Chapter 5

C. S. Peirce: Toward an Intersubjective Model of Context

In this chapter I will argue that in the work of C. S. Peirce we find most of the ingredients needed for a workable theory of indexical context. Many of the features which we meet here for the first time will turn up later in the theory of context proposed in Chapter 9. It would be well, then, at this point, to review the overall line of investigation of this dissertation—to take stock of the problems so far identified, and of the resources so far in hand for their solution. I began with the observation that the notion of context plays an important role in explanations of a wide variety of human cognitive and communicative processes, but I suggested that this rather vague general notion might be made more precise and more useful through a careful examination of a narrowly defined set of examples, especially if examples could be found which clearly displayed specific distinguishable contextual effects. I observed that highly context-sensitive expressions of natural language, what I have been calling indexicals, provide such a helpful test case. I proposed focusing first on referring indexicals, with the hope of later generalizing to non-referential indexicality, and then to non-linguistic forms of context-sensitivity.

The strategy I have adopted is to find accounts of indexical reference, both explicit and implicit, in the classic literature of the philosophy of language, and then to ask the question "what must context be like in order to play the role assigned to it by these various accounts?" For each account examined, I have been attempting to extract (or reconstruct) a suitable theory of context which would make the presumed referential machinery work properly, and then critically examining the resulting picture of context-sensitive reference.

So far we have looked at the importance of indexicals in the work of Aristotle, Mill, Russell and Frege. In Aristotle and Mill, indexicals play an essential role in stating

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1 The order in which I am treated these philosophers is more thematic than chronological; nonetheless, this order of presentation generally reflects the links of influence which operated among them relative to the issues we are tracing. Mill clearly set the agenda and was closely read by Peirce, Frege, Russell and Husserl. The general interaction between Frege and the much younger Russell is familiar, although neither seems to have influenced the other in regard to indexical reference. Peirce, ten years Frege's senior was intensely involved in the formal developments taking place in Europe—Ernst Schröder's influential "Algebra of Logic" of 1890 takes its title and much of its method from a series of papers published in 1880 by Peirce. Frege knew, and commented on Schröder's work, but seems unaware of Peirce's semiotic ideas. Yet although their ideas on indexical reference seem to have developed independently, Frege and Peirce are linked by a common concern to deal with the issue of objectivity which it raises so insistently. As we shall see, Husserl—ten
theories about the connection between language and experience, but no explicit theory of indexical meaning is given and so the picture of context remains vague. In Russell, indexicals also play a crucial role in the statement of the theory, but we also see a first attempt at a theory of indexicality. We found this theory unacceptable, if for no other reason, because it has the implausible consequence that all meaning is inescapably private—that we never know what anyone else means with their words and we never succeed in communicating about public objects. Nonetheless Russell's attempt addresses some of the basic issues about indexical reference and provides a starting point for the analysis of indexical context. This alone makes Russell's views worthy of attention; in addition, since both Mill and Russell hold (forms of) direct reference theories, their treatments of these issues will be relevant when assessing more recent developments in the theory of indexical reference. In contrast, Frege's basic theory of meaning does not make any essential use of indexicals, mainly because its first aim is to explain the meanings of timelessly true, context-independent, statements, and also because it presupposes, as we have argued, a description theory of singular reference. But even a non-direct reference theory like Frege's, if extended to cover the full range of natural language, must deal with the cases which direct reference theories take to be the paradigms of singular reference, i.e. reference to objects of immediate experience. Frege does, indeed, attempt to give an account of these cases, and so in Frege, as in Russell, we found an explicit theory of indexicality. But where Russell treats indexical reference as part of what is, for him, the most basic case of linguistic meaning (the meaning of atomic sentences), Frege treats indexicals as a marginal case, and his account is an attempt to explain away what looks like a problem for his theory of senses. We have seen that the problem Frege was worried about, i.e. identifying the senses associated with particular uses of indexicals, is not, however, a marginal anomaly; it is, rather, a symptom of a serious problem for his whole theory of linguistic meaning.

As we have considered these theories we have noted a series of claims about meaning which remain untouched by criticisms of other aspects of the specific theories with which they are associated. One is Mill's principle of semantic objectivity. Two others arise from Russell's doubts about whether we have the means to reach the goal of objectivity which Mill notes. Russell reminds us of the special link between acquaintance and reference, and also of the perspectival incompleteness of perceptions of external objects. Frege, in turn, admits that objects are known perspectively, but insists that these perspectives on
objects—their ways of being given—are themselves objective and thus provide the required means to achieve our Millian goal of objective reference. These intuitively plausible principles together amount to a set of desiderata, well established in the tradition of the philosophy of language, which a theory of meaning for indexicals might be expected to preserve.

Both Frege and Russell take notice of indexicals only in relation to already elaborated general theories (presupposing specific epistemological and ontological commitments), and only to the extent that indexical meanings seem to be required by, or raise problems for, those theories. In the work of Peirce, by contrast, we see an attempt to work out a theory of meaning in which indexicality is recognized early on as a *fundamental* dimension of meaning, one which should influence the overall structure of a semantic theory. As a result, Peirce recognizes a wide variety of contextual influences on linguistic meaning and provides the basis for a detailed picture of what context must be like to produce those influences. Once we have sketched this picture of Peircean context, we will be in a position to determine how well it satisfies the desiderata noted above.

**Peirce on Icon, Index and Symbol**

In Peirce we find an early attempt at a “semiotic” account of linguistic meaning—that is, a theory which sees linguistic meaning as a special case of a wider phenomenon, the meaning of *signs*. Where Mill, Russell and Frege took special interest in explaining the most sophisticated and abstract uses of language (e.g. in mathematics and science), Peirce thought it essential to first investigate the *rudimentary* aspects of language—those features responsible for its fundamental representational nature. He says that before logic can come to grips with the evaluation of argument forms, it must first consider "in what sense and how there can be any true propositions and false propositions, and what are the general

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2 Peirce struggled to make his contemporaries aware of the commonalities he recognized between linguistic meaning and the other information-bearing relation in the natural world. As he explains to Lady Welby, he finally despaired of every finding acceptance of his broad understanding of the notion of a sign, and reformulated his basic division of signs to cover only those most closely related to language. But in doing so, he opens the possibility of being misunderstood by later readers who attempt to understand his examples of signs taken in the broad sense on the basis of his explanations concerning *linguistic* signs. For example Arthur Burks, whose article, "Icon, Index, and Symbol," has brought Peirce's views on indexicality to the attention of many contemporary philosopher's of language, unfortunately misunderstands him in just this way. The present chapter presents a reading of Peirce's views substantially different from that of Burks. Burks's views are examined in Ch. 7.
conditions to which thought or signs of any kind must conform in order to assert anything." Peirce holds that thoughts are signs because these patterns are *representationa*; they carry information because they display a coordination of regularities—a pattern which holds between patterns. To cite one of his examples, a weathervane is a sign of the wind because one pattern (the movement of the weathervane), is coordinated with another pattern (the changing direction of the wind). The sign relation, then, is a *second-order pattern* which links two first-order patterns, allowing one to serve as a sign of the other. This way of looking at things is basic to the pragmatist orientation to linguistic meaning, and is summed up in William James' remark "Our experience . . . is all shot through with regularities. One bit of it can warn us to get ready for another bit, can 'intend' or 'be significant of' that more remote object."4

In contemporary terms, this general semiotic representationalism can be described as the observation that a mind having information about the world is just a special case of one object carrying information about another object.5 A footprint carries information about

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3 *Collected Papers*, 2.206 (i.e., vol. 2, §206. Hereafter, passages from the *Collected Papers* will be cited in this traditional way.) Peirce takes Kant's *transcendental Elementarlehre* in the *Critique of Pure Reason* as a model of such an investigation. He also refers to this part of logic-as-semiotic as *Grammatica Speculativa* after Duns Scotus. For a sketch of the relation of the theory of indexicals to traditional logic, see *Collected Papers*, 4.9.

Uncovering what is required for any statement whatsoever to have a truth value is, of course, one of Wittgenstein's central projects in the *Tractatus*. A series of interesting parallels between Peirce and Wittgenstein will be noted below.

4 *Pragmatism*, pp. 204-5. James uses of the word "intend" here signals the close tie between the semiotic relation and intentionality. As we shall see in Ch. 6, Husserl's theory of intentionality provides the basis for an analysis of the contextual component of meaning similar to Peirce's.

5 A contemporary version of this view is what John Perry calls the "relational theory of meaning," a view which he connects with contemporary information-theoretic accounts of Fred Dretske and others. Dretske acknowledges (though only in passing) the fundamental role indexicality plays in an informational account of linguistic meaning; in presenting his theory he regularly expresses the informational content of a signal in the form 's is F'—"where the letter s is understood to be an *indexical* or *demonstrative* element referring to some item at the source" (*Knowledge and the Flow of Information*, p. 66). It ought to make a big difference to an informational theory of meaning how this indexical element is understood. Dretske does a good job of distinguishing between the informational content of a sign or "signal" and the contextual structures ("channel conditions") which make communication of that content possible, but he leaves those contextual structures, as they affect language, largely unexamined and unexplained.
the creature that made it, and can be interpreted, by an intelligent interpreter, as a sign of that creature. The interpretation is only possible because of the informational/representational relation which already holds between the footprint and its maker. These representational relations display the continuity of the human use of signs with the behavior of animals, and even with causal interrelations among living and non-living objects.\(^6\)

The semantic connection between conventional human symbols (such as linguistic expressions) and abstract ideas are to be understood, Peirce thinks, only in their relation to, and dependance on, more basic sign-relations between human being and their natural environment, and on the sign-relations embodied in that environment. Meaning, and therefore meaningful thought, is only possible for a being which stands in a complex, action-oriented relation to a surrounding world containing a certain level of orderliness—meaning is fundamentally contextual. It is thus not surprising that he presents a view of linguistic signs which pays close attention to the role of context and contextual influences.

Although Peirce developed a complex system of classification of signs, we can confine ourselves to Peirce’s division of signs into icon, index and symbol. A concrete instance of a linguistic sign can, and usually does, show features of all of these three types, so the examples given are meant to highlight their distinguishing characteristic, not to be pure cases. Specifically, all human language has a conventional (and thus symbolic) aspect, although many expressions have important iconic and indexical features as well.

*Icons* are signs which represent because of their similarity to the object they represent. A bear's footprint can represent the bear, in part, because its *shape* is the same as that of the bear's foot. International road and airport signs, onomatopoetic expressions, maps and paintings are all obviously iconic. Icons are capable of representing because of their intrinsic qualities (shape, color, size, length, etc.) and not because of any relation (other than qualitative similarity) to the object they might be used to represent. Although the sign would retain these qualities whether or not it was ever used as a sign, it gets such a use only by having its similarity to its object recognized by an interpreter.

As a result, actual *uses* of icons involve an additional similarity, beyond the similarity between the sign and the object signified, and that is the similarity in the reaction of the

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\(^6\) Cf. Peirce's application of the notion of *Representamen* (the general kind of entity of which signs are an example) to the sunflower's ability to represent the sun by its sun-following movement and its ability to reproduce that movement in its offspring (*Collected Papers*, 2.272).
person interpreting the sign; the reaction of the person to the sign is (in some respect) similar to their reaction to the signified object (e.g., in the case of the bear and its footprint, seeing either might produce fright or the belief "there's a bear nearby"). This can be true whether the thing signified is a physical object, an abstract object, or indeed another sign. A person’s reaction to a map (e.g. the travel decisions she makes) are similar to what they would be if she were able to perceive directly from the landscape all the spatial relations represented on the map. Peirce says:

An example of the use of a likeness [i.e., an icon] is the design an artist draws of a statue . . . by the contemplation of which he can ascertain whether what he proposes will be beautiful and satisfactory. The question asked is thus answered almost with certainty because it relates to how the artist will himself be affected.  

The artist's drawing is an icon of the statue because it consists of shapes which are similar to the shapes which make up the statue, but also—and crucially—because it produces a reaction in the artist which is similar to the reaction which would be produced by the completed statue. An important iconic element in all human language is the similarity in response which users of a language have to various tokens of a given expression of a language. An utterance only counts as a token of a particular word if it produces reactions which are similar to those produced by other tokens of that word; each utterance of an expression is, to this extent, an icon of all other utterances of that expression type.

An Index is a sign which depends for its significant effect on its actual relation to the object it signifies. Peirce says it:

refers to its object not so much because of any similarity or analogy with it . . . as because of its dynamical (including spatial) connection both with the individual object, on the one hand, and the senses or memory of the person for whom it serves as a sign, on the other. (2.305)

A thermometer is an index of the temperature at its location, a weathervane, an index of the direction of the wind.

Indices work by "creating a real connection" between the interpreter and the object. In addition to being an icon of the bear's foot, the footprint in an index of the bear's having been at that very place some time earlier. It can act as a sign of that event in virtue of the link between the specific details of its existence, the actual passage of the bear, and the visual and mental experience of one who sees it. In a similar way, Peirce thinks, a pointing

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7 The Philosophy of Peirce, p. 106 (from C. P. 2.274-302)
gesture accompanied by the word 'there', when it serves to direct the hearers attention to a particular place, is an index of that place, and makes it possible to then say something about that place.

It is significant that Peirce says that indices work through the connections between objects and the "senses or memories" of those who use them. It is easy to see that 'there' with a pointing gesture can refer to a specific place when the speaker and the hearer can both see the pointing, the place indicated and the visual relation between the two. On the other hand, examples of indexical reference through memory are not so straightforward, but they play a crucial role in Peirce's system. Such reference relies on the fact that an episode of remembering an object is no less real than an episode of pointing at or seeing an object; the former, like the latter, can provide a real connection to that object—a context for indexical reference to it. A person can use the sentence 'We are all wearing hats' to make a statement about a specific collection of people in a context where the speaker and hearer have visual access, at the time the words are spoken, to the people referred to; 'we' acts as an index of those people because of simultaneous sensory experiences. But the sentence 'On our trip down the Grand Canyon we all wore hats' can also convey an assertion about a specific collection of people, but only if the speaker and the hearer share certain memories; 'we' acts as an index only where there are memories in place which bring to the mind of the hearer the same individuals the speaker has in mind. Since entertaining a memory is a real event in space and time, this connection through memory is no less real (though it may be less reliable) than the connection through simultaneous sensation. Recognizing this makes it possible to explain the obvious fact that indexicals can be used to refer to non-present, abstract and even fictional objects.8

Indices, Peirce tells us, have three distinguishing characteristics (2.306): first, they need not have any resemblance to their objects (footprints and bear droppings are both indices of the bear; footprints are also icons, the droppings are not); second, their objects are always individual existing things (thus their signifying relation is called 'referring'; linguistic indices are singular terms9); and third, they direct attention to their object “by blind compulsion”

8 Cf. Peirce's remarks, at 5.152, on the meanings of fictional statements, and their dependence on real (imaginative and verbal) acts of language users. As we shall see below, Peirce uses 'real' and 'reality' in a very specific technical sense.
9 Peirce allows for indexical reference to abstract objects, so "existing things" must be understood to cover more that just physical objects. For example, as a "scholastic realist" he believes universals can have real existence, though reference to them would depend on actual acts of recognition of their instances; apparent reference to non-existent objects would be explained as referring to actual acts of imagination, as at 5.152.
(rather than, for example, by social convention). When we turn to a detailed examination of Peircean indexicals we will see that understanding what Peirce means by this compulsive aspect of indexical reference will lead us to an investigation of the role of context in linguistic meaning.

The third kind of sign is the *symbol*. Symbols are connected to their objects by a rule or convention; a symbol is a sign which "signifies what it does only by virtue of its being understood to have that significance." Human language, of course, is composed of symbols; but again, it is important to note that actual instances of language use show iconic and indexical features as well. The indexical expressions we are studying will be among the signs which are both symbols (since all human language is constituted in part by conventional rules) and indices (since crucial parts of their meanings are determined by the facts about the actual environment in which they are used).

Peirce's examples of communication show how these three kinds of signs interact in human language. For example, he tells a story of successful and unsuccessful communication which highlights the importance of context and the contrast between indexical and symbolic (descriptive) reference.

Suppose two men meet upon a country road and one of them says to the other, "The chimney of that house is on fire." The other looks about him and descries a house with green blinds and a verandah having a smoking chimney. He walks on a few miles and meets a second traveler. Like Simple Simon he says, "the chimney of that house is on fire." "What house?" asks the other. "Oh, a house with green blinds and a verandah," replies the simpleton. "Where is the house?" asks the stranger. He desires some index which shall connect his apprehension with the house meant. (2.287)

Here we can distinguish two separate episodes of language use in which certain structural similarities and differences are highlighted. In both episodes we can distinguish a speaker, a hearer, an expression (containing the indexical 'that' and identical in both episodes), an informational content (which we can, for now, express in the form 'that A is F'), an intention to refer to an object (A), and a mechanism of reference, (which works well in one case and not in the other).

Peirce comments on this example, making clear the role of indexicals in the mechanism of reference.

The demonstratives "this" and "that," are indices. For they call upon the hearer to use his powers of observation, and so establish a real connection between his mind and the object; and if the demonstrative pronoun does that—without which its
meaning is not understood—it goes to establish such a connection; and so is an index. (2.287)

In general, indexical pronouns "may indicate anything to which the first and second persons have suitable real connections, by calling the attention of the second person to it." (2.287n.) As we have seen, these connections can be either through (appropriately similar) shared perceptions or through shared memories.

Another example helps to specify what "suitable real connections" in a context of use might include.

Two men are standing on the seashore looking out to sea. One of them says to the other, “that vessel there carries no freight at all, but only passengers.” Now, if the other, himself, sees no vessel, the first information he derives from the remark has for its Object the part of the sea that he does see, and informs him that a person with sharper eyes than his, or more trained in looking for such things, can see a vessel there; and then, that vessel having been thus introduced to his acquaintance, he is prepared to receive information about it, that it carries passengers exclusively. (2.232)

Note the relation of the information conveyed to the means by which it is conveyed. In this instance the communication of a specific piece of information is only possible against a background, a context, which contains a variety of kinds of things: Human agents with certain specifiable abilities; objects of various kinds; acts of attending and of acquaintance (specifically, acts of shared attention—of two agents attending to the same object); and finally, certain human intentions surrounding the act of communication. Here the "real connections" which make indexical reference to the ship possible include visual input and a shared physical point of view, but also involve specific kinds of memories: about ships and how they travel, about distant objects and different people's ability to see them, and also about communication situations and how language users make known to each other what it is they are talking about. Being able to make "this ship" an object of common reference depends on shared memories of experiences of acts of referring to other objects. The memories of those experiences of actual uses of expressions of the form 'that x there' are required for this instance of 'that vessel there' to make indexical reference to the unseen ship.

In the example of the burning chimney, there are two expressions by which Simple Simon attempts to refer to the same object: 'that house' and 'a house with green blinds.' The example illustrates that although the first is explicitly indexical and the other descriptive, there are circumstances where both succeed in referring, and others in which both fail.
Peirce's systematic account of indices reveals important connections between indexical reference and other apparently descriptive singular terms.

Indices and Other Singular Terms

As a class of linguistic expressions, indices are those which "require [their] interpretation to refer to the actual surrounding circumstances of the occasion of [their] embodiment;" in other words, they are those expressions which have context-sensitive meanings. Peirce gives as examples "such words as that, this, I, you, which, here, now, yonder, etc." (4.447) Clearly what we have been calling indexicals are Peircean indices (although Peirce's label also applies to other signs—e.g., nonlinguistic signs). He subdivides words which are "primarily indexical" into demonstratives, proper names and selective pronouns (by the latter he means expressions which are usually symbolized using bound variables). We can recognize here all the kinds of singular terms except definite descriptions. By surveying the relations among these three kinds of indices, and then inquiring into the relation between them and descriptive singular terms we can get a complete picture of Peirce's view of singular reference while extracting a picture of the distinctive features of indexical reference.

This is how Peirce explains the function of indices as singular terms:

An indexical word, such as a proper noun or demonstrative or selective pronoun [which categories of words, Peirce has just said in 3.459, "must exist in all languages"] has force to draw the attention of the listener to some hecceity common to the experience of speaker and listener. By a hecceity I mean some element of existence which, not merely by likeness between its different apparitions, but by an inward force of identity, manifesting itself in the continuity of its apparition throughout time and in space, as distinct from everything else, and is thus fit (as it...

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10 Anaphora, are classed by Peirce as "degenerate indices" (in other places "identifying indexicals"), because they direct the attention of the hearer to another ("genuine") indexical within the verbal context, and this indexical, in turn, directs the attention to the object. (2.283, 2.287) Peirce noted that certain anaphoric ambiguities could be clarified by replacing the limited stock of natural language pronouns with letters or numbers to identify co-referring terms, or by giving these terms identifying numerical subscripts. Contemporary linguistic theory has adopted this treatment of anaphora by "indexing" (with numerical subscripts) co-referring expressions in diagrams of linguistic structure. This has led to some terminological confusion about the notion of indexicality and its relation to anaphora. The antidote for this confusion is to take seriously Peirce's understanding that anaphoric reference within a verbal context is a dependent special case of indexical reference proper. Anaphora inherit their referents from their antecedents; an explanation of anaphora should grow naturally out of an understanding of indexicals in general.
can in no other way be) to receive a proper name or to be indicated as *this* or *that*. (3.460)

Here we are back on what is, by now, familiar ground, as we see Peirce establishing the link between indexical reference and a basic metaphysical category; Peirce's hecceities play a theoretical role analogous to Aristotle first substances (what Aristotle called 'this something') and to the referents of Russell's logically proper names 'this' and 'that'. They are the basic objects of which the world is built, and they are also the referents of the most basic singular terms.11

The indexical nature of demonstrative pronouns is, by now, familiar. But why does Peirce also classify bound variables and proper names as indices? As far as variables are concerned, he sees quantification as following a pattern which is apparent in other cases (including non-linguistic cases) of indexical reference.

Some indices are more or less detailed directions for what the hearer has to do in order to place himself in direct experiential or other connection with the thing meant. Thus, the Coast Survey issues "Notices to Mariners," giving the latitude and longitude, four or five bearings of prominent objects, etc., and saying *there* is a rock, or shoal, or buoy or lightship. (2.288)

Building on this remark he shows how context and indexicality are involved in the meaning of quantified expressions, ones which, in natural language, contain "selective pronouns" and in formal languages contain bound variables.

Along with such indexical directions of what to do to find the object meant, ought to be classed those pronouns which should be entitled *selective* pronouns [or quantifiers] because they inform the hearer how he is to pick out one of the objects intended. . . Two varieties of these are particularly important in logic, the universal selectives, such as . . . *any, every, all, no, none, whatever*. . . These mean that the hearer is at liberty to select any instance he likes within limits expressed or understood, and the assertion is intended to apply to that one. The other logically important variety consists of the particular selectives . . . *some, something, somebody* . . . (2.289)

11 As we will see in Ch. 6, there are also striking similarities between Peirce's characterization of the links between "hecceities," their "apparitions," and acts of indexical reference, on the one hand, and Husserl's remarks about the "constitution of objects" involving a "determinable x" as a common core of a series of perceptual "adumbrations" of an object of demonstrative reference—"this here"—on the other.
These expressions lead the hearer, just as the chart leads the navigator, into real contact with a particular object or objects with which the assertion is related in a specific expressive way.

Selective pronouns can only do this job, however, within a universe of discourse already established by the context of use. In defining the term 'universe of discourse' Peirce makes the following remark:

In every proposition the circumstances of its enunciation show that it refers to some collection of individuals or of possibilities, which cannot be adequately described, but can only be indicated as something familiar to both speaker and auditor. At one time it may be the physical universe, at another it may be the imaginary "world" of some play or novel, at another a range of possibilities. . . . It does not seem to be absolutely necessary in all cases that there should be an index proper outside the symbolic terms of the proposition to show what it is that is referred to; but in general there is such an index in the environment common to speaker and auditor. (2.536)

This "environment common to the speaker and auditor" is, once again, what we have been calling 'context'. Just as demonstratives depend for their reference upon context providing a common object to which the speaker and auditor can refer with 'that', meaningful quantification requires that context provide a range of common objects, each of which is potentially a 'that'. Here we can recognize the same dependence of the meaning of variables upon the meaning of indexicals which we noted in Russell. But Peirce has also explicitly described the context-dependence of the universe of quantification of uses of variables.

Slightly different considerations come into play with proper names. Although names certainly show characteristics of symbols (they depend for their significance on arbitrary social conventions which are peculiar to the community which uses the name), they are mentioned by Peirce along with other indices because their distinctive function as singular terms depend upon their also having a strongly indexical character. For example, when a name is used to make an assertion about the thing it names, its ability to refer depends on that utterance of the name having indexical force—calling that object to the hearer's attention in virtue of the hearer's actual connections to that object.

In order that a name should [denote some existing person] something more than an association of ideas is requisite. . . . The name, or rather, occurrences of the name, must be existentially connected with the existent person. (4.500)

The required existential connections were hinted at in Mill's remarks about names and naming, and are by now familiar from contemporary "causal theories" of names. They
include the use of the name in a "dubbing", the passing of the name from person to person, and shared memories of suitable previous uses of the name, and of name-usage in general. These (and other) existential connections form part of a context which determines the name's reference. An expression only functions as a proper name when utterances of that expression produce thoughts about the same object with which previous uses of that expression were existentially connected.\textsuperscript{12}

This emphasis on the indexical force of proper names is linked with another basic doctrine of Peirce's about the linguistic role of indexicals. Based on his analysis of the expression of judgements in propositions, he claims indices are the logical subjects of all propositions.

A judgement is an act of consciousness in which we . . . cause an image, or \textit{icon}, to be associated, in a particularly strenuous way, with an object represented to us by an \textit{index}. This act itself is represented in the proposition by a \textit{symbol} . . . Every assertion is an assertion that two signs have the same object. . . . It is impossible to find a proposition so simple as not to have reference to two signs. Take for instance, "it rains." Here the icon is the mental composite photograph of all the rainy days the thinker has experienced. The index, is all whereby he distinguishes \textit{that day}, as it is placed in his experience. The symbol is the mental act whereby [he] stamps that day as rainy. (2.435-8)

He is careful to point out that the \textit{logical} roles of icons, indices and symbols are discernible in, but not identical with the surface \textit{grammatical} roles of iconic, indexical and symbolic expressions.

An index . . . is quite essential to a speech, and a symbol equally so. We find in grammatical forms of syntax, a part of the sentence particularly appropriate to the index, another particularly appropriate to the symbol. The former is the \textit{grammatical subject}, the latter the \textit{grammatical predicate}. (4.58)

Logical analysis of the surface forms brings out an underlying structure. "Isolating the indices as well as we can, of which there will generally be a number, we term them the \textit{logical subjects}." This is just the point Russell had reached when he declared demonstratives to be the only logically proper names. But although Peirce's indices and Russell's logically proper names play analogous theoretical roles, there is a fundamental difference between the resulting theories. Where Russell was thinking of demonstratives as

\textsuperscript{12} Fictional and "empty" names can be given a uniform treatment once it is realized that fictional and imaginary objects can be as "real" and as recognizable as actual ones, in Peirce's special sense of "real", to be explained below.
referring to sense data picked out as the object of *attention of a single individual*, Peirce's logical subjects pick out objects of *common attention* of the hearer and user of indexicals.

This becomes clear when we consider the relation between the logical role of indices and that peculiar ability which Peirce claims indices have: the ability to *force* an object upon the attention of a hearer.

The assertion which the deliverer seeks to convey to the mind of the receiver relates to some object or objects which have forced themselves upon his attention; and he will miss his mark altogether unless he can succeed in forcing those very same objects upon the attention of the receiver. . . . Some such sign as the word *this*, or *that* . . . which awakens and directs attention must be used. A sign which denotes a thing by forcing it upon the attention is called an *index*. (3.434)

**The Indispensability Thesis**

Peirce's view is not just that indices *can* be used as logical subjects, but rather that it is of the very nature of assertion that all logical subjects *must* be indices (or incorporate an indexical aspect).

What is there in an assertion that makes it more than a mere complication of ideas? . . . It seems that, broadly speaking, ordinary words . . . assert as soon as they are in any way attached to any object. If you write 'GLASS' upon a case, you will be understood to mean that the case contains glass. . . . A symbol is a conventional sign which being attached to an object signifies that that object has certain characters. But a symbol, in itself is a mere dream; it does not show what it is talking about. It needs to be connected with its object. For that purpose, an index is indispensable. No other kind of sign will answer the purpose. . . . An index is essentially an affair of here and now, its office being to bring the thought to a particular experience, or series of experiences connected by dynamical relations. A *meaning* is the association of a word with images, its dream-exciting power. An index has nothing to do with meanings; it has to bring the hearer to share the experience of the speaker by *showing* what he is talking about. (4.56)

Symbols and icons never suffice to make a definite assertion. Peirce says quite flatly: "it is impossible to express what an assertion refers to except by means of an index." (2.287n)

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13 There is more that just a superficial similarity between Peirce's emphasis on the distinctive 'showing' function of indices and Wittgenstein's distinction between 'saying' and 'showing'. In both cases 'showing' is required for the application, projection, or connecting, of an abstract symbolic system to the concrete world of immediate experience, and in both case it operates through patterns of practical social activity. This similarity between Peirce and Wittgenstein deserves a more detailed treatment.
And this indispensability applies not only to *expressing* assertions, but also to *thinking* about what they assert.

There are three kinds of signs which are all indispensable in all reasoning; the first is the diagrammatic sign or *icon*, which exhibits a similarity or analogy to the subject of discourse; the second is the *index*, which like a pronoun, demonstrative or relative, forces the attention to the particular object intended without describing it; the third [or *symbol*] is the general name or description which signifies its object by means of an association of ideas or habitual connection between the name and the character signified. (1.369)

But aren't there obvious examples of sentences without indices which still make definite assertions? Consider, for example, 'Scarlet is a shade of red', 'Horses are mammals', etc. On Peirce's view, these sentences have a logical structure which involves quantified variables, and these, remember, are Peircean indices. 'Horses are mammals' is to be analyzed as: 'Take any one of the objects of our common experience and that object is either not a horse or it is a mammal.' The 'objects of common experience' are all the possible referents of demonstratives or proper names; so "take any one of the objects . . ." is just shorthand for "take this, or this, or this, or . . ."

Ordinary language might be modified or improved to make the correspondence between grammatical structure and the logical structures of the thoughts being expressed more transparent, but such modifications could never eliminate indexicals, or either of the other two types of terms.

In a perfect system of logical notation signs of these several kinds must all be employed. Without [symbols] there would be no generality in the statements, for they are the only general signs; and generality is essential to reasoning. . . . But symbols alone do not state what is the subject of discourse; and this can, in fact, not be described in general terms; it can only be indicated. The actual world cannot be distinguished from a world of imagination by any description. Hence the need of . . . indices. (3.363)

grammatically singular terms which have so far been mentioned only in passing: definite descriptions. We have already surveyed many of the problems raised by descriptive reference in connection with Russell and Frege. On Russell's theory of descriptions the descriptive assertion form 'the F is G' is understood to mean 'Something is F, and nothing

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14 As a "scholastic realist" Peirce holds that universals such as colors—scarlet and red—are real objects of experience, on a par with horses and mammals, and so they are also possible referents of indices and values of quantified variables.
else is F, and that something is G.' There is a familiar worry, mentioned before, about whether this recipe is really capable of identifying an object of reference. For if 'F' is a laundry list of an objects non-relational properties, it is doubtful whether the uniqueness requirement can ever be verified (for, after all, there may be some so-far-unknown object with those same properties). If non-indexical relational properties are included in F-ness, identification of 'the F' would require first identifying the other objects to which it stands in the specified relation, and purely descriptive reference would require that these identifications also be descriptive—triggering a regress. Similarly, if Fregean senses are expressible by definite descriptions, and if reference is determined by sense, it is not clear how they could ever pick out specific external objects. At some point (as Russell's theory of singular reference tries to show) apparently descriptive reference must bottom out on "logically proper" indexical reference. Peirce provides some detail about what this 'bottoming out' involves.

Indices as 'Anchors' for Descriptive Reference

Consider how Peirce responds to the following attempt to defend descriptive reference against the uniqueness and regress problems: Perhaps these problems could be avoided if 'F' were some carefully chosen property, for example the object's being located at a certain place at a certain time. This property is arguably unique, but the defense would only succeed if that place and that time could themselves be described without resorting to indices; and that, says Peirce, cannot be done.

Describe and describe and describe, and you never can describe a date, a position, or any homaloidal quantity [i.e., linear distance in ordinary three-dimensional space]. You may object that a map is a diagram showing localities; undoubtedly, but not until the law of projection is understood, nor even then unless at least two points on the map are somehow previously identified with points in nature. Now how is any diagram ever to perform that identification? (3.419)

He then generalizes this point about the graphic description of locations to cover language in general:

It is not the language alone, with its mere associations of similarity, but the language taken in connection with the auditor's own experiential associations of contiguity, which determines for him what . . . is meant. (3.419)

Language divorced from concrete connections to an experienced world is meaningless. Peirce sees the "law of projection" by which a map is able to carry information about a
geographic location as a special case of the general condition on any descriptive or symbolic medium (including language or thought) being able to carry information about actual objects. Indices play an indispensable role in this process by serving as what I will call 'anchors' to bind the symbolic representations to what they represent. A map only carries spatial information if it is 'anchored' in specific ways to what it represents. It can descriptively refer to unknown locations, but only relative to locations and distances which are indexically known. For arbitrary points on the map to project onto points in the landscape, the user must be able to point to some spot on the map and say, for example, "I'm here and that is north." Similarly, a verbal description of a location, such as '100 meters north of the Washington Monument' would only pick out a location if it were anchored with indexical knowledge such as that expressed by 'this is the Washington Monument, north is that way, and a meter is the distance from here to here.' Temporal descriptions pick out specific times only for those who can find out what time or date it is now, and who are able to identify indexically the duration of the time unit being used. Thus indexicals are indispensable to express information about locations in time and space, and so also for picking out objects identified by such locations.

Furthermore, Peirce holds, indexical anchors are not just needed to understand transparently relational descriptions such as those involving spatial and temporal locations; they are also fundamental to understanding descriptions based on intrinsic properties. Peirce points out that even general property terms like color words only pick out their instances when anchored with indexicals.

[The utility of indices] especially shines where other signs fail. Extreme precision being desired in the description of a red color, should I call it vermillion, I may be criticized on the ground that vermillion differently prepared has quite different hues, and thus I may be driven to the use of the color-wheel, when I shall have to Indicate [i.e., identify using an index] four disks individually, or I may say in what proportions light of a given wave-length is to be mixed with white light to produce the color I mean. The wave-length being stated in fractions of a micron or millionth of a meter, is referred through an Index to two lines on an individual bar... while

15 Cf., Wittgenstein's strikingly similar remarks in the *Tractatus* on "methods of projection" and their importance for symbolic representations having factual content. This is another case of the similarity mentioned above in note 3.
16 Actually Peirce's formulation is more precise, since projection from a map requires three specifications—an identified point, an orientation and a scale; orientation and scale are fixed as soon as a second point is given (since the distance and orientation between the two points are thus also given). John Perry has emphasized the importance of indexical anchors of this kind—what he calls "locating beliefs"—and cites them as examples of "essential" (that is, indispensable) indexicals. See below (Ch. 9).
the mixture with white, after white has been fixed by an Index of an individual light, will require at least one new Index. (4.544)

Here, two index-using methods of specifying a color are contemplated: one is a direct method involving setting up a color-wheel mechanism to produce an instance of the exact shade which could be then be identified as 'that color'; the other is an indirect method, which involves providing a descriptive recipe by which someone else could produce a sample of the color, but only if they knew the "law of projection" of that recipe—that is, knew how to set instruments which were calibrated to the standard units in which the recipe was written. These standard units must themselves be anchored indexically. Analogous considerations apply to other descriptive properties—size, shape, age, etc.

We can summarize Peirce's contention that all meaningful language contains an indexical aspect and his illustrations of how apparently descriptive expressions conceal or presuppose indexical anchors in what might be called the "indexical anchor principle:" The meaning of every utterance depends to some extent on concrete relations, expressible only with indexicals, between speaker, hearer, and whatever is being talked about. Specifically, non-indexical (descriptive) expressions only refer to—carry information about—specific objects when they are anchored by explicit or presupposed uses of indexical expressions.

We can now see a pattern reminiscent of the relation which Russell held to exist among singular terms—but with important differences. Peirce, like Russell, holds that application of the logical form of assertion to the contents of experience requires subject terms which refer directly (non-descriptively) to individual objects. Indexicals are the preferred candidates for this job. Apparent reference by proper names or descriptions are therefore analyzed to show their dependence on underlying indexical reference. The parallel is especially striking in the case of definite descriptions; the referring role of definite descriptions, when analyzed, is taken over by bound variables, which are, in turn, understood in relation to their replacement by the primary referring terms—"logically proper names," demonstratives or indices. The difference, though, is that Russell takes for granted a universe of discourse over which the variables are to range, namely privately

17 A wavelength in meters only picks out a color for someone who knows how long a meter is, and this requires having an "existential connection", typically via a calibrated measuring tool, to a standard meter bar.

18 This seems to me just another way of making the point, mentioned above, that the understanding and application of general assertions such as 'horses are mammals' presupposes the understanding of assertions of 'this is a horse' and 'this is a mammal.' General predication is, as Russell also seems to have realized, anchored in indexical predication.
accessible sense data. Peirce realized that the "selective pronouns" of ordinary language range over a variety of 'universes', that these universes are not 'given' in the way Russell supposes sense data to be, and, as we have already seen, that the relevant universe in a given context is picked out indexically, just as individual referents are.\textsuperscript{19} It now remains to be explained just how indices carry this heavy referential burden. In Peirce we find a great deal more detail than we have seen elsewhere. In particular, he provides an account of how the social nature of language use contributes to the indexical context which he claims is indispensable for referential meaning.

"Real Connections" and the Social Aspect of Reality

Peirce characterizes indices as signs which mean what they do because of "real connections" to that which they signify. It is not hard to imagine what this might mean; typically 'I' and 'you' refer to people who are \textit{really present} when and where those words are used. We can think of context as being made up of the real connections which matter to the meaning of an utterance. But Peirce has a rather idiosyncratic way of explaining what \textit{reality} is, and understanding that explanation is important for understanding what he means by a 'real connection'. Thus a small excursus is needed before we can specify what a Peircean context is like.

Peirce usually discusses the notion of \textit{reality} together with the notion of \textit{truth}; he is concerned to defend the objectivity of both against idealist and skeptical excesses and he offers a unified defense. This involves explaining the relation between thinking, believing, or knowing something to be true or real and what it is for that thing to \textit{be} true or real. In explaining what it means for a law of nature to be real, he makes an interesting three-way distinction.

That of which whatever is true depends for its truth on the action of a mind is \textit{internal}. . . (Germans might say \textit{subjective}). That of which the truth of whatever is true of it depends not merely on the action of a person's or a group of person's thought but also upon their thought \textit{about} the substance of the proposition that is true is \textit{unreal}. That which is such that something true about it is either true independently of the thought of any definite mind or minds or is at least true

\textsuperscript{19} This point is illustrated nicely in a note at 5.448 where Peirce explains how two English travelers could use "Charles the Second" to refer to a determinate individual. Understood as a definite description (e.g. "the second existent entity having the name 'Charles'") it does not pick out a single individual—or at least not the right one. But in the universe of discourse picked out by the context of the travelers' conversation (whatever that context turns out to be) the reference is clear.
independently of what any person or any definite individual group of persons think about that truth is real. 20

'That I am smelling something sweet' could be internally or subjectively true; 'that Santa has a beard' could be true, though unreal; that the earth revolves around the sun,' if true, is really true. Important features of this trichotomy become clear when he applies it to the question of whether the Law of Inertia is real. He concedes that since it deals with the motion of bodies in space, and since, a Kantian might argue, space is a 'form of thought' the truth of the Law might plausibly be held to depend on the nature of that form, and thus on the nature of thought. Now Peirce is inclined to think that space and time are 'forms of thought' in some sense, but also that physical laws are real. To this apparent dilemma Peirce replies:

But that though it makes the truth of whatever is true of the law to depend upon thought in general, does not make it depend upon the thought of any particular person or any particular group of persons. 21

Here Peirce is making an important distinction between the (acts of) thinking of particular individuals and thought as such, of which individual acts of thinking are instances. In doing this, Peirce is in accord with Frege in emphasizing the contrast between the (subjective) concrete action and the (objective) abstract, shareable product, 22 and he thereby lays the groundwork for a new distinctions, that between the notion of a particular community of thinking beings and the notion of a non-specific of community consisting of whatever is capable of language and thought. It is this latter notion of community which comes into play when we consider what makes ordinary human choices reasonable, rational or logical.

It seems to me . . . that logicality inexorably requires that our interests . . . must embrace the whole community of beings with whom we can come into immediate or mediate intellectual relation. . . . Logic is rooted in the social principle. . . . But all this requires a conceived identification of one's interests with those of an unlimited community. (2.654)

20 Selected Writings, p. 420 (my boldface).
21 Selected Writings, p. 420.
22 For a clear statement of this distinction between thinking and thought in terms of the contrast between actions and their products see Twardowski's "Actions and Products" in his Selected Writings. We will see that this distinction, apparently much discussed in the early years of this century, also plays a central role in Husserl's theory of objective meanings.
Peirce spells out the relation among truth, reality, and community as follows: Our cognitions

are of two kinds, the true and the untrue, or cognitions whose objects are \textit{real} and those whose objects are \textit{unreal}. And what do we mean by the real? It is a conception which we must first have had when we discovered that there was an unreal, an illusion; that is, when we first corrected ourselves. Now the distinction for which alone this fact logically called, was [between] an \textit{ens} relative to private inward determinations . . . and an \textit{ens} such as would stand in the long run. The real, then, is that which, sooner or later, information and reasoning would finally result in, and which is therefore independent of the vagaries of me and you. Thus, the very origin of the conception of reality shows that this conception essentially involves the notion of a \textit{COMMUNITY}, without definite limits, and capable of a definite increase of knowledge. And so those two series of cognitions—the real and the unreal—consist of those which, at a time sufficiently future, the community will always continue to re-affirm; and of those which, under the same conditions, will ever after be denied. (5.311)

Having defined the notions of truth and reality so that they depends not on the thinking of any individual or definite group, but on the nature of thought which is present in any such group, he is able to consistently hold that the Law of Inertia is both dependant on the nature of thought and that it is \textit{really} true.

But this definition of 'the true' and 'the real' in terms of the future behavior of an unspecifiable future community may strike one as a far cry from what we ordinarily mean by those words. Clearly we often make judgements about truth and reality without waiting for any future endorsement.

One implication of the Peircean definition, of course, is that many of our beliefs might in fact be true, but that it is always impossible in principle for us know it. This is not, however, an unusual epistemological doctrine, and Peirce freely admits that it is implied by his definition of reality. But to claim that this result is a fatal objection to all theories which imply it is to confuse the notion of a \textit{definition} with the notion of a \textit{criterion}. The objection boils down to the insistence that if a definition of reality or of truth succeeds in saying precisely what it means for something to be real or true, then it should thereby provide a means for judging in \textit{particular} cases whether some individual thing is real or true; it should automatically serve as a criterion for what is real or what is true. Many definitions \textit{do} in fact provide criteria for identifying instances of the definiendum, but this

\[23\] See also, 5.331 re. objectivity and this conception of reality.
is not something a definition must do. One could possess a perfectly precise definition of 'genuine Champagne'—could know exactly what it means for something to be Champagne—but when confronted with a particular glass of wine be helpless to determine whether that wine fit the definition. The same applies to our encounters with truths and realities.

Peirce's definition, although it is not, in itself, a criterion for deciding individual cases, nonetheless clearly points us in the direction of such a criterion. It says that when we try to judge the truth of a proposition, what we aim for is that conclusion which will be supported by any evidence available to any thinking being in the long run. This indeed reflects common intuitions about what it means for something to be true. Peirce formulates our common sense notion of 'the real' as follows:

There are Real Things, whose characters are entirely independent of our opinions about them; those Reals affect our senses according to regular laws, and, though our sensations are as different as are our relations to the objects, yet, by taking advantage of the laws of perception, we can ascertain by reasoning how things really and truly are, and any man, if he have sufficient experience and he reason enough about it, will be led to the one true conclusion. (5.384)

This, Peirce claims, is a "hypothesis which every mind admits." Notice here the role played by acts of reasoning and experience which are available to humans generally in the process of verification, a process which Peirce sees as contained in the very notion of reality. Elsewhere he calls this process 'investigation'.

Different minds may set out with the most antagonistic views, but the progress of investigation carries them by a force outside of themselves to one and the same conclusion. . . . This great hope is embodied in the conception of truth and reality. The opinion which is fated to be ultimately agreed on by all who investigate, is what we mean by the truth, and the object represented in this opinion is the real. (5.407)

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24 Twardowski very forcefully makes this point in regard to definitions of truth in his "Lectures on Theory of Knowledge," in his Selected Writings.

25 Laws, for Peirce, are the real regularities which connect objects and events; the laws of perception are those regularities which make it possible to make inferences about the characters of perceptual objects while abstracting from the perspective from which they are viewed. Here Peirce is attributing to thinking agents an important capacity, the ability to separate the public "reality" of an object from its momentary perspectival "mode of presentation." Performing this feat by applying the laws of perception means being able to see things "from the other guy's point of view." As we shall see, these abilities underlie important features of indexical context.
This is Peirce's well known vision of the asymptotic convergence of scientific inquiry on its goal. What makes Peirce's definition of 'the real' interesting and important is the way it emphasizes that our cognitive relation to reality is never a settled state, but always a process involving investigative activity within a communicative community. It is through this emphasis upon rational investigation within a community that Peirce's definition also suggests a criterion which can be applied to concrete cases.

If the definition of truth says that it is that which holds up to investigation in the long run, the obvious criterion for truth, given a particular case, would be to choose the conclusion supported by any evidence available to anyone so far. The role played by the indefinite future community in the definition is taken over in our actual judging practices by the present community, which, though definite in regard to its temporal existence, is still broad enough to provide a degree of objectivity not present in individual perception—to be, as Peirce puts it, 'independent of the vagaries of me and you.' Peirce's examples make it clear that, in his view, we aspire to the ideal of "truth in the long run" by applying an intersubjective criterion which allows us to identify what is "true so far."

Peirce sees this on-going search—checking our own beliefs against those of others—as a persistent feature of human life. Only a hermit could avoid being influenced by the beliefs of others. Knowing that others believe differently automatically produces doubt, he says, and activates an impulse to find out which opinion is correct. This is "an impulse too strong to be suppressed, without danger of destroying the human species. (5.378)" It is just insofar as a community engages in this process of collective belief fixation that we can speak of their sharing a common reality; it is precisely this common reality which provides the background, the context, for their communicative acts, including acts of indexical reference. Because context is a structured segment of reality we should expect it to be constituted by the same ongoing investigative processes that underlies reality as a whole.

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26 What Peirce has seen, that others have often missed, is that reality is not something that is given, but something to be worked out. For his detailed arguments against "givenness" see 5.213ff. As far as we can ever know, all our perceptions and cognitions are the products of inferences—there is nothing available to us in our thinking that can have the authority of direct evidence for the character of reality. We work from hypotheses which are always open to revision.

27 This human propensity to care about what others think, and to doubt where there is disagreement, is displayed in that childhood experience of illusion and correction, which Peirce links with our first encounters with the notion of reality. It is also apparent in the process of language acquisition where conformity to the representational standard of the community seems to be a universal human motivation. Evidence of this from developmental psychology will be reviewed in Ch. 9.
Thus when Peirce speaks of real connections between an index and its object, he means connections which are capable of fixing community beliefs; these are the contextual features that will enter into an explanation of indexical meaning. This provides us with a first step toward a description of context based on Peircean principles. The next step, now that we know what to look for, is to identify examples of those contextual features. Many of these emerge in Peirce's discussion of the nature of assertion.

**Context and the Nature of Assertion**

Peirce places the analysis of the nature of assertion at the very foundation of Logic. This analysis begins from observations which are, he says, immune to doubt because they are

observations of the rudest kind, open to the eye of every attentive person who is familiar with the use of language, and which, we may be sure, no rational being, able to converse at all with his fellows, and so to express a doubt of anything, will ever have any doubt. (3.432)

Here we have a kind of Cartesian rock-bottom, but one which is reached in the social interchange of questioning and discussing rather than in the private recesses of the individual mind. It is by examining this bedrock of linguistic meaning that we can identify the structural components and dynamic processes which Peirce relies on to explain the context-sensitive aspects of indexical meaning; since Peirce holds that all assertion has an indexical component, the contextual resources for fixing indexical meaning must be discernible in the assertion-situation as such.

At 3.433 Peirce tells us what "rude observations" he has in mind:

1) There are actual language users who occupy specific roles:

When an assertion is made, there really is some speaker, writer or other sign-maker who delivers it; and [the speaker] supposes there is, or will be some hearer, reader, or other interpreter who will receive it.

Let us begin collecting material for our description of Peircean context by noting that it contains agents (at least two, although Peirce allows for the special case of monologue,

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28 As Frege identifies the timeless abstract thought as "that for which the question of truth arises," and thus as the primary subject matter of Logic, so Peirce assigns this role to the concrete, dynamic event of assertion.

29 See also a parallel discussion at 2.332 under the title "the Nature of Assertion."
which he conceives as dialogue between successive temporal phases of an individual), and these agents occupy, at any given moment, specific communicative roles of speaker, and hearer.30

2) Whenever there is an assertion, there is some actual sign produced: "The deliverer makes signals to the receiver." The signal is some object or event which is 'real' in the above mentioned sense of being available for intersubjective observation.

In order to count as an expression of language, a sign must be a token of some type—there must be some socially recognized pattern that holds among a set of perceptibly similar objects or events. This gives us another contextual factor because it tells us something about the agents who fill the communicative roles; they must be capable of producing and recognizing events or objects as tokens of the specific types—as able to function as signals. Next Peirce mentions some important similarities among utterances which qualify them as being tokens of signal types. This, in turn, tells us something more about the characteristics of the agents:

3) These signals are made for a purpose: "These signs are supposed to excite in the receiver . . . reminiscences of sights, sounds, feelings, tastes, smells, or other sensations" via an icon, and then to relate them to "some object or objects which have forced themselves upon [the speaker's] attention," an object which she, in turn, can force upon the attention of the receiver by the use of an index. The achievement of this communicative purpose can be divided into three parts: bringing to the hearer's mind a predicate; bringing to the hearer's attention an object; and inducing the hearer to form a belief about that object to the effect that it has that predicate. It is the second of these parts which involves the "blind compulsion" characteristic of indices.

Peirce thinks of an assertion as an attempt to compel in a listener a belief which has been somehow compelled upon the speaker. This has an important consequence for what assertion must involve:

Because compulsion is essentially hic et nunc, the occasion of the compulsion can only be represented to the listener by compelling him to have experience of that same occasion. Hence it is requisite that there should be a kind of sign which shall act dynamically upon the hearer's attention and direct it to a special object or occasion . . . an Index. (2.336)

30 Following Peirce's example, I will generally use 'speaker' and 'hearer' to cover the producer and receiver of any form of linguistic communication, but with the understanding that that communication could also be written, signed, embossed in Braille, etc.
Something in the circumstances of the speaker has caused him to focus on an object. The speaker can then intentionally cause the hearer to focus on that object by taking advantage of (or modifying) the hearer's circumstances to form the required context for indexical reference. For example, Peirce says, "'This' and 'that' are words designed to stimulate the person addressed to perform an act of observation." (4.158) It is this act of observation which is intended to bring to the hearer's attention the object of the speaker's attention. But to have the desired predictable results, the observation must be provoked within a suitably structured context; not just any observation will do, but only one which is somehow coordinated with the speaker's act of attending.

Furthermore, acts of attention play a central role in the indexical meanings both of language and of the thoughts which language expresses.

Attention is the pure denotative application . . . of the thought-sign; it is the part that thought plays as an index. . . . Attention is a certain modification of the contents of consciousness with reference to a centre. This centre is where there is a strong sense-will reaction, which imparts to the idea the nature of an index (weathercock, sign post, or other blind forcible connection between thought and thing). (2.428)

What this tells us about communicative agents is that they must be able to attend to objects and to intend that others attend to the same object. To fulfill this intention they must also be able to manipulate one another's circumstances in such a way as to achieve the required direction of the other's attention. Here we can see, in Peirce's picture of the fundamental structure of the assertive act, a confirmation of Mill's and Frege's intuitions about the objectivity of reference; the very act of making an assertion seems to require that we manage a shared act of attending to a common external object and make it the target of our referential intention.31

We should also recall Russell's appeal to attention in his explanation of how a referent is selected for 'that'. On any given occasion there are innumerable objects which could be the referent of 'that'—even when it is accompanied by a pointing gesture; 'That's no good,' said while pointing at a cup, could refer to the cup itself, its contents, its color, its placement on the table, or any object, property, or state of affairs in its general direction. A major part of any theory of indexical reference will be explaining how a single object is selected as referent

31 Again Peirce's intuitive observations are confirmed in the work of developmental psychologists reviewed in Ch. 9.
It is a virtue of Russell's account that he recognizes the act of attending as an important selective factor. One of Peirce's contributions is the insight that the relevant acts of attention are those which can be shared with others—the nature of reference with language includes dependence on common acts of attending.

These common acts are just an example of another general characteristic of linguistic assertion:

4) Sign-use is only possible because of common and predictable patterns of thought shared by the language users: "[the speaker] is able to call up these images at will in his own mind; and he supposes the receiver can do the same." There is a kind of empathic identification, which plays an important role. In making something a shared object of attention the index relies on established patterns of thought which act automatically on the hearer—and in just the way they would act on the speaker. This automaticity, this 'forcing of attention,' grows out of shared patterns involved in language acquisition and perception, patterns which Peirce hints at when he says: "This is forced upon the deliverer by experience; and it is by no idiosyncrasy of his; so that it will be forced equally upon the receiver" (3.436) Language learning cannot be idiosyncratic (as it would be on Russell's private model)—it must be substantially uniform throughout a community. Peirce suggests

32 The theory will also be concerned with explaining why the candidate group contains just what it does. Russell's doctrine of sense-data avoids this task by making the (I think wrong) assumption that this collection is somehow "given", fixed in advance, and thus either unexplainable, or obvious and so not in need of explanation. Peirce, on the other hand, thinks there are indexically determined "universes of discourse" which, as we have seen, play an important role in the meanings of bound variables; the constitution and selection of the universe of discourse also requires common standards of relevance, which Peirce illustrates in the example of the train passengers speaking of Charles II (5.448n). Again we have general characteristics of context, and corresponding features of the agents involved—abilities to recognize universes of discourse and relevance. The details of how these features contribute to the selection of indexical referents must eventually be spelled out as a two-step process: the semantic account first will explain the establishment of the universe of discourse and then explain how a particular item in that universe gets selected as referent.

33 Peirce sees abundant evidence that this supposition is fulfilled, and skepticism about this is, he contends, one of those "sham-doubts" which have infected philosophy. At 5.329, discussing the ability of maps to represent, he suggests that the proof that maps do represent is simply that we regularly succeed in making ourselves understood by them; that when I make a map there is something that "I say and all the world understands, that I mean by it." On sham-doubt, for example of the Cartesian sort, see 5.264f, 5.376, and 5.416.
how this predictable "forcing" might work, when he explains what lies behind the use of simple commands. He considers the example of an army officer giving a command to his men. The officer is presupposing a great deal about his audience, "for if he thought the soldiers were deaf mutes, or didn't know a word of English, or were raw recruits utterly undrilled, or were indisposed to obedience, he will probably not produce the word of command."(5.473) Common training and experience play an obvious part in common linguistic understanding, and thus deserve a place an account of context.

Also, recall Peirce's contention that the inescapable notion of reality is acquired through the developmental experience of illusion, self-correction, and correction by others. It is in the realization that what I thought I saw was not the way things really were that reality acquires for me its characteristic note of independence from individual acts of perception; this realization also provides the experiencer with the motivation to habitually check conclusions about the state of the world against new information, both from new personal perceptions and from the experiences of others who have their own perspectival "takes" on that world. An accumulated history of this checking and re-checking is what gives us a sense of having a handle on reality, in spite of the uncertainty of individual perceptions. The same kind of developmental model can be applied to our having common patterns of thought; common features of the history of learning provide a common conceptual machinery which can then become part of a context for communication.

To sum up, Peirce believes that making an assertion presupposes, first, agents able to refer to public objects, second, that this can only be done with indexicals or with terms which derive their referential content from indexicals, and finally, that indexical reference requires agents integrated into a complex web of social interactions.

This structure is fundamental to every act of assertion—and thus basic to the logical and communicative nature of human language. In this we see Peirce's contribution to the ongoing philosophical struggle to understand and explain what objective reference is and how it can be achieved. Peirce is as concerned as Russell about our limited subjective resources for reaching the Millian goal of expressing objective meaning—he realizes that the goal is, strictly speaking, unattainable; but unlike Russell, he does not therefore give up on the goal. Rather he gives us a new way of looking at the relation between that goal and our means of achieving it. The key to this vision is in his notion of reality, and its links to meaning through the "real connections"—that is, the contextual structures—which are the basis of indexical meaning.

As we have seen, reality is, for Peirce, an epistemic goal—the aim of our perceiving and investigating activities. It is a goal which is also, in some sense, forever out of our reach,
but which nonetheless has palpable effects on us. Reality, as an unreachable goal, functions as a regulative norm which shapes and motivates our interaction with the world. Although it is unattainable, it can nonetheless have these effects because its very nature is tied up with the human processes of observation and investigation which it guides—it is, namely, "that which is the final outcome" of those processes. Thus the apparent mismatch between objective reality and our subjective means of access to it is resolved by understanding that the very concept of the objectivity of reality includes the provision that no particular acts of observation can ever definitively capture it. Our inability to ever pin reality down is, thus, not a reason to doubt that there is a reality which influences and guides our experience.

Exactly parallel reasoning can be brought to bear on worries about the apparent mismatch between our semantic goals of objective reference and the limitations apparently imposed by our subjective means to their achievement. The meaning of an indexical, for example, is provided by the "real connections" existing between communicating agents and an object. The objective referential intention of the speaker will be fulfilled if the object of his attention is the same as that of the hearer's attention. It is the real connections that are supposed to bring about this shared act of attending. But full knowledge of the real connection to an object—for example its being the causal source of certain perceptions—could only be established through a further, regress inducing, process of investigation. Nonetheless, this gives us no reason to doubt the object's reality, nor does it give us any reason to doubt that our referential intentions are being fulfilled by that reality. Just as only-imperfectly-verifiable reality serves as a regulative norm for our experiencing and investigating, so only-imperfectly-verifiable objectivity can still function as a regulative norm for our communicating activity.\(^\text{34}\) Peirce argued that we may accept that our epistemic means are inadequate to ever meet our epistemic goals without giving up on the objectivity of knowledge. This happens when we change our understanding of what objectivity means by emphasizing its intersubjective character—its independence from particular acts of thinking, rather than from any and every act of thinking. I am suggesting that a similar situation might exist with regard to our semantic goals and means. Deciding how plausible this is requires being clear about what those means are—in particular the role played by context in our pursuit of objective reference.

A Peircean Model of Intersubjective Context

\(^\text{34}\) In the next chapter we will see that this is essentially the view that Husserl comes to after a long struggle with these issues.
Let us, then, try to set down in compact form the general outlines of a structure which would serve as context for indexical reference as Peirce understands it—a catalog of what such a context must contain.

On Peirce’s account the sign relation is triadic, holding between an interpretant (e.g. a meaning grasped by a human interpreter), an object, and a sign token or expression. Accordingly I will divide the contents of context into the language users who use indexicals to refer and the objects to which indexicals are used to refer; these comprise the context for the expressions with which this referring is done.

First of all, context contains agents who play specific roles and have specific characteristics and capacities. The roles they play are of two kinds: speaker (including sender, writer, signer, etc.) and interpreter (receiver, hearer, etc.). It is characteristic of human communication that agents be capable of filling both roles—to be an interpreter is to be a potential speaker. This reciprocity of roles contributes to many of the other characteristic and abilities of linguistic agents.

Here are some of the characteristics which agents are presumed to have: They have purposes, including specifically the intention to communicate. They care what other agents believe, and have interpersonal aspirations to share beliefs with other agents. They can pursue these purposes and aspirations because they have certain abilities; for example, being able to switch between the speaker role and the hearer role is connected with the empathic ability to share another agent’s point of view. The regularities in one’s own perceptual experiences of objects become clues to the perceptual perspectives open to others (applicable through the "laws of perception"). Shared experience and training not only explain agents having a common language, but also contribute to successful empathic anticipation. Language users must have the ability to focus attention, and to judge and influence the attending acts of others.

These abilities and motivations combine to provide the characteristic trial and error process by which humans develop a sense of a common reality, and it is in this common reality that the objects of indexical reference are to be found. We can think of this reality as organized into various 'universes of discourse,' including the "actual world of common experience" but also abstract and fictional worlds of various sorts.35 Within a given 'universe', possible objects of reference are identifiable by any number of perceptible properties and relations, including spatial and temporal relations to other objects and to the agents, but only when these properties can affect more than just one agent. These objects must have distinctive levels of relevance to agents, which other agents are typically able to

35 See, e.g., remarks about the fictional reality of Scheherazad at 5.152.
judge. Peirce explains relevance as related to acts of attention. In communicative situations, certain objects can become the focus of common attention among agents and thus possible objects of reference. This provides at least a start in the direction of the crucial theoretical task of accounting for the place of relevance in referent selection.

Of the many different kinds of objects to be found in context, one important kind is signs: spoken words, written words, pictorial symbols, etc. The context for any given expression will typically contain other expressions; it must contain (memories of) a history of past uses of the expression in question. Peirce's type/token distinction makes it easier to describe this important word-component in context. Although the context for a particular use (token) of 'this' will not include that very token, it still will contain that word type; a word will have the meaning it does because of (among other things) the word type which it exemplifies. The type, in turn, depends for its meaning upon memories of the relations among many other tokens of that word, and their systematic relations to other objects and interpreters.

Compactly stated, then, context will need to contain the following things:

| Agents          | - playing reciprocal Roles.  
|                 | - having certain Abilities and Characteristics.  |
| Objects         | - having publicly observable properties.  
|                 | - occupying perspectival locations in a common world.  
|                 | - playing roles in agents' projects (e.g., communication).  
|                 |   - thus having (degrees of) relevance.  
|                 | - including Signs: words, gestures, glances, etc.  
|                 |   - which are recognizable as Tokens of certain Types  |

Consider how these basic items might figure in a contextual semantic account of one of our introductory examples of indexical use. In Chapter 1 we met the case of the physician using 'that' to talk about an x-ray. When an x-ray technician entered the room, the physician wished to alert the technician to problems with the x-ray machine and did this by pointing to an x-ray hanging on the wall and saying, "That's a bad one." If the communication was successful, it was because 'that' was understood by both the physician

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36 Except in peculiar (self-referential) circumstances such as in the sentence "This 'this' is the first word of a sentence" where the word is self-referential—both sign and object signified.
and the technician as referring to the x-ray. In our rough-and-ready mode of describing what happened we say that there was an utterance event involving a token of the indexical 'that' and a context—everything else besides the token which helped determine its reference. If we think of the physician as occupying the place of Peirce's man on the sea shore talking about a ship, or of his man on the road talking about the burning chimney, what does our Peircean picture of context tell us about the context in our x-ray example?

We have two agents: the physician/speaker and the technician/hearer. The speaker has a communicative purpose, which the hearer recognizes. The speaker makes a pointing gesture, anticipating (correctly) that this would draw the technician's attention to a particular physical object—the film. This anticipation was based on training in the communicative use of gestures, training which the physician assumed (again correctly) that she shared with the technician. The technician was able to interpret the pointing gesture, in part, because he understood what the pointing gesture pointed to from the point of view of the physician—he could use "laws of perception" to see the gesture from her point of view. He could also eliminate some possible objects of reference located in that same direction by assuming that the speaker would only use a gesture to indicate something that was also visible from the technician's point of view. In this way, the two share (empathically) a kind of dual point of view on the object of reference. The experience of both agents with perceptions of physical objects leads them to conclude that there is a single object, which they both perceive from their individual points of view, which is available to be the object of the physician's referring intention. Finally, her efforts to focus the technician's attention on this object leads him to conclude that that object is, indeed, the object of her referential intention—the object she wishes to say something about.

By considering such examples, our chart of Peircean context can be expanded to indicate details about each of the entities mentioned.
### Agents
- fill reciprocal Roles:
  - Speaker
  - Interpreter

- have common Characteristics:
  - they have purposes (including communication).
    - this can involve the intention to direct the attention of others.
  - they have memories of perceptions and communication.
  - they think and act in predictable, socially patterned ways.
    - this is explained by similar developmental histories.
  - they care what other agents perceive and think.
  - they aspire to share beliefs with others.

- have certain Abilities:
  - can switch roles and points of view with other agents.
  - can empathically project the point of view of another.
  - can focus attention on regularities of experience.
  - can judge and influence the attending focus of others.
  - can produce and recognize tokens of sign types.

### Objects
- collectively make up intersubjectively confirmable "reality."
- occupy places in a common "universe of discourse."
  - a number of these "universes" together form the real world.
- have (directly or indirectly) perceivable characteristics.
- can be the focus of attention, and known to be such.
-are potential referents of indexical expressions.

- Signs are objects of a special kind—they carry information.
  - gestures, e.g., can inform about an agent's focus of attention.

- Symbols are signs of a special kind.
  - depend for their effect on conventional social arrangements.

- Words are symbols of a special kind—parts of a conventional communication system.
  - Word Tokens are publicly perceivable objects.
  - Word Types are intersubjectively effective abstract objects.
    - have their effect through training involving tokens.
Context, as here described is a complex object, made up of a variety of other kinds of objects, both concrete and abstract. It comprises the "real connections" which fix the meanings of indexicals, and so it is a part of reality—something that can be verified by and have effects on more than just one person. Thus, it should conform to the general Peircean characterization of 'real things.' It should act as a regulative norm toward which our communicative practices aim. As it functions for a single individual in a given instance of interpretation, context may seem more like a tentative hypothesis by which one forms interpretations which can be publicly tested, and modified in response to new information. In this way it resembles the "abductive hypotheses" by which science gradually approaches a true description of reality. And like tentative scientific hypothesizing, the orderly public process of testing and revision of interpretive context is what constitutes contextual interpretation as objective, and as regulated by the idea of a single common context which acts as a regulative norm. Here we have a picture of indexical meaning as achieved by tentative, fallible subjective processes, but guided by intersubjective influences toward a normative goal conceived as having objective existence. This kind of picture seems to promise an answer to the traditional concerns about the objectivity of reference which indexicality has traditionally raised. But whether it can deliver on that promise depends on whether the notion of context it uses can account for all the observed features of context-sensitivity in natural language.

A potential problem appears when we turn back to the example of the doctor with the x-ray. As the example is made more complex, it becomes obvious that this Peircean model of context is not yet adequate to all that happens in human language understanding. In Chapter 1 we noticed that the physician could use 'that' in the same physical circumstances to talk about something completely different—for, example, 'That's a bad one' addressed to a fellow physician could be used to communicate about the bone-fracture depicted by the x-ray. We have just been saying that the physician could succeed in referring, in part, because she shared a communicative purpose with the technician, and the technician could recognize that drawing his attention to the x-ray was a means to fulfilling that intention. But aren't there other common projects and purposes (besides communication) which the physician and technician share? Intuitively, part of the explanation of the physician's successful act of reference is that the technician and the doctor shares common projects involving the photographic quality of the x-ray machine, and the quality of individual x-ray images plays a part in this project. By contrast, she shares with the fellow physician a common project involving patient diagnosis, and thus with the informational content of x-
rays. Thus agent motivation deriving from practical (non-communicative) projects seems to be needed for an explanation of these contextual differences and thus for the difference of reference. Furthermore, the two physicians also share projects involving the photographic quality of the x-rays—they both have to use the same malfunctioning x-ray machine. So the model of context will have to be supplemented, not only with non-communicative common purposes, but also with a means to distinguish among these, when more that one might be present. The Model we have so far lacks enough detail to handle these complications. Intuitively, the referent is the most relevant of a limited range of possibilities, so we can note a need for an additional component of context—a property of objects: their relevance—based on their practical value, and capable of ranking those values. In the eventual account of context to be offered later such a feature will need to be added.

In Peirce we have found an account of meaning which sees indexicality as fundamental to natural language. The picture of context which emerges from his explanation of indexical meaning, while not completely adequate to all the complexities of natural language, provides us with most of the components needed to build up a general theory of context. For example, Peirce has shown that context must contain shared purposes, among which he only highlights the importance of communicative purposes. We see now that more is needed; fulfilling communicative purposes may depend on knowing about many other kinds of shared projects, values and interests. In Husserl's investigations of meaning, to which we now turn—especially in his concept of the intersubjective "life-world" of human activities—we find the further ingredients needed for an account of indexical context which has a place for these other, non-communicative purposes.
The influence Peirce has had on contemporary discussions of Indexicals is largely due to Arthur Burks' 1949 paper called "Icon, Index and Symbol". 

Emphasizes that according to Peirce, signs are constituted by a three way relation: Sign, Object, Interpretant. Depends on actual acts of interpretation. e.g. in the case of Icons, there must be some similarity relation between the sign and its object, but similarity is always similarity in some respect. And it is in the recognition of similarity by an interpretant that this respect is identified. Burks says a sign is not iconic unless the interpreter recognizes it as such. In the case of symbols, the link between the sign and its object is by way of a socially established rule or convention. Again the reality of the symbol depends on actual cases of interpretants recognizing it as a case governed by that rule. There are no self-sufficient physical properties that identify something as a symbol, or as symbolizing an object, except as the symbol and its object enter into actual human acts of symbolizing. The situation may seem to be different in the case of indexes. The connection between an index and its object is, Peirce tells us, direct, physical and automatic. One thing is an index of something else because of their physical relation to each other. And yet, even in this case the interpretant is essential to the nature of the index; after all, every object in the universe is related to every other object in some way or other. The index relation is constituted by the relation between the index and its object being of just the right kind to cause a reaction in an interpreter which would have been caused by the object alone. Burks doesn’t seem to understand this connection when he complains about Peirce confusing the index relation with cause/effect relation. (679) But it is essential to Peirce’s point that the index-relation includes as a part a physical causal relation, what Burks doesn’t see is that that is not all that includes. In order to constitute an index, that causal relation must be of a particular kind that allows it to have a particular effect on an interpreter. It is this that makes a weathercock an index. It is constructed and placed in
such a way that it's causal relation to the wind allows it to have a causal effect on some one
who knows how weathercocks work, and that effect that it has on such a person is just the
effect that the direction of the wind would have if it were perceived directly. Burks
compares the case of the weathercock with the notion that "Clouds are a sign of rain“ and
argues that clouds are not really a "sign“ in Peirce’s sense since they are not "used by an
interpretant to represent or denote anything“ but here he is mistaken. It is true that clouds
accompany rain according to a causal connection which is there whether or not anyone ever
notices them. And it is true that this fact alone does not make a cloud a sign of rain. It is
only when some one knows the connection between clouds and rain, and thus can use that
connection in their thinking that a cloud does indeed become a sign, and, on Peirce's
classification of signs, an index. When a person who knows that clouds (of a certain kind)
are accompanied by rain, they will automatically use the appearance of those clouds in their
thinking in ways exactly analogous to their use of the appearance of rain. In other words,
the clouds will represent rain in their thinking. If, in addition, the person uses language, the
fact that the clouds represent rain in their thinking will allow them to use the clouds to
represent rain in their speech. The case is simpler with Peirce's examples of the Barometer
and the weathercock, since the construction of these devices presupposes that those who
use them understand the causal link between them and the physical processes of which
they act as indexes, but any regular physical correlation can POTENTIALLY become an
index, if it can be used as such by people who understand it, but it will not Actually be an
index until it is so used.

{also underestimates the importance of indexicals as "anchors“ in ostensive definitions . . .
679 }

Beyond this misunderstanding, Burks gives a very good account of the important role that
indexical expressions play in ordinary language. In particular, he is very clear in
emphasizing that indexicals are ineliminable from language if it is to perform the functions we demand of it.

Burks’ theory, the first compact, explicit theory of indexicality 682-283

Ineliminability:

Theoretical: “yellow cube” example

Practical: requires complete knowledge of universe to give def descriptions of objects

Note: spatiotemporal designation requires coordinate systems and anchors (684)

Index and Information: Subject predicate structure of information, cf. atomic facts, index and subject. 685

Elimination of Indexicals

Russell, interdefinability

Eliminable vs. ineliminable in Burks (cf. Frege’s elimination by description)

Regimentation and elimination in Quine

Perry, The Essential indexical, the role of indexicals in explanation of behavior

On the (In) Eliminability of Indexicals

Burks’ theory, the first compact, general, explicit theory of Indexicality we have met (682-283)

Ineliminability:

Theoretical: “yellow cube” example

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Note: spatiotemporal designation requires coordinate systems and anchors (684)
Index and Information: Subject predicate structure of information, cf. atomic facts, index and subject. 685 //end of parts copied to Ch 7//

Earlier views on Elimination of Indexicals

Russell, partial elimination through interdefinability: I: Subject of present experience. Present (now): contemporary with This. This is Proper name on an object of attention. cf. Frege’s elimination by description, here and now - the time and place of utterance. 'I': the person who is now speaking to you. Amounts to interdefinition- circularity vs. Russell’s reduction to 'this'

Burks argues that this is characteristic of language: that some content cannot be expressed without indexicals. Sets the Questions: what content and why not?

Regimentation and elimination in Quine

Perry, The Essential indexical, the role of indexicals in explanation of behavior.
Fossils

//Signs are parts of the natural world, and depend for their effects, at least in part, on their intrinsic properties, and on the regular, or predictable effects those properties have on potential interpreters. Consider a piece of advertising artwork, e.g. a picture of a new car model. It will produce certain reactions in a viewer (desire, envy, boredom, disgust, depending on the state of mind of the viewer) just because of its visual properties. Its similarity to its object allows it to serve as a substitute for (and thus as an icon of) the real car, which could excite the same reactions. However the picture will produce its effect even if the real car does not exist.//

// As mentioned above, Peirce sees language as just a particular case of the informational relation which makes one thing a sign of something else. It is this informational structure, the fact that observation of one thing can inform the observer about something else, which makes the universe a possible object of human knowledge; and it is the fact that human sign-making is a special case of this information flow which makes human knowledge itself an object of the same investigative strategy. He examines examples of language use in order to illuminate how that information transfer happens and the structural conditions it presupposes. A couple of his examples will give the general features of his view.//

//In a simple case, the indispensability of the index can be explained as follow. Suppose Mary is telling John that the moon is full. She conveys some information by using signs, and Peirce gives us an explanation of how that happens. He sees a case like this as a two step process. First, John finds out what Mary intends to give information about - what the subject of her assertion is. Second, he finds out what she has to say about it. Peirce believes an index of some kind is needed to accomplish the first step. Since there are many kinds of indices, Mary could communicate the information in different ways. She could simply point at the moon and say "Full", or she could glance in its direction and say "It's
full.” In either of these cases, the real connection between her??? She could use "the moon" in which case context would play two distinct roles: The name would have the reference it does because of uses of tokens of that name in suitable "real connection" with the moon, and because the circumstances of the current use made it clear that it was the Earth's moon (and not, e.g. that of Mars) that was meant. She could also give directions for finding the moon, starting from common reference points."the round shiny object to the left and 45 degrees above the horizon." Here there are no explicit indexicals, although it is easy to see that 'the left' and 'the horizon' are only effective in fixing the reference of the phrase because the context makes clear that those phrases are to be taken relative to particular language users at a particular place and time, facing a particular direction--the description is anchored in the required indexical beliefs. Peirce summarizes this by saying:///

///// The significative force of an index consists in an existential fact which connects it with its object, so that the identity of the index consists in an existential fact or thing. (4.500)  

38 Cf. 4.500: "The name, or rather, occurrences of the name, must be existentially connected with the existent person."

39