

Verbal modifiers and events

Readings: Portner, Ch. 3.5, 4.4

I. The problem of adjuncts

- What would the truth conditions of (1) be in predicate logic?

(1) Jamie danced beautifully at midnight.

- The following is an excerpt from a famous paper in semantics/philosophy of language by Donald Davidson. He was grappling with the same problem. Let's reconstruct his arguments.

THE LOGICAL FORM OF ACTION SENTENCES

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STRANGE GOINGS ON! Jones did it slowly, deliberately, in the bathroom, with a knife, at midnight. What he did was butter a piece of toast. We are too familiar with the language of action to notice at first an anomaly: the "it" of "Jones did it slowly, deliberately, . . ." seems to refer to some entity, presumably an action, that is then characterized in a number of ways. Asked for the logical form of this sentence, we might volunteer something like "There is an action x such that Jones did x slowly and Jones did x deliberately and Jones did x in the bathroom, . . ." and so on. But then we

(...)

(2) Jones buttered the toast in the bathroom with a knife at midnight.

Anthony Kenny, who deserves the credit for calling explicit attention to this problem,² points out that most philosophers today would, as a start, analyze this sentence as containing a five-place predicate with the argument places filled in the obvious ways with singular terms or bound variables. If we go on to analyze "Jones buttered the toast" as containing a two-place predicate, "Jones buttered the toast in the bathroom" as containing a three-place predicate, and so forth, we obliterate the logical relation between these sentences, namely that (2) entails the others. Or, to put the objection another way, the original sentences contain a common syntactic element ("buttered") which we intuitively recognize as relevant to the meaning relations of the sentences. But the proposed analyses show no such common syntactic element.

Kenny rejects the suggestion that "Jones buttered the toast" be considered as elliptical for "Jones buttered the toast somewhere with something at some time," which would restore the wanted entailments, on the ground that we could never be sure how many standby positions to provide in each predicate of action. For example, couldn't we add to (2) the phrase "by holding it between the toes of his left foot"? Still, this adds a place to the predicate only if it differs in meaning from "while holding it between the toes of his left foot," and it is not quite clear that this is so. I am inclined to agree with Kenny that we cannot view verbs of action as usually containing a large number of standby positions, but I do not have what I would consider a knock-down argument. (A knock-down argument would consist in a method for increasing the number of places indefinitely.³)

2. Event semantics

- Gist of the solution: verbal predicates, arguments, and adjuncts all uniformly denote sets of *events*; they combine with each other via predicate modification.
- E.g., a verb like *buttered* no longer denotes a two-place relation; instead it denotes a set of buttering events:

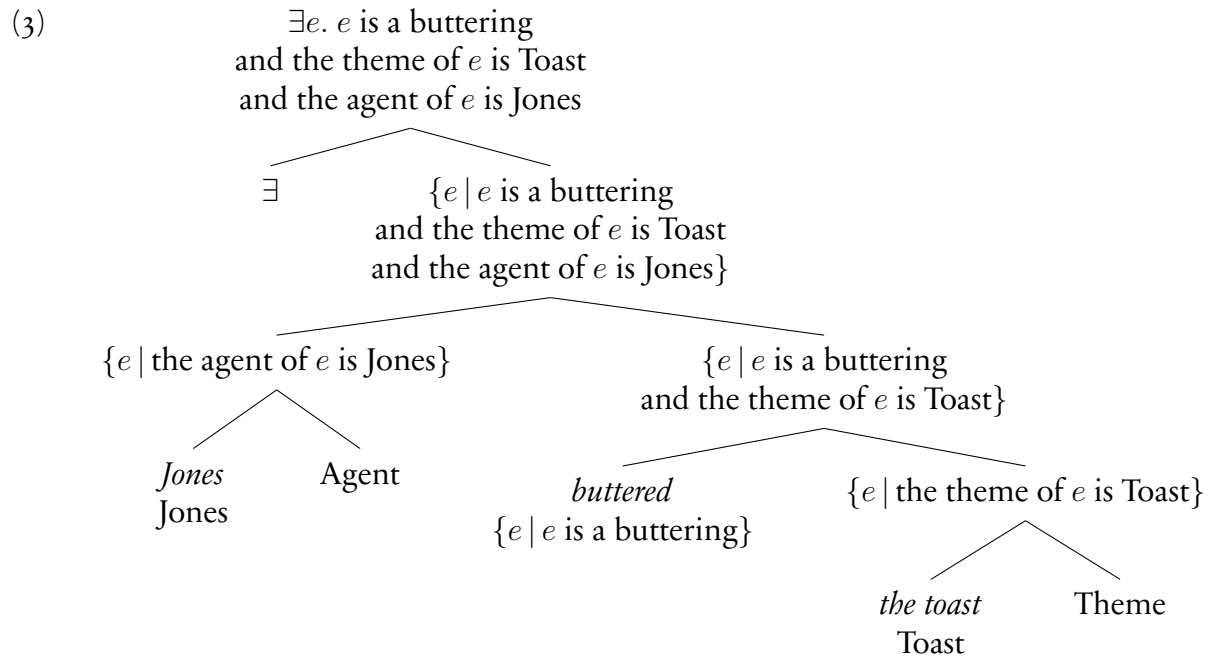
(2) $\{e \mid e \text{ is a buttering}\}$

- Similarly, *in the bathroom* denotes the set of all events that happened in the bathroom.

In-class Exercise 1

- Write the event-based denotation of *in the bathroom* in predicate notation.
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- But what about arguments? How do we turn entities into sets of events? We rely on *thematic roles* (sometimes also called *theta-roles* or *θ -roles*).
 - You might be familiar with the notion if you have done some syntax. E.g., in Davidson's example Jones is the *agent*, and the toast is the *theme* (see 3.5.2 of Portner).
 - In event semantics thematic roles combine with entities to yield sets of events.
 - For example, the thematic role Agent can combine with *Jones* to yield the set of events whose agent is Jones. Similarly, Theme can combine with *the toast* to yield the set of events whose theme is Toast.

- We still don't have exactly what we need. We ended up with a set of events, but we want something that can be true or false. For that end we will add an existential quantifier on top, which will bind our event variable (we call this mechanism *existential closure*):



In-class Exercise 2

- How would we extend the above tree to derive *Jones buttered the toast in the bathroom*?
- Compare the truth conditions for *Jones buttered the toast* to the ones for *Jones buttered the toast in the bathroom*. Do you see how the entailment is captured?

3. Adverbs

3.1. Adverbs in event semantics

- Many adverbs work well in event semantics. For example, *slowly*, as in (4), can be viewed as denoting a set of events that happen slowly.

(4) Jones slowly poured the coffee.

In-class Exercise 4

- Derive (4) in event semantics. Go through the following steps:
 - Draw a syntactic tree of the sentence. Make sure to add terminal nodes for thematic roles.
 - Write the event-based denotation of each terminal node (in predicate notation where relevant).
 - For each non-terminal node write its event-based denotation in set-theoretical terms.
 - Add the existential closure and write the truth conditions of the whole sentence in set-theoretical terms.

3.2. Some adverbs that are not about events

- Some other adverbs are more problematic, however. E.g., in (5) we understand that intention or reluctance was only on Gerald's part, so it would be misleading to describe the whole event as intentional or reluctant (we call such adverbs *agent-oriented adverbs*).

(5) Gerald intentionally/reluctantly petted the dog.

- Also, some sentence-level adverbs don't say anything about the event described by the sentence, but rather about the speaker's attitude towards the proposition denoted by the sentence (we call such adverbs *speaker-oriented adverbs*):

(6) Surprisingly/unfortunately, Lucy lost the race.

- Agent-oriented adverbs and sentence-level adverbs don't work out of the box in event semantics. We won't treat them here.

What you need to know

Key notions: arguments vs. adjuncts, events, thematic roles, existential closure, agent-oriented adverbs, speaker-oriented adverbs

Answers to the following questions:

- What are the two problems that adjuncts pose for compositional semantics?
- How does event semantics solve these problems?

Skills:

- Compositionally derive meanings of sentences with names, verbs, and adjuncts (*Gerald slowly petted Fido*, *Gerald petted Fido in the garden*) in event semantics.