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## *Indexicals and Demonstratives*

There are three main projects I intend to work on in the next couple of years. First, I would like to write the basic idea of my dissertation into a paper fit for publication. The topic is the logic and semantics of indexicals, words like “I” and “today”, which get their referent from the context of utterance in rule-bound ways. The framework which dominates contemporary discussions of indexicals was most influentially presented in David Kaplan’s “Demonstratives”, and that is also my starting point. In this paper, I challenge an assumption that is not justified by Kaplan and has remained largely uncontested in the literature: that logic must rein in an indexical’s ability to change its referent. While an indexical can get different referents in different contexts, it has been assumed that within an argument, its referent must stay fixed. In other words, arguments have been confined to a single context, thus discarding the possibility of collaborative arguments, and, on the other hand, of inter-personal disagreement. I will present a logic which allows context variation within an argument. The central idea can be illustrated by the following example, adapted from Frege. Josh, the weatherman, says “It will rain today”. The next day, proud that he got it right, he wants to repeat what he said, and in order to do that he must change the indexical. He can, for instance, say “It did rain yesterday”. The two utterances cannot differ in truth value, as long as they are precisely one day apart. In general, an argument will count as valid if it is a good argument in any sequence of contexts of a certain type. There is a formal way to capture this intuitive idea, and quite a bit of work is needed to get it just right, and a bit more work to get used to the surprising results. For instance, it will turn out that “I am identical to you” is a logical truth, if the speaker is addressing herself, even if she doesn’t know that. This sounds like a counterexample (it is not a logical truth in Kaplan’s logic), but any such qualms are due to the mistaken view that logical truths are a priori knowable. Once we give this up, we get a new and better picture of the relation between logic, semantic knowledge, and apriority.

The second project has two parts. One is a more formal presentation of this logic, again with the goal of having it published. I have already found some interesting results. The Deduction Theorem fails in the logic of indexicals, but a restricted version holds. There is also the question about how many contexts one needs to look at in order to pronounce an argument valid. As I define it, validity seems to care about certain relations that seem intuitively irrelevant. For instance, even if the two premises of an argument contain no indexicals, it will be part of the logical form of some arguments that they were addressed to different people. This makes it the case that, in some contexts, it is a logical truth that two things exist. Whether this counts as a counterexample depends on our views of logical truth. There are also some questions that I would like to answer. For instance, the way I define validity, we always compare contexts pairwise. I haven’t found any examples that would require relations between three contexts, or any other number, but I haven’t been able to prove the contrary either. Finally, I would like to work out a proof system, which is quite an interesting challenge, since we need to look at both relations between sentences, and between contexts at the same time.

The second part of the formal project is to work out how these ideas should be implemented in dynamic logic. Dynamic theories arose out of linguists’ interest in anaphora, and the basic idea is that each sentence can add something new to a discourse, such as a new object of discussion, a new time reference, and so on. The logic is dynamic because it looks at the way in which these changes occur, and differentiates between the order in which the sentences get added to the discourse. But, so far, dynamic logic has only dealt with changes *caused by the addition of sentences*, not on the

brute, extra-linguistic changes I have been talking about, like the passing of days, or moving from one place to another. But both kinds of changes matter; consider, for instance, the fact that if you want to repeat what you said earlier, you may need to alter the tense, or the mood of the verb, exactly because of the brute changes my logic is about. The task is made even more complicated by the fact that, in general, linguists have paid less attention to questions of validity, and especially to views like Kaplan's, which look not just at what is said by a sentence, but also at the sentence itself.

The third project is to write a paper about the difference between two kinds of indexicals. Pure indexicals, like "I", get their referent from a particular feature of the context of utterance, determined by the word's stable meaning. "I", for instance, refers to the speaker of the context. True demonstratives, like "this", are less constrained by word meaning. How exactly the latter get their referent is a live and widely debated question. In my paper, I want to look at a prior question: what exactly is the criterial difference? Several have been proposed, though it hasn't generally been noticed that they are not equivalent. A clear sign of trouble is that "you" is sometimes included on one list, and sometimes on the other. Some criteria fail for internal reasons; but in order to choose between the rest, we need to decide on the reasons for making the distinction. I propose a version of an old criterion: richness of stable word meaning is what pure indexicals have and true demonstratives lack. Usually, it has been thought that the fact that true demonstratives need some kind of intention is what marks them apart from indexicals. By my criterion, "you" is a pure indexical; by the usual one, it is a true demonstrative. This is where the previous paper helps; that logic can only be applied to pure indexicals. True demonstratives will require a different treatment, not because they require accompanying intentions, but because their meaning doesn't seem to generate the kind of rules needed for this type of logic. Finally, I would like to figure out what is required for a logic of true demonstratives. I will offer a couple of options, and, as before, the key question is what we should expect from such a logic. The problem with demonstratives is that the need for intentions seems to straddle these two areas, so it is not surprising that so many options are on the table in the literature. The answer I would offer now is that we should divorce logic from epistemic concerns, and focus instead on truth preservation.

Finally, there are two more issues that seem to thirst for attention. First, there is a class of indexicals which Barbara Partee calls "vague". "Here", for instance, is usually counted as a pure indexical, but it requires some intention in order to delimit an area around the speaker. These vague indexicals present an interesting test case for my theories of both kinds of indexicals, and I would like to figure out what should be said about them, and how much they really are like the other kinds of context-sensitive words. Second, there is the famous answering machine problem, mentioned first by David Kaplan, and since then studied quite extensively by Stefano Predelli, Eros Corazza, and many others. Think back to a time before cell phones. The datum is that I could record a message saying "I am not here now", and when someone called my phone while I was away, she would get that intuitively true message. The problem is that, following Kaplan, it has generally been accepted that for an utterance to take place, the speaker must be at the place and the time of utterance. So "I am not here" cannot ever be said truly. Just as for true demonstratives, there are quite a few rival semantical proposals. I would like to work out a logic of recorded messages, which should help us decide among these competing theories, and provide a fuller picture of the wide range of uses of indexicals at our disposal.