

Double-indexing and the Kaplan semantics for indexicals

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1 Index theory

Begin by asking what determines the truth-value of a sentence, like

David Kaplan is very smart.

Plausibly, what the meaning of the sentence gives you is a condition under which the sentence is true — the condition of Kaplan’s being very smart — and a condition under which it is false — it’s not being the case that Kaplan is very smart. But what determines whether it *is* true? Presumably the state of the world (this world), in particular the state of Kaplan, right now. Now consider

In 1934, David Kaplan was very smart.

It looks as though what makes this sentence true or false is not the state of the world right now, but the state of the world in 1934. Let’s introduce ‘index’ as a name for the state of the world which, along with the sentence’s meaning, determines its truth-value. What the above example shows is that the index can be changed by phrases like ‘In 1934’, which shift the index from the state of the world in 2007 to the state of the world in 1934.

Similar shifts in the index are illustrated by the pairs of sentences

It is very cold and snowy.

In Florida, it is very cold and snowy.

and

Al Gore is president.

Had voting ballots in Florida been better designed, Al Gore would be president.

Neither of these sentences contains any obvious indexicals. Consider now a sentence like

I like the snow.

This seems in one way like, and in one way unlike, the above sentences. Out of my mouth, it still says something which is made true by an index — in this case, the state of the actual world, in particular my likes and dislikes, now.

The difference between this sentence and the others is that it says different things about the world depending on who utters it. For that reason, it seems like our theory of meaning should treat these two sentences differently:

I like the snow.

Jeff Speaks likes the snow.

even if they say the same thing about the world when I say them. After all, there is clearly some sense in which ‘I like the snow’ means the same thing no matter who says it, even if there is another sense in which what it says about the world differs depending on the speaker.

One natural thought is that while ‘Jeff Speaks’ has the same content no matter who says it, ‘I’ does not. So we can think of ‘I’ as contributing to the proposition expressed by sentences in which it occurs not just an object (as in the case of names), but rather something like what is contributed by ‘the speaker of the context’ or ‘the speaker of this utterance.’

This would then explain the difference between your utterance of ‘I like the snow’ and mine. If I say ‘I like the snow’, then to see whether it is true or false we look, as usual, at the index, which in this case (since it is just a simple sentence) is the actual world here and now. The sentence is then true iff the person saying the sentence at that index — namely me — likes the cold. If you had been speaking, then the index would have been different, and the sentences would have been true iff the person speaking at that index — namely you — likes the cold.

In this way, it can seem as though the ‘context-dependence’ of indexicals like ‘I’, ‘now’, and ‘here’ is just a version of something we recognized all along with every sentence: the truth value of the sentence depends on the relevant index.

2 Double-indexing

However, things are not this simple. Consider

In 100 years, I will not exist.

In line with the remarks above, it seems that this sentence is true iff what is expressed by ‘I will not exist’ is true with respect to the index that is the actual world 100 years hence. What is expressed by ‘I will not exist’? The theory of the preceding section would say that it is the speaker of the sentence in the index. So, on this view, the above is true iff in 100 years, the speaker of ‘I will not exist’ fails to exist. But of course this is not correct. The above is true iff in 100 years *I* will not exist — not iff someone who is uttering a sentence 100 years from now, and therefore presumably exists, fails to exist.

What the above example suggests is that the reference of ‘I’ is not always the reference of ‘I’ at the index, if we think of the index as the state of the world with respect to which the truth-value of the sentence is determined.

So it looks as though, if we are going to treat ‘I’, like other words, as depending only on the index for its reference, we are going to need more complicated indices. One idea is that we can think of an index as the state of the world with respect to which the truth-value of the sentence is determined, *plus a designated agent of the index*. On this view, when I utter a sentence, I am thereby the designated agent, and we think of our new expanded index as a designated agent + the old, un-expanded index. Then ‘I’ gets its reference not from the speaker of the index, but from the designated agent of the index.

But things are not so simple, as Kaplan’s example (4) shows:

It is possible that in Pakistan, in five years, only those who are actually here now will be envied.

By argument parallel to the above, this example shows that in addition to a designated agent, we need a designated time, place, and world. So our indices are getting more complicated; in fact, it looks like what we really have are two indices, not one. We have, on the one hand, our old index, which is the possible state of the world with respect to which the truth-value of the sentence is determined and, on the other hand, a designated agent, time, place, and world. It seems misleading to call this a supplemented index rather than two indices.

But Kaplan points out (in §VII) a further problem with this view. If we consider a sentence like

I am here now.

There seem to be two important things that we want to capture: (i) it is a contingent truth; what it says could have failed to be the case; and (ii) it is true whenever it is

uttered — as Kaplan says, one need only understand its meaning to know that it cannot be uttered falsely.

The development of index theory which we have been working with so far does not explain (ii) — that index theory simply classes ‘I am here now’ among the sentences that are true with respect to some indices and false with respect to others.

We could solve this problem by limiting the indices to what Kaplan calls ‘proper’ indices — those in which the designated agent exists in the designated world at the designated time and the designated place. The problem is then that the sentence comes out true with respect to every index — which would make it a necessary truth, contra (i). This modification thus runs contra to the facts that I could have been somewhere else right now (or failed to exist now).

What we need are two indices: one which contains the designated agent, time, place, and world, and the other which contains the possible state of the world with respect to which the truth of the sentence is evaluated.

3 Context and circumstance, character and content

Kaplan’s was an early contributor to the development of ‘double-indexing’ semantics, but an equally important contribution was his explanation of what he calls the conceptual difference between context and circumstance. Formally, context and character are just two indices. But the role that the two play in Kaplan’s semantics is quite different.

A *circumstance of evaluation* relevant to a sentence is the (perhaps merely possible) state of the world which is relevant to determining the extensions of expressions in the sentence, and so also relevant to determining the truth value of the sentence. You might think of the ‘default’ circumstance as the actual world at the time and place of the utterance. Expressions like ‘In 1934’ and ‘In Florida’ as used above have the function of shifting the circumstance away from the default circumstance to (respectively) a different time and place. So consider, for example,

The president of the US is a nice guy.

In 1934, the president of the US was a nice guy.

It looks like the reference of ‘the president of the US’ in the first sentence is Bush, and in the second sentence FDR. The explanation of this is that ‘In 1934’ changed the circumstance, which is the state of the world with respect to which the reference of the expressions later in the sentence is determined.

But, obviously, even if the reference of expressions can change with the addition of circumstance-shifting expressions, their meaning remains fixed: ‘the president of the US’ still has a content which determines its reference as whatever (if anything) is the unique president of the US in the relevant circumstance of evaluation.

So, so far we have:

- Expressions have a content, which determines a reference/extension given a circumstance of evaluation. (If you identify contents with intensions, a la possible worlds semantics, you can think of contents as functions from circumstances to extensions. Kaplan talks this way when laying out his formal system.)
- Some sentence operators, like ‘In 1934’ and ‘In Florida’ (as used above) can shift the circumstance relevant to determination of reference. Thus such operators can be thought of as operators on contents: they take as given the contents of expressions they operate on, and shift the circumstance with respect to which their reference is determined.

The second index used in Kaplan’s semantics is called a *context of utterance*, or just a *context*. The context is the state of the world in which the relevant sentence is uttered (though we can also imagine sentences as uttered in merely possible contexts, and consider the contents of those sentences in those contexts). The context includes not only the world in which the sentences is uttered, but also the speaker, audience, time, place, and maybe lots of other stuff.

Context-sensitive expressions, as the name indicates, get their contents from the context. Consider, for example, ‘I.’ Let’s suppose that ‘I’ has as its content whatever object is the speaker in the context. Then (if Millianism about names is true), if I utter

I am the king of the world.

Jeff Speaks is the king of the world.

these two sentences have the same content.

Further, and crucially, since sentence operators like the ones discussed above seem to be operators on *contents*, and these two sentences have the same contents, pairs of sentences like

In 2017, I will be the king of the world.

In 2017, Jeff Speaks will be the king of the world.

will always have the same truth-value, and will often have a different truth-value from sentences like

In 2017, the speaker of the context will be the king of the world.

But, if ‘I’ and ‘the speaker of the context’ do not have the same content — as they manifestly do not — how are we to understand the fact that the latter seems to give the rule for determining the reference of the former? This is where the importance of having two indices comes in. ‘The speaker of the context’ is not the content of ‘I’, but is rather a rule which determines the content of ‘I’ in a given context of utterance. Kaplan calls this aspect of an expression’s meaning its *character*. The character of an expression can be thought of as a function from contexts to contents.

Using this terminology, we can then express the difference between expressions which are and are not context-sensitive as the difference between expressions which have a *variable character* — a character that delivers different contents in different contexts — and expressions which have a *fixed character* — a character that delivers the same content in every context. ‘I’ clearly has a variable character. Plausibly, proper names have a fixed character.

(Sidenote: what about cases where more than one person has the same name? We should be careful not to conflate ambiguity with indexicality (context-sensitivity). Plausibly we should think of such examples of proper names as in the same category as ‘bank’, in which we do not have one expression of the language with a variable character, but two different expression types, each with fixed characters.)

So, we have:

- Corresponding to the two indices — context and circumstance — are two dimensions of meaning — character and content. The character of an expression is or determines a function from contexts of utterance to contents. The content of an expression is or determines a function from circumstances of evaluation to extensions/referents. Every expression has a character and (given a context) a content.
- If an expression has the same content in every context, then it is not context-sensitive, and its character is a constant function. Such expressions have a fixed or stable character.
- If an expression has the same reference in every circumstance (a rigid designator), then its content is a constant function. Such expressions have a fixed or stable content.
- Indexicals are context-sensitive expressions. So, these expressions have variable characters. The ‘rule which determines the reference’ of an indexical is its character, not its content.
- In general, there is nothing to stop an indexical and a non-indexical from, in a given context of utterance, having the same content. But they will never have the same character.

(You may have heard, especially if you have read some David Chalmers or Frank Jackson, of something called ‘two-dimensionalism.’ One version of this view, which seems to be the view Chalmers held in *The Conscious Mind*, is basically the above Kaplan double-indexing semantics, plus the idea that sentence is a priori if and only if it is true whenever uttered, in the sense in which ‘I am here now’ is true whenever uttered. This is supposed to explain the possibility of contingent a priori and necessary a posteriori sentences.)