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**Abstract:**

Much discussion of meaning by philosophers over the last 300 years has been predicated on a Cartesian first-person authority (i.e. 'infallibilism') with respect to what one's terms mean. However this has problems making sense of the way the meanings of scientific terms develop, an increase in scientific knowledge over and above scientists' ability to quantify over new entities. Although a recent conspicuous embrace of rigid designation has broken up traditional meaning-infallibilism to some extent, this new dimension to the meaning of terms such as 'water' is yet to receive a principled epistemological undergirding (beyond the deliverances of 'intuition' with respect to certain somewhat unusual possible worlds).

Charles Peirce's distinctive, naturalistic philosophy of language is mined to provide a more thoroughly fallibilist, and thus more realist, approach to meaning, with the requisite epistemology. Both his pragmatism and his triadic account of representation, it is argued, produce an original approach to meaning, analysing it in processual rather than objectual terms, and opening a distinction between 'meaning for us', the meaning a term has at any given time for any given community and 'meaning simpliciter', the way use of a given term develops over time (often due to a posteriori input from the world which is unable to be anticipated in advance). This account provocatively undermines a certain distinction between 'semantics' and 'ontology' which is often taken for granted in discussions of realism.

## **The Meaning of Meaning-Fallibilism**

The structure of this paper is as follows. Section 1 presents a broad-brush summary of ‘infallibilist’ understandings of meaning influential since the early modern period. The next two sections contrast such understandings with Peirce’s account – from which it is possible to tease out two ‘dimensions’ of meaning. The first (discussed in section 2) is the meaning of a term or concept<sup>1</sup> for a given group of people at a given time. Peirce’s pragmatism suggests that this may be clarified by studying the *expectations* about the future which the group are led to form from hypotheses containing that term or concept. This pragmatist claim is distinguished from the verificationism which it superficially resembles. The second dimension of meaning on Peirce’s account (discussed in section 3) consists in a term’s use and development over time, insofar as representation (or, as Peirce puts it, “signification”) consists in an irreducibly triadic relationship between a sign, its object and further uses of the same sign to refer to the same object. (The fact that these two dimensions of meaning may come apart is in fact constitutive of meaning-fallibilism, it is suggested.) Section 4 draws out the consequences of this account for the relationship between semantics and ontology, and also defends it from charges of unworkable essentialism and incommensurability, making a distinction between the ‘immediate’ (apparent) and the ‘dynamic’ (real) object of any given term. The paper concludes with a brief discussion of how rigid designation should be understood in this original philosophical framework.

### **1 Meaning-Infallibilism**

#### 1.1 Some Recent Influential Conceptions of Meaning

‘The meaning of “meaning”’ is one of the more fundamental philosophical issues. The concept of meaning seems to bear some logical connection with the concept of truth, insofar as the truth of a statement seems somehow dependent on its terms’ meaning what they do. However, meaning seems to be a broader concept than truth, in that

statements which are patently untrue – such as “Cats have six legs” – can be perfectly meaningful. Meaning also seems to be something over and above reference, the difference in meaning between ‘The Morning Star’ and ‘The Evening Star’ being one of the most notorious examples of this.

Early modern philosophy was shot through with a dualistic metaphysics of material things (often referred to as ‘bodies’) and minds (of which ideas were often considered to be ‘modes’ or ‘features’). Bodies and minds were viewed as entirely different substances by Descartes. Although later empiricist philosophers such as Locke and Hume sought a more scientifically respectable monism, they retained as the basic unit of logic and epistemology a notion of the idea which was very Cartesian in its ‘privacy’ (that is, its location somehow ‘in’ an individual mind), and also in its incorrigibility, such that I have first person authority about what the terms I use mean (which was thought by Descartes to form some sort of Archimedean point for grappling with the sceptic). Thus in the early modern period, the fact that ‘The Morning Star’ and ‘The Evening Star’ differ in meaning would have been accounted for by saying that although the two terms name the same heavenly body, they correspond to different ideas (these ideas being insufficiently “clear and distinct” for many minds to be able to discern their identical reference).

By the time of Frege, however, it was coming to be felt (due in part to Frege’s own efforts) that this sort of understanding of meaning in terms of ideas was too psychologistic. Meaning was after all a logical concept, and so it was thought that it should be definable more objectively than in terms of the private, error-prone notions of individual minds. Thus, Frege wrote:

The same sense is not always connected, even in the same man, with the same idea...A painter, a horseman, and a zoologist will probably connect different ideas with the name ‘Bucephalus’ (Frege, 1952, p. 59).

He therefore claimed that while ‘The Morning Star’ and ‘The Evening Star’ had the same referent (Bedeutung), each had a different sense (Sinn). This ‘Sinn’, which Frege referred to as the mode of presentation of the reference, was an abstract object,

common to everyone who grasps the meaning of a term.<sup>2</sup> However, while he gave up the privacy of the Cartesian model of meaning, he seems to have kept the incorrigibility. (For can I be wrong about the “mode of presentation” which I associate with a given term?)

Frege’s account was extremely influential in twentieth century philosophy. However Quine – empiricist to Frege’s rationalism – found Frege’s notion of meaning as an intensional, and therefore abstract, object to be unacceptable within a naturalistic epistemology. He suggested doing away with the notion that a term or sentence might possess (or be otherwise associated with) an entity called ‘a meaning’, in favour of the notion that two sentences might be synonymous – though he famously argued that the notion of synonymy itself is far from straightforward (Quine, 1953, pp. 23-32). Meanwhile, the later Wittgenstein also reacted against Frege’s view of meaning as abstract object, giving birth to the view of meaning as ‘use’ which has been influential in neo-pragmatist circles, amongst others. (Although Quine and Wittgenstein share a rejection of the idea that the meaning of a term or sentence might be some further object picked out by that term or sentence, they differ over the legitimacy of naturalistic methodology when applied to the study of meaning.)

Despite the popularity of these views, recently the idea that meaning might somehow be conceptually connected with truth has transformed itself into a rival theory of meaning, which identifies the meaning of a sentence with its “truth-conditions”. In the 1970s, Donald Davidson proposed to formalise such an account of meaning analogously to Tarski’s influential account of truth (replacing ‘means that’ systematically by ‘is true if and only if’). More recently, the analysis of meaning as truth-conditions has been understood more ‘metaphysically’, in that the truth-conditions for a particular sentence are understood to be the set of possible worlds in which it is true. A similar analysis has been proposed for singular terms, whereby the sense of a singular term consists in a function from worlds to referents in those worlds.<sup>3</sup>

However, in recent times the pendulum seems to be swinging back to the early modern view insofar as meaning is seen as corresponding somehow to the psychological states of individual speakers. Thus, Tim Crane has written:

the general idea of reducing meaning to the psychological states of speakers is now widely accepted...at the time of writing, the philosophy of language has to some extent yielded the centre stage to the philosophy of mind—and the problem of meaning has become the problem of intentionality (Crane, 1995, p. 542).

There is, however, an attempted hybridisation with the metaphysical possible worlds approach to meaning whereby it is envisaged that the ideas of individuals (or, to use more contemporary terminology, those individuals' mental contents) correspond to sets of possible worlds in some rather mysterious way. Influential recent approaches even produce a “two-dimensional modal logic” whereby one world-collecting dimension (the ‘secondary intension’) corresponds to reference as it is usually understood, while the other dimension attempts to capture some of the apparently non-referential residue of meaning (features such as indexicality, and merely epistemic possibility) in a further function across possible worlds.<sup>4</sup>

This brief survey of recent philosophical accounts of meaning is not meant to be a definitive study, but merely to present some of the variety of different positions recently held in this area. For the Peircean account of meaning differs from all of these positions.

## 1.2 Positivism and its Heirs

There exists a somewhat ambivalent attitude to meaning in the analytic tradition. On the one hand there is a hostility to it in an extensionalism which seeks to reduce meaning to reference. Quine, of course, is an important figure here (see for example Quine, 1980, p. 22). On the other hand, there is an arguable excessive focus on meaning through conceptual analysis, a form of detailed investigation which reached notorious heights in Oxford around the 1950s, and during the worst excesses of which the reference of the terms analysed seems to have been lost or elided.

However, both of these approaches presuppose a deeper ‘picture’ of meaning. This picture assumes a separation in principle between, on the one hand, the meanings of terms or concepts and, on the other hand, ‘facts about things’ – which are thought of as being known a priori and a posteriori respectively. This distinction is arguably an heir of the classical empiricist distinction between (what Hume called) “Relations of Ideas” and “Matters of Fact”.<sup>5</sup> As noted, the early modern understanding of the idea was very Cartesian, which entrenched the notion that one might possess first person authority with respect to the meaning of one’s ideas. Coming at the same issue from another angle, it was important to empiricists that all necessity be analytic – true by virtue of the meanings of terms, and thus furthermore (given Cartesian first-person authority with respect to meaning) that all necessary truths be known a priori. This is why Hume was forced to adopt such a sceptical attitude towards causal necessity, for knowledge of the causes of effects such as, for instance, diabetes, is not gained by studying the meanings of terms such as ‘diabetes’ and is also not to be had a priori.

Likewise, now it is widely held that a sharp separation may be drawn in philosophy between ontology, conceived as the question of what things exist, and semantics, conceived as the question of what things are referred to by our terms. The separation is often encountered in discussions of realism, for realism – it is often claimed – is an ontological rather than a semantic question.<sup>6</sup> Semantics seems not to be explored as enthusiastically as ontology in contexts where the two are distinguished in this way. There seems to be a general feeling that, as opposed to the epistemic contact with real-world things that is ontology, the meaning of our terms is a mere matter of our stipulating which real-world things will be assigned to the extension of any given term, and it does not matter how terms are used as long as both parties to a given debate stipulate that they will use them in the same manner. It is this sort of thinking that lies behind the oft-heard remark, “But that is just a semantic question”.

### 1.3 A Posteriori Necessity and its Discontents

In the 1970s, a new fallibilism about the meanings of terms (natural-kind terms, initially, but the moral has since been extended) entered the philosophical scene. Here is Putnam's now very famous version in "The Meaning of 'Meaning'" (Putnam, 1975). In our world, the clear liquid which fills rivers and lakes possesses the chemical formula  $H_2O$ . Imagine, however, another world – "Twin Earth" – where the clear liquid which fills the rivers and lakes possesses a different chemical formula, enigmatically referred to as "XYZ". The inhabitants of this world may refer to their clear liquid as 'water', but their clear liquid just is not water, for water is  $H_2O$ . Despite the fact that until about 200 years ago no-one knew that water was  $H_2O$ , and everyone would have claimed that 'water' meant "the clear liquid in rivers and lakes", the true meaning of 'water' is thought to have been discovered and the truth of "Water is  $H_2O$ " is thus thought to be an a posteriori necessity.

This result has been accorded many consequences in the philosophies of language, mind and science. Yet it is arguable that the abandonment of the old empiricist understanding of necessity whereby all necessity is analytic and a priori is still working itself out. At present, decisions about these a posteriori necessities seem mainly driven by what is referred to (somewhat vaguely) as "intuition". Each individual philosopher is required to imagine Twin Earth and its clear, pourable, swimmable XYZ...and that individual is then expected to gain some kind of direct recognition that the term 'water' should not be applied to XYZ. Here again arguably a notion of semantics as a relatively simple inquiry, certainly not one requiring any empirical investigation, is operating.

Yet subtle and difficult questions arise in this area. Just one issue is the distinction between what are known as indicative and subjunctive conditionals, for example:

(I) If XYZ is the stuff in oceans and lakes, then water is XYZ.

(S) If XYZ were the stuff in the oceans and lakes, then water would be XYZ.

(I) is true, it is claimed, because it "treats the antecedent as actual" (Davies & Humberstone, 1980), and thus the reference of 'water' is fixed by whatever we call



water in this world (be it  $H_2O$ , XYZ or PQR). (S) is thought to be false because it “treats the antecedent as counterfactual” (and, since water is  $H_2O$  in this world, this fixes the proper reference of ‘water’ in all other possible worlds, including the one(s) which the antecedent of the counterfactual refers to). It has been suggested (most notably by David Chalmers) that a term such as ‘water’ has two separate dimensions of meaning— a “primary intension” and a “secondary intension” – which are invoked by (I) and (S) respectively.

There are many arguments about the finer points of meanings understood in these terms which seem to lack conclusive criteria for solving them. This is particularly true given that so much of the analysis is in terms of possible worlds of which we are not ‘inhabitants’. Questions that have bothered this philosopher include: which terms designate rigidly and why? How do we know which features of a given thing to rigidify over? (Why ‘ $H_2O$ -hood’ and not, say, some distinctive complex of phenomenological properties of water such as its pourability and colour?) A further, increasingly popular, question arising out of the rigid designation literature concerns the relationship between ‘metaphysical possibility’ (which tracks rigid designation, and thus water’s secondary intension) and conceivability, sometimes referred to as ‘epistemic possibility’ (which tracks inessential descriptions under which water is known, and the expectations concerning water which are generated by those descriptions). The two are sometimes thought of as mapping the behaviour of subjunctive and indicative conditionals respectively. Moreover, if metaphysical and epistemic possibility are to be sundered, how can we (who lack a God’s eye perspective) claim to be able to decide questions of metaphysical possibility at all? More precisely, how are we to know whether a statement such as “Water is  $H_2O$ ” is metaphysically necessary and its negation merely epistemically possible, or whether it is merely epistemically possible and its negation metaphysically necessary?

Here, therefore, I would suggest that intuition is straining under the load of having to decide these questions unaided.<sup>7</sup> The new fallibilism implicit in claims of a posteriori necessity is an important step towards a realist account of meaning, but it

needs to be backed up by a clear, principled epistemology for deciding questions such as the above. To this end, the next section will show how Peirce's pragmatism integrates the scientific method into the process of clarifying the meanings of our terms.

## **2 Meaning-Pragmatism**

### 2.1 The Pragmatic Maxim

Pragmatism, insofar as it has been adopted by contemporary philosophers such as Putnam and Rorty, is treated largely as a theory of truth. However, in its Peircean form, pragmatism is first and foremost a tool for clarification of meaning. (Note that it is merely a tool for clarification, not a theory. Peirce's theory of meaning proper will be presented in section 3.) Peirce's pragmatic maxim states:

Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is our whole conception of the object (Peirce, 1933, 1935, sections 5.2, 5.402, 5.438).

For Peirce, if a concept is to be meaningful it must pertain to effects which we might observe in the world. It is not enough to refer to the world in some abstract sense in order to mean something by our statements, we must be in direct experimental contact with it. An example of the maxim in use which Peirce provided in his famous early paper "How to Make our Ideas Clear" is the meaning of 'hard'. When we use this term, he claims, we mean that the objects we apply it to will resist pressure, not break when struck, and a whole manner of similar effects, and there is nothing else that we mean.

Cheryl Misak has pointed out that the pragmatic test of meaningfulness is properly applied to terms embedded in propositions, rather than in isolation, and that these propositions are hypothetical in character. Thus, when we inquire into the meaningfulness of 'hard', we ask what expectations we would draw from hypotheses of the form "X is hard" (Misak, 1991, p. 11). In this way the meaning of a term for any

given language-community at any given time is most usefully clarified via the series of hypothetical conditionals containing the term which they would construct in various contexts. (The reason the qualification ‘most usefully’ has been added in ‘most usefully clarified’ will now be explained.)

Misak adds that the pragmatic maxim is not intended to replace more traditional methods of clarifying meaning, such as analysis and the framing of definitions or necessary and sufficient conditions. Rather, Peirce presents the pragmatic maxim as a “third grade” of meaning-clarity, which was introduced to the intellectual world by the scientific method, and which philosophy is now poised to benefit from. Peirce claims that the first grade of clarity with respect to a term such as ‘hard’ consists in being able to identify those objects which are hard – without necessarily being able to give reasons for doing so. The second grade of clarity consists in one’s being able to frame a verbal definition of ‘hard’ – the sort of definition that might be found in a dictionary (Misak, p. 13). The third grade, however, assigns future expectations to hypotheses containing the term in question. (For instance, if a particular table is hard, then one will be able to put a plate on it without the plate falling through.) Whether any given conditional of this type is true can only be investigated a posteriori. Misak points out that a contrast exists in Peirce’s philosophy between “nominal” and “pragmatic” explications of a term, which correspond to the second and third grades of meaning-clarification respectively (Misak, pp. 35-8).

## 2.2 A Posteriori Meaning-Precisification

T. L. Short has urged that despite the fact that the first and second “grades” of meaning-clarification never disappear from the Peircean philosophical toolkit, it is essential for philosophers to benefit from the third grade. As a paradigm of using the second grade alone he offers G.E. Moore’s vision of philosophy as the search for “definitions”. The problem with this methodology, he argues, is that one can never attain clarity greater than that of the concepts one is using to frame the definition. Most people have had the experience of looking up a word in the dictionary and being

led in a frustrating circle of interdefinitions. On the other hand, Short argues, the pragmatic maxim helps one attain greater clarity using concepts of lesser clarity:

A person who can distinguish a hot from a cold stove has some idea of temperature, but not so clear a one as he who can explain the difference between heat and temperature and show you how to measure degrees of temperature. But would we have arrived at the latter idea without having begun with the former? (Short, 1997, p. 291).

Short describes the way in which scientists used empirical investigation in tandem with the thinking underlying the pragmatic maxim to arrive at a clearer meaning for 'heat'. When the thermometer was first invented, its operation was poorly understood. However it did provide a clear, measurable set of expectations (with respect to the highly sensitive rise and fall of the mercury bar) which obviously had something to do with the heat of the thermometer's surroundings. The concept of temperature was aligned with these precisely measurable expectations and then it became possible to investigate temperature itself and, in the process, to discover how the thermometer worked. In this way, the concept of heat, which had been a vague secondary quality concept (having to do with such things as how one felt when near the fire) received a scientific precisification in the concept of temperature. The same point may be made with respect to the concept of water and the concept of H<sub>2</sub>O. The latter precisifies the former. (Note that on this account it precisifies the concept of water rather than identifying what water is. This distinction is important.)

Such experimental or a posteriori clarification of meaning is crucial to Peirce's realism. For Peirce, realism with respect to any given thing means that one may be in error about that thing (Peirce, 5.430, 5.152). One might protest that 'heat' and 'temperature' (and also 'water' and 'H<sub>2</sub>O') are in fact terms corresponding to different concepts, and what has really happened is that the former has been superseded by the latter in scientific contexts (while continuing to be used in ordinary language). Yet this seems not to do justice to the fact that the two concepts share so many expectations (such as that if it is healthy for me to drink eight glasses of water a day then it is

healthy for me to drink eight glasses of H<sub>2</sub>O a day), and also the way in which, as Short points out, our having the former concept somehow led us to discover the latter, in a process of refinement that was far from clean or discrete. It therefore seems more accurate to say that the new concepts ‘grew from’ the old.

It is also worth saying something about this use of the term ‘precisification’ and its related claim that the meanings of our concepts or terms are, as they stand, vague. There exists a huge literature on vagueness, presenting many subtly differing analyses of it. Susan Haack, however, noting that vagueness may be construed paradigmatically as “uncertainty about the applicability of a predicate”, has made a useful distinction between two different possible understandings of that phrase:

(1) The qualifications for being F are imprecise.

(2) The qualifications for being F are precise, but there is difficulty in

determining whether certain subjects satisfy them (Haack, 1996, p. 110).

Peirce’s analysis of meaning actually allows an interesting middle position here. At any time our understanding of our terms’ “qualifications” is genuinely open. It is not merely the case that (to give an example Haack herself uses to illustrate (2)) we are unable to make requisite measurements. For instance, it was unknown in the medieval period that it was a qualification for a fluid’s being water that it possess the chemical formula H<sub>2</sub>O, it was not merely that the chemical equipment was not available to do the requisite tests. This suggests, at any time, vagueness in the sense of (1). Yet over time the qualifications for applying any given term are discovered in a realist manner that suggests (2) rather than (1). Water’s chemical formula was not laid down by human fiat.

However there is no end-point of absolute precision to this process of discovering further qualifications.<sup>8</sup> Thus the ‘precise’ in Haack’s distinction needs disambiguating as between reference to a process (objective or realist precisification, which is always possible according to Peirce) and a state (some putative point of absolute precision, which is not available, according to Peirce). The replacement of the latter by the former in a naturalistic philosophy of language is something of a theme of this paper.

### 2.3 Pragmatism and Logical Positivism Distinguished

An important effect of conscientious application of the pragmatic maxim, Peirce claimed, is to banish those notorious philosophical posits, “things-in-themselves”, from consideration as meaningless. If we cannot conceive a way in which a given object of our thought would make a difference in experience, then it is pointless for us to imagine that we are so much as thinking about it. It may however be objected: in so banishing things-in-themselves from consideration, are we not committing ourselves to a crude scientific positivism? We need the notion of things-in-themselves, it will be argued, to stop us from ruling as meaningless terms which do not feature in our notoriously limited stock of concepts.

However, note that all Peirce says is that our conception of the effects of the object to which we are applying the pragmatic maxim is our whole conception of the object, not that our conception of its effects is the only possible conception of the object. Something which appears to be an effectless thing-in-itself at some stage in the development of human thought may be recognised to have measurable effects once our thinking becomes clearer and we know more. Peirce offered the chemical composition of stars as an example of such a shift (which occurred in his lifetime) from a matter which was supposedly closed to any possible observation to a matter which was, in fact, known (Peirce, 1.138).

Thus, along with Peirce’s pragmatic maxim, which urges us to clarify the meanings of our concepts via their conceivable effects, goes a thesis about the indeterminacy of meaning according to which we never know the full meanings of our terms. In fact, a large part of the progress of science occurs through scientists’ clarifying and extending the meanings of scientific terms (such as ‘force’ or ‘electricity’) by hypothesising observable effects in particular situations with respect to which the current understanding of the term is indeterminate, making the requisite observations and adjusting the terms’ meanings. This process of a posteriori discovery, of course, just is scientific experiment. Thus, Peirce wrote:

How much more the word **electricity** means now than it did in the days of Franklin; how much more the term planet means now than it did in the time [of] Hipparchus. These words have acquired information...(Peirce, 7.587)<sup>9</sup>.

Once it has been recognised that our apprehension of the meanings of our terms is so limited, it should be evident how unwise it would be to make judgements that the only terms that are meaningful may be selected from those that are currently meaningful for us. This, then, is a further aspect of ‘meaning-fallibilism’. Not only do meanings develop, in ways not able to be predicted a priori, but further development is always possible.

Having presented the essential indeterminacy of meaning according to Peirce, it should now be evident that Peircean pragmatism and logical positivism, far from being philosophical kin (as was suggested by their mutual rejection of the “thing-in-itself”), are deeply opposed. For – at least in the early, boisterous, verificationist phase of the movement – a new and complete determinacy with respect to the meanings of our terms was just what the logical positivists saw themselves as providing, after which decisions could be made once and for all about which suburbs of the city of philosophy were ‘meaning-less’, and those suburbs could be razed. (Logical positivists did of course move on from this. For example, Carnap in Testability and Meaning (1950) presents only a ‘partial interpretation’ of scientific terms into observation statements which correspond to experimental results. But by this stage Carnap explicitly repudiates verificationism as well.)

Consider for example Moritz Schlick’s forthrightly named “The Turning Point in Philosophy”. Schlick writes that it used to be thought that philosophy provided answers to questions (which he refers to disapprovingly as “metaphysical questions”). However, the true role of philosophy has been discovered, and this is solely to show which, if any, entirely determinate meanings our statements have:

...the concept of probability or uncertainty is simply not applicable to the acts of giving meaning which constitute philosophy. It is a matter of positing the meaning of statements as something simply final. Either we have this meaning,

and then we know what is meant by the statement, or we do not possess it, in which case mere empty words confront us, and as yet no statements at all (Schlick, 1930/31).<sup>10</sup>

As we've seen, Peirce, on the other hand, argued that all our statements are essentially indeterminate in their meaning – there are always further ‘qualifications’ to be discovered for any given concept. Yet despite this essential meaning-indeterminacy, our statements, contra Schlick, are not “empty words”. To fully understand how meaning-determinacy might be a matter of degree rather than the yes-no affair conceived by Schlick – and indeed to understand Peirce’s theory of meaning proper – one needs to understand Peirce’s distinctive philosophy of language (which he thought of as a theory of signs), and this is the subject of the next section.

### **3 Meaning and The Triadic Sign.**

#### 3.1 Representamen, Object and Interpretant

Philosophers have traditionally devoted much attention to the study of language and of thought and not this wider topic of signs. Yet for Peirce such a focus was more naturalistic, for the formal conditions exhibited by signs were usefully identifiable not only across human mentality, but in the natural world as well. Somewhat notoriously, Peirce invented a great deal of his own rather forbidding terminology in this area. However Peirce believed most traditional philosophical discussions of language had been conducted in ordinary language terms which lacked the level of rigour (or indeed clarity, in his second and third senses) which this very difficult area of philosophy required.

For Peirce a sign is any token, either linguistic (such as a word, a phrase, a sentence) or non-linguistic (such as a gesture, a picture, or even a spot on a butterfly’s back) which partakes of a certain formal structure. The most important thing to note about the Peircean sign is that its structure is irreducibly triadic. A sign consists of not just the Quinean “word and object”, but also what Peirce calls an “interpretant”. An interpretant consists in further uses of the same sign to represent the same object. This



is just to say that a word (or gesture, picture...etc) must represent an object such that this representation is capable of being understood, as this further understanding will consist in the generation of further signs. (As Peirce puts it, “a sign is not a sign unless it translates itself into another sign in which it is more fully developed”(Peirce, 5.594)). It may be objected that this sets up an infinite regress. However, the aim here is not to provide an explication of understanding but only its formal structure.

For instance, if I breed a charming new variety of cat and give it the name ‘Felis Gorgeous’, that name (which Peirce calls the sign’s representamen) will operate as a sign by virtue of the new breed (which is the sign’s object) but also, crucially, there will be no new sign generated unless other people pick up on my new name and start to use it themselves. These responses to my use of the sign in further sign-uses occurring in a variety of contexts constitute the interpretant of my new sign. They will explore and develop the meaning of my sign beyond what I originally conceived by it. For example, they will work out how the breed behaves under continued breeding, what its genetic makeup is, and how the various individuals that make up the breed behave in day to day life. These facts are part of the meaning of ‘Felis Gorgeous’, for Peirce, just as facts about, say, the way electrons behave in experimental situations are part of the meaning of ‘electron’. The constant need for new interpretants if a sign is to ‘live’ thus provides the formal structure of the constant development in meaning which is the keystone of Peirce’s fallibilist meaning-realism.

### 3.2 Meaning and the Interpretant

Compare Peirce’s triadic account of semiosis with the idea that the meaning of any given term or concept (or indeed, any proposition) is some object (whether concrete or abstract) picked out by that term or concept (or proposition). Call this the mistake of conflating meaning with reference. As noted in section 1, the later Wittgenstein reacted against such a view. In Philosophical Investigations he described it (in a manner which exaggerates it, but instructively) as follows:

Every word has a meaning. This meaning is correlated with the word. It is the object for which the word stands (Wittgenstein, 1953, §1).

Given this view's dyadic structure, whereby meaning is solely a matter of a word and its corresponding meaning-object, it is hard not to conclude that meanings are utterly determinate. For this is our usual conception of objects, patterned after our conception of physical objects.

For Peirce on the other hand, the meaning of a sign may be identified not with the sign's object but with its interpretant.<sup>11</sup> That is, the meaning of my term 'Felis Gorgeous' is not some shadowy abstract object over and above the breed itself, but it is what the sign does – how it spreads and grows (if, indeed, it does spread and grow).<sup>12</sup> It is not an object but a (potentially endless) process. In this way, then, reference and meaning are distinguished from one another in an original manner. Interestingly, this processual approach to meaning has been converged on independently within the AI literature by a rival paradigm to classical computationalism known as 'interactionist constructivism' (Christensen & Hooker, 2001, Collier, 1999, Collier & Muller, 1998). This theory aims to replace traditional understandings of cognition in terms of determinate brain states which mediate between mind and world by virtue of their meaning, by a model of intelligence as a direct, constantly evolving relationship between mind and world. According to this account, intelligence consists not in accessing information (or even algorithms) encoded in the brain, so much as skilfully managing interactions with the world in real time: in "adaptive interaction rather than internal computation".

Peirce's framework is congenial to this account in echoing its dynamic character, and also insofar as it fails to posit any entity which may be designated 'the meaning' of a term at any given time. Also worth highlighting is the way in which according to interactionist constructivism the ongoing interaction process itself generates information which feeds into further interactions – a process which cannot be modelled by any algorithm:

[This framework] makes it possible for systems to flexibly refine and solve initially vague problems. Such vague problems are ubiquitous for living creatures because their root problems are viability problems of which they have no understanding...it is the essence of survival that there should be processes that both guide action and improve the capacity to guide action while doing so. However [classical computationalism] subverts this perspective because, among other things, it deals in algorithms whose precision assumes explicitly defined problems to which they are eternal, optimal, solutions (Christensen & Hooker, §1).

The reflexive character of the Peircean sign process – according to which any interpretant generated by any given sign consists of further signs, subject at any time to previously unanticipated interpretation – is very suggestive in this regard.

### 3.3 Meaning, the Interpretant and the Pragmatic Maxim

It is worth noting, however, that rather than stating that meaning is the interpretant (simpliciter), it is more exact to say that the concept of the interpretant is the sort of scientific precisification of the ordinary language concept of meaning which is made possible by the pragmatic maxim. Peirce's concept of the interpretant raises the concept of meaning to the third level of clarity, for through it Peirce makes the claim that if a sign is meaningful then it will generate further signs in the appropriate context. This provides a clear (if highly general) expectation for the hypothesis that a statement is meaningful.

So, for example, a noticeboard which says "Danger: crocodile-infested waters" (a meaningful group of symbols) is likely to produce observable behaviour in those who come across it, whereas a sign containing the meaningless string of symbols "DGHYTRESP" will not do so. Such worldly expectations are not provided by the early modern notion of meaning as a private "idea" in the individual's head, nor by the Fregean notion of meaning as the "mode of presentation" of a given denotation, nor by the notion of meaning as truth-"conditions" (of either the Davidsonian or the possible

world variety). So here we may observe what Peirce called the “experimentalists’ view of assertion” (one definite description he used for his pragmatism) being put to work in philosophy by him in a useful way.

Where section 2 focused on the meaning a term has for a group of people at a given time, this third section has explored the meaning a term can be said to have simpliciter. A full understanding of this requires an understanding of Peirce’s semeiotic, insofar as he identifies the meaning of a sign with its interpretant – its development in use in a variety of contexts. This development often cannot be predicted from the expectations the term’s users have at any given time. Such unpredictability is, of course, the essence of a posteriori discovery, and acceptance of it goes hand-in-hand with fallibilism (and thus realism) with respect to the meaning of our terms.

#### **4 Transcending the ‘Meaning-Fact Distinction’**

##### 4.1 A Priority and A Posteriority Revisited

An understanding of meaning was outlined in §1 which assumes a separation in principle between, on the one hand, the meanings of terms or concepts and, on the other hand, facts about things – which are thought of as being known a priori and a posteriori respectively – and which is tied to the view that a sharp separation may be drawn in philosophy between semantics and ontology. Peirce redraws this landscape substantially. Meaning is an a priori affair for Peirce in that the meaning of a term for any given users of the term is the expectations it leads them to project into the future from hypotheses containing that term (for example, the meaning of ‘hard’ for us is a whole raft of expectations concerning the behaviour of hard objects). However, as we have seen, the meanings of our terms also develop. They are clarified a posteriori, through the generation and testing of defining expectations. This a posteriori clarification however, then leads to further a priori expectations with respect to hypotheses containing that term.

The clarification of meaning (or, in Peircean terms, the development of signs) is thus a cyclical process,<sup>13</sup> and the distinction between a priori (features of meaning) and a posteriori (facts) is for Peirce not a distinction between distinct bodies of knowledge or belief. Rather, whether any particular belief is held a priori or a posteriori can depend on the surrounding context of inquiry. Consider for example the ‘fact’ that electrons have a negative charge. At one stage in the development of physics this was an open question, and the fact was discovered in a posteriori experimental fashion. However, it is now so entrenched in physical theory that it is arguably part of the very meaning of ‘electron’, such that if we were to contradict this feature it seems that (as with any essential property) we would not be talking about electrons any more but about something else.

It might be objected, however, that now the concepts of meaning and truth have been run together. If every fact about electrons becomes part of the meaning of ‘electron’, then does this not commit Peirce to an unworkable essentialism<sup>14</sup> according to which no claim is meaningful that is not factual? A related objection is that this account will generate unworkable incommensurabilities. Will it not follow that wherever two people wish to ascribe differing properties to a given entity they are talking about different things and so no genuine disagreement is possible?<sup>15</sup> It has already been noted that we need to open *some* logical space between meaningfulness and truthfulness. How is this to be done under Peirce’s account? It will be argued in the next section that – once again – the solution to these problems is provided by the essential indeterminacy of meaning.

#### 4.2 Meaning and the Distinction between Immediate and Dynamic Object

It was noted that it is traditional to make an in-principle separation between ‘facts about meanings’ and ‘facts about things’, and to suppose that any given piece of knowledge belongs irrevocably in one or other of these camps. Call this the Static Model of meaning. By contrast, we have noted that according to Peirce’s account of signification there is no extra abstract object – the meaning, sense or intension – picked out by a sign. All that is referred to by a sign is the sign’s object. However, a

sign's interpretant consists in the fact that other people use the same sign to refer to the same object. Through these further uses, Peirce claimed, the object of any given sign is continually refined, made more determinate. (It is important to note that what is made more determinate is what the object of a given sign is. The object itself is not somehow rendered more determinate by our inquiring into it.<sup>16</sup>)

Thus Peirce distinguishes between the Immediate Object, or the object as it appears to us (which he refers to enigmatically as a "hint"), and the Dynamic Object, which is the object we are referring to as it really is (Peirce, 4.536, 8.314, 8.343). To return to our original example, the Immediate Object of the term 'water' consists in such features as colourlessness, odourlessness and pourability, while the Dynamic Object of the term is at least approached through the discovery that water's chemical formula is H<sub>2</sub>O. The Immediate Object is more vague than the Dynamic Object, and inquiry, via the process of meaning-precisification described in section 2, is largely a process of bringing the objects of one's thought closer and closer to their Dynamic Objects. This only happens, however, due to the role the interpretant is playing in the sign-relation. For if a given sign ceases to be used then the object of that sign ceases to be refined. For example, if people (for some fanciful reason) had irrevocably ceased talking about water in the Middle Ages, then the discovery that water is H<sub>2</sub>O could never have been made.

This essentially developmental character which underlies all sign use, then, renders Peirce's a Dynamic Model of meaning. Note that, unlike Kripke's "sceptical solution", to the rule-following problem (Kripke, 1982), and related forms of antirealism that suggest that the meaning of a term is entirely constituted by a given community's "assertability conditions", Peirce's model allows that the rules for deriving future possible expectations from any given sign can be overwritten via experimental interaction with the sign's (Dynamic) object. At the same time, however (somewhat paradoxically) the pragmatic maxim teaches that that object is only known through its defining expectations. This allows that the Immediate Object of any given sign might be not just vague but also partially erroneous<sup>17</sup>. For example, in the Middle

Ages water was erroneously conceived to be a fundamental, indecomposable element, but despite the fact that water has now been decomposed into hydrogen and oxygen, it would be counterintuitive to deny that the Medievals were talking about water when they made claims such as that the ocean is full of water.

Amongst the many theories of reference currently on offer, there is little scope for modelling such a dynamic self-correcting interaction between a term and its referent (or in Peirce's terms, between a sign and its object). As noted, the turn towards rigid designation and a posteriori necessity has opened up a degree of fallibilism with respect to the meaning of terms such as 'water'. However, the correction presupposed by such a posteriori necessity is usually treated as a very all-or-nothing affair (whereby the chemists who discovered the chemical formula  $H_2O$  are conceived to have discovered once and for all water's very essence) rather than the process of continual refinement modelled by Peirce's account – which in its greater generality is more powerful.

Also, the fact that the feature with respect to which the meaning of the term is corrected must be treated as a necessity is not without its problems. For instance, with respect to natural kind terms such as 'water', it creates 'metaphysical' necessities<sup>18</sup> that are not logically necessary. For no logical contradiction seems implied by the statement "Water is XYZ", despite that statement's (alleged) necessary falsehood. This new category of modality has begun to be dutifully explored in the literature (Jackson, 1997, Shoemaker, 1998, Yablo, 2000) . However, given that metaphysics concerns itself with fact (albeit fact of a highly general nature), what sort of fact is it that water is necessarily  $H_2O$ ? It doesn't seem to be any physical necessity, like the law of gravitational attraction. Somewhat ironically, this new category of necessity recapitulates scholastic philosophy, insofar as a distinction was made by Duns Scotus between the "logical universal", the "metaphysical universal" and the "physical universal" (Engel-Tiercelin, p. 57). This raises the question the early moderns raised against much medieval philosophy: is such a byzantine set of distinctions really necessary? Or is 'metaphysical necessity' a reification of something better understood

in processual, semiotic terms (such as, perhaps, our need always to retain sufficient aspects of our signs' Immediate Objects to coherently refine our understanding towards their Dynamic Objects)?

At any rate, for Peirce the answer to the problem of avoiding essentialism and distinguishing appropriately between meaningfulness and truthfulness lies (once again) in the indeterminacy of meaning. Insofar as the meanings of our concepts are always indeterminate, there is no end to the interpretation required to winnow their Dynamic from their Immediate Objects. In that sense, then, the meanings of our concepts will always in principle outrun our factual knowledge, for as we have seen, the overall meaning possessed by any given sign just is its future development in the form of the interpretant.

It might be objected that this may account for the meaningfulness of statements concerning matters we don't yet know about, but what about statements which we know are false, but are still meaningful: for example the aforementioned, "Cats have six legs"? Surely no possible future development of the concept of cat-hood could deliver such a result? Here one must be careful not to underestimate the stringency of Peirce's fallibilism. Though the possibility that cats might turn out really to have six legs (due, for example, to some rare and strange optical illusion) is so unlikely that we need not waste time investigating it, still we should leave it open, and it is on this that the statement's meaningfulness depends.<sup>19</sup>

## **5 Conclusion**

It was remarked at the start of this paper that a recognition that some questions to do with meaning are a posteriori has entered the analytic tradition in the last few decades, but that this recognition is not backed up the sort of epistemology (for deciding questions such as when to rigidly designate and over which features of the object in question) appropriate to an a posteriori inquiry. Rather, the tradition retains an appeal to 'intuition' more appropriate to meaning understood in the older sense of Cartesian, first-person authority



Peirce's account points the way towards providing such an epistemology. Through the pragmatic maxim he suggests that the clearest meaning which any given term has at any particular time is the set of hypothetical conditionals containing the term which its users would construct to predict experienceable effects. In this way he integrates the scientific method into his account of what meanings are and the way they develop. The issue with respect to 'water' and 'H<sub>2</sub>O' has been explicated in Fregean terms as a gap between a property and the "mode of presentation" of that property (Shoemaker, 1998). The pragmatic maxim closes the gap between a property and its mode of presentation. Clarifying the meaning of any concept consists in exploring the expectations one may form using the concept in a variety of contexts. In other words, 'H<sub>2</sub>O-ness' is a mode of presentation for water just as pourability is – its defining expectations merely pertain to more specialized (often laboratory-controlled) situations. In this way Peirce does not sunder metaphysical from epistemic possibility so radically as to render metaphysical possibility accessible only to an 'intuition' whose origin and truth-conditions can only be mysterious.

The overall meaning of a term, however, consists in the development which takes place in its defining expectations over time as, through interaction by users of the term with the world and its recalcitrance, those expectations grow and change. If there is no growth and change, there is no genuine sign and thus, no meaning.

What of rigid designation? Viewed from within the framework sketched in this paper, the phenomenon corresponds to an understanding that we are much more reluctant to abandon some features of any given Immediate Object than others as the meaning of a term develops. There are probably a variety of reasons for this, but often it seems to concern a faith in the natural sciences to deliver a greater perceived epistemic security. The water-H<sub>2</sub>O paradigm for training budding philosophers' intuitions about rigid designation arguably relies for its intuitiveness on the way it straightforwardly pits the deliverances of chemistry against folk ideas about water. It would be interesting to compare 'designation-intuitions' with respect to a clash between, say, two competing scientific theories.

This reluctance, however, may come in degrees. Discussions of Twin Earth often seem to leave little room for acknowledging that the claim that “Water is H<sub>2</sub>O” might in fact be given up by chemists under the right epistemic pressure, and that the greatest natural scientists are notorious for recommending fallibilism of a stringency rarely found amongst philosophers. The model of a posteriori meaning-change according to which “Water is H<sub>2</sub>O” is necessarily true does not naturally suggest such a nuanced reluctance. The Peircean model according to which a posteriori discovery precisifies (the meaning of) rather than merely identifying (the referent of) a given term, however, does.

It was suggested at the start of this paper that its overarching issue would be realism and the nature thereof. Although Peirce collapses the distinction between a property and its mode of presentation in order that an epistemology of meaning should be in principle possible (in other words, avoiding ‘metaphysical realism’), at the same time he avoids verificationism by keeping a notion of the Dynamic Object which lies behind the indeterminate meanings which concepts have for us at any particular time, guiding the a posteriori development of those meanings. Thus Peirce’s is a realist account of meaning, though it is a form of modal realism (based in true hypothetical conditionals), rather than the understanding of realism in terms of ontological commitment to particular, existent things which is more usual in the analytic tradition.

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<sup>1</sup> The meaning of ‘terms’ and ‘concepts’ are discussed interchangeably in this paper, as it is assumed that the issues dealt with are the same in both cases.

<sup>2</sup> “This constitutes an essential distinction between the idea and the sign’s sense, which may be the common property of many and therefore is not a part or a mode of the individual mind”. (Frege, 1952, p. 59).

<sup>3</sup> for example, (Lewis, 1970, p. 435).

<sup>4</sup> (Stalnaker, 1978), (Humberstone & Davies, 1980), (Jackson, 1997).

<sup>5</sup> It arguably has even deeper roots in the medieval distinction between essential

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properties, thought of as being known a priori by virtue of understanding the nature of the thing in question, and accidental properties, known a posteriori.

<sup>6</sup> Such a separation is particularly popular amongst Australian realists. See, for instance, (Devitt, 1984), (Armstrong, 1997, p. 25), (Campbell, 1990, p. 27).

<sup>7</sup> For a similar moral, though possibly a more jaundiced view of intuition itself, see (Hintikka, 1999).

<sup>8</sup> To those who would protest that there must be an end-point of absolute precision for the process of precisification to be possible, it can be replied that although it is always possible to find a natural number greater than any given number, this does not mean that there must be a largest natural number for the process of ‘incrementation’ to be possible.

<sup>9</sup> For a useful discussion of this point, see also (Skagestad, 1983, p. 276).

<sup>10</sup> (Schlick, 1930/31, p. 58). See also Carnap’s paper in the same volume.

<sup>11</sup> Murray Murphey has claimed to the contrary that “the interpretant sign cannot be the meaning”, for “the whole point of pragmatism is the identification of meaning and habit” (Murphey, 1961, p. 316). Murphey’s claim, however, can only be an objection to the identification of meaning with the interpretant if the interpretant itself cannot be viewed as a habit. For precisely this view see, for example (Peirce, 5.476).

<sup>12</sup> The identification of meaning and the interpretant does presuppose a certain optimism with respect to what may be referred to as ‘the spreading powers of signs’. How can we be sure that every possible aspect of the meaning of a term such as ‘cat’ will be thought somewhere, somehow? However, what would it be for this claim to be false, pragmatically speaking?

<sup>13</sup> Again, see (Christensen & Hooker, 2001, section 3).

<sup>14</sup> A related form of essentialism with respect to properties identified by the natural sciences – specifically with respect to their causal powers – *has* been explored in the analytic tradition. See, for instance, (Shoemaker, 1984), especially chapters 10 and 11. However it is very much a minority view.

<sup>15</sup> I am grateful to Cliff Hooker for making this point.

<sup>16</sup> In this way, vagueness properly speaking pertains to a sign’s interpretant not its object. For a good account of this intriguing issue, see (Engel-Tiercelin, 1992).

<sup>17</sup> An interesting parallel exists here with Keith Donnellan’s claim that a description used “referentially” can in fact (remarkably) fail to be true of its referent (Donnellan, 1966).

<sup>18</sup> and, of course, corresponding possibilities, as was mentioned in section 1.3.

<sup>19</sup> Of course at Peirce’s ‘limit of inquiry’, a concept drawn on by his definition of truth (which definition, it’s worth noting, is ‘pragmatic’ rather than ‘nominal’ in the

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sense distinguished in section 2) there would be no further interpretants, and there meaning would seem to converge with truth. Pragmatically, however, meaning and truth are now and will always be discriminable, insofar as the limit of inquiry (where all ‘qualifications’ for applying a given term are known) is never actually reached.

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