

Davidsonian events

You might have noticed that we haven't mentioned adverbs or adverbials at all. Not once. Or maybe you haven't. But when we consider them we'll find we need to update our ontology.

There are all sorts of adverbs, but let's focus on manner adverbs, along the lines of a classic paper by Donald Davidson (1967).

- (1) *Jen made a sandwich slowly with a knife at midnight.*

Truth-conditionally, this sentence is no problem. Its proposition is true if Jen made a sandwich, and if that sandwich-making happened at midnight, and was done slowly, and with a knife.

Furthermore, it seems that the adverbials are modifiers, the way adjectivals are. Our sentence entails all of the following (among others, of course).

- (2) Jen made a sandwich slowly with a knife at midnight \Rightarrow
- a. Jen made a sandwich.
 - b. Jen made a sandwich slowly.
 - c. Jen made a sandwich slowly with a knife.
 - d. Jen made a sandwich slowly at midnight.
 - e. Jen made a sandwich with a knife at midnight.
 - f. Jen made a sandwich with a knife.
 - g. Jen made a sandwich at midnight.

So we need to ask: What are all these adverbials modifying? Davidson suggests they modify an action: (1) is true when there is an action *a* of Jen making a sandwich, such that *a* is slow, *a* is with a knife, and *a* happens at midnight.

These adverbs have the same kinds of modification, too. For instance, degree predicates have degrees and comparison classes. Davidson explicitly compares 'slow' actions (swims vs. crossings) in analogous terms to 'tall' entities (people vs. basketball players).

We can use pronouns to refer to these actions. This is simple **anaphora**, and raises the question: What are these pronouns referring to?

- (3) *I crossed the Channel in fifteen hours. Good grief, **that** was slow.*
(4) *I saw my Grandma crying, and **it** broke my heart.*

We can also witness these actions. That is, we can have **direct perception** of something.

- (5) *I saw the boat explode.*
- (6) *I heard the gorilla pound on his cage.*

But what are we perceiving? If *the boat explode* denotes a truth value (1 or 0), that's not something we can witness. We saw something happen. We can refer back to it: *It was spectacular*. What is this something? It's an 'action'.

Formally, Davidson points out that we run into a problem: We have no place for 'actions' in our semantics. Our denotation for *make*, like any transitive verb, is a relation between two entities.

- (7) $\llbracket \textit{make} \rrbracket = \lambda x_e \lambda y_e. \textit{make}(x)(y)$
= 1 if and only if *y* makes *x*

Some philosophers had proposed adding an argument to the verb for each of these: manner, location, time, etc. But there is no limit to the modifiers we can add. We don't want to say that the verb has an unlimited number of arguments, any more than nouns do for their modifiers.

Otherwise, maybe you could make the adverb describe the subject. If Jen made a sandwich at midnight, then Jen was there at midnight. Etc. But that idea breaks down quickly when you find the right adverbs. *Jen played well* does not mean that she played and was well. She may have been ill. Instead, her action of playing was conducted well (on some contextual scale). And of course, some adverbs don't apply to entities at all, like in *Jen suddenly fell ill*.

So, we need these actions in our semantics.

But what do we do with them?

Davidson resurrects an old idea from Hans Reichenbach, that sentences seem to assert the existence of an action.

- (8) $\llbracket \textit{Admunsen flew to the North Pole} \rrbracket =$
 $\exists x[x \text{ consists of the fact that Admunsen flew to the North Pole }]$

What is this *x*? Reichenbach thought little of it, since his attention was elsewhere. But Davidson says it's the crucial key to unlocking adverbs and 'action sentences', as he calls them. For it can give us the adverbial entailments.

- (9) $\llbracket \textit{Jen made a sandwich at midnight} \rrbracket =$
 $\exists x[x \text{ consists of the fact that Jen made a sandwich \& } x \text{ took place at midnight }]$

That is, a sentence is saying that there is an action consisting of the fact that Jen made a sandwich, and that action took place at midnight. The truth-conditions and entailments work better.

But now a compositional question. If the existential quantifier is binding these action variables, where do these variables come from?

Davidson proposes that verbs introduce these arguments, by relating these actions to their participants.

The basic idea is that verbs of action-verbs that say 'what someone did' should be construed as containing a place, for singular terms or variables, that they do not appear to. For example, we would normally suppose that 'Shem kicked Shaun' consisted in two names and a two-place predicate [note, like (7)]. I suggest, though, that we think of 'kicked' as a three-place predicate, and that the sentence to be given in this form: $(\exists x)$ (Kicked(Shem, Shaun, x)).

We would write this formula as
 $\exists x$
kicked(Shaun)(Shem)(x)

Essentially, then, adverbials modify these actions the way adjectivals modify individuals.

- (10) $\llbracket 1 \rrbracket = \exists x$ [make(a sandwich)(Jen)(x) & at(midnight)(x) & slow(x) & with(a knife)(x)]

This gets us all the right entailments and truth-conditions. These actions have since been renamed 'events', and treated as distinct types of objects from individuals for reasons we'll get into. Since Davidson [*d*'eɪvɪdson] first characterized them, we call them 'Davidsonian [*d*'eɪvɪd'souniən] events,' and the notion that verbs introduce event arguments we call the 'Davidsonian approach'.