

Our Unruly Signs, and How We Cope with Them

Floyd Merrell

*Purdue University, Indianapolis, USA.
West Lafayette, IN 47907. E-mail: fmerrell@purdue.edu*

Abstract

This paper suggests some premises that should inhere in any viable account of what C. S. Peirce called a 'logic of vagueness', a 'logic' in the 'broadest possible sense'. These premises revolve around complementary interrelations between overdetermination and underdetermination, vagueness and generality, and inconsistency and incompleteness, the combination of them bearing a threat to the classical principles of Identity, Non-Contradiction, and Excluded-Middle. However, fortunately for us, it is through our detouring around these classical principles that we are able to cope with our everyday apparently unruly, illogical signs.

Key words: Overdetermination, Underdetermination, Vagueness, Generality, Complementarity.

Nuestros signos sin determinación, y como los manejamos

Resumen

Este trabajo sugiere algunas premisas que deben guiar una descripción de lo que C. S. Peirce denominaba una 'lógica de la vaguedad', una 'lógica' en el 'sentido más amplio posible'. Estas premisas giran alrededor de interrelaciones complementarias entre sobredeterminación y

sub-determinación, vaguedad y generalidad, lo inconsistente y lo incompleto, y la combinación de estos términos, pone en jaque los principios clásicos de Identidad, No-Contradicción y Tercero-Excluido. Pero afortunadamente, a través de nuestros actos de esquivar estos principios clásicos, somos capaces de enfrentarnos efectivamente con nuestros signos cotidianos aparentemente sin sentido e ilógicos.

Palabras clave: Sobredeterminación, subdeterminación, vaguedad, generalidad, complementariedad.

PRELIMINARIES

Charles S. Peirce occasionally alluded to what he termed a ‘logic of vagueness’ (i.e. of ‘possibility’ or ‘continuity’) as a ‘logic’ in ‘the broadest possible sense’, a ‘logic’ fit for all seasons and all reasons. Obviously, such a logic would go against the grain of classical logic insofar as it had been developed in Peirce’s time by Boole, de Morgan, Whatley, Schröder, and others. A ‘logic’ in ‘the broadest possible sense’ should offering foreshadowings of today’s ‘fuzzy logic’(1). Peirce never quite made good on his promise to construct this ‘logic’. However, in 1908 he did envision and outline the makings of a ‘triadic logic’ of sorts based on ‘real possibility’, ‘actuality’, and ‘real necessity’.

Peirce points out that a proposition asserting actual exists (Seconds) lies at the half-way house between the poles of assertion of possibility (Firstness) and those of necessity (Thirdness) (2). While assertions regarding actuals follow the tenets of classical logic, assertions of possibility and necessity do not, not necessarily, that is. In Peirce’s words:

[T] which characterizes and defines an assertion of Possibility is its emancipation from the Principle of Contradiction, while it remains subject to the Principle of Excluded Third; while that which characterizes and defines an assertion of Necessity is that it remains subject to the Principle of Contradiction, but throws off the yoke of the Principle of Excluded Third; and what characterizes and defines an assertion of Actuality, or simple Existence, is that it acknowledges allegiance to both formulae, and is thus just midway between the two rational ‘Modals’, as the modified forms are called by all the old logicians (MS 678:34-35).

According to Peirce, then, what lies within the sphere of possibility (Firstness) by and large violates the Principle of Noncontradiction, which reigns in the ‘semiotically real’ world of Secondness and classical logical principles. In other words, within the sphere of pure Firstness, contradictories can quite comfortably exist side by side. For, given the nature of unactualized Firstness as a superposed set of possibilities, everything is there. As purely possible signs, Firstness composes an unimaginably massive, continuous collage of compatible and incompatible, consistent and inconsistent, and complementary and contradictory, nonessences. In this sphere of pure chance, spontaneity, and infinitely diluted vagueness, nothing is (yet) specified and everything is at one with everything else: there are as yet no distinctions, no borders, no taxonomies. There is no static plenum, per se, but rather, effervescent, fluctuating, flickering, superposed possibilia in expectancy of their actualization into some ‘semiotically real’ domain or other. Thus the sphere of pure vagueness is thoroughly overdetermined. There is no knowing whether what would otherwise be considered contradictory terms might not be considered equally ‘true’ at different times and places (e.g. the ‘Earth’ as center of the universe before Copernicus, the ‘Sun’ as center of the universe after Copernicus, and especially after Einstein neither the ‘Earth’ nor the ‘Sun’ is center but every place is its own center) (see Goodman, 1978).

The realm of necessity (Thirdness) includes mediary terms, with no end in sight. Since any and all of signs remain invariably incomplete regarding their meaning, something more can always be added. Hence, unlike the eithers and the ors of Secondness, within Thirdness the Excluded-Middle Principle threatens to fall by the wayside. Between any two signs, given sufficient time and change of context and complexity, the potential always exists for other signs and their meanings, or the same signs and other meanings, to emerge. It is not a matter of the ‘center’ of the universe either as the Earth (Ptolemy) or the Sun (Copernicus), but neither the one nor the other. In other words, the ‘center’ for Ptolemy and the ‘center’ for Copernicus is not simply a matter of either-or alternatives: with the demise of classical physics, the ‘center’ is now conceived to be something else altogether (i.e. something entered the gap between the erstwhile either/or categories to render them neither-nor). Yet since at any given point in time the ‘center’ cannot be construed as both the Earth and not the Earth, the Principle of Noncontradiction remains in force—albeit tenuously at best. Consequently, at a given point

in time, any and all conceptual schemes are destined to incompleteness, since no matter how replete the previously considered gap between the either and the or is filled, there will always be room for something else. Due to this persistence of incompleteness, underdetermination necessarily prevails.

Overdetermination includes the sphere within which a sign is not yet definitely or authoritatively decided, settled, or fixed—though according to the circumstances it presumably can be—and as such it is unbounded by definite limits or restrictions. In this vein, overdetermination is related to the Peircean category Firstness, as well as to the concepts of vagueness and inconsistency. However, overdetermination in the purest sense entails the sphere of possibilities before there is or can be consciousness of a sign. Consciousness of a sign, during the very moment it is emerging into the light of day, remains vague, to be sure. As consciousness of the sign becomes more pronounced and vagueness gives way to increasing precision, a small number of the indeterminate range of possible specifications of the sign can become actualized as Seconds to take their place in what is perceived and conceived to be the ‘semiotically real’ world. But whatever specification might have been actualized, others remain as possibilities, some of them contradictory with respect to that which was actualized. In other words, regarding the Secondness and Thirdness of signs of which there is consciousness and regarding which specification of meaning can be made more precise, underdetermination (related, I would suggest, to generality and incompleteness) sooner or later makes its presence known. In another way of putting it, within the sphere of overdetermination, mutually incompatible possibilities of meaning can cohabit without undue conflict (and as a result, the Principle of Noncontradiction loses some of its sting). In contrast, within the sphere of underdetermination, an actualized meaning within one space-time slice can become something slightly to radically different within another space-time slice (hence the Excluded -Middle Principle is abrogated) (3).

PLAYING ONE SIDE AGAINST THE OTHER

It becomes apparent, then, that the sphere of vagueness, of possibilities (Firstness), is timeless, while that of generality (actuals developing toward the fullness of Thirdness) is time-bound. By the very nature of

this interrelationship, signs of generality are destined, in the long run of things, to suffer a fate complementary with signs of vagueness.

In this spirit, Peirce wrote that '[n]otwithstanding their contrariety, generality and vagueness are, from a formal point of view, seen to be on a par' (CP:5.447). Vague signs cannot be construed as vague unless endowed with at least a tinge of generality, and general signs, given their inevitable degree of incompleteness, are invariably somewhat vague. Peirce readily conceded that no sign can be vague and general from the same perspective and from within the same space-time slice, since insofar as the determination of a sign is extended to the interpreter—i.e. the case of generality—it is by and large denied to the utterer, and insofar as it is extended to the utterer—i.e. the case of vagueness—it lies largely beyond the grasp of the interpreter (CP:1.463-69, 5.447-57). By no means, however, do I wish to imply that Firstness has a monopoly on vagueness, but rather, vagueness to a greater or lesser degree pervades any and all signs. This is in keeping with Peirce's abolition of clear and distinct, and precisely demarcated, boundaries. I must also add that the interrelationships herein implied between vagueness and generality—and overdetermination and underdetermination—is not usually forthcoming in twentieth-century philosophical discourse. Bertrand Russell (1923), for instance, relates the law of excluded-middles exclusively to vagueness. Williard V. O. Quine (1953, 1960) has focused almost obsessively on underdetermination with respect to scientific theories, and by extension, natural language (Føllesdal, 1975). More recently, Donald Davidson (1984) has thrown vagueness into the same bag with generality and incompleteness without showing how they are agonistically set apart and at the same time intricately intertwined (Evnine, 1991:105-14).

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

A sign (under which designation I place every kind of thought, and not alone external signs), that is in any respect objectively indeterminate (i.e. whose object is undetermined by the sign itself) is objectively general in so far as it extends to the interpreter the privilege of carrying its determination further. Example: 'Man is mortal'. To the question, What man? the reply is that the proposition explicitly leaves it to you to apply its assertion to what man or men you will. A sign

that is objectively indeterminate in any respect is objectively vague in so far as it reserves further determination to be made in some other conceivable signs, or at least does not appoint the interpreter as its deputy in this office. Example: 'A man whom I could mention seems to be a little conceited'. The suggestion here is that the man in view is the person addressed, but the utterer does not authorize such an interpretation or any other application of what she says. She can still say if she likes, that she does not mean the person addressed. Every utterance naturally leaves the right of further exposition in the utterer, and therefore, in so far as a sign is indeterminate, it is vague, unless it is expressly or by a well understood convention rendered general. (CP:5.447; see also 1.434)

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

In everyday situations, when the plethora of potentially variant space-time slices comes into the picture, the possibility of an absolutely determinate sign dissolves. There was a George Bush Senior of 'Read my lips', of 'No new taxes', of 'Perhaps new taxes', of 'New taxes', and of 'New taxes, but the democrats made me do it'. But there is no George Bush impervious to any and all change. These days we have a Bill Clinton of the Democratic Party as now neoliberal, now for social programs, now wooing the conservatives, now catering to the business community, now also of the working class and capable of eating hamburgers with the best of them, now favorable to the educators, now sympathetic with women and minority groups and gays, now friendly with the women folks but doing nothing improper, now intimate with members of the opposite sex but still morally upstanding. Bill Clinton, like all signs, can be many things to many people, or he can be virtually an empty set capable of taking in almost any sign, according to the interpretation (4). Like all signs, he simply cannot stand still. Were a changeless sign actually to exist, it would be absolutely autonomous, individual, and indivisible. However, such absolutes 'can not only not be realized in sense or thought, but cannot exist, properly speaking. For whatever lasts for any

time, however short, is capable of logical division, because in that time it will undergo some change in its relations' (CP:3.39 n1).

So every sign must relate to some not-quite-absolutely-general 'semiotic object'. The 'object' cannot be the absolutely 'real object' as it is, for all 'objects' are related to all other 'objects' of a given field of signs. To be sure, all signs relate to some singular 'object', at least potentially understood by all semiotic agents. But since the 'really real' lies perpetually beyond our grasp, there must exist some lesser sphere containing signs and their 'semiotic objects'. That sphere is partly shared by the semiotic agents involved in dialogic exchange, and those signs and 'semiotic objects' are to a greater or lesser degree general, though never absolutely so, and hence they are to a greater or lesser degree vague. Vagueness and generality are in this sense complementary forms of indeterminacy. A sentence can be determinately judged either 'true' or 'false' in the 'here-now', though in the 'there-then' its value will have suffered a change, however small—Peirce's conception of 'logic' in the 'broadest possible sense' embraces temporality. And a sentence that has been determined either 'true' or 'false' in one respect may be neither 'true' nor 'false' in another. A sound can be neither blue nor red in the literal sense, though it may conceivably be either the one or the other in the synaesthetic sense. Consequently, the predicates 'shrill' or 'mellow', 'bitter' or 'sweet', or 'blue' or 'red' attached to the sign can be both 'true' and 'false' from within the range of all possible conceptions.

Generality includes the Peircean terms potentiality, convention, necessity, conditionality, and regularity—all of the category of Thirdness—which implies process, growth, intellect, and mind (CP:1.340). Generality thus calls for ever greater account of particular signs and their attributes as types. Yet to expect absolute determinacy through generality is out of the question: there can be no more than an approximation toward a sign in its most general sense (5). Vagueness, given its nature as indefinite, ambiguous, and indeterminate, takes the terms possibility, chance, spontaneity, and novelty into its embrace. While generality entails relations to 'semiotic objects', vagueness bears no form or fashion of relatedness of signs to other signs established by some semiotic agent. Pure vagueness (Firstness) is the superposition of all possibilities without any of them being actualized. However, vagueness of actual signs (Secondness) requires their concrete contextualization and their being related to other signs. Such actualized signs, according to their interpre-

tation, can now take on generality (Thirdness). It is for this reason that while the onus of further determination of a general sign is left to the conceptual scheme, the criteria, and the style of reason and the wishes and whims of its interpreter. In contrast, determination of a vague sign depends upon further revelation and specification of its meaning by its author and the context of its engenderment.

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

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

In addition to common sense, purpose is a watchword here. If two somewhat different conceptions of the same sign—one person’s estimation of Charles the Second and that of another person—yielded meanings that were for all possible purposes equivalent, then the signs could conceivably be considered equivalent. There apparently would be no latitude of purpose, the sign would be general in the fullest possible sense. Nor would there seem to be any room for vagueness, for the sign would have taken on the fullness of its generality, in the minds of its interpreters at least. However, in the context of human communication by way of natural language—and all other sorts of communication as far as

that goes—there is no absolute identity of purpose. For, the motivating force behind purpose itself involves common sense (intuition, inclination, belief, disposition, all of which have a foothold in Firstness and are inevitably tinged with some degree or other of vagueness). Vagueness, then, is irreducible to the rank and file absolute determinacy of the ‘semiotic object’, since there is always something indeterminable and left indeterminate. Yet vagueness is every bit as essential to thought as is generality. For, a particular sign, its ‘semiotic object’, or its interpretant, cannot be properly cognized in the total absence of the general nature of the semiotic entity in question. And unless there is some element of vagueness, there can hardly be any account of the entity’s change over time: a changeless, timeless sign would be none other than a Parmenidean eternally invariant domain of some form or other jam-packed with a host of timeless essences into an artificial plenum.

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

Now for a further look at the complementary role of a sign’s author and its interpreters—themselves also signs.

OUR SIGNS’ ELUSIVENESS

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

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

To be more specific, Peirce does not use the pair of Gödelian terms, inconsistency and incompleteness, now commonplace in mathematics, logic, and physics. However, his vagueness-generalty interrelatedness is brought in line with something reminiscent of a Gödelian framework by Rescher and Brandom (1979:124-26), though admittedly for a different purpose (see Merrell 1991, 1995a, Nadin 1982, 1983). The relationship between vagueness-generalty and inconsistency-incompleteness and their relevance to indeterminacy becomes apparent if one sufficiently contemplates Peirce's suggestion that '[e]very utterance naturally leaves the right of further exposition in the utterer; and therefore, in so far as a sign is indeterminate, it is vague, unless it is expressly or by a well-understood convention rendered general' (CP:5.447). In other words, the indeterminately vague sign calls out to its maker for further clarification, since that which can render it less vague is more accessible to the possibilities that lie before her than before the sign interpreter.

If a sign of vagueness includes contradictions, then the sign's meaning for one community might be incompatible with its meaning for another community at another time. And if a sign of generality is never determined to the extent that it cannot be determined further, then an unordered set of potential interpretations exists with the characteristic that between any given pair of interpretations there can always be a third one. In other words, as we have noted, the Excluded-Middle Principle loses part of its sting. A small group of mathematicians, the intuitionists, deny the Excluded-Middle Principle altogether. For quite different reasons, a handful of quantum theorists also reject the

Excluded-Middle, in roughly the sense of Jan Lukasiewicz, the Polish logician of the 1920s, whose ‘3-valued logic’ includes ‘true’, ‘false’, and ‘undetermined’ (indeterminate, intermediate). John von Neumann pioneered an alternate ‘logic’, ‘quantum logic’, especially tailored to the needs of quantum phenomena. Following the general implications of quantum theory and quantum logic, a sign’s becoming a genuine sign depends upon the interpreter’s interaction with it. Just as no ‘wave packet’ is an actualized ‘particle-event’ until it enters into relationship with some aspect of its surroundings, so also no sign is a full-blown sign until it has been actualized (and interpreted) by some interpreter in some respect or capacity (6).

An additional example may serve to illustrate the idea that (1) a sign is not a genuine sign until it has interacted with some semiotic agent, (2) within the (vague) realm of all possible signs, inconsistency or contradiction inevitably prevails, and (3) given the range of all actualized (general) signs, past, present, and future, there is no guarantee that the Excluded-Middle applies, hence the meaning of any and all signs will be incomplete. Assuming I have little knowledge regarding a particular event reported in the newspaper, I can read each individual sentence with rather wide-eyed, innocent—and exceedingly vague—belief. Yet at a more general level I may also believe that this article, like most others, is in all probability the victim of at least some degree of biased reporting. I tend to believe each individual sentence as it stands; but at the same time I am willing to concede to the possibility that my belief in a given sentence can embrace contradiction, since I also believe that, lurking somewhere in the report, there is undoubtedly some distortion of the ‘truth’. So I take the article as a whole with a grain of disbelief, though I have not yet encountered any sign of deceit: it remains as a sign of possibility. Even though I might not have been able to catch the reporter at her devious game, I may still retain my faith that a closer reading will in all likelihood reveal some sort of inconsistency (i.e. that the sign of possibility will be actualized). In other words, I believe the article is neither wholly ‘true’ nor wholly ‘false’, but somewhere in between. In the Peircean sense, it follows that: (1) an assertion of possibility (Firstness), having found newborn freedom from the Principle of Noncontradiction, rests chiefly within the domain of vagueness, (2) an assertion of necessity (Thirdness), liberated from the fetters of the Excluded-Middle Principle, pertains primarily to generality, and (3) an assertion of actuality (Sec-

ondness) by and large, and for practical purposes, remains quite obedient to the demands of classical logic.

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

Now, since (1) complementarity entails one’s knowing now one character of an entity, now another character, without the possibility of knowing both characters in simultaneity, and since (2) Peirce’s ‘logic in the broadest possible sense’ is time-bound, (3) a brief incursion—albeit tangentially by way of Kurt Gödel, if I may—into the nature of time behooves us.

ULTIMATELY, IT’S ABOUT TIME

According to Gödel’s theorem, there are certain questions neither a machine nor we sapient humans can answer with a firm ‘yes’ or a firm ‘no’, for a degree of inconsistency (vagueness) inexorably inheres. In our nitty-gritty world of human *praxis*, on the other hand, a number of questions exist that apparently cannot be completely (in the most general

sense) answered at any particular point in time. But, given sufficient time and experience, and the numbing range of variable possible contexts, eventually a satisfactory answer may be forthcoming.

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

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

This impossibility of our grasping and specifying the whole of a given corpus has a temporal-existential counterpart, which was quite forcibly made evident in Wittgenstein’s (1956) remarks on mathematics (see also Bloor 1976, 1983; Shanker 1987). A natural language rendition of this temporal-existential counterpart is revealed by a quandary known as the Prisoner Paradox. The paradox goes like this. It is Sunday. The warden tells the prisoners that the judge has decreed their execution on one day of that week. But they will not be informed which day it will be

until the arrival of that very day, hence it will be a surprise. The prisoners, however, happen to have found a quite astute lawyer. She reasons that, assuming the warden has told them the truth, they cannot be executed, for if the fatal day is to be Saturday, then it cannot be a surprise, since it will be the only day remaining. By this mode of reasoning neither can it be Friday, for Saturday now having been eliminated, Friday is no longer a viable candidate. The same can be said of Thursday, and so on down to Monday. Therefore they cannot legitimately be executed.

Now there is a flaw here. The lawyer's reasoning is strictly by atemporal logical means; she can certainly afford to be logical, for her life is not at stake. Her field of signs, conveniently conforming to logical principles, is quite manageable and for her apparently decidable. In contrast, the prisoners' very existence is in jeopardy. They are rightly concerned over how much time remains of their life, and time is precisely the issue here. The lawyer's logic is timeless, and within this framework, entailing a God's-Eye grasp of things, the paradox springs forth in full force. In other words, as far as the lawyer is concerned, all events exist timelessly in the before or the after (i.e. J. M. E. McTaggart's [1927] B-series). There can't be a 'day after', regarding the prisoners' demise, for if there were, there could be no surprise, hence neither can there be a 'day before'. So the event of the prisoners' death at the hands of the firing squad can't occur, according to the lawyer's logic that is. But the prisoners, their emotions having understandably taken precedence over their reasoning faculties, are condemned to time. They live in another world entirely, with a past, a future and a knife-edged present racing from the former toward the latter (i.e. McTaggart's [1927] temporal A-series). At any given present the warden can make his decision, the firing squad will be called up, and as far as the prisoners are concerned they will die. Hence try as their lawyer may to convince them otherwise, she will not be able to reason away their expectations of an unexpected moment announcing their doom. Condemned to a time-bound set of possibly, actually, and potentially unexpected signs the complexity of which is beyond their grasp, they can conceive of no solution. There is for them no timeless God's-Eye perspective of the sort apparently enjoyed by their lawyer.

The Prisoner Paradox traps the real flesh and blood objects of predication, the prisoners, 'within' the sentence, though a neutral interpreter can presumably remain 'outside', maintaining a timeless logical slant on the whole. It is ultimately a matter of the capacity or incapacity

to survey and give account of, and of the knowability or unknowability of, the whole of things. The lawyer thinks she can view the whole from a timeless perspective, as if she were gazing upon the undivided sphere of Firstness or of Thirdness completed once and for all. She sees an inconsistency, and, applying it to the prisoners' 'semiotically real' world of Secondness, declares that the judge's decreed event, the fulfillment of Thirdness, cannot logically come to pass. Caught within their temporal existence and unable to survey the whole, the prisoners believe that an event, so decreed by the judge, is surely inevitable, but they cannot know the point of its occurrence along the race of time. The judge claims he knows what the prisoners and their lawyer don't know; the lawyer claims she knows the judge cannot (logically) know what he thinks he knows; the prisoners know they cannot know what the judge knows, in spite of their lawyer's refutation of the judge's knowledge.

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

ON OUR KNOWING OUR UNKNOWING

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

The judge, of the Prisoner Paradox, thinks he can justifiably set the day of the prisoners' execution, but the lawyer has discovered an inconsistency in his reasoning. The prisoners think they know not the day of the execution, and even though the lawyer points out the error of the judge's ways, they are not deterred from their learned sort of ignorance. They know their knowledge is destined to remain radically incomplete, for between a given future time frame and a past time frame, an instantiation of the present can always pop up within which their doom becomes manifest. In other words, at the very instant knowledge of the time of their execution is at hand, they will be executed: their knowledge will now be complete, but at the expense of their very existence. Whichever day the judge decides upon, an inconsistency will inhere. Whatever the prisoners think, their knowledge will be incomplete. The lawyer thinks she has dissolved the inconsistency by mentally strait-jacketing the judge and bringing the system to completion by discarding the possibility of a decision: things will remain as they are, timelessly. But the pris-

oners' 'semiotically real' world dictates otherwise, for the entire scheme is, from whichever vantage, either inconsistent or incomplete—or perhaps both—up to the instant their very existence is terminated. Each party, it would appear, is either right for the wrong reasons or wrong for the right reasons.

My own 'reasoning' behind all this madness is the following. The lawyer's timeless realm of logic, when placed in the living and breathing world of time-bound Seconds and Thirds, is not existentially valid, for it allows of no temporality, the very stuff life is made of. So from the subjective world of the prisoners, the lawyer's form of logic is vague and overdetermined: inconsistent signs are superposed as quite unruly bed partners. The lawyer, in contrast, wishes objectively to interject the timeless orb of her classical logic into the actualized sphere of Seconds, which allows for neither contradictory signs nor a proliferation of middles. But the lawyer's logic, from within the prisoners' own existential world, is a time bomb ticking out their destiny. It remains for them in their concrete living and breathing incomplete: underdetermined and incomplete. They cannot know at what point in time the expected unexpected event of their death will occur, though they think they know it will occur. When it does occur, their knowledge will have reached completion and the uncertainty of proliferating temporal middles between the judge's decree and their execution will no longer exist. But all will have been to no avail, for they will be no more.

Of course we would like to assume that such paradoxes are not ordinarily pernicious and that we can always 'jump out' of the signs within which they are dressed to specify whatever we wish: we persist in our desire to think we are master of our signs. However, though we can occasionally exercise a move from one system to another of greater complexity, we are often able to manhandle that 'lower' system from what we imperiously believe to be our 'metaperspective'. But we can usually do so only insofar as our own thought system is of greater complexity than that 'lower' system, and above all, only insofar as by some inconceivable stretch of the imagination it stands outside time. If not, like the prisoners' lawyer, we run the risk of futilely attempting to survey the unsurveyable, decide the undecidable, specify the unspecifiable, know the unknowable.

That is to say, given the sign fabricator and its interpreter, what is taken out of the sign is what was put there in the first place. What was put there is always subject, in time, to some change of minor to radical sorts,

and what is taken out, since invariably incomplete, is always subject, also in time, to further possible additions and deletions. No corpus of knowledge in the time-bound world of our severely restricted capacities can be entirely consistent, nonvague, and complete in terms of its general nature, though our thinking would like to make it so.

FILLING IN A FEW GAPS

In conjunction with any disquisition on vagueness and inconsistency and generality and incompleteness, Peirce's categories should be more properly foregrounded before we move on.

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

Signs of Firstness cannot but remain vague, and quite often inconsistent. Signs of Secondness, after emerging into the light of day, can—albeit partly arbitrarily—take on what at the outset appear to be crystal clear lines of demarcation. But as particulars, their moment of glory cannot but be ephemeral. For they are destined to pass on into something other than what they are/were, even though the differences between each of their momentary flashes of existence are well-nigh infinitesimal—hence the classical identity principle also runs the risk of falling by the wayside. Signs of Thirdness, it is assumed, must possess some form of continuity of existence. They are hopefully identical with themselves from one moment to the next, and they can be distinguished from other signs in terms of their character as generalities—though they cannot help being tinged with some degree of vagueness, for they are

never free of Firstness *via* Secondness. But as generalities they are destined to remain incomplete, since there will always exist the possibility of other signs filling in the gaps between what had hitherto been construed as a set of precise categories. The upshot is that by and large there is a definite move toward some sort of idealism in terms of sign generalities, yet, incompleteness there will always be. Underdetermination is the order of the day in this domain of generalities, since whatever sign happens to be underdetermined at a given time and place, it could always have been something other than what it is. As a rule of thumb, overdetermination ultimately entails a superposition of all possibilities without any of them having been actualized into Secondness; underdetermination is the juxtaposition of what at a give slice in space-time is considered 'real' and what is relegated to the status of 'unreality'.

The underdeterminationist assumption has it that intuitively we believe something but not everything is 'real'. Since we cannot by empirical means discover what is 'real' without a shadow of a doubt, the matter is left to our judgment, according to our persuasions and propensities and wishes and whims. Underdetermination implies incompleteness, for, what is 'real' could always have been construed otherwise, and what is 'unreal' may yet stand some outside chance of becoming 'real' at another time and another place. Underdetermination regarding scientific theories stipulates that competing and equally legitimate theories—equally legitimate from within their particular conceptual schemes, that is—can be generated on the basis of the same set of observations. In this vein, at the turn of the century, Pierre Duhem (1954) and Henri Poincaré (1952), and more recently, Nancy Cartwright (1983) and Hilary Putnam (1983), argue that there will always be equally satisfactory alternatives to a given theory or general theoretical framework (paradigm). Consequently, no single story can account for all the furniture of the world in one fell-swoop. This is, in essence, the Duhem-Quine scenario—in which Peirce is a principle actor, though his role in this respect is often overlooked—predicated on the radical underdetermination of theories (i.e. they are empirically equivalent but logically incompatible) (see also Gähde and Stegmüller 1986, Roth 1987, Sacks 1989).

Quine (1969) is one of the more ardent propagators of the underdeterminationist thesis—by way of Duhem's methodological 'holism'. He argues that a theoretical sentence in physics can have the same underdetermined relation to experiments and observation sentences that a sen-

tence of natural language has to the observed objects, acts, and events that it is about (Vuillemin 1986). He writes that since experience is never an infallible adjudicator for rejecting or embracing individual theoretical sentences, theoretical physics cannot be other than an interconnected web of sentences, procedures, and formalisms in contact with the world only at its edges, if at all. Any impact observation sentences may have on the web becomes distributed throughout the web such that no part of it is immune to change and no part stands alone in bearing the brunt of that impact. Additions, deletions, and adjustments of diverse sorts can often be made in the whole to accommodate the experience, but there is no infallible or unique method for making these adjustments. Four naturally occurring elements or many of them, phlogiston or oxygen, Euclidean geometry or Riemannian or Lobachevskyan geometry, Darwinian or Lamarckian evolution, all during certain periods have been aided and abetted by proper 'empirical evidence' from one perspective or another. According to the dictates of a community's desires, what now appear to us as the most bizarre of theories could be, and at times have been, granted 'truth value'.

It would appear, then, that our ideals are perpetually out of line with our real capacities. Moreover, we see with greater force that overdetermination and underdetermination apply to the idea of fictionality, and especially to the inexorable fuzziness between fictions and the 'semiotically real'. The exact quantity of gold in Pike's peak, the cause of Hamlet's dementia, the reason for Napoleon's decision at the Battle of Waterloo, Don Quixote's height, the use of -1 in quantum theoretical equations, the absolutely precise nature of the Sun with respect to all other entities in the firmament, are all underdetermined in that they are never so complete as to be immune to further determination. In fact, all signs are to a greater or lesser degree underdetermined, their 'reality' status or their fictionality status notwithstanding. Consequently, a community's fabric of signs is read into experience, and in the process it becomes the world that is, the 'semiotically real'. 'Semiotically real' signs from diverse time periods and from a variety of belief that are pregnant with meaning ('mass', 'energy', 'Eucharist', 'Big Foot', 'Zeus', 'UFOs', 'mana', 'witches', 'AIDS', 'cholesterol', and the 'Cross' and 'Swastika') have become so impregnated because of the role they play and the place they occupy in their respective interwoven semiosic fabric. They do not describe experience; they are 'intersubjective idealizations' of ex-

perience. Whether dressed in relatively concise and complete abstract language or in everyday language and enshrouded in vagueness, much of their meaning remains implicit.

BY WAY OF A TENTATIVE CONCLUSION

After all has been said and done, overdetermination (vagueness)-underdetermination (incompleteness) pairs of terms are most economically viewed as two complementary approaches toward knowing what is (see especially CP:2.322-23). The two approaches pattern the Heraclitus-Parmenides and Aristotle-Plato antagonisms. In their purest form, one is messy and unkempt; the other is orderly. One is rich in the variety of its concrete particulars; the other is a formal and parsominious. The one is a maze of tropical flora; the other is a barren desert converted into a grid of meticulously cultivated plots. Ultimately, Included-Middles emerge from within the pairs of terms; they evince inconsistencies here and there; they keep the complementarities together, in spite of whatever tensions might arise. So, we ordinarily cope with our unruly signs, as best we can, and get on with life's processes.

Notes

1. 'Fuzzy logic' has at least two chief sources over the past century. The first of these sources was initiated by Peirce in the form what he called a "logic of vagueness," the full development of which he held as a project for some future time that never arrived before his death. The concept of "vagueness" was later picked up by Max Black (1937), and has more recently become the focus of studies by Brock (1979), Engel-Tiercelin (1992), Merrell (1995a, 1996, 1997, 2003), and Nadin (1982, 1983), among others. The second source is an outgrowth of work with "fuzzy sets" in the 1960s and 1970s by Lofti Zadeh (1965, 1987). In a word, "fuzzy logic" reveals the sludge inherent in linguistic practices. As such, this new logic refuses to prioritize language over para-extra-linguistic modes: all communication is to a greater or lesser degree vague. It was, of all philosophers, the analytical Bertrand Russell (1923), who, in a paper on vagueness, suggested that language is invariably vague and that vagueness is a matter of degree.

2. Firstness, Secondness, and Thirdness refer to Peirce's three categories of thought. According to Peirce, any conceptual body of knowledge, no matter how complex, can be reduced to triadicity, but that triadicity cannot be further reduced without its suffering a loss. Although limited time and space do not permit my expounding on the categories, I trust their nature can be inferred within the context of my exposition (for further, see Almeder 1980).
3. For development of the notions of overdetermination and underdetermination and their relationship to the logical principles of non-contradiction and excluded-middle with respect to signs within broad cultural contexts, see Merrell (1998, 2004).
4. I would like to believe that in Merrell (2004) I have presented an effective case of signs and their various and sundry 'logics' regarding what is perhaps the most complex cultural milieu in our contemporary world, Latin American. In this study I suggest throughout that 'cultural logics' are fabricated rather than discovered or coming from on high, they are invented rather than ready-made, and their interpretation depends upon a virtually incomprehensible array of possible perspectives within an indefinite number of possible contexts.
5. The allusion here is to Peirce's often maligned idea that science—and knowledge in general—is in a process asymptotically of approximating the truth (for a critique of Peirce's convergence theory, see Rorty 1991; for a discussion of the pros and cons, Skagesstad 1981; for a defense, Hausman 1993).
6. Of course there exists a veritable spate of alternate 'logics', for example, three- and many-value logic, modal logic, dialectical logic, Buddhist logic, fuzzy logic, free logic, and, more in line with the premises underlying the present inquiry, Lupasco's 'logic of contradiction' (1947), Melhuish's 'complementary contradictory logic' (1967), Rescher and Brandom's 'logic of inconsistency' (1979), and the 'paraconsistent logic' developed in Brazil (da Costa 1974), none of which I intend to pre-empt here (Haack, 1996). I wish merely to open the door to a smattering of the many possibilities revealed by Peirce.

References

- ALMEDER, R. 1980. **The Philosophy of Charles S. Peirce: A Critical Introduction**. Totowa, NJ:Rowman and Littlefield.
- BLACK, M. 1937. Vagueness, an exercise in logical analysis. **Philosophy of Science** 6, 427-55.
- BLOOR, D. 1976. **Knowledge and Social Imagery**. London: Routledge and Kegan Paul.
- BLOOR, D. 1983. **Wittgenstein: A Social Theory of Knowledge**. New York: Columbia University Press.
- BROCK, J.E. 1979. Principle themes in Peirce's logic of vagueness. In **Peirce Studies** 1, 41-50. Lubbock: Institute for Studies in Pragmaticism.
- CARTWRIGHT, N. 1983. **How the Laws of Physics Lie**. Oxford: Clarendon Press.
- COSTA, NEWTON C. A. da. 1974. On the theory of inconsistent formal systems. **Notre Dame Journal of Formal Logic** 15, 497-510.
- DAVIDSON, D. 1984. **Inquiries into Truth and Interpretation**. Oxford: Clarendon Press.
- DUHEM, P. 1954. **The Aim and Structure of Physical Theory**, trans. P. P. Wiener. Princeton: Princeton University Press.
- ENGEL-TIERCELIN, C. 1992. Vagueness and the unity of C. S. Peirce's realism. **Transactions of the C. S. Peirce Society** 28 (1), 51-82.
- EVNINE, S. 1991. **Donald Davidson**. Stanford: Stanford University Press.
- FØLLESDAL, D. 1975. Meaning and experience. In **Mind and Language**, S. Guttenplan (ed.), 25-44. Oxford: Clarendon Press.
- GÄDHE, U. and WOLFGANG, S. 1986. An argument in favor of the Quine-Duhem thesis: From the structuralist point of view. In **The Philosophy of W. V. Quine**, L. E. Hahn and P. A. Schilpp (eds.), 117-36. LaSalle, IL: Open Court.
- GOODMAN, N. 1978. **Ways of Worldmaking**. Indianapolis: Hackett.
- HAACK, S. 1996. **Deviant Logic, Fuzzy Logic: Beyond the Formalism**. Chicago: University of Chicago Press.
- HAUSMAN, C.R. 1993. **Charles S. Peirce's Philosophy**. Cambridge: Cambridge University Press.
- LUPASCO, S. 1947. **Logique et contradiction**. Paris: Presses Universitaires de France.
- McTAGGART, J. M. E. 1927. **The Nature of Existence**, vol. 2. Cambridge: Cambridge University Press.

- MELHUIISH, G. 1967. **The Paradoxical Nature of Reality**. Bristol: St. Vincent's Press.
- MERRELL, F. 1991. **Signs Becoming Signs: Our Perfusive, Pervasive Universe**. Bloomington: Indiana University Press.
- MERRELL, F. 1995a. **Semiosis in the Postmodern Age**. West Lafayette: Purdue University Press.
- MERRELL, F. 1995b. **Peirce's Semiotics Now: A Primer**. Toronto: Canadian Scholars' Press.
- MERRELL, F. 1996. **Signs Grow: Semiosis and Life Processes**. Toronto: University of Toronto Press.
- MERRELL, F. 1997. **Peirce, Signs, and Meaning**. Toronto: University of Toronto Press.
- MERRELL, F. 1998. **Sensing Semiosis: Toward the Possibility of Complementary Cultural 'Logics'**. New York: St. Martin's Press.
- MERRELL, F. 2003. **Sensing Corporeally: Toward a Posthuman Understanding**. Toronto: University of Toronto Press.
- MERRELL, F. 2004. **Complementing Latin American Borders**. West Lafayette: Purdue University Press.
- NADIN, M. 1982. Consistency, completeness and the meaning of sign theories. **American Journal of Semiotics** 1 (3), 79-98.
- NADIN, M. 1983. The logic of vagueness and the category of synechism. In **The Relevance of Charles Peirce**, E. Freeman (ed.), 154-66. LaSalle, IL: Monist Library of Philosophy.
- PEIRCE, C.S. 1931-35. **Collected Papers of Charles Sanders Peirce**, C. Hartshorne and P. Weiss (eds.), vols. 1-6. Cambridge: Harvard University Press (reference to Peirce's papers will be designated CP).
- PEIRCE, C.S. 1958. **Collected Papers of Charles Sanders Peirce**, A. W. Burks (eds.), vols. 7-8. Cambridge: Harvard University Press (reference to Peirce's papers will be designated CP).
- MS: refers to Peirce's unpublished manuscripts (for catalogue and page numbers, see Robin 1967).
- POINCARÉ, H. 1952. **Science and Hypothesis**, trans. F. Maitland. New York: Dover.
- PUTNAM, H. 1983. Vagueness and alternative logic. **Erkenntnis** 19, 297-314.
- QUINE, W.V.O. 1953. **From a Logical Point of View**. New York: Harper and Row.
- QUINE, W.V.O. 1960. **Word and Object**. Cambridge: MIT.

- QUINE, W.V.O. 1969. **Ontological Relativity and Other Essays**. New York: Columbia University Press.
- RESCHER, N. and BRANDOM, R. 1979. **The Logic of Inconsistency: A Study of Non-Standard Possible World Semantics and Ontology**. Totowa, NJ: Rowman and Littlefield.
- RORTY, R. 1991. Inquiry as recontextualization. In **The Interpretive Turn: Philosophy, Science, Culture**, D. R. Hiley, J. F. Bohman and R. Schusterman (eds.), 59-80. Ithaca: Cornell University Press.
- ROTH, P.A. 1987. **Meaning and Method in the Social Sciences: A Case for Methodological Pluralism**. Ithaca: Cornell University Press.
- RUSSELL, B. 1923. Vagueness. **Australian Journal of Philosophy** 1, 88-91.
- SACKS, M. 1989. **The World We Found: The Limits of Ontological Talk**. LaSalle, IL: Open Court.
- SHANKER, S.G. 1987. **Wittgenstein and the Turning-Point in the Philosophy of Mathematics**. Albany: State University of New York Press.
- SKAGESTAD, P. 1981. **The Road to Inquiry: Charles Peirce's Pragmatic Realism**. New York: Columbia University Press.
- VUILLEMIN, J. 1986. On Duhem's and Quine's thesis. In **The Philosophy of W. V. Quine**, L. E. Hahn and P. A. Schilpp (eds.), 595-618. LaSalle, IL: Open Court.
- WITTGENSTEIN, L. 1956. **Remarks on the Foundations of Mathematics**, trans. G. E. M. Anscombe. New York: Macmillan.
- ZADEH, L. 1965. Fuzzy sets. **Information and Control** 8, 378-53.
- ZADEH, L. 1975. Fuzzy logic and approximate reasoning (In memory of Grigore Moisil)." **Synthese** 30, 407-28.