Peirce on the Index and Indexical Reference

Introduction

Although the index is one of the best known features of Peirce's theory of signs there is little appreciation of Peirce's theory of the index amongst contemporary philosophers of language. The prevailing view is that the interesting early history of indexicals begins with Hans Reichenbach and his account of token-reflexivity (Reichenbach, 1947).[1] Reichenbach maintains that an indexical like 'I' means something like "the utter of this token". Although this seems intuitive enough, Reichenbach's account is undermined by its failure to capture the content of what we take ourselves to be saying in using indexicals. For instance, when John says, "I am thirsty", we take the content of John's utterance to be *that John is thirsty*. The token-reflexive theory suggests that the content of John's utterance is *that the utterer of the token 'I' is thirsty*. These two things are different.

As for more current theories, David Kaplan's work (1969, 1978, 1979, 1989a and 1989b) provides the clearest account of indexical reference. Kaplan's account draws a famous distinction between *character* and *content*. Character is akin to a rule or simple linguistic meaning such that the character of 'I' is "the utterer, or agent of the context". Content on the other hand is the meaning that arises from applying that rule, or character, to a particular context. So, in a context where John says, "I am thirsty", applying the character of 'I' to that context will yield John as content. But, applying the character of 'I' to a context where I am the utterer or agent will yield me as content. In such cases, the character remains the same, but the content differs. Where, though, does Peirce's theory of the index fit into any of this?

In short, there is no appreciation of Peirce's theory in Kaplan's work, although Kaplan does show some awareness of Peirce. For instance, when explaining his use of the word "index" for words like "I", "here", "now" etc. Kaplan says:

> The term I now favor for these words is 'indexical'.
> Other authors have used other terms; Russell preferred

'egocentric particular' and Reichenbach used 'token reflexive'. I prefer 'indexical' (which I believe is due to Pierce [sic]) because it is less theory laden than the others [...]. (Kaplan: 1989a, p. 490)

The view implicit here is that whatever Peirce has to say about indexicals, it is less developed and less "theory laden" than other accounts. Consequently, Peirce's preferred term, "index", is a safe terminological option.[2]

In retrospect, it is easy to see how this prevailing view of the history of indexicals and Peirce's place in it arises; current opinions are based almost entirely on the first generation of philosophers interpreting Peirce's work, in particular, the pioneering work of Arthur Burks. Burks' (1949) work is one of the earliest and (still) most interesting on indexicals and develops from of a critical analysis of Peirce's theory of signs. Unfortunately, Burks was writing at a time when we still did not have full access to Peirce's writings and consequently, Burks' criticisms of Peirce do not apply to our now more complete understanding of Peircian signs and indexicals.[3] Although Burks was not wholly dismissive of Peirce's work, his analysis implies that much is wrong with Peirce's theory of the index. Sadly, this analysis, understandable from Burks' position, has passed on to a generation of analytic readers who take it to mean that there is little of value in Peirce's theory for their own projects.[4]

Amongst the Peirce scholars continuing Burks' pioneering, work the value placed on Peirce's theories is greater, and Thomas Goudge's excellent paper, "Peirce's Index" (Goudge, 1965), provides a particularly interesting and sophisticated reading of Peirce's theory. Unfortunately, Goudge's paper has failed to filter into the mainstream and replace the Burksian reading favored by analytic philosophers. The impact of Goudge's analysis within strictly Peircian circles is considerably stronger and its importance is such that scholars still defer to it, rather than offer analyses of their own.[5] However, despite marking a crucial milestone in our comprehension of Peirce's theory, Goudge's paper fails to reflect nuances in Peirce's theory that have become more obvious as our understanding of indices and indexical reference has grown over the last forty years. Time has now come, then, to develop the work that Goudge began and to provide an analysis to replace Burks' reading in the mainstream. I undertake this enterprise here.

Goudge analyzes Peirce's theory by examining the various features Peirce claimed indices have. I take Goudge's strategy as my starting point and begin, in section one, by looking at important features from Peirce's texts. I compare my findings with Goudge's before pointing out problems with his overall strategy. I take these problems to mean that we must look for a broader reading. I show what such a reading should look like in the two remaining sections of the paper. In section two, I develop a three-fold distinction based on indexical function within propositions. In section three, I analyze and develop Peirce's distinction

between genuine and degenerate indices. I then go on to apply this distinction to the three types of index identified in section two. Throughout this reading, I look at the combination of these aspects of the index and the implications this has for our understanding of Peirce's theory.

Defining the Index

Peirce's account of the index is part of his famous theory of signs, and in particular, his famous distinction between Icons, Indices, and Symbols. Before we begin to look in more detail at Peirce's account of the index though, we need some cursory definitions of these concepts. First, Peirce defines a sign as:

> something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign. The sign stands for something, its *object.* (CP 2.228 (1897))

Then, depending on *how* the sign stands for its object in its creation of an interpretant, it will be either an *icon*, an *index*, or a *symbol.* For instance, if the sign stands for its object through some *quality*, then the sign is an *icon.* For example, if I use a small color sampler to demonstrate to a potential buyer the color of my car, then the color sampler stands as a sign for the color of my car because of a quality it has, its color. But, if a sign is an *index*, it must stand for its object through some existential or physical fact. For example, smoke acts as a sign for fire because of the causal connection between the two; when a fire is blazing, it has the physical effect of producing smoke. This physical connection enables us to use smoke as a sign for the presence of fire. And finally, if a sign stands for its object through some convention, then the sign is a *symbol.* For example, at traffic lights (in some countries at least) a red light signals to the driver that they have no priority and must stop. However, this connection between the red light and what it stands for relies upon convention; we might have taken blue lights to signify a lack of priority instead. Although all of these concepts will feature in what follows, we are most interested in the index, and in particular, Peirce's more precise account of it.

Throughout his work, Peirce makes repeated attempts to identify the principle features of the index. The following five claims summarize the most important of these:

1) Indices use some physical contiguity with their object to direct attention to that object.[6]
2) Indices have their characteristics independently of interpretation.[7]

3) Indices refer to individuals.[8]
4) Indices assert nothing.[9]
5) Indices do not resemble, nor do they share any law-like relation with, their objects.[10]

The first feature, which we shall call the *significatory feature*, concerns the semiotic function of the index and has two components. Since semiosis, that is the act of signifying, consists of a sign that signifies its object (the sign-object relation), and generates a further sign to signify that object (the sign-interpretant relation), the first feature reflects this. Consequently, the significatory feature has *two* components, *physical contiguity* and *attention directing*, which we shall look at in detail shortly. Before we begin though, we need to note that the notion of some physical contiguity between the index and its object corresponds to the sign-object relation, and the notion of a sign directing attention to its object corresponds to the sign-interpretant relation.

The first of these two components, the physical contiguity between a sign and its object, corresponds to the connection between an indexical sign and its object. For instance, smoke as a sign of fire is indexical because the relationship between the sign and its object rests upon some physical connection, i.e., the fire *causes* the smoke.

The second of the two components, the sign's directing attention to its object, needs a little clarification. The notion of directing attention seems to imply that the interpreter's attention must focus *directly* upon the object of the index. This, however, need not be the case. For instance, I can interpret smoke as a sign of fire from many miles away, i.e. with no focus or attention directed on the fire itself. Rather, in generating an interpretant sign, smoke as an index merely *suggests* the presence or existence of its object. In directing attention towards its object, the index does not generate or characterize the object for our understanding as it would if we were attending the characteristics of the object itself. Instead, the interpretant of an index is just our understanding that the sign is standing for some object, nothing more. When we see smoke, it is only meant to direct our attention to the presence of fire, rather than to an understanding of the fire being, say, a forest blaze or a smoldering pile of car tires; this kind of understanding will come at some later point in a chain of interpretant signs that follows.

These two components of the significatory feature, then, must run together in order to make the semiotic function of the index clear. Within the overall process of a sign standing for an object and generating an interpretant, the index relies upon physical contiguity between it, as a sign, and its object in order to generate an interpretant. The interpretant generated by an index relying upon the contiguity between it and its object is one that draws attention to the presence or existence of its object.

The second feature, that indices have their characteristics independently of

interpretation, is slightly less complicated than the first and concerns the reality of the index. We shall call this feature the *independence feature*. Peirce states that "an index [...] is a real thing or fact which is a sign of its object [...] quite regardless of its being interpreted as a sign" (CP 4.447 (1903)), i.e. its existence is independent of our interpretive practices. As an example, think again of smoke as an index of fire. Whether I, or any person, is there to interpret the smoke as a sign of fire is wholly irrelevant to the connection between the sign and its object; that connection still exists whether I am there to note it or not.

This characterization is related to Peirce's account of "the real" or of what is existent as "that which is not whatever we may happen to think it, but is unaffected by what we may think it" (CP 8.12 (1871)). For Peirce, since an index's connection with its object does not rely upon the presence of an interpreting mind, an index is real.

The third feature, that indices refer to individuals, concerns the nature of the index and the kind of object for which it stands. Consequently, we shall call this feature the *singularity feature*. For Peirce, the object of an index must be an individual *thing*.[11] For instance, the sky-track left by a jet plane is an index of that particular *individual* jet plane. So too with smoke and fire; a *particular* plume of smoke is an index of a *particular* fire. However, Peirce includes amongst the individual things that count as objects, "single collections of units or single continua" (CP 2.306 (1901)). This implies that if a sign, on a particular occasion, is an index of many objects, the nature of the index-object relationship means that we treat the collection of objects as an individual. For instance, a news network's traffic helicopter hovering above a major road is an index of a *single* traffic jam, but not an index of each separate stationary car of the thousands trapped in gridlock, even though they go to make up the traffic jam.

The fourth feature, that indices *assert* nothing, is one that Peirce makes frequent attempts to characterize. We shall call this feature the *indicatory feature*, for the reason that although Peirce says that indices assert nothing, a more positive version of his claim is that all indices show or indicate their objects rather than describe them. He says, for instance, that an index offers no description of its object (CP 1.369 (1885)), or that it has nothing to do with meanings (CP 4.56 (1893)). Generally, then, the fourth feature concerns the semantic impact of indices. Common to all of Peirce's attempts to define this feature is the claim that indices *show* their object rather than describe it. For Peirce, an index is purely denotative; it refers to its object without describing that object.

The fifth and final feature, which we shall call the *phenomenological feature*, concerns the index's categorical status. The idea that an index does not resemble or share a law-like relation with its object confirms the brute existence or secondness of the relation between the index and its object. A relation of resemblance is iconic and classifies the sign as a first. A law-like connection between a sign and its object is symbolic and classifies a sign as a third. Since the index has no important iconic or symbolic connection with its object, it is a

second. This is not to say that the index has no iconic or symbolic connection at all, only that any such features play no part in an index's standing for the object it does. For instance, a footprint in the sand is an index of the person that left it imprinted upon the beach. Although it clearly shares some qualities of resemblance with its object, the shape and size of the foot and so on, this is not important. What makes the footprint a sign of its object is the brute existence of its object and the causal relationship that exists between them. This makes the footprint an index.

Goudge's Approach to the Features

Attempting to detail and explain the features of the index as one finds them in Peirce's writings is the orthodox approach to take. For instance, Thomas Goudge's paper "Peirce's Index" (1965) takes precisely this approach. What is interesting is that in all but minor detail, Goudge identifies the same features in Peirce's discussion of the index as I do. Goudge says, for example,

> In addition to its role as an identifying sign, Peirce mentions the following six points: (1) An index has a direct physical connection with its object, or is really affected by that object, and the interpreting mind has nothing to do with the connection except take note of it (1.372; 2.248; 2.299). (2) An index exerts a compulsive influence on its interpreter, forcing him to attend to the indicated object. (3) An index involves the existence of its object, so that they form an inseparable pair. (4) The object is always an individual entity. (5) An index asserts nothing but only *shows* its object (3.361). (6) It also shows the relationship between itself and its object to be a non-rational relation, a brute fact or Secondness. (Goudge: 1965, 53-54)

Although in some cases the emphasis and wording differ,[12] Goudge's analysis and my own are identical in all but one case.

The significatory feature of my account looks at two components of the index as it functions semiotically. Goudge treats these two components as two separate features, failing to note that they are both part of the single process of a sign standing for an object and generating an interpretant and so should be treated together; this also accounts for his identifying six features in Peirce's texts where I only identify five. A benefit of my interpretation over Goudge's is that it explains and addresses a problem both he and Burks (1949) see in Peirce's account.

Goudge's discussion of the physical connection between an index and its object involves a lengthy discussion of the importance of causality to the

significatory feature. This includes a discussion of Burks' (1949) criticism that Peirce confuses causation and semiosis. We, however, benefit from keeping in mind the semiotic function of the index in our treatment of physical connection. The distinction between these two approaches is illustrated in an example of Christopher Hookway's (Hookway: 1985, pp. 122-24). Hookway points out that in the case of a bark-stripped tree as an index for the presence of deer, the following two statements are not equivalent:

> (1) The deer produced the stripped bark on the tree
> and
> (2) The stripped bark is a sign of the presence of the
> deer

Statement (1) is dyadic and describes a causal relationship, whereas (2) captures the possibility that the stripped bark can generate an interpretant. Goudge's reading commits us to treating indices as explanations like (1) and attempting to explain interpretant generation from a dyadic relationship.[13] Further, being committed to explanations like (1) complicates cases like the Pole Star as an index of the North where there is no dyadic or causal relationship between an index and its object. Our reading is not committed to dyadic readings of the index and avoids both of the difficulties that Goudge's reading faces. First, it nullifies Burks' complaint by pointing out that he is relying on an abstracted notion of physical connection;[14] the two components of semiosis are only separable as an exercise in abstraction. Also, it can handle non-causal cases by noting, along with Hookway, that although explanations like (1) might play some background or supporting role to statements like (2), they need not.

The Completeness of Goudge's Approach

Aside from the slight differences in the way that we treat the features of the index as we find them in Peirce's writings, Goudge and I differ more radically in another respect. Whereas Goudge sees the features as *being* Peirce's theory of the index, I think that there is more to Peirce's account than an enumeration of the important features suggests. What that *something more* is, will be the subject of the next two major sections of this paper. Here though, I first want to discuss the shortcomings of a Goudge-like approach, and the motivation behind my move to develop a broader account.

Throughout his paper, Goudge details each feature of Peirce's analysis of the index in turn, along with a discussion of whether or not that definition includes or excludes those things that we naturally think of as indices. The consequence of this approach is that we find a whole variety of anomalous cases, i.e. cases which do not seem to fit the definitions of an index, but which we nevertheless feel inclined to include. For instance, Goudge suggests that indices, particularly words like "this" and "that" etc., do not really conform to the second of the

features that he identifies, i.e., that an index exerts a compulsive influence upon its interpreter to attend to the object (Goudge: 1965, p. 57). It is true that Peirce uses the idea of compulsion to express this feature of the index in his analysis. Goudge is also correct in suggesting that it is hard to see that many indices do necessarily have a compulsive influence upon an interpreter. For instance, smoke, as an index of fire, does not *compel* me to form an interpretant sign of its object. After all, I could simply fail to notice the fire despite the presence of smoke. I may choose to ignore it or even mistake the smoke for steam and so fail to recognize the fire as the cause of the sign. On Goudge's analysis, then, the second feature that he identifies appears to lead to problems; some intuitive instances of indices do not accord with it. This suggests, to Goudge, that there is a problem with Peirce's account; the features that Peirce identifies seem to exclude some instances that we would ordinarily count as indices.

My own approach to these anomalies in Peirce's account though is this: Goudge is right, there are signs that we are inclined to call indices that do not fit well with the identified features. But where Goudge thinks that this is a problem that ultimately undermines the success of Peirce's theory, I think that such anomalous cases are less worrying and only appear to be problematic if one attaches the same overall significance to them as Goudge does. For Goudge, the identified features are necessary and sufficient conditions that a sign must fulfill to count as an index. Consequently, if a sign that we feel is an index fails to fulfill these conditions, then we have to suspect that there is something wrong with the theory that provides them. However, I think that Goudge's approach is wrong; we should not treat the identified features as necessary and sufficient conditions. Rather, we should see them as guiding principles, or rules of thumb.

My reasons for thinking that Peirce intends us to take the features as rules of thumb stem, initially, from his attitude towards the possibility of identifying a pure index. Peirce states that "it would be difficult if not impossible to instance an absolutely pure index, or to find any sign absolutely devoid of indexical quality" (CP 2.306 (1901)). The features, then, are something that an "ideal index" would have, but that few indices encountered in our day-to-day interactions will fulfill without exception.

Further, the main sources for the features come from a range of Peirce's writings; in particular, speculative musing in correspondences, introductory lectures and even preliminary sketches designed for his introductory logic texts. These sources often provide details that we initially label "essential" or "crucial" in order to aid our understanding but whose importance is later qualified as our knowledge develops. Enumerating characteristic features for the index is perhaps a means of giving us some preliminary acquaintance with more complex ideas.

Finally, there is evidence of Peirce's inclination to "define" terms via guiding principles (rather than with necessary and sufficient conditions) in his other work. Risto Hilpinen (Hilpinen: 1995, pp. 273-274) identifies Peirce's use of this

method when defining "assertion", and labels it, "the method of ideal examples". Hilpinen quotes the following passage from *The Collected Papers*:

> What is the nature of assertion? We have no magnifying-glass that can enlarge its features, and render them more discernible; but in default of such an instrument we can select for examination a very formal assertion, the features of which have purposefully been rendered very prominent, in order to emphasize its solemnity. (CP 5.546 (c1908))

Just as Peirce takes "assertion" in its most formal and idealized setting in order to identify its most important feature, its solemnity, he is arguably applying the same idealization to the index. Instead of providing necessary and sufficient conditions, Peirce is using "the method of ideal examples" to look at those cases that most clearly display or exaggerate the main features. If we take the features of the index as part of a "method of ideal examples", then we can better accept the presence of indices that do not fit the idealized type than we can if we take the features to be a list of conditions that a sign *must* fulfill to be an index.

Clearly, the method of ideal examples is a legitimate approach to those features of the index available from Peirce's texts. What should also be clear is that this method, by itself, does nothing to explain how the anomalous cases that Goudge points out are to count as indices. After all, on what grounds are the anomalies to be included as indices if not by fit with the features? We need some explanation of why the problem cases that Goudge identifies, like subject terms and so on, are rightfully included as indices in Peirce's theory. This suggests that we require a broader reading of Peirce's theory than the definition-centered account of Goudge provides; the remainder of this paper is just such a reading.

The Subject Index

The first step towards a broader reading of Peirce's theory comes, I believe, from looking at his desire to treat the subject term of a proposition as an index. Goudge and Burks both think that this is a problem, but Peirce's insistence upon this point suggests that it is more than an *ad hoc* move to keep his theories of hecceity, existence and the index unified.[15] Instead, Peirce seems aware that the subject term need not be an index *proper*, but rather that: "every subject partakes of the nature of an index, in that its function is the characteristic function of an index, that of forcing attention upon its object" (CP 2.357 (1902)). Peirce does not think that subject terms must always display *all* of the features of an index in order to partake of an index. Further, Peirce identifies *three* ways in which the subject may partake of an index, and so identifies three types of subject-index.

Every subject of a proposition, unless it is either an

> Index (like the environment of the interlocutors, or
> something attracting attention in that environment, as
> the pointing finger of the speaker) or a Sub-index (like a
> proper name, personal pronoun or demonstrative) must
> be a Precept, or Symbol, not only describing to the
> Interpreter what is to be done, by him or others or
> both, in order to obtain an index of an individual
> (whether a unit or a single set of units) of which the
> proposition is represented as meant to be true, but also
> assigning a designation to that individual, or if it is a set,
> to each single unit of the set. Until a better designation
> is found, such a term may be called a Precept. (CP
> 2.330 (1903))

Clearly, then, Peirce identifies three types of subject index: the index, the sub-index and, finally, the precept, which also partakes of the nature of an index in order to function as a sign for its object. I maintain that by using these three types of subject-index, and showing how and why they do not all have the five identified features yet remain an index on Peirce's account is the beginning of a broader reading. In what follows, I shall treat each subject-index in turn and explain each in terms of the five features. Further, in the case of sub-indices and precepts, I shall show why Peirce has legitimate cause for treating them as types of indices.

The Index

The index *simpliciter* is the kind of sign that fulfills all or most of the definitional features. The kinds of cases that Peirce has in mind are: "natural signs and physical symptoms [or] a pointing finger" (CP 3.361 (1885)). Another favorite is the weathercock as an index of the wind's direction (CP 2.286 (1893)). We can see that the weathercock is an index proper by noting that it exemplifies all five of the features. First, the weathercock exemplifies the significatory feature because a physical contiguity between it and its object, the wind, directs our attention to that same object. The weathercock, or the direction in which it points, uses a causal connection between itself and the wind in virtue of which our attention is drawn to the presence and direction of the wind. Second, the weathercock exemplifies the independence feature; the direction of the weathercock is totally independent of my interpreting it as an index of the wind. Clearly, the weathercock would still point westward whether I interpret that as a sign that the wind is blowing from the east or not. Third, the weathercock exemplifies the singularity feature by being an index of an individual object, or at least, an object treated as an individual. The wind that the weathercock refers to is that particular wind that causes the weathercock to point in the direction that it does. Fourth, the direction of the weathercock does

nothing more than indicate the direction or presence of the wind; it offers no other description of the wind in order to indicate it and so exemplifies the indicatory feature. Finally, the weathercock exemplifies the phenomenological feature since the essential connection between the direction of the weathercock and its object is down to the brute existential connection between it and the wind. Any resemblance or law-like relation with its object is coincidental and not the essential connection between sign and object. Clearly then, those signs displaying all of the features, natural signs, physical symptoms, pointing fingers and so on, count as indices.

The Sub-Index

The next propositional subject-index, from (CP 2.330 (1903)), is the sub-index. Chief exemplifiers of the sub-index are proper names, indexical expressions like "I", "he", "she", and demonstratives like "this" and "that". What marks the difference between the sub-index and the index proper is that the sub-index has a strong symbolic content. For instance, on one occasion Peirce also calls the sub-index a "Hypo-Seme" (CP 2.284 (1902)) in an attempt to suggest that this kind of sign is the indexical equivalent of the hypo-icon, a variant of the iconic sign. The hypo-icon is a sign that represents its object through resemblance or similarity, just as an ordinary icon does, but the resemblance rests largely upon convention. For instance, the map of London's Underground train system represents its object iconically, the direction in which the lines run and the arrangement of stations upon them is the same on the map as it is in the London Subway. However, these "similarities" are actually agreed upon by convention and function iconically in virtue of a strong symbolic component; Regent's Park and Oxford Circus do both lie upon the Bakerloo line but they are more than a few centimeters apart. So, just as the hypo-icon is an iconic symbol, its indexical cousin, the sub-index is an indexical symbol.

As we should suspect, the symbolic component of the sub-index affects the number of features it exemplifies. For instance, since symbols are largely a matter of habit and convention, they have their characteristics in virtue of our agreement about how to interpret them. This means that the sub-index does not clearly exemplify the independence feature, that indices have their character independently of interpretation. Further, symbols share a law-like relation with their objects and so sub-indices do not clearly exemplify the phenomenological feature, that indices do not resemble, or share a law-like relationship with, their object. This failure to exemplify the independence and phenomenological features is barely surprising though given what we already know about the way some of the things that count as sub-indices work. Take the sub-index "I", for instance; the relationship between this sign and its object rests on a law or rule (something like Kaplan's notion of "character" (Kaplan: 1989a, p. 505) where one kind of meaning for "I" is the rule "'I' refers to the speaker or writer") that states the object of the sign is its utter. What is more, language users agree upon

this law-like relationship, and so it exists largely as a matter of convention and habitual use. In short then, the indexical features that the sub-index *lacks* merely reflect what we already know and think about terms like "I", "here", "now", "this" and "that" etc. What then of the remaining features?

Take, for instance, the sub-index "that"; when I use "that" in the utterance "that is red", I am relying upon some physical contiguity between my tokening of "that" and, say, a London Bus in order to direct attention to the object. This is the significatory feature, that indices use a physical connection with their object to direct attention to that object.

The singularity feature, that indices refer to individuals, may seem, initially, beyond the reach of the sub-index, given the generality it inherits from its symbolic component. However, each *tokening* of a sub-index refers to a particular individual even if the sub-index considered as a general symbol does not. For instance, although two people both use the sub-index "I", with its general rule, they both use it to refer to different individuals, i.e. themselves, because their tokenings are different. For the sub-index to refer to individuals, it is the sub-index considered as a token, rather than as a general type, that is crucial.

Finally, the sub-index also exemplifies the indicatory feature, that indices assert nothing, or merely show their object. Take, again, "that"; when I use it to refer to an object, it only indicates the object. It does not offer any information about the object, nor does it describe its object in order to designate it; it simply directs attention.

Sub-indices, then, have the generality of symbols, but they are able to circumvent that generality and *show* their object on a particular occasion of use. Of the five identified features, they exemplify the significatory, the singularity, and the indicatory features. What is also of interest about the sub-index and the presence of these three features within it is that it provides an argument against the strict definitional approach of Goudge, and his complaints about Peirce's inclusion of subject terms as indices generally. Peirce states, quite readily at (CP 2.284 (1903)) that the sub-index is not an index proper because of its general features. Further, the kind of signs that count as sub-indices, token-reflexives and so on, have a good case for inclusion as indexical expressions. Peirce seems to be fully aware of this. It would seem, then, that Peirce is not working to a definitional list in his wider account of indices and indexical expressions. If he was, it is unlikely that he would attempt to treat sub-indices as indexical, since he is clearly aware of their indexical shortcomings.

Precepts

The final subject-index is the precept. The precept is often treated as any propositional subject that is not an index proper or simple indexical expression, like a pronoun.[16] This includes descriptions, common nouns and quantifiers; however, Peirce makes a useful distinction between two types of precept; the directional and the selectional. At (CP 2.288 (1895)), Peirce says: "some indices

are more or less detailed directions for what the hearer is to do in order to place himself in direct experiential or other connection with the thing meant". This is the directional precept, examples of which include common or class nouns and definite descriptions. Peirce then continues: "along with such indexical directions of what to do in order to find the object meant, ought to be classed those pronouns which should be entitled selective pronouns, because they inform the hearer how he is to pick out one of the objects intended" (CP 2.289 (1895)). This is the selectional precept, examples of which include the universal and existential quantifiers.

The Directional Precept

The motivating idea behind Peirce's treatment of directional precepts as indices appears to be that at the point where the directions terminate and an object is designated, some form of indexical expression must be used. For instance, the subject-index of the utterance, "the car in my garage is blue", is the definite description, "the car in my garage". The indexical nature of this definite description, on Peirce's account, appears to be that it provides directions which, if you follow them, will place you in the context of an object, and *that* object is blue.

With regards the five identified features, the precept, like the sub-index, contains a strong symbolic element. For instance, if we analyze "the world's richest man wears glasses" as a list of directions leading to Bill Gates with a final declarative, "and *that* man wears glasses", there must be some convention or agreement about how the list is compiled or derived from its corresponding definite description. This symbolic component means that the directional precept fails to exemplify the independence feature, that indices have their character independently of interpretation, and the phenomenological feature, that indices do not resemble or share any law-like relation with their object. This is because any sign with a strong symbolic component must lack these rather anti-symbolic features of the index.

The extent to which the directional precept exemplifies the remaining definitional features is not altogether clear. The reason is that in many respects, the directional precept exemplifies the same features as the sub-index, namely the significatory feature, singularity feature and the indicatory feature. However, it does so in a way that requires some qualification. With the significatory feature, that an index uses some physical contiguity with its object to direct attention to that object, it seems clear that the directions are intended to make a hearer attend to an object. However, just how far we can insist that this is because of a physical connection is not clear. For instance, the definite description "the assassin of Kennedy", considered as directional should, if followed, lead us to Lee Harvey Oswald. In directing *us*, as the hearer, to its object, "the assassin of Kennedy" also directs *our attention* to that object. However, if I use "the assassin of Kennedy", it seems hard to say I am using some physical connection between my

utterance and Oswald to direct your attention, since no such connection exists. The problem is that there is no object present when I make this utterance.

Similarly with the singularity feature, that indices refer to individuals. In cases like definite description where a unique object satisfies the description, then it *seems* the directional precept does refer to an individual, but in the case of common or class nouns, it is more difficult to treat the directional precept as exemplifying this feature. We can of course point out that Peirce wants to treat sets or continua as individuals (CP 2.307 (1901)). The problem, however, is that although class nouns like "horse" or "cadmium" could count as individual classes, it is not clear that the directional precept *refers* to them. Rather, we are *directed* to an individual, class or otherwise, since no object is present at the time of the utterance, and this, of course, is different from saying that an object is *referred* to.

Finally, the indicatory feature, that indices assert nothing and merely show their object, is also a little unclear. It seems straightforward that directional precepts use a range of descriptions and potential definitions for an object, however, these are only meant to assist or result in *showing* the object, not defining or describing it. Unfortunately, *assisting* or *resulting* in showing, is not the same as just showing. So, although the directional precept's use of descriptions and so on in directing attention does not contribute to the meaning of its object, it doesn't show its object either, since no object is present to show.

The issue then, in the precept's exemplification of all of these features is that the object and the direct experience of it are not necessarily present in the directional instructions themselves. Consequently, it is not the directions themselves that are indexical, but the actions and experiences that result from following them. This is of course what Peirce intends for the precept; it is meant to instruct us in finding an indexical episode rather than simply being one. What this does, though, is open a small gap between the indexicality of the precept, and indexicality as the list of features implies it. A better way to understand this gap is to think of the following paraphrase of the three definitional features that the precept exemplifies as a more accurate reflection of the way the precept works:

1) *The indexical experience that results from following the directional instructions *uses some physical contiguity with its object to direct attention to that object.*

3) *The indexical experience that results from following the directional instructions *refers to individuals.*

4) *The indexical experience that results from following the directional instructions *asserts nothing.*

The paraphrase required hopefully shows the difficulty in saying that directional precepts themselves exemplify the original list of features for the index; the object is not clearly present in the utterances themselves. However, it should also be clear that the precept is meant to result in an indexical experience, and that it is from this intended result that its denotative power is supposed to come.

Although the directional precept, according to Peirce, generates the indexical experience of its object and so has some claim on exemplifying three of the indexical features, it is not uncontroversial to count it as a type of index. Goudge, for instance, notes the presence of directions-to-find-an-object in Peirce's theory but finds them problematic (Goudge: 1965, p. 64). Goudge claims that directions can only be indexical in cases where they contain an indexical term like "here", as in the instruction "press thumb here to open". Unfortunately, this misconstrues Peirce's notion of directional precepts. Goudge's examples are instructions for cases where the object is *present*, and so are not preceptive at all. However, these are the only cases of directional indices that Goudge is prepared to count as indexical. I, however, think that Peirce's account of directional precepts as indices is not as alien as Goudge takes it to be.

In an explanation of precepts and how they work, from (CP 2.330 (1903)), Peirce clearly treats directional precepts as something like procedural lists that end with the designational statement "and *that* object is X". Peirce's own example is "Lithium" which he treats as a list of instructions for the chemical isolation of the substance with the final line "and the material of *that* is a specimen of lithium". Described this way, the notion of directional precepts sounds very like Kaplan's Dthat (Kaplan: 1978) or Evans' Descriptive names (Evans: 1982). Clearly, Kaplan and Evans use definite descriptions whereas Peirce uses directions, but the differences are not so great.[17] Kaplan says that "If pointing can be taken as a form of describing, why not take describing as a form of pointing?" (Kaplan: 1978, p. 24). The precept captures the same insight; for Peirce, pointing is a form of directing attention, and so directing attention is serviceable as a form of pointing. I take it, then, that just as Dthat, on Kaplan's analysis, is a singular term and form of demonstrative, it is plausible that directional precepts too are indexical signs.

The Selectional Precept

On Peirce's account of the precept as subject-index, the selectional precept differs from the directional precept. Where the directional precept gives directions that terminate at an experience of the object, the selectional precept includes the additional step of informing the hearer how, or by whom, an object is selected from a specified class. Examples of the selectional precept are the universal and existential quantifiers.[18]

The way in which the selectional precept encompasses quantifier phrases is roughly as follows. Expressions of universal quantification, all, every, and so on,

are statements to the effect that the hearer may select any object he wishes to from the universe of discourse, and the utterer guarantees that it will have the property predicted of all objects in the class. For example, my utterance of the expression, "All horses are hoofed" is my guarantee to you that you may select any horse you wish to and it will have hooves. The universal quantifier places the selective burden upon the hearer, as it were. Existential quantifiers on the other hand, are statements that guarantee to the hearer that the utterer can find an object in the universe of discourse that satisfies the property predicated of it. For instance, the expression "some horses are shod" is my guarantee that I can find horses with horseshoes. Here the selective responsibility lies with the speaker. This reading of quantifiers as the interplay between utterer and hearer is Peirce's early version of Game-Theoretic semantics later developed by Jaako Hintikka.[19]

Concerning the five identified features, the selectional precept exemplifies the same characteristics as the directional precept. Just like the directional precept, it is a symbol with indexical function and so cannot exemplify those features which state the non-symbolic nature of indices. Further, it exemplifies the significatory, the singularity and indicatory features in the same way as the directional precept, i.e. obliquely or with some qualification. The reason is that the selectional precept, just like the directional, implies a list of directions to find an object. The difference lies in the selectional precept's inclusion of a final, object selecting, direction. For instance, the notion of a list in the case of selectional precepts works roughly as follows: taking the universal quantifier as an example, its list of directions, with a final selectional instruction, may run "if you take all of the X's, and you pick out any one of the X's you fancy, it is guaranteed that that particular X will have characteristic Y."[20] Consequently, the object of the selectional precept is not necessarily present in the selectional instructions themselves. Just like the directional precept, the selectional instructions themselves are not indexical, but the experience that results from following them is.

Just as Goudge found the directional precept problematic, he thought the selectional precept, taken as an indexical sign to be a mistake. For instance, Goudge says that "the interpretation Peirce gives to the quantifiers does not yield directions of this [(the directional)] kind" (Goudge: 1965, p. 64). Of course, Goudge does not explicitly note the distinction between directional and selectional precepts. If he did, he would not expect selectional precepts to function in a simple directional manner. However, the problem with motivating an indexical reading of quantifiers has little to do with how readily we accept that there are different kinds of precept. The problem has more to do with Peirce's game-theoretic approach to quantification, which boils quantification down to speaker/hearer interaction. Arguably, on this reading of quantifiers, it is barely surprising that there is an indexical element given that quantification comes down to the contextual choices made by either a speaker or a hearer. As such, Peirce's treatment of selectional precepts as indexical comes from his peculiar

treatment of quantifiers, which are the main examples of selectional precepts. If Peirce were to have a more conventional reading of quantifiers, he would be less inclined to think of the selectional precept as an indexical sign. Justifying Peirce's reading of the selectional precept as indexical, then, comes down to showing that Peirce's treatment of quantifiers as somehow bound up in the context of speakers is not as alien as it might initially appear.

There are certain features of Peirce's reading of quantifiers that other people share but most interesting and supportive of a Peircian position, though, is recent work by Stanley and Szabo (Stanley & Szabo: 2000). They suggest that the domain of a quantifier varies with the context of the noun phrase it takes as argument; this implies sensitivity to, or dependence upon, context. Stanley and Szabo's own example is the statement "Every bottle is empty". Depending on the context appropriate to an utterance of this sentence, the domain of bottles will be restricted to, for example, the contents of a bottle bank, or a milk crate, rather than all the bottles in the universe. Obviously, this is not what Peirce means by his treatment of quantifiers as precepts, but clearly, he is sensitive to a noted connection between quantifiers used in natural language, and the context in which language users find themselves in using "all" and "some" etc. to indicate and pick out specific objects. Arguably, then, his treatment of selectional precepts as indexical signs is not as heterodox as it may first seem.

The Broader Picture

By using the divisions between signs arising from Peirce's desire to treat propositional subjects as indices, we can show that a broader range of indexical signs exists in Peirce's theory, than we could by simply treating the features as necessary and sufficient conditions. The result is that we have three types of indexical sign. First, there is the index proper, which displays all of the five identified features. Examples of this type of indexical sign are natural signs or simple causal indices like the barometer or weathervane. Second, the sub-index, which displays three of the features. Examples of this type are indexical words like "I", "here", "now", etc. Finally, we have the directional and selectional precept, which displays, with some qualification, the same three features as the sub-index. Examples of this type are definite descriptions, common nouns and the universal and existential quantifiers.

This is not all there is to the broader reading offered in this paper though. So far, we have identified the three types of indexical sign and explained them in terms of the five identified features. In the next section, I shall look at a further distinction based on the "informationality" of the sign. As we shall see, this distinction does not generate any new types of indexical sign. Rather, it further qualifies each of the three types so that its exemplars are either *genuine* or *degenerate* cases of it.

Genuine and Degenerate Indices

The final development in my broader reading of Peirce's theory comes from a distinction that Peirce makes between two types of index.[21] He makes the distinction using a bewildering range of names and terminology but the most frequently adopted is the distinction between: "designations", which "merely stand for things or individual quasi-things with which the interpreting mind is already acquainted" and "reagents" which "may be used to ascertain facts" (CP 8.368 fn23 (undated)). "Reagent" is well noted amongst the secondary literature on this subject,[22] however, despite its widespread adoption, it occurs only once throughout *The Collected Papers*, and not at all in *The Writings of Charles S. Peirce*.[23]

The source that I treat as central to understanding the distinction comes from Peirce's 1903 Harvard Lectures. It gives a clear statement of the distinction and uses the most useful and suggestive terminology; it is worth quoting at length:

> It is desirable that you should understand clearly the distinction between the Genuine and the Degenerate index. The Genuine index represents the duality between the representamen and its object. As a whole it stands for the object; but a part or element of it represents [it] as being the representamen, by being an icon or analogue of the object in some way; and by virtue of that duality, it conveys information about the object. [...] Such is the genuine or informational index.
>
> A Degenerate index is a representamen which represents a single object because it is *factually* connected with it, but which conveys no information whatever. [...] A degenerate index may be called a *Monstrative* Index, in contradistinction to an *Informational* or Genuine Index. (EP II Ch 12, *The Categories Defended*, pp. 171-172)

This passage is crucial to the account that I develop here and I shall therefore retain the terminology it introduces to mark the distinction between two kinds of index: genuine and degenerate.

Peirce scholars are already aware of the distinction between two kinds of index and so there are standard readings of it. In what follows, then, I look at the standard interpretation of the distinction between genuine and degenerate indices and point out what I think are difficulties. I then present an alternative reading based upon the notions of "informationality" and "iconic involvement". These notions are present in the passage above but I shall explore them further below. Further, since I take the distinction to be applicable to all three types of

index as we identified them in the last section, I will also briefly discuss genuine and degenerate indices, genuine and degenerate sub-indices and genuine and degenerate precepts. As such, the genuine/degenerate distinction is less of a further typological distinction and more of a modifying distinction applicable to all three types of indexical sign.

Standard Interpretations

There are two readings of the distinction in the secondary literature. The first, and most common, takes the genuine/degenerate dichotomy to consist of a causal relation between sign and object in the case of the genuine index and a referential relation in the case of the degenerate index. In certain moods, Goudge uses this reading and says: "the weathercock is a "reagent" and the pronoun "this" is a designation. The former involves a causal relation with its object, and the later does not" (Goudge: 1965, p. 56). However, the main proponent of the causal/referential reading is Liszka who claims that the distinction is between causal or reagent indices and deictic or referential indices (Liszka: 1996, p. 38).[24]

The second reading takes the genuine/degenerate distinction to be between non-verbal and verbal indices. This reading comes from Goudge's non-causal approaches where he suggests that the distinction between genuine and degenerate indices is only pertinent "when [Peirce] takes account of linguistic expressions which function as signs" (Goudge: 1965, p. 55). Goudge later describes "non-verbal signs like a pointing finger or weathercock", as "genuine or "pure" indices" (Goudge: 1965, p. 65). This suggests that he sees non-verbal cases as genuine indices. Clearly, Goudge is not proposing a causal/referential distinction here since his inclusion of a "pointing finger" within the class of genuine indices includes a non-causal sign. Rather, his reading is to take non-verbal indices as genuine and verbal indices as degenerate.

Problems with Standard Interpretations

There are problems with these standard readings of Peirce's distinction. Starting with the non-verbal/verbal reading of the distinction, there is a clear example from Peirce's work of a non-verbal degenerate index. Peirce describes Horatio Greenough's Bunker Hill[25] Monument as a degenerate index (CP 5.75 (1903)). This is not a linguistic or verbal index. Also, Goudge lists the "pointing finger" as a genuine index because it is non-verbal (Goudge: 1965, p. 65). However, in the same passage as his Bunker Hill Monument example, Peirce clearly states, "a pointing finger is a degenerate index" (loc. cit.). Because of these cases, the non-verbal/verbal interpretation of Peirce's distinction is wrong.

The counter examples are not quite so free flowing for the causal/referential reading though. There are cases of non-causal genuine indices in Peirce's work but these are not as obvious as those that cast doubt upon Goudge's reading. The principle source for these counter examples is (CP 8.368 fn23 (undated)), which gives us two cases of non-causal genuine indices. The first: "the expression

'two and a half miles'", takes a little explanation.

Peirce describes this example of a genuine index as "not exactly a reagent but a description of a reagent."[126] What he means by this is that a rigid bar, or yard stick, used in measuring some distance, is an index of the Westminster yard bar and so "two and a half miles" describes the use of this index (laid end to end 3770 times) to indicate that distance. The worry is this: how is the yardstick at use in indicating the object of 'two and a half miles' *caused* by the Westminster yard bar of which it is an index? The Westminster yard bar certainly restricts certain dimensions of the yardstick, but it is not clear how it "causes" them.

The second case from (CP 8.386 fn23 (undated)) is "the scream for help" but Peirce does not offer any discussion of why it is a genuine or causal index. However, Peirce says more about a comparable case. The discussion of indices from (CP 2.287 (1895)) leads to the example of "a driver [who] to attract the attention of a foot passenger and cause him to save himself, calls out "Hi!"" (loc. cit.). This example is similar enough to the case of a scream for help to be a reagent. What is of interest here is what Peirce says about the object of this index. Peirce takes this case to be "an index, because it is meant to put him [the foot passenger] in real connection with the object, which is his situation relative to the approaching horse" (loc. cit.). If this is a reagent, then it seems odd to say that its object causes the sign; the *cause* of the sign seems to be the driver's intention to warn the pedestrian. This, however, is not the object that Peirce has in mind. The object is the "situation relative to the approaching horse" and this does not seem to be a causal feature of the sign-object relation. This would seem to cast doubt on a causal reading of genuine indices.

Perhaps there are important differences between the examples of "Hi" and a "scream for help". However, the cases seem similar enough so that if one is a reagent, then so is the other, and if the relation between sign and object in one is not *essentially* causal (for Peirce), then the same holds for the other. Alternatively, perhaps Peirce is wrong about the object of the index in the "Hi" case, and the object *is* the driver's intention to warn. I will not argue for or against this point and take Peirce at his word. Instead, I will try to add weight to what I have argued for by suggesting some difficulties in delineating where, and to what extent, causality matters in many cases.

Two examples of indices from David Savan (Savan: 1988, p. 38), the Cock's crowing at sunrise and morning reveille, are interesting for their intuitive similarities and differences. The dawn is candidate for object in both signs. Further, it seems intuitive that the dawn *causes* the cock to crow. Would we make so clear a commitment in the bugler's sounding reveille? In some sense, the dawn is a cause, but in another, it is the bugler's desire to obey orders, or perhaps the orders themselves, which are the *cause* of this index of the dawn. This makes the cockcrow and morning reveille different. In the case of the cockcrow, the object causes the sign and so this is a genuine index. In the case of morning reveille, the object of the sign is, at best, part of a broad causal nexus. This suggests that the

bugler's reveille is degenerate.

But are the cock's crowing and morning reveille so different? There are grounds for saying that the causal impetus in the case of the cockcrow is, like morning reveille, also a complexus involving both the dawn and other things not identical with the object of the sign. Perhaps habit drives the cockerel, or it feels joy at seeing daylight, or wants to impress the hens. Whatever the impetus is, it is not obvious that the causal connections are so clear cut in either case so as to exist solely between object and index and to warrant the description of one as genuine and the other degenerate.

A further blurring of issues comes from asking whether any indexical sign, genuine or degenerate, is devoid of some causal connection between it and its object. Cases of degenerate indices like 'this' 'that' 'here' and so on, arguably have a causal connection with their object. Imagine that I hear a loud bang and ask, "What is *that?*" There is some sense in which the object, the bang, causes the use of "that". Similarly, the connection between the location of an utterer and his use of "here" to refer to it is not completely devoid of cause. Delineating the role that causality plays is not an easy task.

One final consideration against the reading of the genuine index as causal is this: Peirce never explicitly uses the term "causal index". There is, of course, common reference to physical connection in terms of *existential* or *real relations* but it is not clear that this means the connection is causal. Liszka treats "causal" and "existential" as interchangeable (Liszka: 1996, p. 38); Goudge thinks expressions like "'a real connection' and 'an existential relation' [...] have no causal overtones" (Goudge: 1965, p. 55). The causal reading then is problematic enough to suggest that an alternative reading might be preferable.

Iconic Involvement

The impetus behind my alternative reading comes from Peirce's frequent description of the genuine/degenerate distinction in terms of informationality. He claims that a genuine index not only indicates its object, but provides information about it too. A degenerate index, on the other hand, simply indicates without conveying extra information.[27] There is some recognition of the genuine index's informationality amongst Peirce scholars,[28] but it is not this feature *per se* that motivates my alternative reading. Rather, it is Peirce's claim that the presence of an icon is essential for informationality, the clearest statement of which comes from (CP 5.75 (1903)) where Peirce says, "that by *an involved icon, it* [an indexical sign] *actually conveys information*" (Italics mine). This idea of an involved icon as the mechanism by which information is conveyed is the crux of the genuine/degenerate distinction.

The workings of the "involved icon" are not altogether clear, but Peirce makes a few instructive comments. At (CP 2.248 (1903)) he says: "[that] in so far as the index is affected by the object, it necessarily has some quality in common with the object, and [...] therefore involve[s] a sort of icon."[29] It

appears that Peirce thinks that, in the case of genuine indices, the sign does not just indicate its object, but also, through some qualitative commonality that exists between them, conveys information about its object too.

An example of how this works is the weathervane. The weathervane counts as a genuine index because it shares a quality in common with its object, the wind, namely their direction.[30] Because of this, the weathervane is able to convey information about its object. So, a Southern European weathervane with a veering northward, for example, shows its object to be a wind blowing from the south to the north. Further, from this sharing of a direction, the index is able to tell us that the wind is blowing from the North African Sahara.

A degenerate index, on the other hand, lacks iconic involvement or a qualitative connection with its object. A pointing finger, for example, stands as an index of the thing it points to; however, the two share no qualities. My finger, pointing to its object, and that object, a man lurking suspiciously on the street corner say, share no appropriate qualities. By attending to the finger, you can glean no information about its object, a local criminal. This is because my finger only indicates its object and has no appropriate qualities in common with it. Of course, my finger and the suspicious man are both made of flesh and bone, both have blood running through them and, if the man and I are both unlucky, the index and object are both sore and stiff with arthritis and so, arguably, my finger and the object to which it points do have some qualitative commonalties. However, these are not the right kind of qualitative commonality to count as iconic involvement.

For the sign and its object to share qualities in a way that suggest iconic involvement, the quality must be due to an affect the object has upon the sign.[31] In the case of the weathervane, the causal effect of the wind upon its sign is the underlying reason for the shared quality. In the case of my pointing finger, the qualities are largely accidental and in no way the result of the object affecting the sign. Iconic involvement, then, is the sharing of a quality between sign and object which, because it comes about as a result of the sign/object relation, means that information can be conveyed about the object.

We have already seen how this works on the level of simple indices like the weathervane and pointing finger, but how does this distinction apply to the sub-index and precept? If we take the basic list of sub-indices, "I", "here", "now", "this" and "that", something interesting happens. "I", "here" and "now" seem to be genuine indices and "this" and "that" appear to be degenerate. For instance, "I", "here" and "now", are able to function as indexical signs largely because of the qualities they share with their objects. "I" works as an index of me, when I use it, because it is *my* utterance. "Here" works to indicate a location because it shares that location. "Now" indicates a time because it shares that time.[32] "This" and "that", however, differ. "This" and "that" are clearly the sub-indexical analogue of the pointing finger and any qualitative connection they have with their objects is purely accidental.

What is interesting about this is the list of sub-indices I use is Kaplan's list (Kaplan: 1989, pp. 489-91). Kaplan's division of this list into pure indices and demonstratives separates the signs in exactly the same way that the genuine/degenerate distinction does. Kaplan's pure indices and Peirce's genuine sub-indices are "I", "here" and "now". Kaplan's demonstratives and Peirce's degenerate sub-indices are "this" and "that."[33]

The distinction as it applies to the precept appears to divide the sign into its directional and selectional types. The genuine precept is the directional, and the degenerate precept is the selectional. For instance, "the greatest living chess player", as a definite description counts as a directional precept. It directs us to an indexical episode that indicates its object. Further, that object largely determines the qualities of the sign, so that the description resembles its object. The qualities of the object determine the nature of the sign. This further provides us with the possibility of gaining information about the object, in this case that it plays chess, is alive, etc.

Selectional precepts on the other hand need not involve the qualities of their objects at all. "All" and "Some", for instance, only appear to indicate how we should select the object, through the choice of either the hearer or the speaker. This renders the selectional precept degenerate since no essential iconic involvement exists.

The Effect on the Broader Theory

The effect of developing the genuine/degenerate distinction and applying it to the three types of indexical sign is that we now have something like a complete account of Peirce's theory of the index and indexical signs. Initially we have a list of features that an index, taken as an ideal case, will have. The Index proper has all of these features. The sub-index and both kinds of precept are able to function as indices in virtue of convention or agreement amongst language users; i.e. they are primarily symbols. Consequently, they are *not ideal examples* and do not have all the features that the Index has. Of course, they still exemplify some of these features but above all, they all indicate, or show their object, this being the chief

Indexical Sign	Likely Features	Genuine Cases	Degenerate Cases
Index	1. Significatory 2. Independence 3. Singularity 4. Indicatory 5. Phenomenological	"Weather Vane"	"Pointing Finger"
Sub-Index	1. Significatory 3. Singularity 4. Indicatory	"I", "Here", "Now"	"This", "That"
Precept	1. Significatory* 3. Singularity* 4. Indicatory*	Definite Descriptions	Quantifiers

function of the index.

Finally, we come to the distinction between genuine and degenerate indices. Genuineness and degeneracy act to modify each of the three types of indexical sign. What this means is that the Index, Sub-Index and Precept will have both genuine and degenerate forms depending on the level of qualitative or iconic involvement in the way the sign functions as an index. The level of iconic involvement aids the informational capability of the sign. We might summarize the broad reading of Peirce's theory in the following diagram:

Concluding Remarks

The reading offered in this paper takes the general analytic view of Peirce's theory to be wrong and in desperate need of re-evaluation. Goudge's account of Peirce's theory in terms of definitional features provides the beginnings of an alternative but takes too narrow a view. The problem is that Goudge's treatment of the features as necessary and sufficient conditions cannot accommodate some of Peirce's examples of indices. Although Goudge provides an alternative to the Burksian reading of analytic theorists, it is still unlikely to lead to a new appreciation of Peirce's theory.

The developments in this paper, on the other hand, have a clearly delineable area of interest for modern theorists. Current theories of indexicals appear to focus, in Peircian terms, on the Sub-Index and, to an extent the Precept. Of course, further work is required to show how far Peirce's theory of Sub-Indices and Precepts coincides with current non-Peircian theories of the index. Indeed, it is not clear that Peirce shares all (or any) current interests for a theory of indexical reference. However, the reading of Peirce's theory provided in this paper gives reason to believe that engaging with Peirce's account of the index might be a fruitful course of research in investigating current concerns in indexical reference.[34]

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REFERENCES
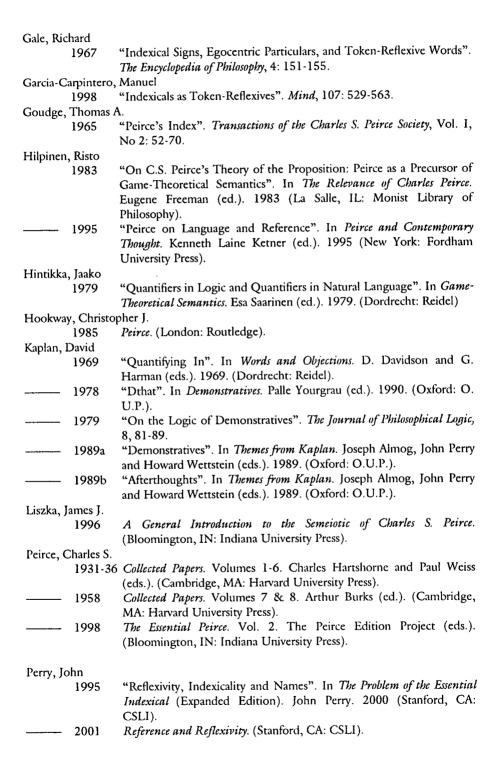Bar-Hillel, Yehoshua
     1970   *Aspects of Language: Essays and Lectures on The Philosophy of Language, Linguistic Philosophy and Methodology of Linguistics.* (Jerusalem: Magnes).
Burks, Arthur
     1949   "Icon, Index, Symbol". *Philosophical and Phenomenological Research*, Vol. IX: 673-689.
Evans, Gareth
     1982   *The Varieties of Reference.* John McDowell (ed.). (Oxford: O.U.P.).

Gale, Richard
    1967   "Indexical Signs, Egocentric Particulars, and Token-Reflexive Words".
           The Encyclopedia of Philosophy, 4: 151-155.

Garcia-Carpintero, Manuel
    1998   "Indexicals as Token-Reflexives". *Mind*, 107: 529-563.

Goudge, Thomas A.
    1965   "Peirce's Index". *Transactions of the Charles S. Peirce Society*, Vol. I,
           No 2: 52-70.

Hilpinen, Risto
    1983   "On C.S. Peirce's Theory of the Proposition: Peirce as a Precursor of
           Game-Theoretical Semantics". In *The Relevance of Charles Peirce*.
           Eugene Freeman (ed.). 1983 (La Salle, IL: Monist Library of
           Philosophy).
———   1995   "Peirce on Language and Reference". In *Peirce and Contemporary
           Thought*. Kenneth Laine Ketner (ed.). 1995 (New York: Fordham
           University Press).

Hintikka, Jaako
    1979   "Quantifiers in Logic and Quantifiers in Natural Language". In *Game-
           Theoretical Semantics*. Esa Saarinen (ed.). 1979. (Dordrecht: Reidel)

Hookway, Christopher J.
    1985   *Peirce*. (London: Routledge).

Kaplan, David
    1969   "Quantifying In". In *Words and Objections*. D. Davidson and G.
           Harman (eds.). 1969. (Dordrecht: Reidel).
———   1978   "Dthat". In *Demonstratives*. Palle Yourgrau (ed.). 1990. (Oxford: O.
           U.P.).
———   1979   "On the Logic of Demonstratives". *The Journal of Philosophical Logic*,
           8, 81-89.
———   1989a   "Demonstratives". In *Themes from Kaplan*. Joseph Almog, John Perry
           and Howard Wettstein (eds.). 1989. (Oxford: O.U.P.).
———   1989b   "Afterthoughts". In *Themes from Kaplan*. Joseph Almog, John Perry
           and Howard Wettstein (eds.). 1989. (Oxford: O.U.P.).

Liszka, James J.
    1996   *A General Introduction to the Semeiotic of Charles S. Peirce*.
           (Bloomington, IN: Indiana University Press).

Peirce, Charles S.
    1931-36 *Collected Papers*. Volumes 1-6. Charles Hartshorne and Paul Weiss
           (eds.). (Cambridge, MA: Harvard University Press).
———   1958   *Collected Papers*. Volumes 7 & 8. Arthur Burks (ed.). (Cambridge,
           MA: Harvard University Press).
———   1998   *The Essential Peirce*. Vol. 2. The Peirce Edition Project (eds.).
           (Bloomington, IN: Indiana University Press).

Perry, John
    1995   "Reflexivity, Indexicality and Names". In *The Problem of the Essential
           Indexical* (Expanded Edition). John Perry. 2000 (Stanford, CA:
           CSLI).
———   2001   *Reference and Reflexivity*. (Stanford, CA: CSLI).

Reichenbach, Hans
    1947   *Elements of Symbolic Logic.* (New York: Free Press).
Russell, Bertrand
    1918   "The Philosophy of Logical Atomism". In *Logic and Knowledge.* 1956.
            (London: Marsh).
Savan, David.
    1988   *An Introduction to C.S. Peirce's Full System of Semeiotic.* (Toronto:
            Toronto Semiotic Circle).
Sebeok, Thomas A.
    1995   "Indexicality". In *Peirce and Contemporary Thought.* Kenneth Laine
            Ketner (ed.). 1995 (New York: Fordham University Press).
Stanley, Jason and Szabo, Zoltan
    2000   "On Quantifier Domain Restriction". *Mind and Language*, 15: 219-
            261.

NOTES

1.   We are, of course, ignoring Russell's (1918) definition of *egocentric particulars* in terms of the logically proper name *this*. This is only because Russell's main concern in this account is in establishing his claim that proper names are definite descriptions, rather than establishing a thorough going account of indexicals.

2.   It strikes me that Kaplan inherits this view about the terminological safety of "index" from Yehoshua Bar-Hillel (1970, p. 79) who says that he uses Peirce's term indexical because "it provides an adjective easily combined with 'sign', 'word', 'expression', 'sentence', 'language' and 'communication' alike". The suggestion that Peirce's terminology is best used for issues of grammatical ease and theoretical neutrality is, I think, a clear statement of contemporary understanding of Peirce's theories of the index and indexical reference.

3.   It was Burks' editorship of the final two volumes of *The Collected Papers* in 1958 that, by and large, completed our access to Peirce's work, but obviously, Burks' 1949 paper precedes this.

4.   For instance, Richard Gale (Gale: 1967, p. 151) inherits Burks' criticisms wholesale. Similarly, Manuel Garcia-Carpintero (Garcia-Carpintero: 1998, pp. 532-533) takes Burks' criticisms as damming and uses that reading of Peirce as a foil for introducing Reichenbachian token-reflexivity. And one particularly interesting example of this inheriting of Burks' reading is in recent work by John Perry (Perry: 1995 and 2001). Perry develops an account of indexical reference based on Burks' (1949), but, because of Burks' reading, seems to make little reference to Peirce's account except as something of a Burksian precursor and general non-starter.

5.   For instance, David Savan (Savan: 1988, p. 36), and James Jacób Liszka (Liszka: 1996, p. 38 fn33) recently cite Goudge's paper as *the* authority and treat it as the final word on the subject.

6.   See, (CP 2.248 (c1903)), (CP 3.361 (1885)), (CP 4.531 (1906)), (CP 5.75 (1903)), (CP 5.287 (1868)), (CP 8.368 fn. 23 (undated)), (CP 1.369 (1885)), (CP 2.285 (1893)), (CP 2.286 (1893)), (CP 2.287 (1893)), (CP 4.56 (1893)), (CP 8.41 (1885)), (CP 8.350 (1908)).

7.   See, (CP 4.447 (1903)), (CP 5.73 (1901)).

8.   See, (CP 1.369 (1885)), (CP 2.283 (1902)), (CP 2.305 (1901)).

9.   See, (CP 1.369 (1885)), (CP 2.291 (1893)), (CP 3.361 (1885)), (CP 4.56 (1893)), (CP 8.41 (1885)).

10.   See, (CP 2.305 (1901)), (CP 2.306)).

11.   See (CP 2.283 (1902)) for instance.

12.   For instance, Goudge's third feature and my independence feature are the same in that they both concern the reality of the index. However, Peirce defines "the real" in at least two ways. One is as resistance and reaction and is the definition that Goudge notices. The other is as independence from thought or whatever men may think of it and is the definition behind my reading. Goudge's account of this feature and mine are essentially the same point approached differently. Indeed, the two types of definition for the real are found together on occasion. For example, Peirce says that "an index is a representamen [...] by virtue of a character which it could not have if *its object did not exist*, but which it will continue to have just the same *whether it be interpreted as a representamen or not*" (CP 5.73 (1901)), (italics mine).

13.   This is the crux of Burks' criticism of Peirce. For Burks, if the index is causal and dyadic, it is not behaving as a sign, which is essentially triadic.

14.   This is Goudge's own strategy against Burks' when he says that "Peirce is vulnerable to Burks' objection in retaining the idea of cause-effect relation between index and object in at least some cases where these items are taken in abstraction from a concrete semiotic situation" (Goudge: 1965, p. 55).

15.   Goudge (1965: pp. 60-65) suggests that Peirce's insistence on treating the subject term as an index leads to a breech of certain definitional features which force Peirce to make a range of ad hoc moves to keep his theories together. Amongst the moves that Goudge thinks Peirce is forced to make is his theory of precepts and a game-theoretical reading of quantifiers. The rest of this section aims to show that Peirce is not *forced* to develop these theories, but readily adopts them.

16.   See, for instance, (Hilpinen 1995, p. 291).

17.   Of course, we are already aware that definite descriptions count as directional precepts.

18.   See (CP 2.289 (1895)) where Peirce lists "universal selectives such as [...] any, every, all, no, none whatever, whoever, everybody, anybody, nobody" and " particular selectives [...] some, something, somebody, a, a certain, some or other, a suitable, one" as examples of selective precepts.

19.   See (Hilpinen: 1995, §IX - XI) and (Hilpinen: 1983) for more on Peirce's early game-theoretic approach to quantifiers. Further, see Hintikka (1979) for an example of his later and more thoroughgoing game-theoretic approach to quantifiers.

20.   Obviously, the list of directions will be longer than this and contain some indication of how to find X's.

21.   See, for instance (CP 2.283 (1902)), (CP 4.531 (1905)) (CP 5.75 (1903)) (CP 8.368 fn23 (undated)).

22.   See, for instance (Savan: 1988, p. 38), (Liszka: 1996, p. 38) (Sebeok: 1995, pp. 224-226)).

23.   This conclusion is just from my own searches. Others may find reference to reagents in the context of indexicals where I have not. The main point, though, is that Peirce's use of "reagents" is minimal.

24.   Liszka claims a third kind too, which he calls *labeling*. I am not convinced that he has a case for claiming a third kind of distinction and find his examples of this from Peirce, ((CP 2.329(c1902)), (CP 2.285 (c1895)) and (CP 3.361(1885)) to

be cases of Genuine and Degenerate indices, however, I do not want to argue this point here.

25.   The Battle of Bunker Hill was a battle of the American Revolution fought over two hills, Bunker Hill and Breed's Hill, on June 17, 1775 in Charlestown, Boston Massachusetts. It is famous for marking the realisation that well entrenched and organised American militia could withstand larger British numbers. A commemorative obelisk (the Bunker Hill Monument), designed by Horatio Greenough, now stands on the site where the battle took place.

26.   Recall that "reagent" is one of Peirce's many names for what we are calling a genuine index.

27.   Peirce suggests these points in the third 1903 Harvard lecture (see EP II Ch. 12, pp. 171-172 quoted above) and at various points throughout the Collected Papers ((CP 2.231 (1910)), (CP 5.75 (1903)) (CP 5.76 (1903)). The use of "reagent" in (CP 8.368 fn23 (undated)) is meant to suggest informationality, as is the use of "informational index" as an alternative term for genuine indices in EP II Ch. 12, pp. 171-172.

28.   Liszka (Liszka: 1996, pp. 38-39) and Sebeok (Sebeok: 1995, pp. 224-225) both recognize informationality as a feature of the genuine index. Liszka suggests that the ability to convey information is due to the causal connection between "reagent" and object (op. cit.) but does not explain why.

29.   See also, (CP 5.75 1903)) and EPII, pp. 170-71 for further comment by Peirce about the nature of iconic involvement.

30.   Of course, this sharing of a quality does not mean that the weathervane is an iconic sign of its object; the shared quality does not play a role in the weathervane's standing for its object and so the sign remains an index. However, because this shared quality exists, Peirce maintains that as well as indicating its object, the weathervane is able to convey information also.

31.   See (CP 2.248 (1903)).

32.   Of course, the sharing of qualities is not the only reason these signs indicate their object, their status as symbols with an agreed upon use contributes significantly too.

33.   Clearly, the list of sub-indices is larger than this and the immediate similarities between Kaplan's division and Peirce's may come apart with further investigation of them. Also, I am only claiming that any similarities between Kaplan's and Peirce's account rests in the way the signs divide; Peirce's reasons for making the division and Kaplan's appear to be unrelated.

34.   Special thanks to Chris Hookway and Jenny Saul who read and commented on various drafts of this paper. Also, thanks to Nathan Houser for a copy of his M.A. thesis and for suggesting worthwhile work on Peirce's notion of degeneracy.