

ESSLLI 2011 - Topics in Philosophy of Language

Lecture 2

**double-indexing vs. levels of meaning**

***Kaplan's further arguments***

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2.1: double-indexing vs. two levels of meaning

**Kaplan's picture & Lewis's concerns**

Yesterday we saw that sentences in which the indexical 'now' is embedded under a temporal operator are problematic for single-indexed tense logic (similarly for 'actually' & modal logic):

**"Someday everything that is (now) flourishing is faded".**

However, if you used overt quantification over times, this sort of sentence shouldn't be too hard to handle, as e.g. in (b):

a)  $\langle \text{Fut} \rangle \forall x (\text{Now}(\text{Flo}_x) \rightarrow \text{Faded}_x)$

b)  $\exists t (t > t_0 \wedge \forall x (\text{Flo}(x, t_0) \rightarrow \text{Faded}(x, t)))$

(notice that  $t_0$  is free in (b); reference to the present time would then be handled through the assignment function)

Kaplan's example:

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

This is a problem for single-indexed semantics in which indexicals are vacuous operators.

◇ **in Pakistan In five years** ( $\forall x (x \text{ is envied} \rightarrow x \text{ is } )$ )

Kaplan claims it's also a problem for views that “attempt to relegate all direct reference to implicit use of the paradigm of the semantics of direct reference, the variable”.

$\exists w \exists p \exists t$  (w=the actual world  $\wedge$  p=here  $\wedge$  t=now  $\wedge$   
◇ in Pakistan In five years  $\forall x$ (x is envied  $\rightarrow$  x is at p-t-w)

*"Such transformations ... do not provide an alternative to [the principle that indexicals are directly referential], since we may still ask of an utterance of (1) in a context c, when evaluating it with respect to an arbitrary circumstance, to what do the indexicals 'actual', 'here' and 'now' refer. The answer, as always, is: the relevant features of the context c. (In fact, although (b) is equivalent to (1), neither indexicals nor quantification across intensional operators is dispensable in favor of the other.)"*

(Kaplan, Demonstratives (1989), p. 499)

Kaplan's argument rests on considerations of what happens *when we ask for the truth-value of an utterance with respect to counterfactual circumstances.*

Previously, the problem was that the framework did not yield correct *truth-predictions*. With Kaplan, we are stepping out of semantics proper and appealing to such considerations as *what are the referents of indexicals when we evaluate what is said at other circumstances.*

(Also, Kaplan's dismissal of the quantificational approach might rest on a bad choice of “transformation”. Note the contrast with Kamp's or Lewis's position on that issue.)

Kaplan's picture



I am happy today.

character (the agent is happy at the time of context)

**context** (Bahia, 2 August 2011, actual world)

content (Bahia is happy on 2-8-2011)

**circumstance**

truth value

## Lewis's criticism:

*"I see Stalnaker and Kaplan as putting forth package deals. Offered the whole of either package - take it or leave it - I take it. But I would rather divide the issues. Part of each package is a preference, which I oppose as unwarranted and arbitrary, for variable but simple semantic values." [i.e. contextually determined semantic values (=contents)] [Index, Context & Content]*



## Kaplan's semantic theory

$$[[\diamond\varphi]]^M_{f, c, w, t} = T \text{ iff } \exists w' wRw' [[\varphi]]^M_{f, c, w', t} = T$$

$$[[\text{Act}\varphi]]^M_{f, c, w, t} = T \text{ iff } [[\varphi]]^M_{f, c, w(c), t} = T$$

$$[[\langle \text{Fut} \rangle \varphi]]^M_{f, c, w, t} = T \text{ iff } \exists t' t < t' [[\varphi]]^M_{f, c, w, t'} = T$$

$$[[\text{Now}\varphi]]^M_{f, c, w, t} = T \text{ iff } [[\varphi]]^M_{f, c, w, t(c)} = T$$

$$[[\varphi(I)]]^M_{f, c, w, t} = T \text{ iff } [[\varphi(x)]]^M_{f', c, w, t} = T, \text{ where } f' \text{ is like } f \text{ except that } f(x)=a(c)$$

$a(c), p(c), w(c), t(c)$  are agent, place world and time of  $c$

NB. The character/content distinction is conceptual, and superposed over double-indexing (where the two indices are context  $c=(a,p,w,t)$  and circumstance  $(w,t)$ ).

## Lewis's theory

$$[[\diamond\varphi]]^M_{f, c, w, t, p, s} = T \text{ iff } \exists w' wRw' [[\varphi]]^M_{f, c, w', t, p, s} = T$$

$$[[\text{Act}\varphi]]^M_{f, c, w, t, p, s} = T \text{ iff } [[\varphi]]^M_{f, c, w(c), t, p, s} = T$$

$$[[\text{Everywhere}\varphi]]^M_{f, c, w, t, p, s} = T \text{ iff } \forall p' [[\varphi]]^M_{f, c, w, t, p', s} = T$$

$$[[\text{Here}\varphi]]^M_{f, c, w, t, p, s} = T \text{ iff } [[\varphi]]^M_{f, c, w, t, p(c), s} = T$$

$$[[\varphi(I)]]^M_{f, c, w, t, p, s} = T \text{ iff } [[\varphi(x)]]^M_{f', c, w, t, p, s} = T,$$

where  $f'$  is like  $f$  except that  $f(x)=a(c)$

$a(c)$ ,  $p(c)$ ,  $w(c)$ ,  $t(c)$ ,  $s(c)$  are the agent, place, world and time of  $c$ , and the “standards of precision” relevant to  $c$

This is also a double-indexed theory, where the first index is a context and the second, an “index” ( $w, t, p, s$ )

## Main differences between Kaplan and Lewis

- Lewis's indices are richer (location + standards of precision; cf. Lewis's shiftability criterion)
- Lewis's contexts are semantic primitives (although often taken to be *centered* worlds); there are indefinitely many contextual features (cf. Cresswell's objection)
- Lewis's semantic values are “constant but complicated”; Kaplan's sem. values (contents) are “simple but variable”.

## Lewis on “schmentences”.

The work done by index-dependence can be done by the usual dependence on the assignment function. This would require that you view the expression 'there are dogs', as it occurs e.g. in 'It is possible that there are dogs' as distinct from 'There are dogs' *tout court* (assuming that the latter is closed and does not contain a free variable for the world).

*Schmentences would be akin to the open formulas that figure in the standard treatment of quantification. Truth of a schmentence at an index would be like satisfaction of a formula by an assignment of values.*

*... Strictly speaking, we do not need to provide both context-dependence and index-dependence. (p. 33)*

General observation: what you can achieve by means of dependence on index-features, you can also achieve by means of dependence on an assignment of values to the free variables (and *vice versa*, provided we have sufficiently sophisticated indices). Here is why it matters:

- approaches that account for context-dependence by means of implicit arguments (or hidden variables), and certain “relativist” approaches are, from the viewpoint of semantics, arguably equivalent (viz. they predict the same truth values)
- Stanley's so-called "binding" argument against unarticulated constituents doesn't necessarily detect a variable, as opposed to a shiftable parameter on which truth value depends

## 2.2. Kaplan's argument from validity vs. necessity

*"Index-theory has bypassed something essential to the logic of indexicals"*

Consider:



I am here now.

"Intuitively, (1) is deeply, and in some sense universally, true. One only need understand the meaning of (1) to know that it cannot be uttered falsely." (K, p. 68)

*truth in virtue of meaning vs. warranted true utterability*

Logical truth, or validity, as truth *in virtue of meaning*.

In standard modal logic, two definitions of validity:

- **S is valid iff for any structure  $M$  and any  $w \in W^M$ ,  $[[S]]_w^M = T$ .**
- **S is such-and-such-valid iff for any structure  $M$  such that  $R^M$  is such-and-such relation, and for any  $w \in W^M$ ,  $[[S]]_w^M = T$**



In standard modal logic, under either definition, we have:

- If  $S$  is valid, then  $\Box S$  is also valid.

Proof (by reductio ad absurdum):

- Suppose that  $S$  is valid, and that  $\Box S$  isn't.  
Then there is model  $M$  and there is  $w \in W^M$  such that  $[[\Box S]]^M_w = F$ , hence for some  $w'$  ( $wRw'$ ),  $[[S]]^M_{w'} = F$ .  
This contradicts the assumption that  $S$  is valid.

Let a doubly underlined NL sentence stand for the translation of that sentence in our formal language.

Kaplan's two desiderata:

- I am here now is logically valid.
- $\Box$ (I am here now) is **not** logically valid.

If anything may be an index, we fail to account for the 1<sup>st</sup> desideratum, but if we only have *proper* indices, then we arguably fail to account for the 2<sup>nd</sup> desideratum.

But is 'I am here now' valid? It's not just that one only need understand the meaning of that sentence to know it will be uttered truly (that is, unless the meaning of 'here' weren't just a shorthand for “wherever the speaker is”).

In order to know that (1) is uttered truly, one needs the additional assumption that the speaker is located “here” (ie, presumably, at the place of utterance).

The need for this additional assumption (that the speaker be at the place of context) is cashed out through the stipulation in Kaplan's formal logic that if  $(a, w, p, t)$  is to count as a context, then  $(a,p) \in Int('Located', w, t)$ .

A (much) less controversial case. Again, two desiderata:

- $p \leftrightarrow \text{Actually}(p)$  is logically valid.
- $\Box(p \leftrightarrow \text{Actually}(p))$  is **not** logically valid.

## Double-indexed theory

for simplicity, let's limit ourselves to the world-parameter, so we have  $[[\dots]]^M_{w_1, w_2}$  and we get truth-clauses like:

$$[[\diamond\varphi]]^M_{w_1, w_2} = T \text{ iff } \exists w_2 R w_1 [[\varphi]]^M_{w_1, w_2} = T,$$

$$[[\text{Act}\varphi]]^M_{w_1, w_2} = T \text{ iff } [[\varphi]]^M_{w_1, w_1} = T, \text{ etc.}$$

How should one define *semantic value*?

- the set of world *pairs*  $(w_1, w_2)$  such that  $[[S]]^M_{w_1, w_2} = T$  ?
- the set of *worlds*  $w$  such that  $[[S]]^M_{w, w} = T$  ?
- given a particular  $w$ , the semantic value of  $S$  w. r. to  $w$  is the set of worlds  $u$  s.t. such that  $[[S]]^M_{w, u} = T$  ?

Validity in standard modal logic:

- **S is valid iff for any model M and any  $w \in W^M$ ,  $[[S]]^M_w = T$ .**

In double-index theory, two possible definitions of validity:

- **S is valid iff for any M and any  $w_1, w_2 \in W^M$ ,  $[[S]]^M_{w_1, w_2} = T$ .**
- **S is valid iff for any M and any  $w \in W^M$ ,  $[[S]]^M_{w, w} = T$ .**

Note that on the first definition,  $\text{Act}(p) \leftrightarrow p$  is not valid!

On the 2<sup>nd</sup> def., suppose  $\text{Act}(p) \leftrightarrow p$  invalid. Then for some  $w$   $[[\text{Act}(p)]]^M_{w, w} \neq [[p]]^M_{w, w}$ . But this contradicts the def. of 'Act'.

### 2.3. Kaplan's argument from what is said

***"What is said in using a given indexical in different contexts may be different"***

Kaplan's motivations for content from “what is said”:

*When I say “I was insulted yesterday” a specific content - what is said - is expressed. Your utterance of the same sentence, or mine on another day, would not express the same content. It is not just the truth value that may change; what is said is itself different. Speaking today, my utterance of (-) will have a content roughly equivalent to that which “David Kaplan was insulted on 20 April 1973” would have spoken by you or anyone at any time. (p. 68)*



## Lewis's criticism:

*I put it to you that not one of (Kaplan's) examples carries conviction. In every case, the proper naïve response is that in some sense what is said is the same... whereas in another - equally legitimate - sense, what is said is not the same. Unless we give it some special technical meaning, the locution 'what is said' is very far from univocal. It can mean the propositional content, in Stalnaker's sense (horizontal or diagonal). It can mean the exact words. I suspect that it can mean almost anything in between. (p. 41)*

## My own take on these issues:

Kaplan's endeavor to come up with a notion of content that will capture *what is said* is well-motivated; but Lewis, too, is partly right, as the data are much more complicated than what Kaplan takes them to be.

(mini-)plan for the fives slides that follow:

- take up the two motivations for Kaplan's view
- put forward cases that show it to be problematic and that suggest that there is something rather special about the use of the 1<sup>st</sup> person pronoun

**I am hungry**

on May 15 at noon



**Bahia**

**She is hungry**



**Dalibor**

**She was hungry  
yesterday at noon.**

on May 16



**Bahia**

**I am hungry**



**Chris**

**I am hungry**



**Alma said that, too.**

Is Dalibor's report correct? On Kaplan's intuition, Bahia & Chris say different things, hence the report is strictly speaking false. It seems, however, that the report is ambiguous (strict vs. sloppy).

Possible response:

**the sameness of character explains why we hear the two speakers as saying the same thing**

But it won't work:

**It is neither *necessary* nor *sufficient* to use the same sentence in order to be reported (literally) as same-saying**

(1) a case in which speakers are using sentences that have different characters as well as different propositional contents, but are correctly reported as same-saying


(2) a case in which speakers are using the same sentence, but can't be correctly reported as same-saying (without further ado)



**I really like Professor Cheng's class on Montague**



**I really like this class.**



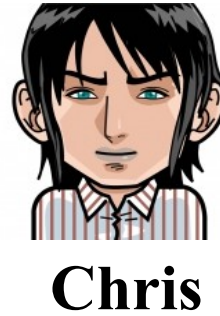
**That's what Dalibor said, too.**



**I am a fool**



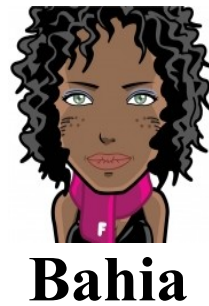
**I am a fool.**



**Bahia said that,  
too.**



**You are a fool**



**You are a fool.  
That's what  
Amy said, too.**



We'll come back to some issues regarding content and 'what is said' tomorrow; but so much for today!

Thank you for your attention.



Questions? Objections? Suggestions?