

## LECTURE TWO

### THE NEO-DAVIDSONIAN THEORY, THE UNIQUE ROLE REQUIREMENT AND THE LANGUAGE OF EVENTS

#### 2.1. FINEGRAINEDNESS AND THE UNIQUE ROLE REQUIREMENT

Let us look at the following arguments.

- (1) a. John bought Ulysses from Bill.  
b. Bill sold Ulysses to John.  
c. Only one transaction took place.  
d. Hence, John sold Ulysses to himself.
- (2) a. I hit Brutus.  
b. I revenged myself.  
c. My hitting Brutus was my revenge.  
d. Hence, I hit myself.
- (3) a. I dined tonight.  
b. I ate falafel tonight.  
c. The falafel was my dinner.  
d. Hence, I dined falafel tonight.

These inference patterns are somewhat problematic for the neo-Davidsonian theory. Here is why. A natural representation of the inference in (1) in the neo-Davidsonian theory would be as in (4a-d):

- (4) a.  $\exists e[\text{BUY}(e) \wedge \text{AGENT}(e)=j \wedge \text{THEME}(e)=u \wedge \text{SOURCE}(e)=b]$   
b.  $\exists e[\text{SELL}(e) \wedge \text{AGENT}(e)=b \wedge \text{THEME}(e)=u \wedge \text{GOAL}(e)=j]$   
c. The event in (a) is the same as the event in (b).  
d.  $\exists e[\text{SELL}(e) \wedge \text{AGENT}(e)=j \wedge \text{THEME}(e)=u \wedge \text{GOAL}(e)=j]$

The problem is that the inference from (4a)-(4c) to (4d) is valid. (4a)-(4c) together entail (4e) which entails (4d):

- (4) e.  $\exists e[\text{BUY}(e) \wedge \text{AGENT}(e)=j \wedge \text{THEME}(e)=u \wedge \text{SOURCE}(e)=b \wedge \text{SELL}(e) \wedge \text{AGENT}(e)=b \wedge \text{THEME}(e)=u \wedge \text{GOAL}(e)=j]$

The argument in (2) is similarly valid. If I am the agent of *hit* and the theme of *revenge* (if theme is what it is), and these events are the same, then I am the agent of an

event which is a hitting and which has me as agent and theme. (3) shows a different problem with a similar origin.

If my dining and my eating falafel are the same event, and the falafel is the theme of *eat*, then there is an event of dining with the falafel as theme. But *dine* is intransitive and shouldn't be able to take a theme.

The problem for the neo-Davidsonian theory is the following: in the neo-Davidsonian theory, modifiers and arguments - from now on **roles** - are added conjunctively to the verbal predication as co-predicates on the event variable. This means that roles are tied to the particular verb only indirectly, through the event variable. If we allow one event to be characterised by two different verbal predicates (as stipulated in each of the above arguments in premise c), we see that we no longer know which verbal predicate which role belongs to, and we can swap them around.

The particular examples in (1)-(3) concern arguments of the verbs, and are problems for the neo-Davidsonian theory because of its assumption that arguments, like modifiers, are added conjunctively to the event argument. Since Davidson's original proposal doesn't make this assumption for arguments, the particular examples in (1)-(3) as such are not a problem for the Davidsonian theory. But the general problem is exactly the same, because the very same arguments can be made with full blooded modifiers as well: the inference in (5) is equally invalid:

- (5) a. John bought Ulysses from Bill **with a credit card**.  
 b. Bill sold Ulysses to John.  
 c. Only one transaction took place.  
 d. So, Bill sold Ulysses to John **with a credit card**.

While I will focus here on the neo-Davidsonian theory, it should be kept in mind that the discussion applies equally well to modifier roles in the Davidsonian theory (more discussion below).

The above problems are obviously not problems for theories where argument or modifier roles are not added conjunctively to the verbal predicate (but then, as we saw in lecture One, such theories have problems with the modifier argument). Let us look at what, within the neo-Davidsonian theory, can be done about these arguments.

Parsons 1990 discusses two strategies which can be used to deal with these problems:

- we can make our events more finegrained.
- we can make our roles more finegrained.

Let's discuss the latter strategy first. Instead of assuming a general set of roles: AGENT, INSTRUMENT, etc., we can assume that these roles are **indexed**, in particular, that the grammar indexes them for the verb that they are modifying.

This would give representations (6a) and (6b) for (1a) and (1b) respectively:

- (6) a.  $\exists e[\text{BUY}(e) \wedge \text{AGENT}_{\text{buy}}(e)=j \wedge \text{THEME}_{\text{buy}}(e)=u \wedge \text{SOURCE}_{\text{buy}}(e)=b]$   
 b.  $\exists e[\text{SELL}(e) \wedge \text{AGENT}_{\text{sell}}(e)=b \wedge \text{THEME}_{\text{sell}}(e)=u \wedge \text{GOAL}_{\text{sell}}(e)=j]$

With premise (4c) we can now derive (6c):

- (6) c.  $\exists e[\text{SELL}(e) \wedge \text{AGENT}_{\text{buy}}(e)=j \wedge \text{THEME}_{\text{sell}}(e)=u \wedge \text{GOAL}_{\text{sell}}(e)=j]$

But (6c) is not the representation of (1d) in this version of the neo-Davidsonian theory; (1d) is represented as (6d):

- (6) d.  $\exists e[\text{SELL}(e) \wedge \text{AGENT}_{\text{sell}}(e)=j \wedge \text{THEME}_{\text{sell}}(e)=u \wedge \text{GOAL}_{\text{sell}}(e)=b]$

And we cannot derive (6d), so the inference is indeed invalid. Since (6c) is not the interpretation of any natural language sentence, the fact that we can derive (6c) is unproblematic, since there is no native speaker's intuition that it conflicts with.

While Parsons discusses some arguments against this approach, he regards them as inconclusive, and he concludes that the finegrained role approach has to be admitted as an alternative to his own approach. I think that a better argument against it can be given.

The finegrained role approach comes into problems with cases where **the same verb** occurs with different modifiers that shouldn't swap, but, like in the cases in (1)-(4), we feel that at some level the events involved are just the same. Here is an example.

Suppose Bill Clinton and James Levine meet at a promotional event. They shake hands. In some intuitive sense, again, sentences (7a) and (7b) describe the same event: one handshake took place.

- (7) a. Bill shook hands with James.  
b. James shook hands with Bill.

However, for promotional reasons, Clinton is wearing a baseball glove, while, to commemorate the days of the grand Maistros, Levine is wearing white conductor's gloves (and indeed a towel, but not on his hands). Now the following inference is not valid:

- (8) a. With a baseball glove, Bill shook hands with James.  
b. With a conductor's glove, James shook hands with Bill.  
c. One handshake took place.  
d. With a baseball glove, James shook hands with Bill.

On the finegrained role analysis, (8a,b) would be represented as (9a,b):

- (9) a.  $\exists e[\text{SHAKE}(e) \wedge \text{AGENT}_{\text{shake}}(e)=b \wedge \text{THEME}_{\text{shake}}(e)=j \wedge \text{WITH}_{\text{shake}}(e)=\text{BG}]$   
b.  $\exists e[\text{SHAKE}(e) \wedge \text{AGENT}_{\text{shake}}(e)=j \wedge \text{THEME}_{\text{shake}}(e)=b \wedge \text{WITH}_{\text{shake}}(e)=\text{CG}]$

The identifying condition in (8c) allows us to conclude (9c) from (9a) and (9b), which entails (9d), the representation of (8d). Hence, the argument comes out as valid:

- (9) c.  $\exists e[\text{SHAKE}(e) \wedge \text{AGENT}_{\text{shake}}(e)=b \wedge \text{THEME}_{\text{shake}}(e)=j \wedge$   
     $\text{WITH}_{\text{shake}}(e)=\text{BG} \wedge \text{AGENT}_{\text{shake}}(e)=j \wedge \text{THEME}_{\text{shake}}(e)=b \wedge$   
     $\text{WITH}_{\text{shake}}(e)=\text{CG}]$   
d.  $\exists e[\text{SHAKE}(e) \wedge \text{AGENT}_{\text{shake}}(e)=j \wedge \text{THEME}_{\text{shake}}(e)=b \wedge \text{WITH}_{\text{shake}}(e)=\text{BG}]$

This suggests that the finegrained role analysis is not adequate, because the roles are not finegrained enough. Of course, we can make the roles more finegrained, say, by distinguishing, through indexing, role  $AGENT_{shake,1}$  in a representation for (8a) from role  $AGENT_{shake,2}$  in a representation for (8b); i.e. we would associate with different instances of verbs different instances of the roles for that verb. But that is nothing but an encoding of finegrained events as indices, and the finegrained role approach would reduce to the finegrained event approach.

There is yet another alternative that needs some discussion at this point. I have argued in lecture One that modifier phrases like *with a baseball glove* in (8a) cannot be analyzed as predicates of the subject *Bill* in (8a). We have assumed instead that such modifiers are predicates of the implicit argument of the verb. But clearly they seem to have something to say about the subject: it's Bill who has a baseball glove on his hand. We have assumed that verbs, which are explicitly predicates of individuals, have an implicit event argument. We might want to argue that while the Davidsonian theory treats a preposition like *with* in *with a baseball glove* in (8a) as a two-place relation between an event and an object (the glove), we really ought to treat it as a **three-place** relation between an event, an object, **and an individual**, namely the subject of the sentence. This would give for (8a), (8b), and (8d) neo-Davidsonian representations like (9e)-(9g):

- (9) e.  $\exists e[SHAKE(e) \wedge AGENT(e)=b \wedge THEME(e)=j \wedge WITH(e,b)=BG]$
- f.  $\exists e[SHAKE(e) \wedge AGENT(e)=j \wedge THEME(e)=b \wedge WITH(e,j)=CG]$
- g.  $\exists e[SHAKE(e) \wedge AGENT(e)=j \wedge THEME(e)=b \wedge WITH(e,j)=BG]$

And this analysis in fact avoids the problems, because representation (9g) doesn't follow from (9e) and (9f) even if we assume only one event. If this analysis is feasible, then the arguments that we have been discussing in this section show nothing about finegrainedness at all: to avoid argument swap, we can assume the Davidsonian, rather than the neo-Davidsonian theory, and for modifiers, we can assume that they have more than one implicit argument, i.e. also a subject argument.

However, I think that this analysis is not feasible. Like many modifier phrases, *with a baseball glove* is **agent oriented** in that, as a property of the event, it also expresses a property of the agent of the event. But that by itself is not enough to solve the problem, precisely because if there is only one event, it has two agents, Clinton and Levine, and the modifier phrase should be able to orient towards either, and it doesn't. So we crucially have to assume that *with a baseball glove* is subject oriented, rather than agent oriented.

The problem with this analysis is that subject oriented adverbs actually do exist. I will discuss them in lecture Three. But subject oriented adverbs are passive sensitive: in active sentences they orient towards the subject, but in passive sentences they are ambiguous: they can orient either towards the surface subject of the passive verb, or towards the deep subject in the *by*-phrase. Agent oriented adverbs do not show this ambiguity: they orient in active and passive sentences towards the agent. This means that in

active sentences they orient to the subject, but in passive sentences, they orient to the agent in the *by*-phrase. Now look at (8a) and (8e):

- (8) a. With a baseball glove, Bill shook hands with James.  
       e. With a baseball glove, James was shaken hands with by Bill.

Both in (8a) and in (8e), *with a baseball glove* unambiguously orients towards Bill, the agent. This shows that these modifiers are **not** subject oriented, and hence, the preposition *with* should **not** be analyzed as having an argument slot for the subject, because that would make the wrong predictions for passives.

I conclude that trying to solve the finegrainedness problems by making the roles more finegrained, or by adding implicit arguments to the roles, isn't going to work.

The alternative is to make our events more finegrained. This is the road that Parsons follows. In the three inferences in (1)-(3), the third premise suggests that we make the two events in the first two premises identical. Parsons argues that we do not have to read the third premise as claiming this, and hence the inference doesn't go through.

Let me make some ontological suggestions for interpreting this argument. Let us assume, with Parsons, that events are the building blocks of our ontology, and that events are finegrained events: when a buying and a selling are going on, the buying and the selling are distinct events. Yet in some sense, they are not distinct. In what sense? Let us change perspectives briefly. Let us now think of the world as consisting of situations. If situations are our primitives, then what are events? One way to think about them is as aspects of situations, say, some structure that is recognized in or imposed upon situations (this perspective is developed in Bartsch 1981 and goes back to Whitehead 1919). As such, events can be reconstructed as **properties of situations**. But such properties are **intensional**: we may well conceptually distinguish different aspects of situations without being able to differentiate those aspects in terms of situations. This is exactly the kind of finegrainedness that led Gennaro Chierchia to give up reconstructing properties in terms of possible worlds (e.g. Chierchia 1984).

Angelika Kratzer (in Kratzer 1989) uses a situation semantics to define a relation of **lumping** between propositions, which we can here reinterpret as a relation between events: two events **lump** each other if they are aspects of exactly the same situations, i.e. if they are situationally indiscernable.

Alternatively, we can start out with finegrained events and the lumping relation as primitives and **define** situations as groups of events that lump each other.

A particular instance of lumping would be the relation between related buyings and sellings: let us assume that these are events that lump each other. What follows is that, even though we distinguish the particular buying and selling of Ulysses as distinct aspects of certain situations (i.e. finegrained events), there are no situations that contain the one, but not the other, because they are lumped together.

Let us next assume that the 'event-identity' statement in (1c) - only one transaction took place - is a statement not about (finegrained) events, but about situations: we assume that (1c) does not mean (10a), but (10b):



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