Distributed Utterances

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Abstract I propose an apparatus for handling intrasentential change in context. The standard approach has problems with sentences with multiple occurrences of the same demonstrative or indexical. My proposal involves the idea that contexts can be *complex*. Complex contexts are built out of ("simple") Kaplanian contexts by ordered n-tupling. With these we can revise the clauses of Kaplan's Logic of Demonstratives so that each part of a sentence is taken in a different component of a complex context.

I consider other applications of the framework: to *agentially* distributed utterances (ones made partly by one speaker and partly by another); to an account of scare-quoting; and to an account of a binding-like phenomenon that avoids what Kit Fine calls "the antinomy of the variable."

Keywords Context-sensitivity · Indexicals · Scare-quoting · Binding

1 Introduction

In this talk I'm going to work with the idea that contexts can be *complex*. The contrast is with contexts as they occur in David Kaplan's Logic of Demonstratives (1977). I'll call those *simple* contexts, and the complex ones are what you get from them by means of ordered n-tupling. That is, the set of complex contexts is the closure, under ordered n-tupling, of the set of simple (Kaplanian) contexts.

What use are complex contexts? We need these things, I'll argue, in order to do semantics for what I'll call **distributed utterances**: utterances that are more than usually spread out in time, location or other contextual features, in such a way that makes a difference to their proper interpretation.

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Interpreting distributed utterances is important not only in its own right but because we have a common device by which we indicate that a non-distributed utterance is to be interpreted *as if it were* distributed: scare-quoting. Thus, an account of distributed utterances is useful as part of an account of scare-quoting, which is a very common device in contemporary writing.

First I'll explain why we need to work with complex contexts. Then, I'll explain how the Logic of Demonstratives can be modified in order to handle complex contexts. Finally I'll talk about applications. A treatment of scare-quoting is one, but there's also a sort of *binding* that is possible in the complex-contexts setting.

2   The Problem

We are familiar with the idea that (in Kaplan's terminology) the *content* of an utterance depends on its *context*. In this framework, an utterance of "I am here today" by me, in Warsaw, on June 16, 2016 has its content in virtue of those just-listed features of it. Following Kaplan we can distinguish between all the innumerable and unsummarizable features of concrete actual or possible utterances, which we might call the *worldly* contexts of those utterances, and the formal summaries of those features that we use in a semantic theory, which we might call *formal* contexts. Formal contexts are used as *representations* of the (relatively few) features of worldly contexts that are relevant to the proper assignment of contents to utterances made in those contexts.

All this is standard. Also standard is that by "utterances" we mean, utterances *of sentences*. Correspondingly, in Kaplan's formal system, no clause specifies more than one context, even for complex expressions.[1]

But it's long been recognized that assigning a single context to an entire sentence is problematic in some cases.[2] Consider:

Two Heres   The speaker utters the sentence "It's cold here, but it's warm here" while moving, such that the first utterance of "here" occurs in a chilly spot by the window and the second utterance of "here" occurs in a warm spot by the fireplace.

Two Nows   The speaker utters the sentence "Now I'm starting my sentence, and now I'm not starting it but finishing it."

Five Yous ("Afterthoughts" p. 586)   The speaker utters the sentence "You, you, you, and you can leave, but you stay," pointing to a different person with each utterance of "you."

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[1]As is well known (e.g. Rabern 2013, 402), a clause describing how a "monstrous" operator works does so; but we are not discussing the possibility of monsters in this talk.

[2]Kaplan himself noted this. In "Demonstratives" he discusses the sentence "That is that" (§§IX, XVII) and in "Afterthoughts" the sentence "You, you you and you can leave, but you stay" and sentences containing multiple occurrences of "today" (1989, 586–87).

Intuitively, these utterances are true. But Kaplan's framework prohibits this result. For in that framework we assign contexts to entire sentences, meaning that there will be only *one* location determining a content for "here," one day determining a content for "today," one *demonstratum*, and so on.

So, taking a whole sentence in one context doesn't always work. What to do?

2.1   Braun's Proposal

One proposal has been made by David Braun (1996). Braun focuses on occurrences of multiple *demonstratives* in a sentence. His consideration of this phenomenon shows, he argues, that we need to change our conception of linguistic meaning. A demonstrative word on its own does not have a character, Braun argues. Rather its linguistic meaning—what speakers associate with it in virtue of understanding such a word—is such that it acquires a character only in conjunction with a demonstration. Braun summarizes his proposal by writing:

> we get the following (rough) picture of the linguistic meaning of 'that'.

$$\text{linguistic meaning} + \text{demonstration} \Rightarrow \text{character}$$

> This feeds into the Kaplanian diagram:

$$\text{character} + \text{context} \Rightarrow \text{content}$$

> So demonstratives have three sorts of meanings: linguistic meaning, character, and content. (156)

Braun's is a sophisticated and multifaceted proposal which I do not have time in this talk to treat in depth. What I wish to note for now is that the argument for such a major change in our conception of linguistic meaning is weakened if there is a less revisionary way to address the problem on which that argument is based. I will argue that there is such a way.

3   Revising the Logic of Demonstratives (LD)

The basic idea behind the revision is that we expand the *sorts of contexts* the definition of truth in LD quantifies over. Where we are evaluating a complex *expression*, we use a complex *context*. Simple contexts are used only for simple expressions.

Here are some clauses from that definition, along with the modifications for complex contexts. I'm presenting just a few, in order to illustrate the idea. A full

revision of the system proceeds on the same lines.[3] The unstarred numbers are for clauses in Kaplan's system, the starred counterparts are the revisions of them.

Conjunction

$$\models_{cw} \phi \wedge \psi \qquad \text{iff:} \qquad \models_{cw} \phi \ \text{and} \ \models_{cw} \psi \tag{4i}$$

$$\models_{\langle c_1, c_2 \rangle w} \phi \wedge \psi \qquad \text{iff:} \qquad \models_{c_1 w} \phi \ \text{and} \ \models_{c_2 w} \psi \tag{4i*}$$

Atomic formulas

$$\models_{cw} \pi \alpha_1 \ldots \alpha_n \qquad \text{iff:} \qquad \langle |\alpha_1|_{cw} \ldots |\alpha_n|_{cw} \rangle \in \mathcal{I}_\pi(w) \tag{2}$$

$$\models_{\langle c_1 \ldots c_n \rangle w} \pi \alpha_1 \ldots \alpha_n \qquad \text{iff:} \qquad \langle |\alpha_1|_{c_1 w} \ldots |\alpha_n|_{c_n w} \rangle \in \mathcal{I}_\pi(w) \tag{2*}$$

The indexical "I"

$$|\mathrm{I}|_{cw} = c_A \tag{12}$$

$$\text{If } c \in C, \text{then} |\mathrm{I}|_{cw} = c_A \tag{12*}$$

The idea is that when evaluating a context-sensitive expression at a context-point pair, we do so by assigning separate contexts to its parts. This makes it possible for a conjunction, for example to be "taken in" not one context for the whole sentence, but one context for the first conjunct and one context for the second. (This means no context-sensitivity for the connector; we could add that if we liked, odd though it is.)

We should want to preserve in the new system all the truths of Kaplan's system. We can do this by adding some principles to our revision. (Recall that C is the set of original, Kaplanian contexts, and C^* is the closure of that set under ordered n-tupling: the set of *complex* contexts.)

$$\textbf{Equivalence:} \qquad \forall c \in C^* : c \sim \langle c, c \rangle$$
$$\sim \langle c, c, c \rangle$$
$$\sim \langle c, c, c, c \rangle$$
$$\text{etc.}$$

$$\textbf{Collapse:} \qquad \forall c_1, c_2 \in C^*, w : \text{if } c_1 \sim c_2, \text{then:} \quad \models_{c_1 w} \alpha \quad \text{iff} \quad \models_{c_2 w} \alpha$$

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[3]For simplicity's sake I'm omitting reference to variable assignments, collapsing Kaplan's two points of evaluation—world and time—into one point i, and dropping Kaplan's distinction between terms for places and terms for people. Fuller presentation of the revised system is a work in progress.

The reason for these principles is that we'd like to still be able to say the things we say in the original LD, i.e. things of the form $\models_{cw} \phi$ where c is simple and ϕ is complex. We can do so by taking whatever complex context ϕ's syntactic structure demands (according to the revised, starred clauses), populating it entirely with c—getting a result like $\langle c, \langle c, c \rangle \rangle$, say—then using these principles to "collapse" that complex context to its equivalent simple context c. That is, the principles let us infer from

$$\models_{\langle c, \langle c, c \rangle \rangle w} \phi$$

to

$$\models_{cw} \phi$$

So the move to complex contexts doesn't deprive us of any of the statements we'd like to make in the original Logic of Demonstratives.

4 Implications and Applications

4.1 Implication: Some Contexts Don't Work for Some Formulas

One thing with the revised system is that it is not the case, as it is with LD, that *every* context is suited to the evaluation of *every* formula. For example, "I" can't be taken in $\langle c_1, c_2 \rangle$. If it so happens that $c_1 = c_2$ then our Equivalence and Collapse principles will let us infer a statement of its evaluation; but even they are no help if $c_1 \neq c_2$. So for each formula there will be infinitely many contexts in which it cannot be taken.
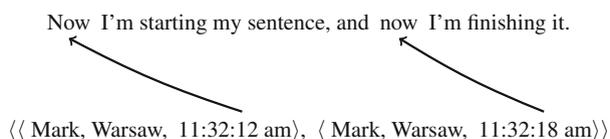
I think this is an unobjectionable consequence, since these are cases in which we shouldn't *want* the formula to be evaluable. Consider that example again. Suppose we want to insist that "I" be interpretable in the complex context $\langle c_1, c_2 \rangle$, where $c_1 \neq c_2$. What would our line be? Should it be the speaker of c_1, or the speaker of c_2, that is assigned as the value of "I" when taken in the complex context? There seems to be no principled reason to choose one over the other. Other ideas, like taking some sort of mereological sum of the two speakers, seem hopeless, if for no reason other than that the mereological sum of two speakers isn't the sort of thing we intuitively take possible referents of "I" to be.

There is a weaker principle, though, that is intuitively plausible and is preserved in the revised system. The principle is that every utterance is evaluatable when taken in *the context of its utterance*. I think that the intuitive appeal of the stronger principle attaches entirely to the weaker principle too; there is no additional appeal that the stronger principle has. The idea of what something *would* mean, had it been

uttered in some other context, is not central to our everyday interpretative practice, even if careful philosophy of language gives us a vocabulary with which to talk about it.[4]

4.2 Application 1: Temporally/Spatially Distributed Utterances

We can handle Two Heres, Two Nows and Five Yous easily, while sticking with the classic Kaplanian idea that each *simple* context has one *demonstratum*, one time and one location. The diagram shows how this goes for Two Nows, exploiting the clause (4*i**) I showed earlier; the other cases are handled on the same lines.

Now I'm starting my sentence, and now I'm finishing it.

⟨⟨ Mark, Warsaw, 11:32:12 am⟩, ⟨ Mark, Warsaw, 11:32:18 am⟩⟩

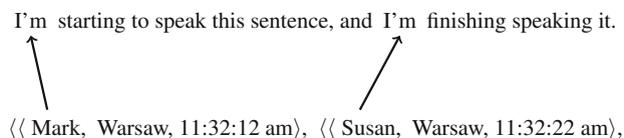## 4.3 Application 2: Agentially Distributed Utterances

It is no quirk of Kaplan's formal system that the *agent* (speaker) of a context is simply one component of a context, formally on a par with its *time* and its *location*; formally, they *are* on a par. As concerns concrete speech acts however, they seem not to be. While we are ready to acknowledge that the time or location can change while an utterance is being produced, we are less ready to acknowledge that the speaker can change. Are complex contexts needed to handle what we might call *agentially* distributed utterances, the speaker of which changes part-way through their production?

Yes, for two reasons. One is that linguists have recognized that some utterances *are* agentially distributed. Ruth Kempson and co-workers (2004) have investigated the semantics of "shared utterances" within their "Dynamic Syntax" framework (2001). An attested example they give, from the British National Corpus:

Daniel: Why don't you stop mumbling and
Marc: Speak proper like?
Daniel: speak proper?

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[4]Indeed, Kaplan famously deprecated—as "monsters"—operators that take as arguments not contents but ranges of contents *in other contexts* (1977, §VII). There is a lively debate about such operators, both over their formal legitimacy and over whether natural languages contain them. (See Schlenker (2003) and the many works citing it, and, recently, Rabern (2013).)

Since there is no restriction preventing the occurrence of speaker-indexicals in the fragments uttered by different speakers, we can also have cases such as this:

I'm starting to speak this sentence, and I'm finishing speaking it.

⟨⟨ Mark, Warsaw, 11:32:12 am⟩, ⟨⟨ Susan, Warsaw, 11:32:22 am⟩,

So the complex contexts framework is able to handle shared utterances easily, as we should expect.

4.4 Application 3: Scare-Quoting

It is becoming more and more recognized that *scare-quoting* is an important part of the interpretative and productive toolkits of contemporary language users, especially in writing. (Style guides now give instructions on its use; several decades ago they either didn't mention it, or did so only to deprecate it.) I will briefly sketch how the complex contexts framework is part of a satisfactory treatment of scare-quoting.[5]

Very often what scare-quotes indicate is that the quotation-mark-flanked part of the utterance is intended to be interpreted *as if uttered by some other speaker*. (Typically this is accompanied by evidence of some kind, manifest to the interpreter, indicating either a particular other speaker, or a type of speaker, and a particular other context, or type of context.) Thus the marks do not indicate that the flanked words are being referred to, as in direct quotation as usually conceived. Nor is there a complementizer, as in indirect quotation or attitude ascription. The marked words are nonetheless semantically active, contributing semantic values to the compositionally determined truth value of the sentence as a whole. But *how*?

Interpreting a portion of an utterance as if it were produced by some speaker other than the actual speaker involves doing at least one of the following two things concerning that portion:

- using the other speaker's lexical entries for its words;
- taking its words in the other speaker's context.

It is the second of these things—an intrasentential shift in context—that the complex contexts framework is suited to handle. Here are two actual examples in which the quotation marks arguably indicate that the interpreter is to interpret the enclosed words as if uttered by some other indicated speaker. In both cases this makes a

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[5]In McCullagh (2017) I present the account more fully.

difference to the interpretation of indexical words in the enclosed portion. (The first example is from a recent biography of Stalin; the second is from the *New York Times*.)

> After Denikin triumphantly entered Tsaritsyn [during Russia's Civil War] and attended services in its Orthodox cathedral, on July 3, he "ordered our armed forces to advance on Moscow." (Kotkin 2014, 326)

> After a run through of "ideas I strongly reject," Bush finally got around to announcing that he was going to "talk about what we're for." (Gail Collins, *New York Times*, March 15, 2008)

In the first example the writer is indicating that the marked phrase is taken from some source in the historical literature, in which the words are presented as if uttered by some member of Denikin's forces in the Civil War. Thus the indication to the reader is to use such a person's context when interpreting the marked fragment. This contextual shift gives the right result for the occurrence of "our," despite the *overall* sentence being taken in a context that would assign to that word some plurality that includes the author of the book containing the example. Similarly in the second example. The writer is indicating that the quotation-marked words were uttered by President Bush; the contextual shift thereby suggested to the reader is one that makes sense of the indexicals, which otherwise would refer to the New York Times writer rather than to President Bush.

These examples show that taking scare-quotations as they're intended to be taken often involves the interpreter's changing, mid-way through the utterance, the context in which it is being taken. The complex contexts framework gives us a way to describe this. We thus handle scare-quoting *presemantically*—in our choice of context for the indicated part.

This is very different from handling scare-quoting *semantically*, as at bottom involving quotational reference to words. One representative semantic approach is that of Bart Geurts and Emar Maier. (They call the phenomenon in question "mixed quoting." There is no agreed-upon terminology for the cases in question. But evidently the approach would apply to the two examples I gave.) Here is their introductory description of their approach[6]:

> (2) contains an instance of 'mixed' quotation. This is the species we shall be concerned with in the following pages:
>
> (2) George says Tony is his 'bestest friend'.
>
> In the case of mixed quotation, the meaning shift is, roughly speaking, *from α to 'what x calls* 'α'", where the value of x is determined by the context. For example, with x = George, the quotation in (2) is synonymous with the bracketed portion of (3):
>
> (3) George says Tony is his [what George calls 'bestest friend'].
>
> (Geurts and Maier 2003, 110)

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[6]There are similar accounts in Brandom (1994), Benbaji (2004), and Recanati (2000).

The "meaning shift" makes theirs a *semantic* treatment. They assign a complex new meaning to a scare-quotation expression (that is, to the quotation marks plus the words they flank). That meaning involves *reference to* those words and *reference to* some speaker.

I haven't time here to go into the relative strengths and weaknesses of pre-semantic and semantic treatments. But one large problem for the semantic approaches, I think, is that by building in hidden references to words and speakers, such treatments entail that these references should be available for anaphoric uptake later in the sentence, or in a following sentence. A look at many examples of scare-quoting, however, shows that attempts at such anaphoric uptake are infelicitous.[7]

So, one other use for the complex contexts framework is in an account of a *somewhat* quotation-like device that has proved challenging to account for under the assumption that each sentence is to be taken in one, simple Kaplan context. Given that mid-sentence shift in context is *possible*—which our prosaic examples at the beginning illustrate—it should not surprise us at all that for a variety of reasons, writers and speakers exploit our interpretative facility with it. They do so in their production of sentences that demand interpretation *as if* there were such a shift.

4.5   Application 4: "Co-indexing" by Context

One of Kit Fine's arguments for semantic relationism starts from consideration of "an antinomy concerning the role of variables" (Fine 2003, 605) in formal logic. While the variable letters "x" and "y" seem to have the same role (in some pretheoretic sense of "semantic role") in some formulas, it seems they play very different roles in others. In "$x > 0$" and "$y > 0$," for example, they seem to have the same role. But in "$x > y$," on the other hand, they seem to have different roles (otherwise that expression would itself have the same role as "$x > x$"). It is not obvious how to reconcile these two claims.

The antinomy relies on the assumption that the language employs more than one variable letter. Of course, this is a standard assumption, stated in every logic textbook:

> First-order logic assumes an infinite list of variables so that we will never run out of them, no matter how complex a sentence may get. (Barker-Plummer et al. 2011, 231)

The reason for all the distinct variables is so that a quantifier prefixed to an open formula can bind some, but not all, of its free variables. Otherwise one quantifier would bind all free variables in a formula, and there would be no possibility of multiple (non-vacuous) quantification.

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[7]I make this point more fully in McCullagh (2017).

Against this background it is notable that the complex contexts framework makes possible a form of binding—something, that is, that systematically reduces the assignment-dependency of semantic values—that allows for multiple quantification without involving multiple variable letters. The basic idea is to make *differences in context* do the work of distinctness of variable letters. *Occurring in the same (simple) context* is the relation that relates a particular quantifier occurrence (in a formula) to a particular occurrence of a free variable. This is something we can do only once we can take different parts of a formula in different contexts. I will briefly sketch the idea, presenting it as a variation on the familiar Tarskian account.

4.5.1   The Tarskian Account of Binding

On the Tarskian treatment, the truth value of a quantified formula, relative to one variable assignment, depends on the truth values of the formula with the initial quantifier stripped off, relative to *variant assignments*:

$$\models_{cfw} \forall x_n \ Fx_n \ \text{iff} : \begin{cases} \models_{cf_a^{x_n}w} \ Fx_n \\ \models_{cf_b^{x_n}w} \ Fx_n \\ \models_{cf_c^{x_n}w} \ Fx_n \\ \models_{cf_d^{x_n}w} \ Fx_n \\ \quad \vdots \end{cases} \text{for all } a, b, c, d \dots \text{ in the domain}$$

Now suppose. . .

- . . . we wanted to think of a variable assignment as something done by context. (This is somewhat plausible for occurrences of free variables.)
- . . . and we wanted to work with only one variable rather than with infinitely many.[8]

If we're thinking of variable assignments as done by context, this amounts to having different occurrences of the same variable letter *be taken in different contexts*. We can have one context be used simply to "attach" to whatever quantifier we are using, and also to "attach" to whatever *occurrences* of variables that we wish that quantifier to bind. Like so:

4.5.2   "Binding" by Context

$\models_{\langle c_1, c_2 \rangle w} \ \forall \ Fx$ iff:

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[8]The same points will apply if we want to work with some small number of variables rather than infinitely many—more like natural language.

$$\left.\begin{array}{l} \models_{c_2(c_1^a)w} \ Fx \\ \models_{c_2(c_1^b)w} \ Fx \\ \models_{c_2(c_1^c)w} \ Fx \\ \models_{c_2(c_1^d)w} \ Fx \\ \quad \vdots \end{array}\right\} \text{ for all } a, b, c, d \dots \text{ in the domain}$$

- c_1 is the *simple* context that "$\forall$" is being taken in.
- c_2 is the (possibly complex) context that "Fx" is being taken in.
- $c_2(c_1^a)$ is the context just like c_2 except that wherever c_1 is a component of it, it is replaced by c_1^a, which differs from c_1 in that our—one!—variable, x, is assigned a.

This gives us the effect of variable binding but with only one variable letter.

This is just the briefest of sketches. All I mean to have done here is to justify the claim that it is *possible* for there to be an account of variable binding on which the "antinomy of the variable" does not arise. Since part of the argument for semantic relationism is that it offers a solution to that antinomy, the "binding by context" approach should figure in an overall weighing of the plausibility of semantic relationism.

5   Conclusion

Working with complex contexts allows us to:

- handle the cases in which there is, intuitively, a mid-sentence shift in context ("distributed utterances");
- tell a story about scare-quoting that handles indexicals in the scare-quoted material and doesn't have the problems of semantic approaches;
- tell a story about variable binding, in which contexts do the work of subscripting, and the "antinomy of the variable" does not arise.

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