give* as A's willful forfeiture of ownership and C's acceptance of ownership for *Thirdness* to occur. The two acts along with the mental

element constitute a single operation that transcends the physical motions (“To Victoria” 29-30). Peirce recognizes the possibility of a “degenerate” *Thirdness* that designates an interpretant inconsistent with the act of giving. The “*Law*” Peirce indicates consists of the English language definition of the word *give*. While arbitrary in assignation of meaning, by consensus, to *give* requires the acknowledged willing transfer of possession of B from A to C. The act, in its entirety, by habit or custom, results in a similar interpretant by all decoders sharing a similar system of beliefs and language code. The degenerate *Thirdness*, externally appended by the decoder’s misinterpretation or ignorance of the “*Law*” (the custom or habit), eliminates the continuity of the act or changes the context in which it occurs, each of which would require abductive thought to determine a *Thirdness* appropriate to the changed circumstance. According to Goudge, Peirce finds “the most prominent illustrations of *Thirdness* to be generality, law, meaning, representation, mediation, continuity, triplicity, and thought or inference,” all observable features ensuing from the phaneron (93). Where *Secondness* equates to brutal facts, *Thirdness* entails the spontaneous mental processes of perceptual judgment and hermeneutics. Thus, Peirce’s semiotics provides a heuristic mediated and sustained by signs, a way of thinking about phenomena.

Phenomenology, or to use Peirce’s term, *phaneroscopy*, describes and classifies perception, imagination, conceptions, and everything else that seems to be in consciousness (CP 1.284). Peirce lists physical actions, psychical volitions, time,

material things, and productions such as dramatic representations that occupy a place in the universe as potential seconds in relation to firsts (*CP* 1.433). He also addresses the worlds unknown to him in the late nineteenth century and recognizes that they will take a place among existent things: “for aught we know, there may be another creation with a space and time of its own in which things may exist” (*CP* 1.433). His semiotic allows a niche for phenomena such as the Internet and virtual entities to append themselves to his characterization of things existing. However, the categories defined in his phenomenology require extension to include virtual entities. Peirce defines *Secondness* (brute opposition) as requiring “that everything in the field of actuality shall be individual” (Feibleman 164). He claims that along with a requirement for regular behavior, regular attractions and repulsions, regular mass, continuous motion rather than a “series of leaps from one place to another without passing through any intervening places,” that an existent thing occupy a single space (Feibleman 164). Pierce reasons that “if it were at one time in one place and at another time in a dozen, such a disjointed plurality of phenomena would not make up any existing thing” (*CP* 1.411). Peirce’s *Secondness* stipulates direct pairing of two firsts or opposition in fact; two objects in relation to each other; or one object distinguished from another object in negation. All three stipulations illustrate the external nature of the category.

Peirce goes on to describe *Thirdness* as the mediation of *Firstness* and *Secondness* or the intervention between “causal act and effect” that determines a system of laws of qualities (*CP* 1.328). His definition of *Thirdness* presupposes the exclusion

of activities in cyberspace because of their defiance of the rules of *Secondness*. However, Peirce proposes a “degenerate” *Thirdness* in which no true *Secondness* exists, but which manifests itself as a representation derived from a “mere Quality of Feeling, or *Firstness*” (CP 5.71). Pure self-consciousness exemplifies such a degenerate *Thirdness* (Feibleman 166). This degenerate *Thirdness* might include computer-mediated cyberspace and the “Quality of Feeling” or sense of operating from within the interface. However, it does not allow for the sensation of “being in” two realities concurrently that computer-mediation generates in the encoder while traversing cyberspace. The simultaneous presence and absence of virtual signs invoked at peripheral sites also falls outside of Peirce’s theory.

Innovation in computer and virtual technology has affected not only the fields of communication and information, but also all areas of human endeavor with unprecedented velocity and force. The way humans think of themselves as inhabiting a space and the ways individuals come together to form collectives no longer rely strictly on geography. With computer-mediation and the extension of cyberspace and virtual technologies, a merger of human and computer results in a new mode of being that expands the process of creation and injects a new layer of meaning in the notion of presence. Katherine Hayles argues that the computer acts as an “electronic prosthesis” which sustains physical reality but extends “embodied awareness in highly specific, local and material ways that would be impossible without electronic prosthesis” (How 291). She explains that the body is not abandoned in cyberspace, but the cognitive

system expands to include the new way of being via computer mediation (*How* 291). Michael Heim adds that the computer user feels as if it transacts directly with physical realities although computer-mediated virtual scenes contain only the “informational equivalent of things” (*Metaphysics* 132-33). The virtual scenes in cyberspace simulate “corporeal immediacy,” or more esoterically, “the spirit migrates from the body to a world of total representation” (Heim, *Metaphysics* 100-01). The computer user manipulates a virtual agent through the amorphous space of the virtual scene represented by words and images invoked on a screen. The reality of cyberspace mediated through the computer supplies venues for people to congregate, according to Heim, “in surprisingly personal proximity” regardless of physical constraints such as geography or time-zones (*Metaphysics* 99-100). The reality to the encoder in cyberspace consists of interaction in two or more places at one time causing overlap between the computer user and virtual agent. This experience of *simultaneous yet separate realities* resists categorization according to Peirce’s definitions of brute fact, or *Secondness*.

Even though Peirce’s classifications held true for phenomena known in his time, the invention of the Internet and subsequent development of the means for what Hayles calls “a dynamic partnership between humans and intelligent machines” (*How* 288) expands the parameters of the possible forms of existence. Computer-mediated virtual scenes experienced in cyberspace challenge the conventional understanding of identity and location by invoking a sense of physical presence in non-physical space. Emerging

electronic technologies (the product of abductive reasoning) present creative new ways of understanding and participating in discourse. The significant changes in the transfer and reception of information, the popularization of the personal computer, and the advent of the Internet have established the need for critical reflection on virtual signs within the non-physical universe of cyberspace. Peirce's semiotics when extended and modified results in a theory and process on which to construct a semiotic of computer-mediated cyberspace and its infinite interpretations.

CHAPTER 2

THE PARADOX OF DISCOVERY

*There are more things in heaven and earth, Horatio,
Than are dreamt of in your philosophy.*

William Shakespeare, *Hamlet*

Perhaps Peirce's most original contributions to philosophy, epistemology, and scholarship in general, abduction informs semiotic thinking and engenders new ideas, explanatory hypotheses, and creative theories.¹ Peirce distinguishes abductive reasoning from deductive and inductive reasoning to propose a triadic framework of reasoning that closely relates to his triadic semiotic theory. He posits that abductive reasoning plays a dominant role in human thought and creativity. Abduction allows reason from current experience and produces patterns of understanding that move inquiry forward. In short, abduction introduces innovation.

Aristotle first recognized the abductive process though he records no elaboration of it. Locke, too, observes abduction's role in generating knowledge, but he fails to explain the process. Peirce, conversely, sees abductive reasoning as a fundamental element in the "logic of discovery" and refines his concept of abduction to show it as the source from which new knowledge emerges (*CP* 5.196). Peirce recognizes the

¹ Elsewhere Peirce labels his contribution to the logic of explanation or method of justifying hypotheses *retroduction* and *hypothesis*." Eventually, he comes to use the term *abduction* almost exclusively.

interrelated nature of the three classes of reasoning even though distinct characteristics denote each form.

Deductive argument's explicative nature arrives at necessary conclusions from indexical premises. The conclusions drawn in deductive argument can only be false if the facts presented in the premises are untrue. As a brief reminder and for comparative purposes, the following simplistic deductive syllogism illustrates the process.

Rule:	Dogs bark.
Fact:	Rowdy is a dog.
Result:	Rowdy barks.

Concerned only with drawing the logical consequences of a hypothesis, deductions extend the sphere of certainty methodically and confidently. The truth of the premises leads to no other truthful conclusion.

Inductive argument, in contrast, collects and evaluates instances to form a generalization or to test a theory. Peirce explains that inductive inquiry "sets out with a theory and it measures the degree of concordance of that theory with fact" ("Lecture Five"145). Altering the earlier syllogism to reveal inductive reasoning produces the following.

Fact:	Rowdy is a dog.
Result:	Rowdy barks.
Rule:	All dogs bark.

Inductive reasoning produces rules for further inference and inspection of additional empirical evidence. Assuming the truth of the premises in light of other known similar experienced instances produces an accurate conclusion. Therefore, both deduction and induction begin and end with the known. According to Peirce, “Deduction proves that something *must* be; induction shows that something *actually is* operative” [Peirce’s emphasis] (CP 5.171). Deduction makes a conclusion or finds a result on the basis of an observed fact by application of a rule; induction generates a general rule on the basis of a facts and a conclusion.

Abduction, the third of the triad, begins with a single instance and then introduces a new idea in the form of a hypothesis on that basis. Abductive reasoning considers experience, sensory data, and known facts along with uncertain or imprecise information and devises a unique explanation. It also “supposes something of a different kind from what we have directly observed, and frequently something which it would be impossible for us to observe directly” (CP 2.640). Then the construction of a hypothesis (which, according to Peirce, implies reliance on “common sense and in instinct”) provides a plausible explanation (“Neglected” 374). A new syllogism demonstrates Peirce’s point.

Fact:	A barking noise comes from another room.
Rule:	Dogs bark.
Result:	Perhaps a dog occupies the next room.

The reasoner extracts the relevant relations between the event and the possible conclusions before selecting the most explanatory and credible conclusion. Thus, abduction entwines known facts along with the unknown to arrive at an explanation.

Walker Percy explains that abduction concedes to the subject a maximum of freedom to explain the inexplicable credibly (321). Human knowledge provides reasoners with a referential and denotational momentum that propels them toward a hypothesis. Because of the infinite possible conclusions, Peirce observes that each individual develops perceptual judgments or “volitional judgments” based on experience and an internal body of tacit knowledge that will differ from another person’s judgments concerning the same concept (“Lecture Six” 235). He argues that the basis for all conception lies in perception and that only perceptual judgment leads to abductive inferences.

Abduction proves fundamental in Peirce’s concept of the evolution of knowledge since its synthetic nature supplies all new ideas. Once an abductive inference develops, the reasoner must challenge it inductively to prove its validity. Conjectural diagnoses, historical reconstructions, criminal detections, paleontological techniques, and track imprint identifications derive from practices identified as abduction. Sudden insights and the recognition of patterns within disorganized bodies of data result in abductive inferences. Peirce explains, “Plainly only by abduction, because abduction is the only process by which a new element can be introduced into thought and it is expressly supposed that we have to do here with that judgment in which the

conception in question first makes its appearance” (“Lecture Six” 239). More than a logical operation, abduction encompasses, from a semiotic perspective, that spontaneous, even transparent, mental action which makes the strange familiar and makes sense of surprising events.

Umberto Eco further codifies abduction to include three types: *overcoded*, *undercoded*, and *creative* abduction. First, Eco contends that the identification of imprints such as animal tracks left in the snow by a being long since gone as overcoded abductive reasoning that leads to a possible cause (“Horns” 210). Overcoded abductive inferences hold a synecdochial relationship to the source even when no reproduced image of the hoof or paw remains because a further link between the imprint and a code of imprints derived from experience allows the source’s identification (Eco, “Horns” 211).

Next, the reasoner entertains the most plausible among several explanations for a phenomenon in an undercoded abduction. The results form a general frame of reference and “intertextual frames” that encourage guessing based on common experience from which the reasoner constructs a hypothesis (Eco, “Horns” 213). For example, in 1922 when Harold Carson and the Earl of Carnarvon discovered and opened King Tutankhamen’s tomb, Carnarvon and at least twenty others working with or related to the archeologists (including Carson’s bird and Carnarvon’s dog) died within a few weeks. The series of sudden deaths led to the popular belief, an undercoded abduction, that a curse placed three thousand years prior manifested itself

on the tomb's violators. No other explanations presented themselves for the surprising coincidental deaths. However, during the late twentieth century, Nasari Iskander, representative of Egypt's Supreme Council for Antiquities and curator of the Egyptian Museum in Cairo, reconsidered the mystery. By reinterpreting scientific data, facts, and experience, he hypothesized, an overcoded abduction, that when the oxygen in the tomb depleted, entombed viruses became dormant. Because the opening made a new source of oxygen for them, the viruses reactivated and began claiming lives of those working in the tomb. The pets' deaths remain unexplained and apparently coincidental.

Researchers working parallel to Iskander offer a different hypothesis (the result of overcoded abduction) for the unexplained deaths. They argue that the sand in and around the tomb contained high levels of radioactive materials that caused the explorers to die from radioactivity poisoning. In spite of the new perspectives and scientific evidence, the original curse myth lives on. From a semiotic perspective, spontaneous activity that produced the curse explanation attempted to reconcile the known and the unknown. The absence of reasonable explanation of the phenomenon produced the one that, though controversial and fantastical, still survives. The undercoded abductive thought drew forth from the void an acceptable explanation. Iskander reopened the query to form a new hypothesis born of overcoded abductive inquiry based on forensic evidence and clues.

Overcoded and undercoded abductions come as the most plausible and economic result from "a storage of already checked" common knowledge (Eco,

“Horns” 207). The conclusion drawn derives from the “encyclopedia” of knowledge acquired through experiences in the world; and because questions remain concerning its accuracy, the conclusion must hold up under further testing. Nevertheless, overcoded and undercoded abductive inquiry generally arises from a degree of certainty in common knowledge and experience.

In creative abductions, no such certainty exists. In creative abductions, the reasoner draws a conclusion, not because it presents itself as the most plausible, rather because it seems the most elegant or aesthetically coherent (Eco, “Horns” 216). For instance, Copernicus questioned the Ptolemaic system because he found the structure that placed the earth at the center of the universe lacks the gestalt and symmetry he believed should exist in a harmonious system (Eco, “Horns” 216). He based his creative abduction not on observed planetary positions as Kepler and Galileo later did, but on the feeling he had that the systematic elegance he observed in nature ought to extend to the universe (Eco, “Horns” 217). Creative abduction, then, can go against the criteria of economy and simplicity. Peirce invokes the maxim of Ockham’s Razor that admonishes the reasoner to determine that no simple or more logically economic theory explains the facts satisfactorily before testing complicated hypotheses (“Lecture Two” 162). Nevertheless, Peirce warns against its strict application and asserts that perception and logic require consideration of other factors that may be from an “internal aspect which is a little obscure and shadowy” (“Lecture Two” 163).

Obviously, not all abductive conclusions prove to be valid or stable when subjected to inductive scrutiny. Peirce considers the lack of certitude as *fallibilism* and sees it as inherent in all scientific inquiry. Fallibilism accounts for the liquid nature of knowledge, which Peirce asserts, “always swims, as it were, in a continuum of uncertainty and undeterminacy [sic]” (*CP* 1.171). When the hypothesis proves erroneous, the reasoner confronts the error and revises her knowledge to accommodate the new information.

In addition to the three categories of abduction, Eco recognizes that abductive inquiry can ignite a relational coiling helix of abductions based on overcoded, undercoded, or creative abductions. He calls such an abductive coil *meta-abduction*. In making overcoded and undercoded abductions, the reasoner checks the new knowledge against previously verified world experience and common knowledge, and often eliminates the need or possibility of meta-abduction. Creative abductions provide less secure grounding. The conditions for the experience in which human creativity finds its source, according to Peirce, must be “With your eyes open, awake to what is about or within you, and open conversation with yourself; for such is all meditation” (*CP* 6.461). Peirce defines the experience as *musément* or liberating the mind to slide from one idea to the next without motive. The grounding for meta-abductions proves insecure as well.

In meta-abduction, Eco finds inquiry that “consists in deciding as to whether the possible universe outlined by our first-level abductions is the same as the universe of our experience” (“Horns” 207). Essentially, the reasoner encounters information that

resists assimilation, reveals a misconception, or uncovers a gap in the world of knowledge. A rupture appears in the world of experience; and from the void, the reasoner extracts a hypothesis. The potential to create new knowledge and to shift paradigms through creative abductive inquiry exists within what is wrongly considered a void.

Eco admits that meta-abduction can be a “frightening matter” that produces philosophic “vertigo” associated with a change in world view (“Horns” 219). Eco explains that the reasoner guesses about the “nature of the result (its cause)” and about “the nature of the encyclopedia of knowledge” as well (“Horns” 207). Not only must the facts and signs be questioned and assimilated to determine a pattern, but the universe of experience and common knowledge must also be questioned. Peirce addresses such insecurity of meta-abduction by insisting on a second level of inquiry that tests the hypothesis through inductive reasoning. These questions, when answered affirmatively, may not quell the vertigo of a paradigm shift, but instead, force the reasoner to reinterpret the present, reevaluate the past, and rethink the future.

The construction of busts from casts illustrates the category of abductive inferences identified as meta-abduction in its most simplistic form (Eco, “Horns” 217). Meta-abductive inferences require a link between the first inference and the universe of knowledge (Eco, “Horns” 207). Simply, meta-abduction reveals abduction based on abduction. The cast made from the physical body, a physical manifestation of overcoded abductive enterprise, establishes a link between the person’s face and the

bust produced. Examination of the exterior of the cast would likely reveal the identity of the mask's subject—an overcoded abduction. An examination of the interior of the mask would probably not produce for the viewer a perception of its subject's face. A meta-abductive link such as pressing the cast into clay to leave a representation of the interior of the mask exemplifies meta-abduction of the creative sort. It also shows the void as productive space. Death masks (molds of a person's face after death) or life masks (molds made while the person still lives which artists later use to cast likenesses of the person) illustrate meta-abduction. Life masks made of Abraham Lincoln before and during the Civil War reveal the rapid aging process he underwent during the war years. (See Fig. 2.1). The change in his countenance caused some viewers to use a best guess to infer that artists took the second mask after Lincoln's death. However, those who knew first hand of the masks' dates inferred that the stressful challenges Lincoln faced sped the aging process.²

The inferences made about the casts' date of origin exemplify undercoded abductions, which issue from a general frame of reference based on common knowledge. Humans make abductions daily because they allow immediate decisions or

² One of the myths surrounding Lincoln is that a death mask was made after his assassination. Actually, sculptor Leonard Volk created the first life mask of Lincoln in 1860, several months before Lincoln was elected President. Volk produced several busts and statues from the life mask of Lincoln made in his studio. Clark Mills completed the second life mask of Lincoln in February 1865 in Washington, D.C. The image shows mask copies on temporary display in Springfield, Illinois. The digital images can be found online at <http://showcase.netins.net/web/creative/lincoln/art/volkbust.htm> and <http://showcase.netins.net/web/creative/lincoln/resource/masks.htm>.

“betting on the final result” with “the courage of challenging without further tests the basic fallibilism that governs human knowledge” (“Horns” 220). Eco further describes creative abduction as including scientific breakthroughs resulting in paradigm shifts and discoveries that challenge the reasoner’s “encyclopedia” or sphere of experience (“Horns” 207). Meta-abduction enables revolutionary discoveries that change paradigms and world views.



Fig. 2.1. Left: Volk mask and hands of 1860; right: Mills mask of 1865. Digital image copyright 2002 by Abraham Lincoln Online.

Medieval scholars relied on meta-abduction for the development of new knowledge. They could not conceive the universe as simply empty space; instead, they recognized the cosmos as a complex system of information and the source of feelings, insights, and conjectures presage abductive inquiry. To illustrate, Galileo claimed that a “feeling” along with observation, common sense, and conjecture formed the basis of his physics, which re-conceptualized the universe and laid the foundation of modern science. Later, Peirce recognizes that “feeling” as abductive inference. He sees the abductive suggestion as coming “like a flash” as an “act of insight” that allows assimilation of different, seemingly unrelated, elements of experience to converge in

ways never before imagined to form a new idea (“Lecture Seven” 242). Galileo emphasized the importance of understanding the signs written in the universe and comprehending the language spoken to the observer. With his meta-abductive inquiry into the vast text of the universe, Galileo forged a new path for science, generated new knowledge, and changed the world view, the *Weltanschauung*.

In an interesting synthesis, Eco argues that abduction can be clarified by considering “universes as if they were texts and texts as if they were universes,” a notion derived from medieval thought (“Horns” 205). A text need not exist in physical form to survive, for the physical format does not bind its identity. For example, Socrates survives through his representation in the writings of Aristophanes, Xenophon, and Plato. Aristotle endures through his lectures which students transcribed from their notes. Scholars reconstruct their lives and works from fragments by making meta-abductive leaps based on overcoded abductions. Other figures from ancient times, notably Confucius and Jesus left no physical written artifacts. Even so, they exist as cultural figures because of meta-abduction supported by what others wrote about them or hearsay accounts of their works. Subordinate social subcultures, especially women, left few first hand artifacts. In spite of the women’s absence from the majority of historical artifacts and documents, their presence as social factors can be confirmed by a few poem fragments, references in works written by and about others, and tomb epitaphs. The reconstruction of the lives of two such figures (Hypatia of Alexandria and Socrates’ teacher Diotima) reveals their significant influence in mathematics, philosophy, and

politics in spite of the absence of physical artifacts and shows presence recognized from absence. The meta-abduction enabled researchers to rebuild and interpret the history of the figures' lives from an apparent void that generates new knowledge by explaining paradoxes of discovery.

Peirce acknowledges the medieval conception of the universe and defines it as *Firstness*, “the being of positive qualitative possibility” (CP 1.24). He determines that new knowledge frequently comes as an insight or a surprise, ostensibly from out of nowhere, but always through abduction. Peirce describes insight as a “sudden rupture of the consciousness” (“Lecture Two” 147). The “nowhere” or the “rupture” from which the insight springs into actuality is the seemingly chaotic universe of the possible (Feibleman 184, 187). When possibilities or “random percepts” come together, *Secondness*, or actuality, results. Peirce’s notion of *Firstness* shows that what is commonly conceived as a void is in reality a productive, information-laden infinity; those ideas which remain undetermined consist as “mere potential being, a being *in futuro* which is yet not utter nothingness” (CP 1.218). From this fully constituted infinity of information, abductive reasoning extracts new knowledge.

In creative abduction and meta-abduction, reasoners reconsider what they previously saw as a void and realize that in the void begins a productive and complex system that fosters matrices of associations. From that complex yet productive system come innovative possibilities that challenge conventional paradigms. Katherine Hayles describes this system as “chaos” an “orderly disorder” that frequently belies a complex

system “rich in information” (“Complex” 5-6). Chaos theory centers on the realization that orderly structures of information hide within unpredictable, chaotic systems (“Complex” 6). Traditional linear methods of study, deduction and induction, leave these structures inaccessible. Rather than the systematic approach to drawing logical conclusions which methodically extend the sphere of certainty of deductive reasoning or the organized collecting and evaluating instances of inductive argument, abductive thought studies the random data [as Peirce says the “haphazard specimen” (*CP* 6.525)] and formulates a strategy to explain them. The isolated components, the unpredictability of spiraling multi-linear processes, the spontaneous insight, or as Peirce says, “the singular percepts” that converge as aspects of a “collective singular” exemplify the notion of abduction whereby new elements of thought appear (“Lecture Six” 239). Chaos theory,³ in fact, relates directly to abductive thought as its precursor Peirce kernels its conception in his semiotic as *Firstness*. Hayles characterizes chaos theory as forging together isolated, yet mutually fortifying, events that present “an emergent awareness of the constructive roles that disorder, nonlinearity, and noise play” in larger,

³Complexity theorist Russ Marion in *The Edge of Organization: Chaos and Complexity Theories of Formal Social Systems* asserts that complex systems exist at the edge of chaos “are simultaneously stable and Chaotic [sic], unchanging and changing, able to store information reliably yet process it dynamically” (27). In *Complexity: The Emerging Science at the Edge of Order and Chaos*, Mitchell M. Waldrop explains the simultaneous stability and fluidity of complex systems, such as the human brain and computers in information processing, as “a great many independent agents are interacting with each other in a great many ways. . . . [T]he very richness of these interactions allows the system as a whole to undergo *spontaneous self-organization*” (11).

complex systems that prove not disorderly but “rich in information” (“Complex” 5-6). Intuitive feelings and subliminal awareness create a context in which new knowledge evolves. Hayles explains that “chaotics celebrates unpredictability seeing it as a source of new information” (“Complex” 7). Likewise, Peirce argues that “instinct” or “common sense and *il lume naturale*” (qtd. in Buchler 376-77, 316) provide the bedrock for the development of new ideas which include all great strides in scientific thought from apparently random bits of information. Thus, the chaos theory of complex systems codifies the abductive faculty. Both Hayles and Peirce agree that a hypothesis derived from chaos theory or through abduction must undergo verification by experimental inquiry to measure the hypothesis against fact (“Complex” 7, “Lecture Six” 239).

The technological revolution finds its roots in abductive thought. Interest in computer technology evolved from silicon chips to information processing and storage to communication and the construction of virtual societies. The development of the computer as a writing technology shifted paradigms concerning information in ways not seen since the development of the printing press. Word processors facilitate and replace, for many users, writing by hand and the need for hard copies. The introduction of Hyper Text Markup Language (HTML), the Internet, and the World Wide Web (WWW) to the public changed the rhetorical position of the writer and reader, ended the reign of logocentricism, and brought into question the ontology of the text itself. Other uses of digital text such as object oriented multi-user domains (MOO), chat rooms, and virtual

reality games have made the term *cyberspace* a part of everyday life and signal a cultural paradigm shift toward that of a cyberculture. Each wave of change and innovation required thinkers to draw from experience, conjecture, and spontaneous insight to form hypotheses about the possible use of electronic media, the re-interpretation of computer-mediated communication, and the extension of the ever-evolving virtual world. These abductive enterprises resulted in the evolution of the computer as a storage system to computers as a major trope that defines the beginning of the twenty-first century.

Unlike traditional documents fixed on paper, a digital text, or hypertext, maintains fluidity that gives the writer flexibility in invention, arrangement, style, memory, and delivery. While linear, mostly sequential, writing distinguishes print-based publications, nonlinear or spiraling multi-linear writing characterizes hypertext presentations. Hypertext releases the writer from many of the limits imposed by traditional text by embracing the use of hypermedia. Hypermedia, including graphics, sound, and video, gives the rhetor infinite choices in methods of affecting audiences; however, the audience also acquires the power of decision-making concerning the multi-linear text. Transferring a share of the control over arrangement alters the relationships between writer and reader, writer and text, and reader and text. The audience's context rises in significance as hyperlinks to other digital texts, graphics, or audio and video clips (all signs) interrupt the traditional narrative flow and privilege interactivity. Hyperlinks offer readers not simply intertextual choices of additional texts,

but also intermodal choices including images, video animations, or audio clips that encourage active participation and interpretation. Michael Heim notes that the hypertext mutates the “contemplative character” of traditional reading that follows a protracted linear sequence of text into an “active sampling of multiple media” (*Electric* xv). Heim sees the audience as capable of “nonlinear temporal jumps and leaps into multiple sensory media” (*Electric* xv). These nonlinear temporal jumps mimic the process of abductive inquiry when the reasoner discovers new knowledge by connecting apparently random percepts. Through abductive inquiry the audience participates not only in inventing and arranging the text but also in its style and delivery. The hypertext’s liquid properties promise a unique reading among the galaxy of possibilities for each audience that traverses its “structure of possible structures” (Bolter, *Writing* 158). Critics argue that the links limit interpretation by suggesting choices that privilege the author’s point of view or preferred sequence. Some hypertexts fail to provide a method to defy authorial arrangement as a reader does by referring to an index, thumbing through pages, or reading the last page first. However, the audience retains the freedom to interpret the text while following or ignoring the links, and it gains the freedom to interpret the rhetorical strategies suggested by the links.

The audience also gains the freedom to open multiple hypertext documents simultaneously, which Lance Strate contends, effectively brings “the book, the bookshelf, bookcase, and library” to the audience (273-74). Hypertext transforms the concept of text from an object the reader holds into an environment to inhabit or an

ecology to explore. The semiotic structure produces an environment (stipulated here as a semioscape) of links and intersections of hypermedia (words, pictures and sounds that incorporate hyperlinks to other pieces of the work itself or to other works on the Internet) that promise a multidimensional environmental experience that produces a new convincing argument in influencing the audience.

Design and visual rhetoric play an increasingly important role in making an effective argument by illuminating the digital text in a new way. Images in the digital virtuality offer opportunities for interpretation by the originator and the audience. Innovations in text required innovations in method of distribution. The development and increased access to the Internet allow the digital files to be accessed by multiple users at geographically diverse locations which brings the ontology of the digital files into question.

Software innovators created interfaces to span the voids among digital files, computers, and their users. The term *interface* at first referred only to the hardware that connected electronic circuits, then to the programs that controlled the computer's operations. Soon, popular enthusiasm about the system and curiosity about its range encouraged the creation of methods to process and to utilize the information easily. The introduction of the first graphics capable browser (Mosaic, an interface designed by the Center for Supercomputing at the University of Illinois in 1993) escalated the Internet's allure (Heim, *Electric* xviii). Programmers saw the potential uses and marketability of software systems to facilitate access to information. The Internet provides a

technological infrastructure, an infinite digital network, which avails the user of hypermedial files (all signs) that manifest virtual worlds bound together by shared interests and give it the presence of an environment more than that of a tool. In fact, the semioscape creates a context that promotes infinite interpretation and redefinition of virtual space.

Michael Heim defines virtual space as related to cyberspace as “not-quite-actual space, something existing in contrast with the real hardware space but operating as though it were real space” (*Metaphysics* 132). Heim’s definition relies on Peirce’s 1902 definition of *virtual* as “a virtual X (where X is a common noun) is something, not an X, which has the efficiency (virtus) of an X” (CP 6.372). The “efficiency” or “virtus” indicates the distinctive qualities inherent in a thing or person, yet as Peirce defines the virtual, it exists as a separate entity from the original. The virtual world of cyberspace generally refers to extensive digital networks, computer memories, interactive multimodal interfaces that make the knowledge, ideas, and works of others available to human beings (HuBs) via computer mediation.

Interfaces that facilitate the manipulation and access of digital texts provide the physical connection and the channel of communication among the computer, its user, and the semioscape of cyberspace. William Gibson’s *Neuromancer* defines cyberspace as a “consensual hallucination” in which its users physically connect their brains to the computer (51). More realistically for the present time, cyberspace pertains to the extendable electronic network of computers in which interaction creates space and from

which virtual realities emanate. It includes the complex system of information made available via computers by an amorphous body of composers. Information exchange among computers linked into the system creates a digital infrastructure that constantly processes information. Computer software interprets, processes, and transmogrifies text, graphic, and audio files into a digital format (signs) rendering them ontologically uncertain. Though the digital format (signs) exists as coded files on magnetic disk, it does not maintain a representational resemblance to any object. Software interfaces enable the computer user to access the digital files. These interfaces draw on familiar metaphors to enable transition and acceptance of computer technology; furniture, book, and architectural metaphors facilitate understanding of the computer desktop, web pages, and cyberspace itself.

Hyperlinks to other hypertexts require the audience to make decisions and engage the audience in the abductive enterprise of creating the text as it is being read. When the audience invokes a digital sign's Universal Locator Code (URL) the computer network locates the data and manifests it via the interface at the physical site occupied by the human being (stipulated here as the HuB). Unlimited HuBs access the same address simultaneously, and the digital signs manifest themselves as semiotic objects on computer monitors around the globe. As long as the computer originating the digital file remains online and intact, the signs can be beckoned endlessly.⁴ Theorist

⁴ If the composing agent removes or revises the file it can no longer be retrieved. Virtual files manifested may not be available a nanosecond later.

Chris Chesner asserts that “[u]sing a computer on the Internet demonstrates the *aspatial* nature of cyberspace (“Ontology of Digital” 83). The process requires no physical movement of the digital files and no spatial clues as to the physical location of the computers storing or summoning them.

Pioneers in cyberspace applied older, single dimensional concepts of writing space to the new metaphysical communication media when labeling it a “superhighway” or an “information pipeline.” Perceptively, Chesner argues that *space* plays an insignificant role in the actualization of cyberspace (“Ontology of Digital” 80). He recognizes in computer technology the capability of instantly accessing and processing available digitalized signs on any computer connected to the Internet, nullifying the relevancy of their spatial locations (“Ontology of Digital” 83). Chesner contends that “[s]pace in the physical world becomes time in the ontology of the digital domain” (“Ontology of Digital” 85). *When* eclipses *where* in cyberspace, for the experience concerns time more than space.

Interestingly, in “Six Modes of Peircean Abduction,” Gary Shank and Donald Cunningham explain that utilizing metaphor or analogy to generate a “conceptual frame of reference” for new hypotheses and spheres of insight characterizes abduction. Metaphor enables the creation of fresh meanings and relies on the abductive powers of the audience for their revelation. Shank and Cunningham explain that the semiotic process manipulates prior experience to shift one’s “metaphorical base” in order to

encompass the new conceptual data. Metaphors motivate an audience's native sense of ambiguity, an undercoded abductive process, to relocate a concept's parameters. Such an abductive shift led developers of computer technology, early computer theorists, hypertext writers, and programmers to apply familiar spatial and architectural metaphors to the emerging virtual scene of information technology. Some theorists assert that such an architecture lacks a foundation. In "‘Space,’ ‘Being,’ and Other Fictions in the Domain of the Virtual," Frances Dyson, diametrically opposed, contends that spatial and architectural organizing metaphors are integral and legitimizing elements in cyberspace that perform an ontological function rather than an epistemological one (38). The power of cyberspace, according to Dyson, rests in the possibilities it presents: "immersion, habitation, ‘being-there,’ phenomenal plentitude, unmediated presence" (28). She asserts the spatial metaphors enable a "concept of presence within an environment" (29). The idea that cyberspace could be inhabitable defies logic for many HuBs; fortunately, the perception of those participating in the semioscape verifies that a sense of presence, or telepresence, in the virtual world occurs. While no face-to-face communication transpires, the Internet enables synchronous interaction among users while eliminating geographic or temporal restrictions.

Abstract communities form that not only supplement face-to-face communication but that also constitute their own self-contained, self-referential realities. Dialectic develops the social, vocational, and avocational aggregates in cyberspace and creates in the HuB a sense of co-presence within in the virtual world.

The HuBs remain physically at the computer, but once they adapt to the semiotic virtual world, they develop the sense of occupying the conceptual space as a virtual persona (stipulated here as a ViP). In semioscapes such as MOOs, novice HuBs frequently feel intimidated and disoriented with the unfamiliar technology and the profusion of text. The spatial and architectural metaphors, descriptions, and objects for manipulation provide an ambiance and help to reorient them by providing a sense of physical space.

Before virtual semioscapes, Peirce adopted the view that space merely differentiates objects from one another. Since no two objects can be alike in all respects, space provides demarcation for two entities, otherwise alike, to differ (*CP* 1.501). Accepting Peirce's view, the effect of spatial metaphors applied to cyberspace remains neutral. Conceptualizing the aspatial environment spatially may impose some artificial limits on interpretations or evoke a presumption of stasis, but the spatial metaphors provide familiarity and stability in an environment that can produce vertigo in new users. As a controlling metaphor, the concept of "being in" virtual space engenders a sense of presence, facilitates discourse about cyberspace's inhabitation, and provides a bridge for the abductive leap from the confines of physical space to the infinite possibilities of semioscapes in virtual space.

Virtual space, in contrast to physical space and in consideration of Peirce's view of space as a differentiating concept, accommodates the informational equivalent of physical objects and ideas. In fact, information constitutes the virtual environment. Information itself exists as a virtual phenomenon that does not exist as matter or energy.

Peirce's category *Firstness*, "qualitative possibility," encompasses the virtual or that which has yet to be actualized. Information that comprises virtual space remains distinct in that it actualizes abstract worlds based on intellectual activity and fosters its own creative extension from endless possibilities.

Abduction explains the capacity to create new knowledge in a way similar to the creation of cyberspace. From the chaotic universe of knowledge, abductive inference connects the random pieces of data to understand phenomena in new ways. Abduction in cyberspace connects the random pieces of knowledge to create the phenomenon itself. Cyberspace's manifestation plunges the computer user, the human being (HuB), into the virtual world; it induces imaginative interpretation, involvement, and extension. Abductive thought allows the HuB to invent and extend the virtual environment. Each new transaction modifies the semioscape, and the virtual world takes form that is paradoxically evanescent and durable. The HuB reaches into experiences to create and to define the environment. Activity in cyberspace leaves behind a set of digital structures, paths, directional signs or networks of pointers, which become its URL, the protocol for its future access from any other point. Michael Benedikt views cyberspace as an entity that exceeds the sum of its parts. He sees the computers, circuits, and software diminished by the human component involved in cyberspace on the phenomenological level. Benedikt asserts that cyberspace evolved into "a place and a mode of being" (18). Engagement in cyberspace prompts the HuB to recognize its new ontological status and to perceive itself as a component of the virtual environment.

The HuB actively reconfigures itself as a virtual persona (ViP), disguising or amplifying attributes such as ethnicity, economics, or gender. Sherry Turkle asserts that the process of reconfiguration involves self-exploration, refining the sense of self as participants “play who they are or who they want to be or who they don’t want to be” (Foreward xi). The ViPs inhabiting cyberspace develop qualities that pertain to their non-embodiment; they adopt mannerisms, idiolects, ways of signifying that project a particular rhetorical stance. Green reifies these ViPs as “digital bodies” demonstrating “multiple interpretations of relational signs” which undergo continuous negotiation through interaction with other “digital bodies in digital spaces” (70). These “digital bodies,” or ViPs, develop as semiotic entities in a separate but simultaneous social and cultural world from the originating HuB. The HuB develops a sense of presence in the virtual space and adopts the point of view of that virtual persona (ViP). ViPs interact with each other, transact business, and engage in commercial activities that have consequences and produce results outside of the semioscape. Transactions taking place in the virtual world are no less real than interactions that transpire in the physical world. The HuB could sign a check in a physical office and simultaneously give an electronic signature on a financial transaction in the virtual world. Both transactions are equally valid; one is not a degenerative form of the other. Cyberspace technologies become the “ultimate mind machines and encourage a social communion limited only by the extent of people’s imaginative powers without reference to their physical location in time, space, and the social and cultural relations” (Chesner, “Ontology of Digital” 81). ViPs

participating in virtual communities and virtual campuses forge bonds not because of geographical proximity but because of mutual interests and affinity.

In “What Space Is Cyberspace” Mark Nunes notes the simulated space evokes a feeling of simultaneous presence and absence: “I am gone and here at the same time. I am present and absent, distant and near” (171). The ViP collapses the boundary between the HuB and the computer and immerses itself in the environment, forging relationships and creating the semioscape. Mutual presence with other virtual personas reifies the sense of telepresence. The virtuality of the experience validates the absence, but discourse and perception corroborate the presence.

The perception of simultaneous presence and absence becomes particularly evident in the virtual world of an object oriented multi-user domain (MOO). Extensive databases such as MOOs simulate an environment that allows participants to occupy, create, and extend a virtual world. These virtual worlds emerge as technological landscapes of meaning (semioscapes) from collaborative and collective activity by geographically dispersed individuals and groups who create a living context based on shared objectives. The semioscape of a MOO is oxymoronic. The digital environment remains effectively absent, out of reach, but it continues to be available for invocation by users who might be absent from it for extended periods but whose return to the semioscape’s areas of experience elicits a sense of familiarity, orientation, and, even, sentiment. Yi-Fu Tuan explains in *Space and Place: The Perspective of Experience* the notions of “space” and “place” differ from each other in level of abstraction yet require

each other for definition. He postulates that “What begins as undifferentiated space becomes place as we get to know it better and endow it with value” (6). He explains that “space” suggests movement, while “place” indicates pause, with each pause in movement potentially transforming “space” into “place” (6). Frequent MOO users understand the virtual environment as a place to return and to interact with other users. They stake out their spaces and customize them according to the perspectives they wish to portray. Such attempts lay claim to a piece of cyberspace actually expands it by adding to the network of hypertexts. These experiences in MOOs facilitate the merger of cyberspace into identifiable cyberplaces that become familiar and acquire value.

The ability to create the inhabited space and progressive customization enable the development of ontological security which strengthens a sense of presence and location in the perceptual environment. Participants describe their experiences as “being in” the MOO and joining others who arrive at the same digital address. In “Beyond Being Digital,” Nicola Green contends that “[T]he physicality of human bodies is effaced, people are ‘disembodied’ by an infinitely mutable play of digital signs and codes which represent a subjective consciousness prised from its necessary location in an organic body” (61). The subjective consciousness, the ViP, while not independent of the HuB, exerts itself separately and requires interpretation separate from the HuB. It also requires interpretation as a separate and unique ontological substance.

This particular ontology fits awkwardly at best into Peirce’s categories. The ViP exists as more than a sensation, an appearance, or a possibility that characterizes

Firstness. The ability to interact and to participate in the evolution of the virtual world through its activity denies its mere *Firstness*. *Secondness*, described as brute fact or two firsts in relation to each other, falls short in accounting for the multiple realities that converge in computer-mediated cyberspace. The brute *Secondness*, that the HuB exists before a computer screen at a physical location, contradicts the feeling or perception that brackets that physical existence and promotes a sense of being elsewhere. The experience of cyberspace exceeds simple action and reaction of *Secondness*; it projects the HuB past geography to a temporal sphere in which geography, biology and physiology have little relevance. For casual computer users a “web-site” exists as a *Firstness*, a potentiality that can be manifested at will, as a Second on the surface of the computer monitor. Manifestation mediated by the computer interface does not relocate the object, the digital file, to the HuB’s physical location. Multiple, dispersed readers can access and read digital documents in cyberspace without interference which refutes Peirce’s claim that a single object cannot occupy multiple spaces at the same time. A new ontological state occurs that configures a simultaneous presence and absence of the digital representation.

Peirce explains the action of the previous upon the subsequent as a degenerate *Secondness*, but the simultaneous immediate defies Peirce’s ontological categories. Neither the brute fact of *Secondness*—the event or experience that Peirce describes as “the consciousness of the action of a new feeling in destroying the old feeling” nor the idea of law or reason in *Thirdness* adequately encompasses virtuality. Peirce insists that

Thirdness, the relation of a *First* and a *Second* brought together to form a continuity, must occur devoid of “a series of leaps from one place to another without passing through any intervening places” (*CP* 1.411). In addition, Peirce determines “if it were at one time in one place and at another time in a dozen, such a disjointed plurality of phenomena would not make up any existing thing” (*CP* 1.411). Virtual semioscapes and ViPs defy these laws. Multiple HuBs at geographically disparate locations invoke web pages that appear simultaneously at multiple sites. Some websites, chatspaces, and MOOs reveal how many other HuBs are simultaneously invoking the location and which ViPs inhabit the space simultaneously. The ViPs’ interactivities and transactions in cyberspace happen all at once on screen at geographically insignificant locations. The virtual space and the ViP violate Peirce’s “law of quality” and “law of fact” (*CP* 1.483). Configuration in the virtual world requires an abductive leap to span the breach in Peirce’s categories toward *Fourthness*, an expansion of Peirce’s theory that explains the simultaneous presence and absence perceived in the virtual world by virtual entities (see Fig. 2.2).

Fourthness exists as a simultaneous presence and absence—present in the physical location while simultaneously present at the digital address. *Fourthness* encompasses computer-mediated virtual entities capable of invocation at multiple locations without duplicating or moving the original digital file. Virtual personas acting and interacting in the virtual environment also illustrate *Fourthness*. *Fourthness* also

encompasses dislocated virtual scenes in cyberspace that invoke the perception of presence in non-physical space and the interactions among personas that occur there.

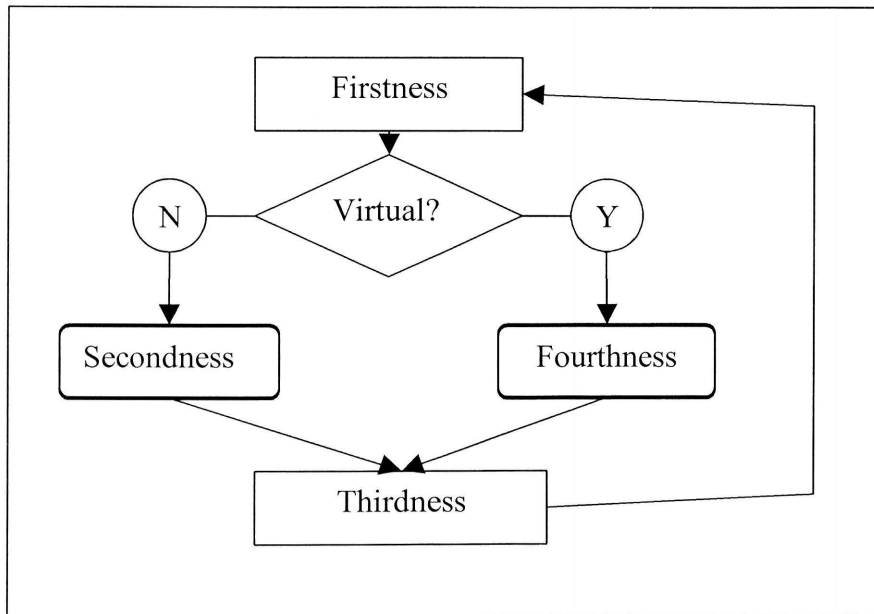


Fig. 2.2. An expanded model of Peirce's phenomenology to include *Fourthness*.

Virtual phenomena fail to meet Peirce's qualifications for *Secondness* and must be classified as *Fourthness*. Upon interpretation, *Fourthness* presupposes *Thirdness*, and the interpretative spiral continues as the *Thirdness* becomes an interpretable element.

All information exists virtually, neither matter nor energy, but information perceived as disembodied identity belongs in the new category also. The new category *Fourthness* also describes the perception of being transported to a separate location unrelated to space. Like Peirce's *Firstness* and *Secondness*, *Fourthness*, simultaneous presence and absence in the virtual world, acquires *Thirdness* upon interpretation and

immediately becomes a sign to continue the semiotic process of infinite interpretation.

Just as scholars recreated the personas of Hypatia and Diotima, Aristotle and Jesus through the abductive process of looking back from clues and filling a void, cyberspace and the ViPs that inhabit it reveal the effect of abductive thought applied toward the future. Webbing from the present toward the future creates the ViP and its surroundings. The rhetorical strategies that HuBs adopt define the presentation of the ViP. The HuB acts as an interface between the ViP and the environment, makes interpretations, and manifests them through the creation of a semioscape. In “Developing and Concept of Self,” Sue Barnes joins numerous theorists in asserting that “[D]eveloping a rhetorical style is a key element for both presenting a point of view and developing an online identity” (172). Depending on the context of the semioscape, the HuB edits, refines, and truncates identity in reinterpreting itself as the ViP. The semioscape of virtual worlds becomes the instruments of self-definition. The semiotic process opens the virtual world to interpretation through interaction and through its extension.

The creation of the semioscape and the ViP is the product of meta-abductive reasoning. Abduction opens the way toward recognizing the possible, interpreting and knowing it, then entrenching it as axiology. Actually, the abductive process recurs infinitely; the reinterpretation and evolution of knowledge remains possible, if not inevitable. Peirce writes, “If we were to subject this subconscious process to logical analysis we should find that it terminated in what that analysis would represent as an

abductive inference resting on the result of a similar process which a similar logical analysis would represent to be terminated by a similar abductive inference, and so on *ad infinitum*” (“Lecture Seven” 242). The infinitely recursive meta-abductive process supports the concept of the Internet as a multidimensional ecology rather than a linear pipeline or a superhighway. The recursive meta-abductive process multiplies rhetorical choices for writers in influencing their audience and promotes a change in paradigm concerning audience, shifting away from print or published media as a closed form and insinuating the audience prominently into the invention process of open, electronically mediated publications. Storing and retrieving information, computer speed and power play only a supporting role in the communicative acts that cyberspace makes possible. Johnson-Eilola asserts that rhetorical opportunities lie in hypertext, if the audience must actively constructs them in activating the text. He contends that hypertext and hypermedia present “a method for breaking down genres, of socializing and politicizing not only the production and reception of texts, but also the reproduction of meaning in text” (240). Johnson-Eilola propounds the understanding of hypertext not simply as a writing technology but as a *literacy* technology (6). Hypermedia in cyberspace ruptures the constraints of the linear sentence, traditional organizational structures, the print page, and the closure implied by book-binding. The ability to communicate in multi-sensory systems and to create the semiotic environment from that information opens new options for abduction. The distinctions between author and audience, producer and spectator, creator and interpreter merge to form a reading-writing array that extends

from machine and network designers to the ultimate recipient, each helping to sustain the activity of others. The inclusion of hypermedia also offers more choices (more sensory dimensions) that allow audience members to involve themselves actively in the abductive enterprise of creating electronic discourse.

Cyberspace itself invites its users to rethink the medium constantly and to reconsider the signs associated with it. The dynamic nature of cyberspace and hypermedia challenges the typical metaphors that label it a highway to navigate or an informational destination to which the user arrives. The use of hypermedia and the creation of virtual communities surpass the activity that goes on inside the computer and within software and among interfaces. Those who envision the possibilities of virtual technology lead the way in creating a semioscape as a context (or multiple contexts) to accommodate the infinite interpretive moves and redefinitions of virtual space. In addition the capacity to examine, duplicate, or recreate the self in the form of a virtual persona that facilitates the perceived defiance of physical constraints and that extends ontological possibilities validates the value of virtual environments.

CHAPTER 3

TOWARD *FOURTHNESS*: A NECESSARY CONVERGENCE

*Like long echoes that intermingle from afar
In a dark and profound unity,
Vast like the night and like the light,
The perfumes, the colors and the sounds respond.*

Charles Baudelaire, "Correspondences"

Phenomenology, or to use Peirce's term, phaneroscopy, describes and classifies perception, imagination, conceptions, and everything else that seems to be in consciousness (*CP* 1.284). Peirce coined the term *phaneron* to indicate "the collective total of all that is in any way or in any sense present to the mind quite regardless of whether it corresponds to any real thing or not" (*CP* 1.284). Without regard as to the "reality" or "unreality" of his subject matter, he set out to determine universal characteristics possessed by the phaneron.

Peirce argues for only three fundamental modes of phenomena and asserts that "We can directly observe them in elements of whatever is at any time before the mind in any way. They are the being of positive qualitative possibility, the being of actual fact, and the being of law that will govern facts in the future" (*CP* 1.23). Peirce distinguishes the three elemental categories of his phaneron from each other by virtue of their monadic, dyadic, and triadic character respectively. He cites physical action, psychical volition, time, material things, and productions such as dramatic

representations, each occupying a place in the universe and acting as a second in relation to a first, as encompassed by his categories (*CP* 1.433). Peirce also addresses the worlds unknown to him in the late nineteenth century and recognizes that they will take a place among existent things: “for aught we know, there may be another creation with a space and time of its own in which things may exist” (*CP* 1.433). His phaneroscopy establishes a clear ontological framework that enveloped the phenomena known at the end of the nineteenth century, yet he allows a niche for phenomena such as the Internet, virtual worlds, and cyberspace with space and time of their own to append themselves to his characterization of existing things.

In examining the hypermediated texts that construct cyberspace, a clear question arises concerning the virtual signs’ assimilation into the categories Peirce detailed. Peirce defined the *virtual* as “A virtual X (where X is a common noun) is something, not an X, which has the efficiency (*virtus*) of an X (*CP* 5.372).¹ Michael Heim translates Peirce’s definition as “not actually, but just as if” (*Metaphysics* 160). In relation to computer technology, *virtual* implies things or events simulated by the computer, or more accurately, it indicates the results when “the information structure of X is detached from its physical structure” (Skagestad, “Peirce”). Pierre Lévy argues that the virtual resides inherently in all entities as a fundamental component of its determination, a “problematic complex” of energies and propensities (*Becoming* 25). He

¹ *Virtus* translates to character, strength, or power (Levy, *Becoming* 23).

explains that “This problematic complex belongs to the entity in question and even constitutes one of its primary dimensions.” Levy uses an analogy to demonstrate his claim: “The seed’s problem, for example, is the growth of the tree. The seed *is* this problem, even if it is also something more than that. This condition does not signify that the seed *knows* exactly what the shape of the tree will be, [. . .] the seed will have to invent the tree, coproduce it together with the circumstances it encounters” (*Becoming* 24). Lévy asserts that all entities generate and consist of the virtual. Virtualization removes conventional spatial and temporal limitations (*Becoming* 33); or, as Skagestad suggested, the information sans the physical form. Understanding virtuality as a factor intrinsic in all entities figures significantly into an examination of the virtual in relation to Peirce’s phaneroscopy, for he attempts to delineate categories that prove universal in scope (Goudge 81). Because Peirce’s categories fail to encompass virtual signs characterized by simultaneous presence and absence in cyberspace, a fourth category *Fourthness* extends Peirce’s phaneroscopy to include virtual representations.

Virtual signs’ multiplicity and mutability contraindicate their placement in Peirce’s ontological categories. Internet theorists prod at the ontological status of signs in virtual environments with indeterminate and conflicting results. Chesher recognizes the signs’ ephemeral qualities and describes their relationship with cyberspace as “unstable,” noting that signs in the virtual world “do not operate in the same way as the ‘real’ world” (“Ontology” 90). By juxtaposing the “real” and the virtual worlds, Chesher wrongly implies that signs and interaction in virtual environments lack

existence; digital signs manifested in cyberspace exist differently and, in some ways, operate differently from signs in the physical world, but they affect audiences and incite interpretations with equal veracity as any other sign. Rather than lacking existence, the signs' virtuality enables their invocation by multiple users simultaneously. Lévy explains that "virtualization is not a derealization," which would convert a reality into a possibility, but a transformation of identity that shifts the object's ontology (*Becoming* 26). When invoked on the surface of a computer monitor, only a translation or simulation of the sign mediated by software and hardware appears. As a result of the ontological shift, the simulation tenders a means to experience the digital sign located on a remote computer as if it were immediately accessible. The digital sign residing on the server computer remains static—no movement or duplication occurs; however, its virtual representation acquires multiplicity and ephemerality as defining characteristics.

Digital signs used to construct environments for interaction provide the means for conversation, conferencing, and collaborative projects in common virtual space regardless of the physical distance between HuBs. The shared virtual worlds exist on physically remote computers as aggregates of digital signs, yet these digital signs manifest themselves with transformed identity in multiple locations where the HuB can influence the form and content of the mediated environment. Heim calls such environments built from digital signs in cyberspace "infoscapes" or "imagescapes" that allow telepresence "not in a physically distant place but in a physically novel place" (*Virtual* 14). These "novel" places do not replicate the primary physical world; instead,

a virtual world emerges as a contained environment capable of emulating the engagement of the physical world and inciting in the HuB the perception of being a part of, telepresent in, a phenomenal environment other than their primary physical location. This perception of telepresence relies less on a faithful reproduction of a physical or “external reality” as on the development of a context that facilitates communication and cooperation (Mantovani and Riva 5). The ability to modify form and content in real time and to navigate through the environment accomplishing attempted tasks enhances the sensation of “being in” the environment. Synchronous interaction with other telepresent entities in cyberspace confirms the perception of telepresence and evokes the same emotional responses as interaction in the physical world. The medium becomes invisible, and the human perceptual system experiences an ontological state of presence in the simulated virtual environment.

Heim sees digital technologies in virtual environments as transformative. Digital technologies offer not only a method of exchanging signs, but they also stand as a cultural symbol that “cultivates a certain psychic framework” (*Electric* 69). Digitalization interprets, processes, and transmogrifies phenomena to a new and precise form in no way reminiscent of the previous form. The digital phenomenon eludes access in the original mode while surrendering to manipulation, alteration, retrieval, and control only via mediation. Materially, cyberspace (its vast digital networks, databases, computer memories, multimodal signs) exists beyond the user’s reach; it cannot be experienced by touch. Without mediation, the physical location containing the server

computer that houses the microchips and stores the digital text, image, and sound files reveals no physical evidence of the virtual semioscape or objects manipulated there. The computer hardware and software (the browser or the client or the telnet application) acts as an intermediary interpreting the digital code and articulating (recoding) it virtually for further interpretation by the computer user. This mechanical articulation of the semiotic system invites the production of texts that again reinterpret and re-articulate the simulated (non-physical) space.

When computer mediated, digital signs become one aspect of the utterly controlled environment of cyberspace. Heim contends that “[T]he digits on which we count the world we experience come, through electronic amplification, to be the world we experience” (*Electric* 85). When invoked on the surface of the computer screen, the signs’ virtual representations form the environment, the discourse, and the entities that inhabit the deterritorialized space. Heim characterizes cyberspace as “unnatural in the extreme” and a “purely human artifact” that requires the human to merge with computerized entities (*Metaphysics* 63). The virtual environment of cyberspace assumes temporal simultaneity with the corporeal world, and it invites the HuB to enter into it. Heim recognizes that “the mind apprehends reality in the life of symbols” in virtual environments (*Electric* 113). While the HuB must remain on the exterior of the system sustaining the digital signs, the ViP actively engages in life behind the screen, interacts with other ViPs and, in its wake, creates the space it inhabits. Although humans

implement and engage the computer-mediated environment, a transformative, transhuman structure extends the HuB beyond the traditional concept of humanity.

Activity with and in the virtual environment animates a virtual persona (ViP) and enables an embodied experience in cyberspace. Marcos Novak argues that users “must be reduced to bits, represented in the system, and in the process become information anew” (181). Bolter and Richard Grusin describe the virtualization of the HuB as the “hypermediated or networked self” that makes itself apparent in cyberspace and characterize it as capable of leading “simultaneous lives” in virtual reality and in primary physical reality (232-33). Construction of virtual personas, nonetheless, allows the HuB to detail as much or as little about their identities with as much or as little veracity as they desire. Composing HuBs who feel unsure about or uncomfortable with their self-concepts, who wish to express themselves creatively, or who desire to experiment with aesthetic, social, or political postures can revise themselves by creating a system of signs to construct a virtual persona for presentation in the designed virtual environment.

Stories of ViPs presented as disabled women or teenage boys which prove to be neither disabled, teenaged, nor the portrayed gender in primary physical reality saturate Internet lore. Erickson explains that these semiotic portrayals create a “social logic,” identifying the ViP with points of view demarcated as hyperlinks to other websites or memberships in virtual communities that might have negligible correspondence to the HuB or its primary physical reality (1). Physical bodies at irrelevant geographical

locations remain the motivating force behind the input device providing the connection among the virtual persona, the virtual environment, and the computer hardware. This motivating force uses digital signs, words, or images to create a personality construct or persona which signifies an online existence. HuBs recompose themselves as transmittable signs to achieve communication. Even though Peter Codognet mistakenly views such recomposition of the self as “mutilated and disintegrated into conventional signs,” the process is as generative rather than degenerative. The resulting signs may be understood by considering the process of meiosis in the development of a new cell. The number of chromosomes in gamete-producing cells reduces to one half and a reduction division occurs in which one of each pair of homologous chromosomes passes to each daughter cell during a mitotic division. When mitosis completes, two new nuclei have formed, each of which inhabits a separate cell, and the initial reduction through meiosis ultimately results in the production of new cells. Just as the chromosomes experience disintegration in the process of forming a new entity, the “disintegrated” individual develops into a separate entity. The virtual signs no longer represent the individual; instead, they signify an entity occupying a distinct space separate from the computer user.

The HuB actively reconfigures itself as a ViP which occupies verbal and visual points of view through textual and graphic manifestations. The process may include amplifying attributes such as ethnicity or gender. Sherry Turkle explains that the process involves self-exploration that refines the sense of self as they “play who they

are or who they want to be or who they don't want to be" (Forward xi). In "Beyond Being Digital," Nicola Green sees these virtual personas as "digital bodies" that demonstrate "multiple interpretations of relational signs" which undergo continuous negotiation through interaction with other "digital bodies in digital spaces" (70). These "digital bodies" as semiotic constructs (represented as virtual entities) develop in a separate but simultaneous social and cultural world with a different ontology from the originating HuB.

Green sees HuBs who interact in virtual environments as "rendered digital" and mediated by contradictory signs, both concrete and virtual (73). She identifies a contradiction in the virtual and corporeal (to which the digital belongs). A correspondence between, not the corporeal, but the actual and the virtual reveals the production of new qualities, an intercorporeality that suggests more than the sum of digital files in cyberspace. Heim approaches the correspondence and identifies it as a simulated "corporeal immediacy" within the virtual environment, or more esoterically, "the spirit migrates from the body to a world of total representation" (*Erotic* 100-01). Interaction with other telepresent entities validates the HuB's perception of existence in the virtual spaces. The distances among the HuBs' physical locations close as the metaphorical world becomes one of co-presence with other ViPs. As a result, interaction in hypermediated reality confers on the HuB a sense of presence within cyberspace; at the same time, the HuB remains outside of the virtual world, firmly grounded in the primary physical environment.

To gain entrance in the virtual world, a semiotic act of creative abduction, which reconstitutes the physical body in a transformation of subjective experience to a virtual sign, must occur. Peirce recognizes such activity as the result of a state of “musement”—the liberated and playful exercise of cognitive power in search of connections among the universes of ideas, of actuality and of signs (*CP* 6.455). From the state of musement, the HuB constructs a virtual persona (ViP) from collections and syntheses of distinctive signs that reveal postures and points of view (Wiley 36) in order to secure a cognitive connection between the virtual environment and the physical environment. The ViP constitutes a separate subjectivity and serves as a “positional marker” or proxy within the virtual space for the absent physiological body (Hayles, *How* 8). The HuB, according to Heim, transforms into a resource, a collection of cognitive tools and raw material, vital to the information system (*Electric* 200). The HuB is not left behind; the physical and virtual entities simultaneously and mutually enact their relationship.

Theorists of the Internet and virtual realities contend that an ontological shift also occurs. Heim argues that the shift transpires, not in the scientific realm of “managing atoms,” but in the psychical framework of “managing symbols” (*Metaphysics* 45). According to Heim, physical or “primary reality never consisted of atoms but always included the felt awareness of ourselves as bodily energies” (*Metaphysics* 47). This “felt awareness” does not, as Heim proposes, “obscure the gap between primary and virtual realities” (*Metaphysics* 47); instead (as abduction derives

from the gap), the intersection of the two realities allows a pragmatic occupation of a separate, yet simultaneous, computer-mediated reality. The power to envision the self as occupying the non-physical, digitally produced and computer mediated environment results as a product of the ontological shift.

The phaneroscopy Peirce detailed does not allow for signs simulated in virtual reality with multiple and simultaneous presences and ontologies. Peirce qualifies and delineates the extent of the three categories he denominates: *Firstness*, *Secondness*, and *Thirdness*. Peirce represents *Firstness* as designating the sheer qualitative, abstract possibilities, which may or may not be actualized, but which exist independently of embodiment. *Firstness*, the chaotic, information rich void from which new knowledge arises through abductive inference, includes a limitless variety of possibilities of qualities or experiences. The qualities depend neither on the physical or temporal stratum. The abstract and chaotic body of potentiality, including all things and ideas that ever might be thought, describes *Firstness*. When perceived by means of external manifestations or considered discursively, *Firstness* immediately presupposes *Secondness* or *Thirdness*.

Secondness consists of embodied qualities of *Firstness* in actually existing objects or experiences. Peirce claims that “brute action,” “active resistance,” and “brute fact” without interpretation or mental action describe *Secondness*. He reasons that “After I have determined how and when I will exert my strength, the mere action itself is in itself brute and unreasoning” (CP 1.432). The action itself, separated from motive

or rationale and all context, illustrates *Secondness*. On the other hand, *Thirdness* requires interpretative thought that includes motive and rationale and establishes a relation between a first and a second, or places *Firstness* and *Secondness* within a context.

The tendency of conditions to convene in a predictable manner and the supposition that continuity exists within a social code allowing assimilation incites interpretation, or *Thirdness*. *Thirdness* necessitates the existence of *Secondness* although no temporal succession exists in Peirce's terminology, for the interdependent categories present themselves simultaneously to the mind. While *Thirdness* results in an interpretation of the percept held within the continuity of the mental processes, *Firstness* and *Secondness* exist without interpretation. Cognizance of *Firstness* outside of itself necessitates *Secondness* and moves to *Thirdness* when interpretive thought makes a determination.

Because virtuality exists as a quality within the realm possibility and because virtual objects reside in the mind as an idea, the characteristic *virtuality* exists as a *Firstness*. An embodied object that includes the characteristic *virtuality* seems to acquire *Secondness*. However, Peirce limits *Secondness* to "the individual thing as a fact" and to "the field of individual things as either existence or actuality" (Feibleman 160). He further qualifies *Secondness* as requiring "that everything in the field of actuality shall be individual" (Feibleman 162). Bracketing the detail that the virtual differs inherently from the actual, virtual objects defy Peirce's description of "existent

things.” Peirce characterizes “existent things” as having consistent behavior, regular attractions and repulsions, constant mass, and continuous motion rather than a “series of leaps from one place to another without passing through any intervening places.” He also insists that an existent thing occupy a single space (*CP* 1.411). The virtual, however, occupies multiple spaces. The sign manifested as a digital file occupies space on a server machine, but its invocation occurs at many sites simultaneously. The fluidity of cyberspace allows, and in some cases requires, the ViP to teleport among computer networks and virtual spaces. Peirce notes that an existent or actual entity or event must also have “particular reference to time and space: the date and place of an occurrence is characteristic of a fact” (*CP* 1.428). Interactions among virtual personas in cyberspace, in MOOs or chatrooms for example, have no specific location, but multiple locations simultaneously. Johnson-Eilola explains that in cyberspace, no fixed ‘there’ exists: “electronic text is never able to be completely located in physical space because it is simultaneously located in phosphor images on the computer screen; magnetic configurations of volatile, silicon computer memory, more permanent floppy, hard, and/or optical disk storage; and sometimes electrical impulses in phone lines” (148). In “The Ontology of the Invocational Interval,” Chesher agrees and emphasizes that streaming stock prices, instant messaging, e-mail arriving, and web pages loading “create an impression of an event that is occurring simultaneously in two places.” These transactions, in fact, do transpire in multiple locations with “disjointed plurality” in

defiance of Peirce's stipulation for stability in location for all existing things and actual events.

When asked where a virtual interaction occurred, the choices available to the participants reveal the ontological dissonance of the virtual space. The HuBs could answer with disparate physical locations where they individually invoked the virtual space onto the surface of a computer screen. According to Peirce, a fact or an actual event, must have specific time and place, "a here and now," and cannot occur in multiple locations simultaneously (*CP* 1.435). His categories, therefore, require extension to include the virtual semioscapes, their inhabitants, and the interaction that transpires there.

Deterritorialized virtual entities escape the "here" and make moot the "now." To answer that the interaction occurred at a virtual address, AlaMOO² at <http://ranger.accd.edu:7000>, for example, contradicts Peirce's explanation of a fact or an existent thing. The digital files (hypertexts) that comprise the virtual environment reside on a computer at a geographic location distant from their multiple users and in a form unavailable to unmediated human sensory perception. Entering the room containing the server that houses the microchips storing the files that generate the images and texts would produce no physical evidence of the virtual semioscape. Even so, Allucquère

² AlaMOO is supported by Alamo Community College District and maintained by Lennie Irvin of San Antonio College's English Department. AlaMOO, a web-based MOO is located at <<http://ranger.accd.edu:7000>>.

Stone studied online conference participants and reports that “an overwhelmingly high” number of them discuss the event as if it had convened in a physical public space. Stone’s studies revealed that participants frequently refer to the virtual environment as “a nice place to get together” or “a convenient place to meet.” The conference participants partially detach themselves from their immediate physical surroundings to experience a digital regeneration as ViPs capable of inhabiting the deterritorialized, virtual space. The ViPs remain dependent on traditional geography and time for their bond to the physical stratum. Synchronous interactions among ViPs in virtual environments integrate temporal unity and restore *kairos* by re-synchronizing writer, audience, and text although devoid of spatial unity. Such computer-mediated synchronous interaction among ViPs along with absorption and engagement in the semiotic world does not suspend or eradicate space or time; instead, new space-time systems develop to facilitate virtual entities and their recontextualized yet deterritorialized interactions.

Deterritorialized space along with simultaneous presence in physical and non-physical space fail to assimilate into Peirce’s conception of existing things and preclude the manifestation of his category *Secondness*. Pierce also argues that existing entities should have consistency in manifestation as an individual object, “if it were at one time in one place and at another time in a dozen, such a disjointed plurality of phenomena would not make up any existing thing” (*CP* 1.411). Regardless, that interaction occurred among multiple entities within the virtual space remains indubitable.

Abductive inference and Peirce's notion of musement allow the HuB to recognize the concept of simultaneous presence and absence within deterritorialized space as new conclusion and a new general principle. Massimo Bonfantini and Giampaolo Proni explain such abduction as novel in "absolute terms," for "it is not just the application of the general principle to the subject of the investigation that is new, it is the principle that is new, too" (133). The concept of simultaneous presence and absence presents just such a novel conclusion that, to use Bonfantini and Proni's words, "was not even potentially included in the existing store of knowledge" (133) and necessitates an expansion of Peirce's categories to include *Fourthness*.

Although he qualifies the realm of pure *Secondness* as including only the inert and static, Peirce describes a degenerate form of *Secondness* which includes two abstract qualities brought together in a relation such as when "redness" and "scarletness" come into relation, one as a subset of the other (*CP* 1.455). Following this line of thought, as an abstract quality comes into contact with other abstract qualities as an actual, yet virtual, concept, degenerate *Secondness* would ensue. When the two qualities "virtuality" and "actuality" are brought together in a relationship, Peirce's definition of virtual, "not an X, which has the efficiency of an X" (*CP* 5.372), disallows the possibility of "an actual virtual" or, conversely, "a virtual actual." Thus degenerate *Secondness*, like Peirce's pure *Secondness*, fails to encompass virtual phenomena in cyberspace.

Peirce claims that *Thirdness* mediates the triad through the introduction of a mental element, a cognitive relation that offers continuity and predictability (*CP* 1.337). *Thirdness* necessitates the existence of *Secondness*; however, no temporal succession exists in Peirce's terminology, for the interdependent categories present themselves simultaneously to the mind. According to Feibleman's interpretation of Peirce's work, *Thirdness* requires *Firstness* and *Secondness* as essential elements, but *Thirdness* transcends them as the cognitive level of the triad (167). *Thirdness* exists as interpretation and understanding of virtual phenomena; moreover, the required *Secondness* cannot be determined in virtual entities and interaction in cyberspace because they violate spatial and temporal rules essential to Peirce's definition of the category. Peirce's categories must be extended to include a separate classification *Fourthness*, which subsumes the excluded virtual phenomena.

Peirce's categorical divisions held true for phenomena known in his time, but the invention of the Internet and subsequent development of the means for what Katherine Hayles calls "a dynamic partnership between [sic] humans and intelligent machines" (*How* 288) expands the parameters of the possible forms of existence. Extending Peirce's theory restores its currency and reinforces its relevance to the modern world. *Fourthness* affirms virtual phenomena as valid semiotic and rhetorical forms capable of affecting audiences and influencing their *Weltanschauung*.

Fourthness, comprises computer-mediated virtual entities capable of invocation at multiple locations without duplicating or moving the original digital file. Telepresent

virtual personas within cyberspace, which enable engagement with the environment and synchronous exchanges with other virtual personas, also illustrate *Fourthness*.

Fourthness encompasses virtual events with no specific *then* and *there* that would determine them an *actuality* and give them *Secondness* in Peirce's philosophy.

Computer-mediated virtual scenes experienced in cyberspace challenge the conventional understanding of presence and location by invoking a sense of physical presence in non-physical space. The immediacy with which events in virtual environments transpire and the sense of involvement in them promotes a sense of presence in (sometimes even transcendence into) the virtual environment (Wilber 11; Heim, *Metaphysics* 101). Of course, the HuB cannot interact directly with virtual space; instead, it requires mediation in the form of a ViP which the HuB manipulates through the amorphous space represented by projected words and images. The HuB invoking and interacting in cyberspace experiences more than the acquisition of an appurtenant ViP; interaction evokes a sensation of simultaneous presence and interaction in two disparate realities.

Through digital signs, the HuB constructs a reality (a virtual world and corresponding world view) which functions as a reference for dialectic operations and creative activities. The virtual world provides for the production and circulation of signs qualitatively different from traditional signs and independent of existing contexts. Pierre Lévy considers the signs "raw ontological energy" that "serves as the basis for the virtual because it creates, always differently, a second world" (117). Though these free

and detachable signs lack substance, they construct infinite sequences, chains, and compounds of signification. The HuB assembles the digital signs to construct and reconstruct the ViP that articulates the relations it maintains, the problems that activate it, the images it shapes from its environment, its memory, its knowledge in general. The ViP, as a social construct, co-produces, invents, develops, and modifies the virtual world that expresses its community. Mark Poster confirms the mutability of the persona presented online as being “repeatedly reconfigured at different points of time and space, as non-self-identical and therefore as always partly Other” (174). As “Other,” the ontological status of the persona construction comes into question.

Heim views such a construct as “a simulated, embodied personality” wherein computer hardware “counterfeits” its originating flesh and bone source (*Metaphysics* 91). Pierre Levy further asserts that the HuB becomes a “cognitive system” restricted to “nothing more than a brain” which “makes contact with other brains, with systems of signs, language, and intellectual technologies” (156). This ontological reversal yields the composing agent transparent while privileging its product; consequently, the constructed identity, the ViP, as an interpretation of self obviates the development of persona and offers an independent sign for further interpretation. As a symbol for its composer, the ViP provides a partially stable view of a consciously constructed identity. The ViP facilitates the communication channel between the HuB and the virtual environment; the HuB provides the impetus as a “human peripheral” to cyberspace for the ViP (Heim, *Electric* 92). Co-presence and electronic interaction unrestricted by

geographic location with other ViPs in shared virtual space increase the perception of being in the electronic environment.

In Peirce's terms, virtual personas reflect the composer's interpretant of aspects of their identity, and they appear as objects for subsequent interpretations. These subsequent interpretations not only come from the viewing audience but also from the originating HuB. The persona exists only as indexical signs in an aspatial or virtual existence ontologically present in numerous sites at a single instant yet simultaneously without a determinate location. Their simultaneous presence and absence indicates *Fourthness*. *Fourthness* includes deterritorialized phenomena that exhibit both presence and absence in mediated cyberspace. Because the virtual signs cannot be located at a specific and single point in traditional space, they resist assimilation into Peirce's *Secondness*, which limits an entity to a single location.

Virtual entities and events mediated by the computer and manifested as a simulation of the digital sign in a manner that appears to be within reach of the HuB make up *Fourthness*. Digitized phenomena have undergone interpretation and processing into a series of mathematical relationships and proportions; it has been transmogrified into a new symbolic form (Heim, *Electric* 84). Although the sign exists as digital marks on a disk, the simulated image invoked on the computer screen provides access and allows manipulation of the sign. As a result of the ontological shift, the simulation tenders a means to experience the digital sign located on a remote computer as if it were immediately accessible. *Fourthness* includes deterritorialized

phenomena in cyberspace such as virtual environments produced by cumulative digital signs that facilitate the sense of presence within the virtual space. The virtual persona (ViP), created as a mediator for the HuB to interact in cyberspace with other co-present ViPs, exists as a separate, yet dependent entity. The ViP's transactions in teleconferences, chatrooms, and MOOs promote the perception of simultaneous presence and absence. This perception defies assimilation into Peirce's categories and identifies the need for their expansion to four.

Heim notes that the HuB feels as if it transacts directly with physical realities although computer-mediated virtual space contains only the informational equivalent of things (*Metaphysics* 132-33). Still, Johnson-Eilola argues that cyberspace should be considered space to occupy rather than a storehouse from which to retrieve information (*Nostalgic* 224). The reality of cyberspace mediated through the computer supplies venues for people to congregate, according to Heim, "in surprisingly personal proximity" regardless of physical constraints such as geography or time-zones (*Metaphysics* 99-100). Holmes agrees that interaction among ViPs performs as more than a supplement to face-to-face communication; such interaction among ViPs actively develops and maintains collaborative "sealed realities" (29). ViPs become and create cyberspace as a multidimensional and interactive representational space constantly in the process of composition and decomposition.

Participants reveal the influence of an "illusion of nonmediation" or the transparency of the medium when they discuss their activity in as "being there" or

“being in” the virtual world. Barbatsis and Jacobson explain the feeling of presence as an exercise of imagination to seal descriptive or narrative gaps. As participants fill the fissures and imaginatively construct virtual space, their sense of presence within that space strengthens and a new subjectivity or ViP emerges (Jacobson). The imaginative construction of the virtual environment and the sense of presence within conform to Eco’s definition of meta-abduction, in which reasoners reassess an apparent void and recognize it as a productive and complex system that cultivates multi-linear associations. Their attempts to contain, define, cordon-off their personal cyberspace actually extend cyberspace by bringing forth new inhabitable space. The perception of presence within virtual environments also provides coherence to involuntary judgments that would otherwise result in cognitive and logical dissonance. Such perceptions form evidential assertions against which the reasoner tests abductive inferences toward the production of new knowledge (Murphey 372).

Unlike traditional written material, the computer-mediated digital signs leave no physical trace of themselves because they exist only as magnetic tracks on a disk. When employed in hypertext, digital signs can change location, shape, and color and include images or sounds as parts of virtual texts when computer mediated. Hypertext documents allow the writer to link trains of thought with the use of hyperlinks. Although the traditional allusion to another text synthetically aligns the labyrinthine relationships which exist among thoughts (Sandbooth), hypertext brings intertextuality to life. Frequently theorists use the term *nonlinear* in referring to hypertext documents

though multi-linear better describes the phenomenon that as a productive absence provides the source of cyberspace. By creative meta-abduction, the void reveals itself as multiple and productive.

In conventional written communication, the printed, material text retains an undeniable stability, aside from any potential disorientation or reorientation of the text performed by its audience. As a collective, traditional text's static and disconnected nature requires individuals to perform extensive research, analysis, and association to resuscitate, consolidate, and animate it. Digital hypertext animates and materializes the operation of reading and considerably magnifies its scope. Always in the process of reorganization, digital hypertext offers a reservoir from which the audience creates an idiosyncratic text based on its context and interests. Potential texts, images, and sounds (all signs) actualize themselves in infinite ways as databases, chatspace, hyperdocuments, interactive simulations, and virtual worlds in the measureless digital networks, computer memories, interactive multimodal interfaces of cyberspace. Hypertext enables disjointed digital signs to communicate with each other. Audience members plunging into the virtual worlds, without ever perceiving the extent of possible knowledge (*Firstness*), express their contributions through the world's extension (abductively they bring the unknown to the known). The abductive process brings from the void, a defined entity (a homepage, MOO room, or ViP) capable of manifestation via computer mediation in many locations at once (*Fourthness*).

Words as hyperlinks in hypertext become simultaneously icons and indices into other dimensions of cyberspace. While traditional text may use footnotes or indices or rely on the reader's previous knowledge to direct attention outside the present text, hypertexts act as interfaces that enable direct point-and-click access of other hypertexts. This opportunity invites participation in intertextuality without requiring it. Every other Internet file can be integrated into a hypertextual document in a seemingly unlimited reference system. The HuB then chooses the hyperlinks to follow or ignore and becomes a co-producer of any artifact called onto the screen; the audience interpretation of the virtual text (what thoughts it inspired in the audience) acquires importance in production of the text. Even though the originating HuB controls the dynamics of the process to some degree, the interests or subjective point of view of the author do not dictate the text's interpretation. This exchange bridges distances and produces a sense of immediacy.

All audiences who connect to the globally networked computers receive the electronic information space generated, organized, and presented consistently (Benedikt, "Cityspace"). The HuB connected to cyberspace engages the computer screen as a gateway to a virtual space envisioned via computer mediation. The computer acts as an "electronic prosthesis," which extends "embodied awareness in highly specific, local and material ways" that proves otherwise impossible (Hayles, *How* 291). The digital signs in cyberspace allow the manifestation of virtual worlds that urge inhabitation by virtual agents. The computer mediates between the physical and

the virtual and expands the cognitive system to include a new way of being, simultaneous presence and absence, without abandoning the physical body.

Media theorists Barbatsis, Fagan, and Hanson offer explanations for the phenomenon of simultaneous presence in multiple realities that lead back to (even rephrase) Peirce's theory of abduction. They also point out the need for a revision of Peirce's ontological categories and explain the phenomenon of felt presence in cyberspace as "an overload of abstraction" resolved by assigning material status to computer-mediated activity "behind the screen." The computer-mediated space, cyberspace, postulates confluent meaning for the articulation of volume concerning (concrete) physical and (abstract) non-physical space. They view both physical space and non-physical space as "articulated gaps" or the "not-given" as delineated by "the given" specified boundaries. In cyberspace, the HuB supplies the "not-given" in the process of engagement and meaning making; consequently, the computer-mediated space functions as a place to go for interaction and to access information. Telepresence becomes yet another "articulated gap" in which the audience's (HuB's) ideational activity becomes the object for interpretation (Barbatsis). This interpretation, which results in a felt sense of presence within and without the virtual space, closes the gap (*Fourthness*).

In Peircean terms, the "overload of abstraction" results in the meta-abductive endeavor of assimilating the unfamiliar (abstract *Firstness*) into the familiar (rule governed *Thirdness*) and thereby transferring the experiential characteristics of

existence in concrete space (the given) to computer-mediated space (the void). The “articulated gaps” (*Firstness*) that Barbatis, Fagan, and Hanson describe offer opportunity for abductive inference to rectify the ambiguity caused by the gap. Abduction allows the generation of a hypothesis concerning the ambiguous situation based on experience and general knowledge. The reasoner (HuB) produces a hypothesis that attributes congruent characteristics to physical and non-physical space; the general laws and consistencies (*Thirdness*) that apply to physical space are superimposed on cyberspace. Thus, in spite of absent or attenuated cues, the HuB perceives cyberspace as inhabitable and develops a sense of presence in the abstract space. As the reasoner tests the hypothesis, the incongruity of presence in discursive space surfaces. After testing and retesting the hypothesis, the sense of presence remains, even intensifies, with subsequent engagement and interaction in the virtual environment.

The ViP in cyberspace, which acts as an avatar or virtual representative for the HuB, exists as a separate entity, co-present and interactive with other ViPs. The HuB and the ViP remain mutually dependent, for neither can navigate cyberspace without the other to act as an interface. Rhetorical subjectivity comes into question as interactivity, engagement, and perceived embodiment within the discursive space increase to produce a doppelgänger effect, which becomes “an entanglement of signal and materiality in bodies” that “confers on them a parallel doubleness” (Hayles, *How* 29). Interaction with the environment and other ViPs cause an overlap between the HuB and the ViP manifested as a felt sense of presence, or telepresence, within the discursively created

space. The gap bridged as a sense of presence within the virtual space emerges. The specter of the Cyborg may explain the conjunction of human and computer and the ability to interact in cyberspace, or, perhaps the ViP forms a link between the HuB and the virtual world. The ViP, a digitally transubstantiated and computer mediated form, ascends from the gaps as a result of the perception of ontological plurality, not only to fill the void but also to imbricate between the physical and the non-physical environments.

Coleridge's mandate for readers of poetry to engage in a "willing suspension of disbelief" applies as a correlate in understanding the sense of presence generated through engagement with the semiotic environment of cyberspace. The HuB brackets physical reality and participates as the ViP in the virtual environment. The perception of presence in cyberspace allows the ViP "to experience the irrelevance of spatiotemporal distance, to understand what it means to dwell in a global sea of pure information and to come to believe implicitly, indeed pragmatically, that 'I plug (or tune or log) in, therefore I am'" (Benedikt, "Cityspace"). The development of a virtual persona, the production of cyberspace as a result of activity, and the manipulation of objects in the virtual environment redouble the felt presence. The signs point simultaneously to presence and absence, the ontological plurality of *Fourthness*, in both physical and virtual environments.

The experience of simultaneous, yet separate, realities resists categorization because of its defiance of the rules of *Secondness*. Even though for Peirce *Secondness*

must have a particular time and place and adhere to the laws of inertia, virtual signs in cyberspace may appear simultaneously at multiple locations and may teleport from place to place without passing through any intervening locations. Peirce describes *Thirdness* as the mediation of *Firstness* and *Secondness* or the intervention between “causal act and effect” that determine a system or laws of qualities (CP 1.328). His definition presupposes the exclusion of activities in cyberspace because *Secondness*, as Peirce describes it, never comes into play in virtual phenomena. Also, Peirce proposes a “degenerate” *Thirdness* in which no true *Secondness* exists, but which manifests itself as a representation derived from a “mere Quality of Feeling, or *Firstness*” (CP 5.71). Pure self-consciousness exemplifies such a degenerate *Thirdness* (CP 5.71). This degenerate *Thirdness* might include computer-mediated cyberspace and the “Quality of Feeling” or sense of operating from within the interface. If so, it does not allow for the simulation of mutual presence or the perception of “being in” two realities simultaneously that computer-mediation generates in the HuB while experiencing cyberspace.

Altered meanings, the result of the semiotic process, also result in amended perceptions of the virtual phenomenon and the user’s relationship with it. Participants in the phenomenon of cyberspace compose elaborate metaphors in the form of personal space and ViPs to represent their interpretations of themselves. Cyberspace affords HuBs the means to construct a continuum of fluid identities that emerge as a result of interaction with other constructed identities. Abduction allows each to make an entrance

into the complicated synchrony; stepping out of their areas of competence, isolated from one another individuals need not “say” anything while engaging in the adventure of imagining, exploring, and constructing sentient environments and personas. The rhetor as artist creates the space as well as the persona and learns from the mutually present others how to enter the synchrony.

Very public “personal” spaces allow their composers to define and redefine themselves for a global audience of interpreters. Thomas Erickson argues that the transmission of information for public scrutiny plays a minor role in motivating the construction of personal space published on the World Wide Web. Instead, Erickson asserts that home pages function as tools “used to construct identity” (1). Constructed identities such as the ViPs inhabit the virtual environment as the semiotic system transmogrifies the computer monitor’s theoretical and visual space to an environment hospitable to the networked self. The “empowering aspect” of cyberspace emanates from “creative flights of fancy” (Cooper 97). These creative flights transpire not strictly in the imagination or as examples of suspended disbelief; instead, they occur as “felt” events. This phenomenon ignites infinite interpretations and ways of thinking about the virtual and semiotic systems. The virtual environment facilitates the message that the ViP acts as part of the system, not only as an interpreter, but also as an interpreted part of the semiotic structure. The ontology of the virtual environment and its inhabitants, the convergence of presence and absence in multiple locations, illustrate the necessary extension of Peirce’s categories.

Fourthness does not refer to some false or imaginary existence. On the contrary, it reveals the dynamics of the mutually created virtual environment and the reciprocal existence of its inhabitants. *Fourthness* points to the active void that bubbles at the core of cyberspace and from which new spaces arise and new truths form. Because the phenomenon cyberspace differs inherently from physical space, a separate sensibility and language allows these differences to be accentuated and understood. Extending Peirce's theory to recognize *Fourthness* reveals new ways of seeing cyberspace and the syncretic interactivity therein. It provides a voice for articulating the ontological implications of the created spaces and personas in which presence and absence converge.

CHAPTER 4

FOURTHNESS: OUT OF THE VOID

*I don't know how or when,
no, they were not voices, they were not
words, not silence, but from a street it called me,
from the branches of night,
abruptly from the others, among raging fires
or returning alone,
there it was, without a face,
and it touched me.*

Pablo Neruda, "Poetry"

In cyberspace virtual representation expands the alternatives and establishes correspondences which open galaxies for creation, destruction, and revision of signs. Electronic texts placed in interaction with one another in cyberspace embody Peirce's notion of the sign, facilitate the creation of further knowledge, and further the near infinite process of interpretation. Virtual signs represent deterritorialized entities simultaneously present and absent in the primary physical world and in cyberspace, a phenomenological perspective beyond Peirce's consideration. Peirce identified three modes of being: "the being of positive qualitative possibility, the being of actual fact, and the being of law that will govern facts in the future" (*CP* 1.23-26). The simultaneity of virtual representation via the computer and the Internet has made possible as a fourth ontological category. *Fourthness*, described here, extends the universal categories in Peirce's semiotic theory.

This additional category *Fourthness* comprises virtual entities, which via computer mediation, appear simultaneously present and absent when invoked at once on any number of computer monitors without duplication or movement of the originating digital file. Virtual objects experience no “derealization” or “transformation of a reality into a collection of possibles” (Lévy 26). Instead, Lévy asserts that they undergo “a change of identity, a displacement of the center of ontological gravity” (26). Rather than a brute presence in a define location, a virtual entity escapes spatiotemporal restraints and disengages from the here and now through computer-mediation. This detachment characterizes *Fourthness*. The virtual complements the actual, but the pertinence of location separates the ontological categories.

In describing *Secondness*, Peirce notes the requirement for “here and now,” an identifiable geographic location, and conventional temporality. *Fourthness*, however, encompasses those virtual entities for which the significance of conventional space and time hardly exists. Hypertext produces a version of a digital file for navigation and reading; but although it must bond to a physical substrate for its manifestation, the virtual representation clings to no specific location. Lévy argues that the virtual occurs only “*between* things that are clearly situated” (28) [Lévy’s emphasis]. Even though the digital files reside on server computers with specific addresses,¹ the deterritorialized virtual representation, detaches from conventional space-time references and intersects

¹ The transitory nature of the Internet and online technology diminishes the significance of the digital file’s location.

them intermittently. The virtual produces effects (sensory, rhetorical, social, psychological, economic) and must be recognized as a mode of existence that requires modification of traditional concepts of space and time and an augmentation of Peirce's categories.

Virtual personas created to enable engagement with the environment and to conduct synchronous exchanges with other virtual personas telepresent within cyberspace exemplify the fourth category. *Fourthness* encompasses virtual events with no specific *here* and *now* or *then* and *there* that would determine them an *actuality* and give them *Secondness* in Peirce's nomenclature. Multi-User Domains(MUDs) or Object Oriented MUDs (MOOs) illuminate *Fourthness* and illustrate cyberspace as an inhabitable semioscape and a state of being.

MOOs, virtual worlds made accessible via computer mediation and the Internet, allow thousands of people to develop the environment and to communicate with each other in the shared space through the electronic exchange of signs. Agency server computers, located anywhere in the world, house the digital files that make up the virtual universe. Client programs such as Telnet connect the computer to text-based MOOs; Web based MOOs require a browser program such as Netscape Navigator or Internet Explorer. MOO software avails the database to many individual HuBs to participate in online interaction and engage in extension of the virtual environment.

Originally MOOs and MUDs mostly facilitated an electronic form of the adventure game Dungeons and Dragons in which fantasy characters engage in battles

for dominance. Since they played online adventure games under the guise of avatars that concealed their physical-world identity, MOO users frequently referred to themselves as *players*. Once educators colonized MOOs and recognized their value as sites for exploration and interpretation, they began to label ViPs as *characters* or *residents*. The metaphor based MOOs have since evolved toward virtual meeting places, communities, and particularly universities, all socially constructed virtual scenes where textual signs determine the environment, the residents, and interactions.

HuBs define the environment with rich description that projects a world view and promotes communication with ViPs who arrive at the digital address to initiate interaction and become engaged with the virtual scene. Jan Rune Holmevik argues that the ViP inhabits the space as it constructs it: “you are literally and actually IN (sic) the text while writing it” (Haynes and Holmevik, “Synchron/City”). Although strictly text composed the first MOOs, newer web based MOOs increase rhetorical choices by allowing for digital graphics, sounds, and videos.

Some MOO users argue that Web based MOOs with their images, sound, and video stifle the interpretative opportunities that strictly text based MOOs foster. They argue that the audience plays a diminished role in the abductive epistemology in a MOO when the image forces *a priori* certain attributes to the space or the persona represented. Many text based MOO users view images and sounds as diversions and prefer to focus on the writing that creates the space. Web based MOO users deny that multi-media limit interpretation; instead, they find the multi-media’s prodigious fertility inexhaustible.

For web-based MOO users, the images, sounds, or videos streams in MOO spaces evoke additional strata for interpretation. Lévy recognizes that “the image is not used exclusively to improve understanding; it fascinates, seduces, and deceives as well” (*Collective* 110). In other words, the image allows for multiple interpretations. Rather than fixing interpretative possibilities and limiting understanding, images contribute to an inconclusive struggle for meaning making and differentiation. For example in Figure 4.1, the linguistic message anchors and relays a perspective offered by the site’s initiating HuB, but the text (along with the image) remains signs urging further interpretation (see Fig. 4.1). The rhetor’s purpose for adding an image offers a selected interpretation among infinite choices. Roland Barthes argues that “all images are polysemous; they imply, underlying their signifiers, a ‘floating chain’ of signifieds, the reader able to choose some and ignore others” (197). The images and sounds attached to some web-based MOO spaces offer additional rhetorical strategies for persuasion and signs for interpretation and meaning making. The production of meaning shifts away from the logocentric toward a level plane for other semiotic forms.

This dissention among scholars concerning the “correct” form for MOO to take perfectly exemplifies Peirce’s abductive reasoning. When a community attempts to operate within a single system of meanings on an issue, then investigation tends to converge toward an ideal. When various sectors of an interpretive community operate

with different perspectives, standards, and criteria and identify divergent meaning

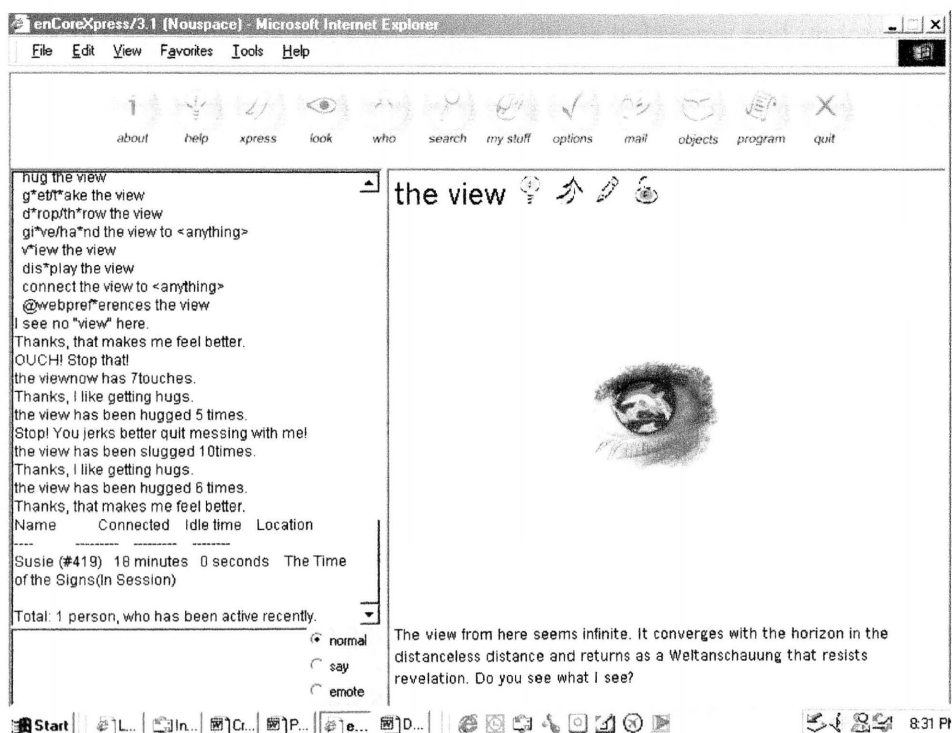


Fig. 4.1 The View, object #888 in Nospace MOO.² The linguistic message anchors and relays a perspective offered by the object's initiating HuB.

structures, even distinct truths while experiencing the same infinitely rich cosmos of possibilities, no convergence occurs. Peirce expects conflicting and multiple interpretations, for abductive inquiry produces varying sets of knowledge that reflect the inquirers' divergent worlds. The user's purpose determines the best form for a MOO or

² Nospace MOO, a web-based MOO located at <http://www.eaze.net:7000/>, is supported and maintained by Dene Grigar. It houses the former TWUMOO of Texas Woman's University.

any virtual environment. Fertile semiotic systems such as MOOs foster nonlinear abductive processes and forms that celebrate polysemy and unpredictability as sources of new information. From those complex systems arise many interpretations of MOO space and virtual personas.

Lee-Ellen Marvin describes MOOs and MUDs as "worlds in words" that allow for synchronous or "real time" discussion among geographically dispersed participants. In that way, they resemble virtual environments such as Internet Relay Chats (IRC), Instant Messaging, and chat rooms. A MOO differs from those Internet venues because its text creates descriptions of virtual places, characters, and objects. In the interactive virtual environment of a MOO, the HuBs use digital signs to create virtual scenes and virtual personas to inhabit them. To reveal their attitudes and purposes, HuBs extend the virtual environment by contributing to public spaces and creating private "rooms" utilizing rhetorical strategies in selecting the signs that identify the computer-generated addresses and the objects found there.

The relationship among MOO participants and the computer interface requires several different levels of code and produces differing modes of text. Utilizing elementary programming language (machine readable signs), MOO participants furnish the virtual scenes with objects, scenarios, and characters. The HuBs use codified syntax to create, describe, and interact with their environment and its furnishings. The machine-readable programming language instructs the computer how to manipulate the digital files and how to interact with the user. For example, to extend the MOO by

creating an addressable location called *The Time of the Signs* with an entrance called *trapdoor*, via the keyboard the HuB inputs

@dig trapdoor to The Time of the Signs.³

The computer responds by assigning a discrete address to the space and displaying a message to that effect on the participant's screen:

You now have #470 The Time of the Signs with exit #481
trapdoor.

To describe the new address the user enters the text to be displayed following the programming code for modifying a description.

@describe The Time of the Signs as You have entered The Time of
the Signs, a virtual semioscape created to study the semiotics of
MOO discourse.

When subsequent HuBs enter the code, "look here" or clicks on a "look" icon, the interface displays the message along with a list programmed objects, virtual personas, and available exits located at and attached to the address (see Fig 4.2). MOO users can selectively view the objects and ViPs, and teleport among the virtual spaces in the same way as a hypertext offers links to sections or other documents. The name and

³ In this study, **Verdana** font indicates commands in MOO programming language. Likewise **Courier New** font indicates computer generated responses to the commands.

description of the address (metaphors signifying an attitude or atmosphere the programmer wishes to convey) act as signs which generate subsequent interpretants. As Peirce described, an interpretant becomes the representamen/object for the next link in the sequence of interpretations.

With words and images programmed in digital semiotic systems, MOO users (HuBs) build inhabitable virtual spaces which constitute the virtual environment and virtual personas. HuBs employ rich descriptions, digital images, and virtual objects to signify an ambiance, to facilitate the development of a sense of presence in the online environment, and to embrace it as a metaphoric, therefore semiotic, extension of the world and themselves.

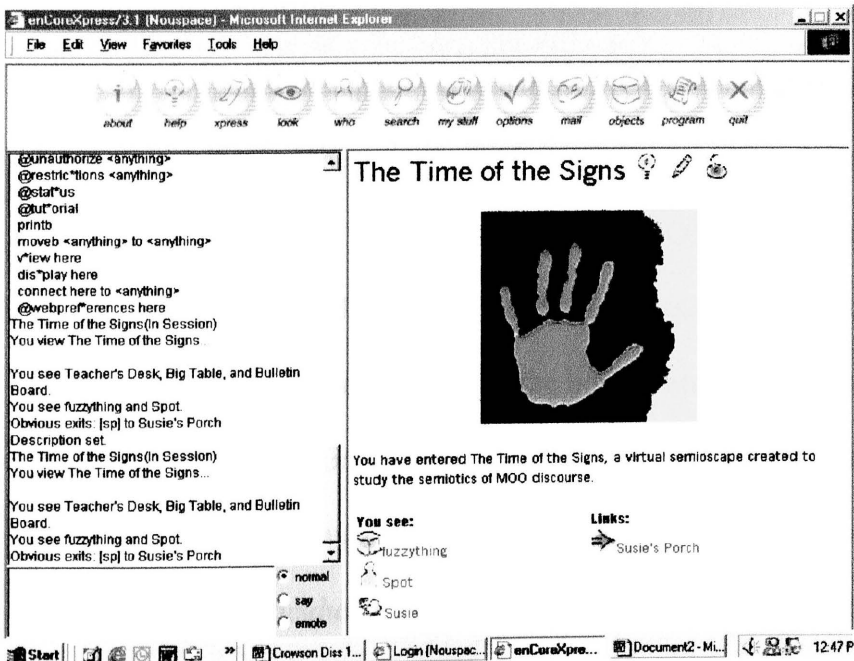


Fig. 4.2. The Sign of the Times, object #470 in Nounsapce MOO at

<<http://www.eaze.net:7000/470>>.

The architectural metaphors that dominate cyberspace define the virtual environment as a inhabitable locale. Sherry Turkle calls the text that creates the virtual spaces a “hybrid” cross between writing fiction and computer programming (Forward ix). The elaborate descriptive text that defines a MOO space may indeed be a fiction in that it need not relate to any geographic location, but the space that it creates and embodies proves no less a truth than the Pacific Ocean or the Blagg-Huey Library at Texas Woman’s University, Denton. Cyberspace (and MOOs in particular) educate the concept of architecture to include the virtual locations that exist only upon invocation onto the surface of a computer monitor and upon the surface of any number of computer monitors simultaneously.

While spatial metaphors create most MOOs whether social, educational, or adventure gaming and the programmed norms list “exits” and directional clues, no requirements imposed on HuBs extending the MOO insists upon the use of the architectural metaphors. Though architectural metaphors appeal to many MOO users because of their safety and familiarity, the liquid nature of the MOO and cyberspace accommodates the most innovative imagination. The architectural metaphors accord a MOO with the security and stability of a *locus particulus*. The architectural metaphors (implying *locus particulus*) establish stasis, make the MOO inhabitable, and provide a familiar means of navigating the hypermediated spaces. Locator points, place names, and addresses promote familiarity and personality as well. The architectural metaphors

foster a semiotic system that furthers the concept of telepresence in the virtual places where only mediation exists.

These semiotic systems encourage abductive processes as users proffer multiple interpretations of the virtual domain and manifest their interpretations through a MOO's extension. These extensions manifest themselves not only in individuation of characters, insights, and interpretation, but also as *locus particulus*, space—the paradox of “more nothing” as “more something.” As HuBs attempt to contain and define a virtual space, cyberspace is extended. Pidgin Bay now in Nouspace MOO formerly in TWUMOO illustrates the concept (see Fig. 4.3).

The ontology of the virtual space becomes inseparable from the rhetorical strategies that determine its existence. Neither the physical original nor an actual Pidgin Bay with a specific geographic location exists; however, creation and participation merge in the virtual space to bring Pidgin Bay into existence as an example of *Fourthness*, accessible only via computer mediation. From the void, the HuB brings forth the virtual space, and the detailed description promotes a sense of presence that calls forth its existence and makes Pidgin Bay inhabitable.

Pidgin Bay

The sweet scent of night-blooming jasmine fills the air as you follow a starlit path toward a crystal beach. Beneath a star-blanketed sky, the moonstruck sea is molten silver and the white sand of Pidgin Bay Beach a surreal, shimmering landscape so powerful you almost forget to breathe. The water embraces your ankles and kisses your knees. You see a small boat and a bottle (see Fig. 4.3).

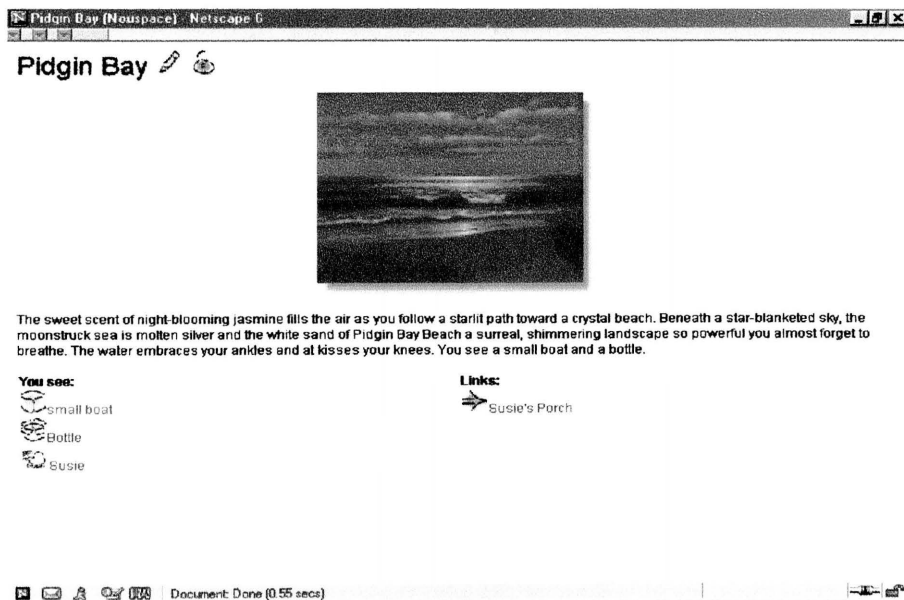


Fig. 4.3. Pidgin Bay, object #997 in Nouspace at <<http://www.eaze.net:7000/997>>.

Simple commands or mouse clicks on directional icons allow ViPs to move through the virtual scenes and to examine the objects there. A “look bottle” command invokes a new description upon the screen: “A salt film obscures the inside of the old rum bottle, but the cork crammed into

its end appears to be guarding a tattered note." The boat and bottle (alliterative synecdoches) invite engagement in the virtual environment as signs available for examination and interpretation. Their presence particularizes the ambiance of the virtual space and evokes action from the ViPs telepresent there. Teleporting to a new room or looking at another object displays its programmed description. The descriptions also reveal the presence and interaction of other ViPs at the same digital address.

All users present at the digital address could simultaneously open the bottle, read, or write on the note although only one bottle and one note exist as digital signs on the database. As *Fourthness (without movement or multiplication of the digital file)*, the virtual object can be viewed simultaneously on the screens of all MOO users invoking its address. All ViPs logged on to its digital address can simultaneously read the note or throw the bottle. At their individual physical locations, the ViPs can write on and permanently affect change. Subsequent readings by the same or other ViPs reflect the modifications written into the database. These modifications to the database reflect the meaning making by users actively engaged in the deterritorialized semiotic plane. The ability for many ViPs to view and to modify the deterritorialized environment also illustrates how virtual entities violate the notion of exclusive space.

Peirce noted that space separates objects and that no single entity can occupy multiple spaces at one time; neither can two or more entities occupy the same physical space. However, unlimited numbers of HuBs can invoke and interact with the same

virtual sign without movement or interference and without its duplication in cyberspace. This quality distinguishes *Fourthness*. This new category consists in dislocated virtual entities characterized by multiple presences and simultaneous absence. Virtual semioscapes such as Pidgin Bay exist only through computer mediation and as examples of the category which adds a fourth to Peirce's three. Abductive process permits the creative endeavor of producing inhabitable spaces where before none existed. The sense of immersion in the semioscape comes not through geographic relocation, rather it comes through meta-abductive thought generated by interaction with other ViPs in cyberspace.

Human beings (HuBs) partially disengage themselves from their primary physical reality to engage in a MOO's virtual scenes. By releasing the bonds to the here and now, the HuB opens the way for a felt sense of presence as a deterritorialized virtual entity. HuBs construct virtual personas (ViP) manifested as digital signs to participate from within and as part of the semiotic environment. In the virtuality cyberspace, words are indexical signs for selves. In "What Space Is Cyberspace," Mark Nunes argues that MOO users present signs which are "simulations of themselves" in the "simulation of space" in a MOO (171). Bolter and Grusin characterize this "networked self," the HuB and the constructed ViP, as capable of leading "simultaneous lives in cyberspace and in her physical office" (232). The HuB simultaneously exists as a physiological entity and phenomenological experience via the created ViP. Lévy argues that "virtualization" refers not to a form of disembodiment, but to a "re-creation"

and a “multiplication” as a new, delocalized state of being (44). Partially separated from the here and now and present at a virtual address that exists independently from the HuB’s physical location, the “re-creation,” “networked self,” or “simulation of self” as the ViP illustrates *Fourthness*. Embodiment as a ViP enables the HuB to experience multiple points of view from both inside and outside of the virtual and external world. All MOO users at the same digital address communicate with each other in this ontological state of simultaneous presence and non-presence, proximity and distance.

Physical bodies remain as the motivating force behind the keyboard and provide the connection among the online personas, the virtual environment, and the computer hardware. Digital signs, words, or images create a ViP that signifies an online existence. Turkle led scholars in recognizing the ViP as an opportunity to experiment with identity in virtual environments and especially the MOO. However, MOOs with educational and research purposes frequently link the ViP to the HuB, not to filter out those who experiment with identity, but to encourage responsible behavior by the HuB (Punday 207). As a virtual entity, the ViP survives only electronically without a specific physical location. The sign indicating its presence manifests itself on the screens of all other HuBs who have arrived at the same virtual address in an illustration of *Fourthness*.

The ViP inhabits the virtual scene as the semiotic system (information) transmogrifies the computer monitor’s theoretical and visual space to an environment hospitable to the networked self. This phenomenon brings together the semiotic systems

and ignites infinite interpretations and ways of thinking about the systems. An effective system facilitates the message that the ViP acts as part of the system, not only as an interpreter but also as an active part of the semioscape. Mizuko Ito argues that the travel “through the prostheses of networking technologies and the profoundly embodied nature of experience in virtual worlds” leaves the HuB “not ‘in’ real life reading the MUD; one is . . . elsewhere” (95). Ito insists that the online reality cannot be reduced to “experience localized by the biological body” (96); instead, the ViP occupies a separate subjectivity only partially related to the corporeal existence of the HuB. David Holmes agrees and contends that acts within the semioscape of a MOO should not be construed as “supplementary” to face-to-face interactions, but as constituting self-referential “sealed realities” (29). Active participants in the virtual social spaces distort or bracket alternative messages that deny their presence within the cyberspace.

The transactions and interactions occurring in cyberspace are no less real than those occurring in the corporeal world. In fact, creating a ViP for interaction in cyberspace causes the HuB to take on the characteristics of both author and audience. The HuB conceives and composes the text that embodies the ViP in the virtual environment. To engage in the semioscape, the HuB takes on a second perspective as the ViP, co-present and interacting with other ViPs and affecting the environment. This dual perspective from within and without, both present in and absent from the virtual world (and the physical world) exemplifies *Fourthness*. Interactivity in cyberspace virtualizes “real time” and allows the HuB to sublimate existence in the physical world.

In doing so, the absolute physical present disintegrates and causes time and space to open up. This change allows the HuB to accept the perception of presence, even immersion, in the virtual environment. The interactivity as a creative act in the virtual space produces at the same time the perception of absence in the physical world. The HuB, freed from the here and now, engages in the abductive process of making new meanings through the interpretation of the virtual world.

Synchronous interaction or chat among ViPs requires a particular coded syntax as well and produces a second level of text. In MOO code, users ‘speak’ by entering the command “say” followed by their message. Public discourse conducted through use of the *say* command appears as multi-directional text appears in real time on the computer screen of all users logged on to the same addressable sign. Participants send signs expressing action or emotion by writing the command “emote” followed by a description of the psychological state or action they wish to convey (see Fig. 4.4).

The user (Milton) types	Milton’s screen displays	Others’ screens display
say Twinkle, twinkle little star	You say “Twinkle, twinkle little star	Milton says, “Twinkle, twinkle little star
emote wishes on the star	Milton wishes on the star	Milton wishes on the star

Fig. 4.4. Reconstruction and comparison of commands and response in synchronous MOO discourse.

The virtual signs appear on all the screens logged on to the same addressable sign. In virtual worlds, all language illustrates Derrida’s performative: its utterance

"produces or transforms a situation, it effects" (Derrida 9). Emotes such as "Sandi isn't sure who's here," reveal the MOO user's perception of telepresence in the virtual environment and in the presence of other ViPs. The text signals presence in the virtual environment and initiates a transition in the understanding of written discourse as a system of signs.

Internet scholars generally agree that the capability of conducting synchronous discourse on a global scale surpasses other traits as the Internet's most important characteristic. A single action presents the opportunity to engage and affect all persons in the world at a computer terminal. Mike Sandbothe sees synchronous discourse as bringing fluidity to the change from oral language to written language. Sandbothe argues that written discourse "experiences a rehabilitation" by problematizing the "traditional distinction of spoken language as a medium of presence" ("Hypertext" 2). Writing signals presence in the virtual semioscape and initiates a transition in the understanding of written discourse as a system of signs. MOO etiquette in most educational MOOs requires a message announcing the ViPs entrance into and departure from a room. Messages such as "Susie has arrived!" or "Beatnik appears through a purple haze" inform other ViPs in the shared space of another's arrival. However, the contributions to the discourse and the environment, as well as the affiliations established in a virtual community embody the ViP and endow it with a sense of immediacy.

Whatever a ViP says happens, does happen. Obviously, no physical contact occurs between HuBs, but interpretations of the emotes such as waves and hugs along with computer generated messages such as entrance and exit messages, become the action. HuBs set the entrance and exit messages attached to their created ViPs using rhetorical strategies that they determine best signifies the ViP. The computer interface generates the message displayed publicly when it receives the appropriate code in order to affirm the ViP's presence. While they rarely occur in verbal exchanges, performatives transpire as standard practice in MOO text. Both forms (*say* and *emote*) are rhetorical strategies that further the dynamics within the semioscape.

The textual signs appear on the HuBs screen at the same time as they appear on the screens of the discourse partners. The immediacy of computer-mediated synchronous discourse and the transparency of the connecting medium initiate a sense of simultaneous presence and absence. Nunes describes the oxymoronic sensation as “the distanceless distance, the disappearance of an imagined absence made present” and simplifies the seemingly impossible as a sense of being “here and there at the same time” (169). The signs sent and received by the HuB neutralize the concept of distance and foster immediacy for the ViP. The event's seamless activity of inputting, outputting, and processing of encoded signs completes the extension of Peirce's ontological categories. While *Firstness* can be understood as a “feeling,” *Secondness* as brute facts arising from a relationship between objects, *Thirdness* as a general law or

interpretation, virtual representation, the state of simultaneous presence and absence describes *Fourthness*, a unique ontological state.

Literacy evolves toward orality as textual signs gain immediacy, act in many ways as though they were oral discourse, and receive responses similar to that of speech acts. Mark Nunes argues in “What Space Is Cyberspace” that writing on line transcends its status as a second-order sign system to become “a third-order simulation of speech” (168). Synchronous discourse⁴ conducted within the MOO invites the decoder to make immediate interpretation, request clarification, or offer response. Unlike the written texts that Plato disparages in *Phaedrus* that when questioned “always say only one and the same thing,” synchronous textual discourse in a MOO reunites the encoder with the text, simulating the dialectic form the philosopher preferred. As Hayles contends in her discussion of the posthuman, text becomes “embodied actuality rather than disembodied information” (*How* 287). The presence of the text signifies the presence of the ViP which can make clarifications and answer questions regarding meaning. The conversational tone of synchronous discourse among physically separate MOO users

⁴ Gary Shank denominates the type of exchange that begins with a sender who initiates a discussion thread and multiple receivers who respond and extend it without regard to conversational turn-taking norms a *multilogue* (3).

reinforce language as symbolic action and bring a sense of presence formerly reserved for face-to-face interaction.⁵

Synchronous discourse in the MOO restores the *kairos* by resynchronizing the writer, text, and message. This resynchronization requires writers practiced in developing texts as a process aimed at an audience disconnected temporally and spatially to rehabilitate their skills to accommodate a co-present audience and a dynamic context. Audience members also must refine the practice of interpretation in an immediate context that proves itself a writing ecology supplanting the mandate for objective truths and critical reflection in traditional (academic) writing. Synchronous written discourse subverts syntagmatic conventions to accommodate those of multiple narrative possibilities that overlap, interrupt, and divert at all points in the rhetorical process. The features of collaborative MOO discourse are illustrated in the following excerpt.

Hugh says, "I would like for us to do a Latin course or sequence at TWU .. we have many items in the archive that are in Latin"

BillB says, "Have enough faithful translations been done so that it's not..."

Susie says, "But won't many artifacts go unexamined

⁵ Katherine Hayles presents a similar idea presented *How We Became Posthuman*. Her argument focuses on randomness and pattern as the effects of activity in virtual environment.

if we only use the original language?"

LindaFB says, "Rhet/comp suffers, I think, because we've nothad tough language requirements. The problem is, of course, we all do so many different things.

And how can we possibly be trained in everything?"

BillB says, "...necessary for all of us to read the originals?" (Plenary Chat, 26 Feb. 2000)

A collaborative discourse replaces most syntagmatic conventions and the linear features of writing.

Differences remain between oral speech acts and synchronous discourse within the MOO. Because the computer mediates the interaction, software codes, hardware capabilities, and telecommunication equipment constrain the interaction. These external factors compounded with internal factors such as reading ability and typing speed, HuBs may experience lag time in submitting their contribution to the discourse, and its appearance on the screen might seem disjointed. HuBs with superior typing skills, higher degrees of knowledge about the MOO's textual and interactional shibboleths, and in some environments, proper application of stylistic heterogeneity maintain an advantage in contributing to synchronous discourse. These superior external skills may be mistakenly interpreted as signs for superior knowledge or understanding of the discourse's subject matter in the same way as a forceful tone of voice, confident body language, or sophisticated vocabulary can be misinterpreted for content substance in

oral discourse. Also, while turn-taking conventions limit interruptions and dictate appropriate topic changes in oral discourse, such social conventions fail in MOO discourse. Some MOO participants attempt to control the floor by breaking down their utterances into sections and signaling an incomplete thought by using written conventions such as ellipses, but unless a social hierarchy among known participants in the discourse has been clearly established and agreed upon, these attempts frequently fail. The following excerpt illustrates the social conventions.

Stevie says, "I was hoping..."

Botticelli says, "Or if I had used the name Savonarola?"

Stevie says, "that we could push the ideas..."

Stevie says, "of the keynote addresses in some new directions..."

Hugh says, "The federation conference this year has ROCKED...."

Bonin says, "A questions for future reference. Is there any way to enlarge this left side that screen so that it takes up the entire space. My panel plans a chat soon."

Stevie says, "and send off a transcript of this session to the keynoters..."

Stevie says, "with some useful ideas for them."

molina seconds that! "Rocked indeed" (Plenary Chat, 7 May 1999)

While Stevie attempts to direct the discourse toward his chosen topic, other participants interject questions about MOO conventions or the interface and direct the discourse toward tangential topics. Michelle Ballif discusses such "discursive surplus" as "noise" which interrupts all rhetorical situations (64). According to Ballif, discursive power plays might exclude the noise, but the power that represses also generates a different form of discourse for cyberspace that disrupts the traditional rhetorical process and crashes the conventional system of discourse. Ballif sees the new discourse as Cyborgian: multi-headed, pulling in contrary directions, paradoxical, oblique, and circuitous (64).

Synchronous discourse in the MOO also retains the ephemeral quality of oral discourse. While objects, rooms, and personas programmed into the MOO database become stable addressable entities that can be revisited, reactivated, and revised, synchronous interaction amongst participants, like oral discourse, does not become a permanent entity unless a participant intentionally creates and activates a recording device program to create an object log. As a result, a MOO also produces a third genre of text: recorded transcripts of the public discourse conducted at a particular address. These transcripts record the discussion, emotes, and computer generated entrance and exit messages; nevertheless, the transcript or log file unsuccessfully portrays the

dynamics of the synchronous event. The transcripts lose the immediacy of oral discourse and remain only as souvenirs of a primary occasion (Heim, “Feng”). Without the presence of the ViP, degenerative orality becomes a static form, an indexical sign that bears a direct link to the original occasion. The log transcribes the transmissions but discontinues the interactivity and synchronicity. MOO users, whether participants in the recorded discourse or not, can access and read the MOOlog, but they cannot change or contribute to it. The log exists strictly as a digital artifact or as an object awaiting an interpretant.

No physical equivalent exists to synchronous communication via chat or MOO. Other telecommunications networks such as television or telephone fail to produce the sense of co-presence with others participants. Television remains a passive activity, and the choices it allows remain only two: on or off. Except with further mediation via a VHS or DVD recorder, its transmission lacks durability; viewers cannot modify, pause, or revisit the broadcast. Television does not reflect a continuity of active and living thought that emerges and converges through active participation; instead, it remains a network for transporting information. While they may receive the same signal and view the same transmission, television viewers lack the ability to recognize each other, to exchange their ideas, or to alter collectively or to extend the broadcast. Though the telephone brings the caller’s disembodied voice into the room, it underscores the physical distance between callers.

The essential difference between the dual ontology of synchronous interaction within a computer mediated MOO environment and other media forms is the interactive properties of the MOO that require the computer user to participate actively in the environment. Only computer-mediated communications allow for dialectic between the two presences (the HuB and ViP), among the virtual personas and others present in the virtual environment and the virtual personas and the environment itself. Those watching television remain passive while being inundated with information and images that might cause them to identify with the characters or events represented on the television screen; however, television viewers cannot interact with them, converse synchronously with other viewers (except for those within the range of hearing [usually within the same room]), or participate in creating the environment. Viewers might achieve unilateral identification with a character, but synchronous communication and a sense of co-presence in a separate reality does not occur. Similarly, listeners might call in a request to a radio show, and conduct discourse with the on-air personalities, but the feeling of co-presence within the studio or from listening to the broadcast does not occur.

Telephones do facilitate synchronous discussion across space, but telephone callers do not develop a sense of teleportation across the distance. Telephone users might say their callers “sound” as if they are in the same room, but a feeling of teleportation across the distance or to an interactive environment does not occur. In fact, developments in Internet telephone applications, which allow voice transmission, return the sense of separation to the discourse partners.

Separation also remains between surfers on the static points of the World Wide Web (WWW). Because the WWW retains information delivery as its primary purpose, surfing through websites remains a solitary event with no way to “turn around and see who else is there” (Nirre). However, in a MOO, synchronous textual discourse and the development of a ViP transforms the users’ ontological status to *Fourthness* and allows the HuB to establish a developing reality in the simulated scene in the MOO. Still, the individual computer user provides the necessary impetus for the virtual persona to exist. By going online and connecting with the interface, the HuB initiates changes in the digital file’s properties that modify it into another equally unique set of properties with an entirely transformed essence: the virtual persona, a simultaneously dependent and independent entity.

Participants in the virtual communities perceive events occurring in cyberspace as actually happening as if in the corporeal world. They think of themselves as part of a community, and the interactions that take place within the community affect them just as if they had occurred in their physical location. The HuBs (operating from a physical location outside of the computer) multiply and transport themselves ontologically and psychically across the conceptual distance to an ephemeral location within cyberspace. Conceptual distance trumps physical distance to render the simulated scene more compelling and immediate than the corporeal scene, and space no longer exists as a valid indicator of presence. The immediacy of text as writing and orality merge causes absence and presence to lose meaning. Nunes asserts, “[W]hen tele-graphy becomes a

virtual topos-graphy, writing has reached the *telos* of the history of the post – and then superseded it” (168). The interactive signifying system, capable of erasing distance and supporting virtual personas, achieves unique ontological status in cyberspace; it remains both separate from and dependent upon the physical realm.

These virtual personas, rather than the computer users determine online existence: “Life online is lived through the personas of the users of the technology, not the users themselves” (MacKinnon 2007). In his study of computer-mediated crime and punishment, MacKinnon concludes that, although they are incapable of autonomous thought or behavior, standards of conduct and traditions govern virtual personas that compose cybersocieties. He offers the example of the widely discussed “Mr. Bungle,” known by most MOO users as the first ViP thought to have committed virtual rape in cyberspace. Mr. Bungle reportedly programmed a “voodoo doll” which generated strings of text showing other ViPs in LambdaMOO committing sexual, sadistic, and violent acts against themselves and others (Dibbell). The aftermath of Mr. Bungle’s appearance exemplifies the perception participants in online communities have about themselves and their interactions in the virtual environment. Because the text constitutes the ViPs, the victims over whom Mr. Bungle had taken textual control experienced the event as a violation of self. Some of the community members involved in the incident even complained of post-traumatic syndrome and virtual assault. Debates arose concerning the distinctions between “real” and “virtual” violence and between body and mind (Dibbell). Community members wanted banishment, dismemberment, even virtual

rape-counseling for the persona (Mr. Bungle) but they also considered attempting to punish the HuB behind Mr. Bungle's persona either through the university that provided his Internet access or through the criminal justice system (Dibbell). The virtual community involved determined that Mr. Bungle committed a real crime; though a virtual crime, those involved perceived the crime as real. They determined that the results of his crime equated to verbal and emotional abuse; however, they realized violent tendencies acted out in cyberspace could not be considered crimes against the HuBs who created the personas.

The perceptions of those involved concerning the event and the perpetrator illustrate that virtual communities consider their personas to be simultaneously extensions of themselves and separate entities bounded by different codes, mores, and rules. Dibbell's overwrought description recalls the discussion "one of the largest crowds that ever gathered in a single LambdaMOO chamber [. . .]. You could almost feel the claustrophobic air of the place, dank and overheated by virtual bodies, pressing against your skin." He assigns concrete qualities to a place whose creator described it as "infinite in expanse and fluid in form." Dibbell's description reveals the perception that participants in MOO develop of "being there" or of "being in" the environment generated by language. Dibbell's perspective as well as that of the virtual community involved in the cyber-rape exemplifies the autonomy perceived in the ViP. The sense of immersion and embodiment in the environment comes not through visual stimulation, but through discursive practices as a ViP and interaction with other ViPs. The HuB at

the keyboard maintains dual and competing points of view from outside and as part of the environment. This duality exemplifies virtuality as *Fourthness*. While the HuB never fully disengages from external reality, they detach from conventional geographic space as they become a part of the virtual environment.

Fourthness comprises those virtual entities and events which are no less *real* than those in external reality that are bound by temporal and geographic constraints. While *Secondness* consists in brute and substantive fact and actualized occurrences with specific place and time, *Fourthness* includes virtual phenomena, action, environment, and identity, created and embodied through digital signs. A rhetoric of immateriality in which text becomes action, objects, and identities inextricably binds language to the ontology of virtual entities. Digital signs create the ViPs, the environment, and action in cyberspace. The mode of being which consists in something being simultaneously present and absent, rendered by computer-mediation, also describes *Fourthness*. Virtuality is characterized by disengagement from conventional space and time and an absence of a specific here and now. The experience of *Fourthness* includes entities multiplied without duplication and invoked in diverse locations simultaneously. The consciousness of telepresence in virtual environment accessible only via computer mediation is the consciousness of *Fourthness*. Virtualization eludes temporality and spatiality as a source of creativity and the abductive process that generates alternative ways of thinking, being, and knowing.

The three categories of his semiotic encompass the phenomena of the world and the time in which Peirce lived. Technological innovations that allow distributed virtual representations and synchronous, spiraling multi-linear written communication via computer mediation have opened this opportunity to expand Peirce's theory and to introduce this concept of *Fourthness*. *Fourthness* emerges as a separate, yet significant, ontological category. Because computer technology changes the world, expands consciousness, and reinvents the ways in which knowledge is made, Peirce's semiotics requires an extension to account for these innovations. This extension of Peirce's phenomenology offers an explanation and analysis of the phenomenological attributes of virtuality. The usefulness for understanding virtuality (*Fourthness*) as an extension of those realities that existed before opens nineteenth century semiotics to embrace *Fourthness* for the virtual world and to move beyond Charles Sanders Peirce.

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