HANDOUT
A truth conditional semantics for indexicals and demonstratives.
Ruth Millikan, February 27, 2013

1. That all its meaningful elements should be wholly created by the signer is not intrinsic to the conventionality of a language.

2. Complete signs always sign complete propositions. Smaller sign elements are signs because they are parts of larger signs or because they are designed to be incorporated into such larger signs.

3. Parts that make a sign complete sometimes stand for themselves. They are self-signs. They are often hard to notice.

4. Relatives of self-signs are identity-determining signs.

5. Whatever it is necessary to observe in order to grasp the conventional truth conditions of a sign, granted one already knows all the relevant conventions, must be part of the sign.

6. Indexicals and demonstratives are anaphoric -- "intermodally anaphoric."

7. Not discussed: how is the anaphor connected to its self-signing referent?

 What kind of syntax is involved?

Are There Mental Indexicals and Demonstratives?

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I. Plan of the Essay

The answer to our question turns, I think, on three prior issues.

First, since the notions of mental indexicals and demonstratives are derived from those of linguistic indexicals and demonstratives, we need to start with a description of the latter forms. There have been a number of suggestions on how we should represent the semantic meanings of indexicals and demonstratives. David Kaplan (1989a,b), for example, suggested that we represent their semantic meanings as functions from the contexts in which they are tokened to elements of propositional content. Manuel Garcia-Carpentero (2000) has proposed an account of indexicals according to which reflexive reference to the indexical token constitutes part of the sense of the indexical. John Perry has offered a not dissimilar account according to which indexicals and demonstratives have reflexive content that is not part of what is "said" but still helps us to "understand the reasoning that motivates the production of utterances, and the reasoning that is involved in their interpretation" (Perry 2006, p. 323). All authors seem to agree, however, on what contributions to truth conditions are made by indexicals and demonstratives   merely describing the details of how these extensional relations are determined in different ways.   I will start by suggesting still a fourth way of looking at the truth condtional semantics of indexicals and demonstratives, one that is extraordinarily simple. I do not think that this simple analysis is in any way

mandatory. It is just one more way of describing the same mapping from language to world. But it is a way of describing this mapping that greatly simplifies and clarifies the question whether indexicals and demonstratives might have mental counterparts.

Second, we need to know what kind of relation between a linguistic indexical/demonstrative and a thought would count as showing that the thought is indexical/demonstrative too. Is a thought to be called "indexical" or "demonstrative" because it is of a peculiar kind that is expressed or transmitted whenever one uses or understands a linguistic indexical or demonstrative properly?   Or is the thought to be called "indexical" or "demonstrative" because it is a representation whose truth conditional semantics is like that a linguistic indexical or demonstrative? I will argue against the view that different linguistic forms having the same referents correspond, as such, to different kinds of thoughts expressed. I will argue, that is, against, the view that referential terms possess any relative of Fregean sense -- yes, even for the case of referential descriptions. In particular, there is no such thing as a peculiar "cognitive significance" of an indexical or of a demonstrative as such. If there are mental indexicals or demonstratives then, they must be thoughts that have are truth-conditional semantic analogs of of linguistic indexicals.

Third, I will try to show that although indexical terms do not generally correspond to indexical thoughts, still there probably is an interesting analogy between the truth conditional semantics of a restricted set of linguistic indexicals and certain kinds of thoughts which might therefore be called "indexical." And although demonstrative terms do not necessarily correspond to demonstrative thoughts, there is also an interesting analogy between the way linguistic demonstratives work and the way thoughts

sometimes work when they concern things one is currently perceiving, thus making it sensible to call them "demonstrative thoughts."

II Linguistic Indexicals and Demonstratives

There are three ways the truth conditional analyses I will give of linguistic indexicals and demonstratives do not come directly out of the box. First, I will discard the commonly made assumption that conventional language forms include only spoken or written parts, or more broadly, only parts that are produced, made, fashioned, by the speaker or writer herself. I will argue that part of what is typically labeled as the "context" in which a token of a linguistic form occurs can sometimes be illuminatingly considered as a proper part of the conventional sign itself. Sometimes it is part of the pattern that a language learner has learned to use in a conventional way in learning the basic conventions of a language.

Second, I will refuse the assumption, often made implicitly even when denied explicitly, that the relation of a linguistic sign that expresses a proposition to its extension is built up by combining parts which have independent prior extensional meaning. I will bring to center focus that the sign-signified relation is always at root a relation between complete states of affairs, not reducible to a set of relations between parts of signs and parts of states of affairs.

Third, with these ideas clearly in mind it will emerge that there are such things as conventionally self-signifying signs, things that figure both in a state of affairs that is being conventionally used as a sign and in the state of affairs that is conventionally signified by it. Sometimes, that is, things are conventionally used to stand for themselves. Also, less dramatically, sometimes things are used to stand,

conventionally, for other things that bear to them not the identity relation but some other identity-determining relation. (Compare the relation of an inch-long line on an architect's scale drawing to the length -- say a foot -- that it represents.) In these latter cases we can interpret what Kaplan called "character" more simply, as functions, not from context to content, but from natural properties of the very sign itself to its content.

I will use the word "signers" to cover speakers, writers, deaf language signers, those who manage to communicate in any other linguistic media such as hand-spelling, brail, semaphore, whatever.

We tend to think of conventional linguistic forms as composed entirely of parts that are fashioned by the signers themselves, parts such as vocal sounds, ink patterns, or in the case of sign languages, gestures. It is true that gestures have as aspects certain physical body parts, and these parts are not of course created by signers in the act of signing. But these parts are typically involved in the language not as such, but only as occurrently shaped, positioned and moving in certain ways, these ways being fashioned by the signers themselves. That its meaningful elements should be wholly created by the signer, however, is not intrinsic to the conventionality of a language. One could imagine, for example, having a box full small blocks with symbols on them and communicating or making up stories by setting these blocks in rows to make sentences. Using this kind of language would be rather limited and inconvenient, but the example makes clear that it the manufacturing by signers of individual word tokens is not intrinsic to conventional language, but the arranging of the parts into new sentences.

With the above in mind, consider certain words in ASL that apparently contain as

parts tokens that fall within their own extensions. Words for body parts typically are

such words. The words for tongue and for chin and for hair, for example, consist in

certain ways of pointing to the signer's own tongue or chin or hair. Clearly in these

cases the signer does not create those significant parts of the sign. Those parts of the

sign are just handily found to be close by and incorporated as such into the pattern that

is a full ASL sentence. One might suppose that within the context of such an ASL

sentence, these body parts stand for their own types according to a conventional

function from a token body part to its general kind. But although it certainly makes ASL

easier to learn that body parts are typically named by making some kind of gesture

towards them, and although it is clear that these ASL signs originated as mere

pointings, that general supposition would be wrong. There is no general rule in ASL

that gesturing toward a body part constitutes a name for that part. Moreover, in each

case the exact manner of gesturing toward the part so named is conventionalized in its

own way. My immediate interest in these signs is rather as illustrations that things

conveniently found lying around in the context of the rest of a language, rather than

wholly created during the production of the language, may sometimes be fully

incorporated into the language itself as elements helping to complete fully conventional

linguistic patterns. The lesson is only that we need to be careful not too readily to make

assumptions about where the line between language and context is to be drawn.

Context need not include everything that was there before the signing came along.

Some of the things that were there before the conventional sign was produced may

have been co-opted to help in composing the sign.

  Return now to the language that is signed by arranging small blocks with words

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written on them into sentences. One could imagine that besides just rearranging these blocks, it was conventional to accompany one's constructions with manual or auditory gestures whose function was to indicate whether one's constructions were to be taken as representing states of affairs being described, or instead being requested, or demanded, or wished for and so forth, and perhaps also whether the states of affairs were past, present or future. Just as it is not intrinsic to language that it create all its parts on the fly, it is not intrinsic to language that it use only one medium of expression, all significant parts occurring in the same modality. Conventional linguistic patterns that arrange together parts from several sensory modalities are surely possible.

Coupling the observation that a conventional language need not create all its utilized parts with the observation that it might utilize parts from more than one medium, there seems no principled reason to assume that the boundaries of a conventional spoken language lie exactly where the sound ends and the rest of the world begins. It is possible that pieces of the neighboring world are sometimes incorporated right into the linguistic conventions themselves.

Consider, for example, the convention of writing or pasting labels on things -- a can with a label on it that says "spinach" or a bridge with a sign that says "unsafe for lorries." The conventional signs that result are not composed just of words. The word "spinach" obviously says nothing hanging by itself in the air. It is true that we sometimes say, for example, just "black clouds mean rain" or just "a fever probably means an infection." But speaking more carefully, it is not the black clouds that have a meaning. Rather, the fact that black clouds are forming over a certain place at a certain time that means it will soon rain in that place at that time. Or the fact that someone, say

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Johnny, has a fever means that that person, Johnny, has an infection. Signs, in the first instance, always sign complete propositions. Coordinately, signs themselves (tokens), in the first instance, are always complete states of affairs. Johnny's fever, taken by itself, fails to signify anything in the same way that "... has an infection" fails to signify anything. In each case, more parts of the sign need to be filled in before we have a complete sign. Similarly for "spinach" taken by itself. It is not a complete sign until the rest of a propositional sign is filled in. In the case of "spinach" as a label on a can, the rest of the sign is the filled can. One might think of the relation of the physical word "spinach" to the contents of the can -- the relation being-on-a-container-with-X-contents -- as the syntactic form of the sign.

Notice further that the "sign design" (Wilfrid Sellars), that is the shape, "spinach," taken just by itself, doesn't even compose the English word "spinach," unless it occurs as a reproduction of prior instances of that very word.[1] Formed accidentally in the clouds, exactly the same shape as the English word "spinach" would no more be that word than the sign design "rot" is the German word "rot" in my sentence, "that words are individuated as nothing more than sign designs is just rot." If scratched accidentally by an infant on a blank label, the physical sign design "spinach" is not a word any more than if it had been scratched on a rock by a glacier. Exactly conversely, if following our ordinary labeling conventions, a filled can is purposefully placed under a lable saying "spinach," the filled can *does* become, if not exactly a word, certainly a significant part of a meaningful conventional sign. In both cases, what makes the thing a symbol, a part

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[1] See Millikan 1984 Ch 4 and Kaplan 1990.

of a conventional sign, involves that is has purposefully been used to help complete a pattern of a kind conventionally used for communication.

What completes the state of affairs constituting the sign that there is spinach in the can is the very can-of-something resting under the label. The can-with-contents stands for itself. When the relation between a sign and its signified is partly constituted by an identity of parts or aspects, a self-sign doing the major work of connecting the sign token with the signified state of affairs, it is very easy to overlook that particular feature of the sign-signed relation. Indeed, to be guided by a self-sign in the production of appropriate thought or behavior — to understand the self-sign — is the same as to be directly guided, in part, by that which is signified. The illusion then is that no interpretation of the self-sign part of the sign is needed; the distinction between this part of the sign and its signified disappears. The self-signed part of the sign is perceived directly, not merely understood by means of a sign. But being more careful, we can see that the distinction is there. The self-sign's relation to the rest of the completed sign is one thing, the self-sign's (qua self-signified's) relation to the rest of the completed signified is another.

Now consider a stop sign. The convention is that a stop sign is placed just before the place at which one is to stop. Where the stop sign is placed signifies where one is to stop. The complete sign consists not just in a sign saying "stop" but in its standing in a certain place. Subtract the place and the bare sign does not signify anything. So it seems that not only can an object such as a can and its contents become incorporated into a sign and made to stand for itself, a place can be incorporated into a sign and made to stand for itself.

Consider a red stop light. Not only its place but also the time it occurs stands for itself. Using particular places and particular times to stand for themselves is such an obvious thing to do that it disappears. It is nearly invisible because of its very ease and simplicity. Similarly, the color on the outside of a marking pen conventionally stands for itself --for the same color-- on the inside. Sensible, but conventional. And one inch can stand for itself --for one inch-- on a scale drawing. And when I shake my fist at you I make a conventional sign that RGM, the one shaking the fist, is angry at you, the one being addressed with the fist. I stand for myself and you stand for yourself.

Sentences are often completed by inserting them into contexts so as to incorporate aspects of the context into the sign itself in a conventional way. Both time and place are often used in this way. When someone observes "It's raining," the place it is said stands for the place it is said to be raining.[2]   The time it is said stands for the time it is said to be raining. The time at which a past tense sentence is tokened is also a sign of the time of the state or event that it represents, but in this case the sign is not a self sign. The convention is that the time of the affair represented is determined as a function of the time the past tense sentence is tokened. Similarly for tokens in future

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[2] One can, of course, complete the sentence with "in Oshkosh" rather than letting the place stand for itself. One might even omit the "in Oshkosh" when it is clear that the information about the rain has just been directly transmitted from Oshkosh, or that it is Oshkosh everyone is waiting to hear about. But it is of the essence of natural languages that *which* among a variety of different common conventions is the exact one being employed on a given occasion is typically left up to context. Knowing which kind of "bank" is being talked about is generally left up to context. Whether "Could you reach the hammer?" is a request for information or for a hammer is generally left up to context. In neither case does the existence of homonymous conventions require reduction of one conventional to the other or an inference from knowledge of one convention to the other (Millikan 2005 Chs. 3 and 10, 2008a).

tense. Compare again an architect's drawing where one inch stands for a length twelve

times as long. Many natural signs work the same way. Lightning here now serves as a

natural sign of thunder here soon; the time of the affair signified is an identity-

determining function of the time of the sign.

One more example before turning directly to the role of those signed elements

that have traditionally been called "indexical" and "demonstrative." English directives

are generally given in the imperative mood, a standard feature of which is the absence

of an articulated subject term. Consider "Please go!" The satisfaction condition for a

token of this type is the obtaining of a full state of affairs, namely, that the person

addressed goes out or away shortly after the sentence is spoken. Clearly, both the time

of speaking and the person addressed are being used here as part of the sign; the

person addressed is a self sign. If there is no addressee, no satisfaction condition is

determined. If you hear the directive but cannot tell to whom it is being addressed, you

will not grasp its satisfaction condition. Whatever you have to observe in order to

interpret the meaning of a sign you have learned may reasonably be considered to be a

part of the sign. So, like the can with a label on it, the addressee may be considered to

stand for himself or herself.[3] In ASL, there are no first and second person personal

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[3] In his (2001 Ch. 5.4 ff., 2006) John Perry suggests that we take parts of signs
(and also signs the significance of which one doesn't understand) as having truth
conditions of a deeper sort which he calls "reflexive," because if they were completed in
certain ways or if they had certain conventional meanings they would be true or would
be false. This seems to confuse the conventional truth conditions of a sign with what it
may serve as a natural sign of. The conventional function of saying "It's raining" is to
cause the belief that it's raining, but when someone says "It's raining" we may sensibly
use that also as a natural sign that he believes it's raining. Similarly, we may understand
pieces of conventional signs as natural signs, or we may understand utterances of
sentences that we don't understand as natural signs. We figure that the person who

pronouns. Instead, the speaker or the hearer are pointed to at appropriate points in the temporal syntax. They stand for themselves.

Now instead of "Please go" one could of course say, "Would you please go," in which case "you" stands for the person who is to go. "You" has traditionally been called an "indexical," the question for truth-functional semantics being how the referent of "you" is determined. Unlike the case of proper names and of most other extensional words, the referent of "you" shifts from occasion to occasion. But unlike the way in which the sign design "John" shifts its referent from occasion to occasion depending on

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has said something in an assertive manner has uttered a sentence having some conventional propositional content and that if this content is true then they have said something true. We figure that the postcard saying "I am having a good time" with the illegible signature was signed by someone who, if they wrote down the truth, was having a good time when they wrote it. Observing part of a sign may serve one as a natural sign that there is or was another sign part there for which we should look or about which we can sensibly speculate. Even though one does not know who is being addressed, hearing someone say "Please leave!" may serve one as a natural sign that someone is being addressed and that if the satisfaction conditions of that sentence are to be met that person must leave. But it is not part of the conventional functions of the these language forms to produce these inferences. It is not because they have been producing inferences of this kind that their forms have survived in the language community. (For this interpretation of the conventional functions of linguistic forms, see, most easily, my 2005.)

which John is meant, the way the referent of "you" shifts is systematic. Quite obviously,

the referent is determined as whoever the speaker happens to be addressing. Thus

anyone who would grasp it's satisfaction condition must know to whom it is addressed.

As before, what this suggests is that the addressee is actually part of the sign. The

addressee is part of the sign on the assumption (or stipulation) that whatever it is

necessary to observe or know of in order to grasp the conventional truth conditions of a

sign, granted that one knows all the relevant conventions, must be part of the sign.

Without it the sign is incomplete.

The interesting result is that the "you" in "Would you please go" now appears

merely to be *anaphoric*, requiring no special analysis under a special label "indexical."

As anaphoric --call this"intermodal anaphora" -- its contribution is merely to make

explicit the place of the addressee *qua self-sign* within the syntactic form of the

sentence, hence the place of the addressee *qua signified* within the state of affairs

rpresented.[4] In ASL, the second person pronoun is formed by sharply jabbing the first

finger of the right hand at the addressee *at the syntactically appropriate time* in the sign

sequence. In a spoken language it is impossible to incorporate the actual referent

intended into the spoken syntactic form of the sentence, so an anaphoric element is

inserted into that position instead.

Consider the general form of the problem that is solved by using intermodal

anaphora to designate things present to both speaker and hearer. If part of what you

want to talk about --perhaps an object, perhaps a property and so forth -- is itself

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[4] To parody Kaplan in "Dthat," *That's right, John himself, right there, trapped in a representation!*

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present as you speak, it may be convenient to use it as a sign for itself rather than trying to find some different sign for it that your hearer will easily understand. You would like to *label* this something -- as one might label a can -- with a linguistic description that will provide some information to your hearer about it. But there is a practical difficulty. In a spoken language, the logical position of an object or property within a state of affairs to be represented is usually indicated by the syntactic position of the sign for this thing, the syntactic position being determined by inflection or by position within the sentence order. With rare exceptions ("Gargantua was so called because of his size"), neither of these ways can be used with an object or property that stands for itself. The object cannot itself be placed, say, in the subject or direct object position, or have its form inflected. The spoken part of your sentence needs to be attached at the right place somehow to the object that is to form the rest of your conventional sign. So you insert a dummy anaphoric "pro-word" into the needed syntactic position.

But, of course, there must also be a way for the hearer to know to what the anaphoric word refers. There must be a way of anchoring the part of the environment that you wish to use as a self sign to the spoken part of your sign. The spoken label has to be stuck, somehow, onto the bottle, not just left fluttering about. This anaphoric anchoring may be achieved in a number of different conventional ways, sometimes also in nonconventional ways, the latter being a matter for pragmatics. Here I want to emphasize first the conventional ways, because owing to the traditional focus that considers only the audible aspects of a (spoken) language to be parts of the linguistic signs themselves (indeed, often only the audible parts that are analyzable into rearrangements of conventional phonemes), it is underappreciated that there are

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various conventional ways of aligning spoken forms with outside things so as to fuse them into a single conventional representation.

These ways require the fashioning of a conventionally specified relation of some kind between the environmental element that stands for itself and its spoken pro-word. Taking "he," "she," "then" and "there" as our first examples, sometimes the pro-word word helps out by restricting the category of its referent, in the above cases to a male, to a female, to a time, to a place. Restrictions may also be imposed with a description, as in "that girl" or "this chair" or "the fountain over there with dolphins." In the case of "I," of "you," of "here" of "now" and of "yesterday," for example, the antecedents are not just restricted but fully determined by the relations they bear to the pro-word token. "I" refers back to the speaker of the token, "you" back to the addressee, "yesterday" back to the day before the tokening, and so forth. In the less determinate cases of third person pronouns and of "there," and "then," "this" and "that," often the anaphoric reference is intramodal rather than intermodal. Then the antecedent may be determined according to syntactic rules that work just as strictly as the rules for "I," "you" and "now." (In the case of English at least, these rules have been carefully studied.) But where these pro-words appear as so-called "demonstratives," that is, when they are intermodally anaphoric, issues involved in their analysis have generally been relegated to pragmatics, which is thought of as dealing with uses of language that lie beyond what is merely conventional.

Our reflections above that aspects of the environment may serve conventionally as parts of conventional linguistic signs suggest that we should postpone pragmatics here and look first for conventional ways of anchoring demonstrative pro-words to their

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intermodal antecedents. Obvious candidates are various conventional ways of pointing, with body parts, with arrows, with spatial position relative to the signer or to the sign. I have noted that a label's position on the thing labeled can be viewed as a conventional syntactic form that fuses label and labeled into a single multimodal conventional representation. Similarly, when they are conventional or conventionalized, the relations that serve to tie demonstratives to their referents can be viewed as syntactic relations. These relations may not, however, be strongly digitalized as, for example, what counts as the same word or sentence again is digitalized by strong digitalization of its component phonemes. What is allowed to count as a copy of an anchoring relation that has been used before may not be set in stone. A variety of different ways of pointing have become conventionalized, hence perhaps also fairly digitalized, in different cultures, pointing with this hand or that, with this finger or that, with the lips in various ways, with the eyes and head in certain ways. But these digitalized ways may also merge into less digitalized ways. Other conventionalized means of creating intermodally anaphoric signs have not, to my knowledge, been looked for, but it perhaps a search would be fruitful.

When conventional ways of demonstrating merge into less conventional ways that rest more heavily on a hearer's capacity to discern what might coherently be meant, it has been traditional to assume that the referent of the demonstrative token is determined by whatever the speaker had in mind as the referent. Notice that the present analysis suggests a somewhat different formulation. The referent is determined by what the speaker had in mind *as composing the unspoken rest of his conventional linguistic sign.* Or, reading that transparently so as to retreat from the suggestion that

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the speaker has to think of his sign as a sign in order to use it, and retreating also from the Gricean mood in which all purposes are taken to be conceptualized intentions, we can put it thus. The referent is determined as that into which the spoken part of the sign was purposively put in relation, as the speaker copied a linguistic precedent, patterning this relation on relations that have previously served to specify external antecedents of such demonstratives for hearers. There is, that is, some kind of relation between his demonstrative word and its extramodal antecedent that was salient for him and that he used in reproducing, as he saw it, certain past salient relations between demonstratives and their extramodal relations. We can take the reproducing here to be sheer copying, unaccompanied by thoughts of likeness or thoughts of reproducing.[5] (Wiping away the Gricean intentions sometimes assumed to accompany all language use is not the project of this essay, although further themes relevant to such a project will surface in part III.[6])

III. How are linguistic forms related to forms of thought?

I'm not, as I said, proposing the above description of how indexicals and demonstratives determine their truth conditions as in any way mandatory. But the fact that this perspective is possible raises a question for the Fregean or neoFregean who would seek to find a particular and peculiar kind of thought that is expressed by indexicals or by demonstratives. Consider a Fregean to be someone who holds not only that different kinds of thoughts can correspond to or grasp the very same state of

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[5] For an analysis of the kind of "conventions" that are involved in language use, see my (1998).

affairs, but that language works by transmitting, specifically, these different kinds of thoughts from speaker to hearer rather than by transmitting brute graspings of states of affairs. In addition to having referents, extensions and truth conditions, words and sentences bear certain "cognitive significances," meanings of a more fine grained type, many of which meanings may correspond to one and the same extensional meaning. Cognitive significance may be posited as the way that what is in or before the mind determines its reference, that is, as what Frege called a "mode of presentation" of the referent/extension. And/or it may be posited as what determines the kinds of inferences that can rationally be made using the thought, hence as helping to explain differences in inferences and action where simple grasp of extension would fail to do so.

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[6] On Gricean intentions, see my (1984 Ch. 3, 2005 Ch. 10)

A well known problem for Fregean positions has been the status of proper names. Direct reference theorists have argued that understanding a proper name does not involve a designated way of latching in thought onto its referent, or of making inferences concerning its referent. No special "cognitive significance" distinguishes one proper name from other proper names for the same individual. If we take seriously that the things referred to using indexicals and demonstratives stand for themselves, similar questions arise how *these* linguistic parts could possess, beyond their reference, some special kind of cognitive significance transmitted from speakers to hearers. We cannot assume, for example, that the way the signer grasps a self sign must be the same as the way the interpreter grasps it, for they will be observing the self sign from different perspectives, perhaps even using different sensory modalities. The view that there are special kinds of thoughts that should be called "indexical" or "demonstrative" for the reason that they are assigned specifically to the understanding of linguistic indexicals or demonstratives becomes problematic. However, rather than pressing this issue directly, trying to anticipate neoFregean replies, I am going to propose, or better review,[7] a picture of the relation of language to thought that extends a direct reference analysis not just to self-signing linguistic constituents but to the majority of all extensional terms. On this analysis it will turn out that proper names, self-signing constituents and most other extensional terms are understood in exactly parallel ways, the thoughts that correspond to them across all competent users of a language having only reference or extension in

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[7] Other statements of this proposal appear in my (2012a, forthcoming a). Precursors, but using the misleading term "empirical concept" in place of the present term "unicept," were in Millikan 1984 Chs. 15 and 18-19, 1993, 2000 entire, 2010, 2011.

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common. They carry no public cognitive significance; no Fregean baggage.

Let me begin with the kinds of thoughts, the "ideas" in classical idiom, that lie behind one's uses of proper names for the people with whom one is most familiar. Begin, for example, with your idea of a parent or a sibling, a spouse or a best friend.[8] You will have accumulated piles of information about this person perhaps over many years. Consider by what means you have done this, the various ways you have used or might use to recognize when you were receiving more information about this same person.

You could do this by seeing them in the flesh, 20 meters up the street, perhaps at 1000 meters by his or her walk, certainly at 30 centimeters, from the front, from the back, from the left side or the right or most any other angle, half hidden behind another person or a chair or a table or a book, sitting, standing, lying down, yawning, stretching, running, eating, holding still or moving in any of various ways, in daylight or moonlight, under a street lamp, by candlelight, through a fog, in a photograph, on TV, through binoculars, by hearing their voice from any of many distances or as it passes through a variety of media such as lightweight walls, under water, over the phone, despite many kinds of masking sounds such as wind, or rain, or other people talking, and so forth.

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[8] The next few paragraphs are adapted from my (2012a).

Now generalize the ordinary notion of recognizing a person just a bit so that it encompasses your wider ability to keep track of when information is arriving at your various senses in other forms about this same person. You might recognize them, or signs of them that enabled you to gather information about them, by recognizing their signature or handwriting, their style of prose or humor or, perhaps, of musical interpretation or of some other activity, by the sound of the instrument they play coming from the next room or the hammering that accompanies their current home project, by recognizing their name when someone talks about them or when it is written, by hand or in any of hundreds of handwritings or fonts, and so forth.[9] You can also recognize that the information arriving is about them through many hundreds of descriptions: the person who was or did this or that, about whom this or that is true. Or you may recognize whom the information is about using various kinds of inference, induction or abduction. If these less immediate ways of recognizing a person seem to you to divide off rather sharply from recognizing them "in the flesh," recall that recognizing a person by their looks or voice is also gathering information about them *through signs*. The light that strikes your eyes, the vibrations that strike your ears, are merely signs of what you see or hear. It may also help to consider intermediate cases, such as seeing in the mirror, hearing over the telephone, recognizing in a video or through a telescope. These are all ways helping to funnel back to a single locus diverse pieces of information about the same thing, this person, that have been widely scattered through time and through space. They are input methods that you have acquired over time for putting all

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[9] In (2012b, 2013) I have argued that the sense of "information" involved in these various cases is univocal.

this information into just one particular mental "folder" (Strawson 1974, Lockwood 1971).

Our remarkable abilities to reidentify through diverse media under diverse conditions are not restricted to individual objects. We can recognize various properties, say, shapes or colors or distances, under various external conditions. Think of the variety of proximal visual stimulations -- what actually hits the eye -- to which a given shape may give rise when viewed from various angles, from different distances, under different lighting conditions, through various media such as mist or water, when colored different ways, when partially occluded. How shape constancy is achieved by the visual system, the capacity to recognize the same shape as the same under a wide range of proximal stimulation conditions, is a problem of enormous complexity on which psychologists of perception are still hard at work. And shape is coidentified by the haptic systems, feeling the shape of a small object in your hand in a variety of ways, with these fingers or those, when the object is turned this way or that way, perhaps by using two hands, by merely holding the object or by actively feeling or stroking it, by exploring with larger motions that involve your arms, body and perhaps legs, employing the touching surfaces of a wide variety of your body parts. This kind of perception of shape, which involves the coordination of information about the exact positions of one's body parts with information about what touches these parts, is of such a complex nature that psychologists have hardly begun to study it. Similarly, the variety of ways in which color constancy, texture constancy, size constancy, place constancy, distance constancy, sound constancy, phoneme constancy are achieved are enormously complicated matters. Recalling again that even the most direct perception is perception through

signs, we can add information received about various properties through the use of all kinds of measuring instruments and scopes, and through the use of different kinds of inference. All of these are ways of bringing back to one focus the scattered bits and pieces of information about the disposition of a property that have been dispersed over space and time and through diverse media to impinge on our sensory surfaces.

In previous papers, I have argued that many and perhaps most of our words for empirically-known kinds correspond to what, following Mill, I have called "real kinds." Real kinds have a structure that separates them sharply from classes, and that makes clear why there both are and must be many alternative ways to recognize their members as such, none of them "definitional" of the kind. A real kind is recognized in much the same way that an individual is. There are very many different ways to recognize the presence of a dog or a cat, and many different ways to identify, for example, vitamin C.[10]

Above, I used Lockwood's metaphor (based on Strawson's lectures) of a file folder for the "place" that all the information gathered about the same individual is "put." This image is no longer helpful, however, when we must take into account collections of information involving kinds, properties and relations. One would have to model *thinking that Johnny is tall* as involving both putting *is tall* into the *Johnny* folder and putting *Johnny* into the *is tall* folder. The thought of Johnny and the thought of being tall would each take two forms, a mental word, say, and a mental folder, with no explanation of how these are bound together. But concentrate instead on what is

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[10] See, in particular, Millikan 2010. Also Millikan 1984 Ch. 16, 1999, 2000.

supposed to be *accomplished* by putting information about the same thing "all in the same place." The purpose is that various pieces of information about the same should be enabled to *interact* with one another, one bit of information bearing on another or joining with another in the production of further thought or action. This requires only that information about the same be somehow *marked* as such, so that middle terms can be recognized for inference, the "marking" being such as to trigger the cognitive systems in appropriate ways.[11] Rather than proposing a physical model for this (my private image involves a neural network), I have recently coined the term "unicept" for the mental/neural marker or vehicle of such a focus *taken along with* the repertoire of input methods that the person harboring the unicept knows to employ.[12]

"Uni" is, of course, for *one*, and "cept" (as in "concept") is from Latin *capera*, *to take or to hold*. One's unicept of an object, or property, or kind, or relation etc., takes in many proximal stimulations and holds them as one distal entity. A developed unicept reaches through a radical diversity of sensory impressions to find the same distal thing again. (It may also have to sort through similar or identical sensory impressions to find diverse distal things behind them.) A unicept integrates identification methods, funneling information about the same into storage in a way that marks it as concerning the same, that is. marks it to interact in inference and action guidance in an appropriate way. A unicept could be thought of as a tiny developed *faculty*, designed for a very

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[11] The kind of "marking" required is discussed at some length in (Millikan 2000, Chs. 10-11).

[12] The predecessors of unicepts in my writing were called "empirical concepts." The next paragraphs make clear why I have withdrawn that term in favor of "unicepts."

specific purpose, the purpose of collecting and integrating information about some particular thing. Note that a unicept is not a "concept" on any traditional reading of that word, but a capacity/achievement belonging to only one individual. It is a particular; no two people have the same unicept. Nor are similarities between different people's unicepts of the same thing to be taken for granted, but must be argued for separately or empirically determined.

Of special interest in regard to the matter of this essay, is the fact that should various people each possess a unicept of a certain thing, say of the kind *dog*, and should each possess an understanding the English word "dog" as one input method to their dog unicept, there is no necessary implication that they would possess any other common input methods for these unicepts, nor that they would possess common inference dispositions or uses for these unicepts. (It is well always to keep Helen Keller in mind, who actually spoke as well as writing English.) Children are almost never taught input methods nor inferential connections for the words they learn. They have to figure out on their own how to fill out their unicepts, learning to agree in judgment both with themselves and with others as they come to recognize over time when information is again likely to concern the same thing.[13] Understanding a word for something in one's home language or in a new language is merely one more way of feeding one's unicept of that thing with information. Typically, extensional terms *themselves* do not impart anything more than extension. The rest is filled in with whatever the interpreter's corresponding unicept happens to contain.

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[13] Millikan 1984 Ch. 10, 2004 Chs.18-19, 2010, forthcoming a.

Gaining information by seeing or hearing or feeling a thing and gaining

information by reading or hearing about it are not, in this respect, fundamentally

different.[14] What is different, of course, is that unlike the information gained through

ordinary perception, information though language very seldom concerns the current

relation of the things learned about to oneself, as would be needed to guide immediate

action on these things. What is nearly unique about observing the world through

language is that conventional languages, even languages of the deaf, always exhibit a

categorical or "digital" vehicular structure, for example, phonological or alphabetic, the

words all being composed of recombinations of a quite limited number of recombined

elements, or being at least highly conventionalized. For a sign system to be used

reliably, the aspects that compose its syntactic structures and its words should be easily

reidentifiable. It should be easy to tell when one is encountering the same sign again.

Because each word is made up of some recombination of phoneme-like elements taken

always from the same small pool, proficiency in reidentifying each of the elements yields

proficiency in reidentifying every complete sign in the language. Indeed, words can

generally be reidentified readily after only one hearing/sighting. A clear linear order

and/or inflections composed also of repeating parts makes syntax equally clear.

Where self signs are used instead of words, and where syntactic conventions

fade into less conventional forms that sometimes demand more of a hearer's

discernment, nothing about the unicepts employed changes. Language does not

determine the *form* of thought that is expressed or understood through it. It alters only

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[14] Millikan 2000, Ch. 6, 2004 Ch. 9, 2005 Ch.10

the input means. Whether I say or understand that I am taller than Aino through the words "Ruth is taller than Aino," or the words "Ruth is taller than she is," or the words "Ruth is taller than you are" or the words " I am taller than you are," exactly the same thought, unicept of mine, is expressed. Of course it is true that I may know to identify a person in one way but not in another, by one name or description but not by another. And it is true that knowing about something, even oneself, does not imply either knowing its name or being able to recognize all of its traces. I can know that Mark Twain wrote *Tom Sawyer* without knowing that Samuel Clemens wrote *Tom Sawyer*, that is, without associating the names "Mark Twain" and "Samuel Clemens" with the same unicept.

Similarly -- and relevant especially to Perry's claims in "The Problem of the Essential Indexical" (1979) -- I can see that someone must be trailing sugar from a broken bag in their grocery basket without knowing it is Jane, hence without trying to inform her. And I can see that someone must be trailing sugar from their grocery cart without knowing it is I, hence without fixing my own sugar bag. These are entirely parallel. The so-called "indexicality" of the word "I" has nothing to do with it. And when I am inclined to utter "A bear is chasing Perry" I will of course behave entirely differently from the way Perry will behave when he is inclined to utter "A bear is chasing me." We would need to do entirely different things to avoid the impending disaster. Similarly, having heard "A Bear is chasing Perry," Jane, standing on one side of Perry, will need to do something different from me, standing on the other, perhaps throwing sticks from the west while I throw rocks from the east. These differences have nothing to do with indexicality.

IV Parallels for indexicals and demonstratives in thought

Indexicals and demonstratives in thought are not then thoughts of a peculiar kind that is expressed or transmitted when one uses or properly understands a linguistic indexical or demonstrative, for there no such thoughts. We are left then with the question whether there is in thought anything that is *analogous* in any interesting way to a linguistic indexical or a linguistic demonstrative.

At first we might think the answer pretty negative. If thoughts are mental representations of some kind, and if indexicals and demonstratives always involve, at root, self signs, given that external objects and properties cannot literally be in the mind, it might seem that indexical or demonstrative thoughts could at most be thoughts about perceptions or thoughts. Perhaps there are such thoughts. But if so, they are not anything like what indexical and demonstrative thoughts have traditionally been taken to be.

Leaving this possibility aside, however, recall that both time and place are components of linguistic signs that sometimes serve indexically, standing for themselves. Is it possible, perhaps, that the time or the place of a thought might serve indexically as a sign of the time or place of that which the thoughts represents? When I suddenly realize that it's raining, does the time that I realize this represent the time that it's raining? Does the place represent the place?

Let me argue for that possibility. The key question here is surely what would *constitute*, say, that the time of a representation was, as such, the time that it represented. The answer is that the representation would have normally to be *used* in

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the guidance of action or inference, in accordance with design by evolution or by learning, in the following way. It would have to be used such that the correspondence of the representation time to the represented time served as a causally relevant factor in controlling the actions or inferences produced, controlling them such that these actions or inferences would suit the time of the represented.[15] Now it seems to me perfectly reasonable that that is exactly what the time of thinking that it's raining normally does. Further, in the typical case, ordinary perceptions of what is temporally present work in exactly the same way. The time of the perception represents the time of the represented.

Not all ordinary perception, however, is of what is temporally present. The outfielder, for example, immediately perceives not merely where the ball is but where it is going to land. (There is no mystery in this, of course, since all perception is mediated by proximal signs and signs can be signs of the future.) In such cases, the time of what is perceptually represented would seem to be determined as a direct function of the time of the representation. Similarly, ordinary perception generally tells of the places of things perceived *relative to various parts of the the perceiver,* hence relative, it would seem, to the representation itself. It appears then that the bulk representations that are in use when we are engaged in external activity are like indexicals in that they work through self-signing, or through identity determining functions that take themselves as arguments.

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[15] This is a reference to the biosemantic theory of intentional content, articulated first in my (1984), defended and amplified in various papers since. Particularly useful may be my (2008 b).

The question whether there are mental demonstratives seems to be rather different. Also whether there are indexicals corresponding to "I" and to "you," which have as values people rather than times or places. The strict answer has, I think, to be negative. To figure as referents of literal mental demonstratives, people, objects, demonstrated properties, kinds and so forth would have literally to be inside of our minds. But the impulse to *suppose* that there are mental demonstratives can be explained, I think, and the explanation is interesting.

There is one use of linguistic demonstratives that stands out as central and peculiar. Demonstratives can be used anaphorically to indicate items that are present but for which we have not only no ready words, but no prior or permanent unicepts. They can be used, for example, to designate passing objects that we have no need to or could not keep track of for long, or to designate momentary things such as sounds, or to designate colors so precise that we could only reidentify them concurrently, not by memory over time. Then we have to use demontratives to express the contents of our thoughts in words. Because these transitory ways of thinking of things force us into the use of linguistic demonstrtatives, these ways of thinking are considered "demonstrative." If you are thinking of something that you cannot reidentify and collect information about otherwise than by currently tracking it in perception, it is natural to call the thought itself demonstrative.

On the other hand, however, lots of the things that get called "this" or "that" are things that both speaker and hearer are quite able to identify otherwise, objects, kinds, properties, relations and so forth of which they know very well "what they are." The thoughts expressed with these uses of "this" and "that" are different in no way from

thoughts that would be expressed using names for these things.

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