

Aspectual similarity predicts sense similarity

Event descriptions headed by same verb with apparently similar senses can vary substantially in lexical aspect—e.g. (1) is telic and nondurative; (2) is atelic and durative; and (3) can be either.

- (1) The arrow hit the target {in, #for} one second.
- (2) The boxer hit his opponent {#in, for} two minutes.
- (3) The hurricane hit the coastline {in, for} 10 hours.

The lexical aspect literature has long recognized such flexibility (or lack thereof) as a function of a verb's structural and pragmatic context (Verkuyl 1972; Moens & Steedman 1988; Krifka 1998; Pustejovsky 1995; a.o.). But even controlling for known predictors of lexical aspect, substantial variability across event descriptions remains—e.g. (1)–(3) are all transitive with definite objects.

Contribution. In two experiments, we find that, while structural and pragmatic factors may restrict the possible aspectual interpretations of an event description, these factors are not fully determinative: even once those factors are fixed (or excluded), there remains substantial unexplained variability in telicity. Building on the notion that event concepts themselves encode aspectual structure independently of the linguistic expressions that express them (Papafragou et al. 2023; Vurgun et al. 2024), we argue that this variability reflects variability in the homogeneity/heterogeneity of the aspectual properties of the underlying event concepts expressed by particular event descriptions. In a third experiment, we show that this heterogeneity is systematic even if not predictable by structural properties: event types (expressed by particular event descriptions) that are judged to be more similar in meaning also have more similar aspectual properties. We argue that these findings support a model of verb meaning in which verbs carry fine-grained information about the distribution of aspectual properties of the event concepts they lexicalize.

Background. A common distributional diagnostic for determining whether an event description is telic assesses whether that description prefers *in* or *for* to head durative adverbials that combine with it (Vendler 1957; Garey 1957; Dowty 1979; Krifka 1998). The *in-for* diagnostic is subject to noise from alternative readings (Filip 1999): *in* can describe the duration of the delay before an event starts (4), and *for* adverbials can describe result duration (5). This noise can be diagnosed by whether there is overlap between the event run time and the adverbial time span.

- (4) The water was bubbling in two minutes.
- (5) She opened the window for five minutes.

Whether the delay or result reading is available depends both on telicity and durativity: delay readings are only possible when the event description is durative or nondurative and telic—e.g. (6) is nondurative and telic, so a delay reading is possible.

- (6) The plumber arrived in five minutes.

We use these *in-for* and overlaps diagnostics to develop two tasks to measure telicity and durativity.

Experiment 1: Measuring Aspectual Properties.

Experiment 1a: Cloze task. Participants ($N = 120$) completed sentences by selecting a preposition (*in/for*), a numeral (1–100), and a time unit (milliseconds–millennia) using drop-downs—i.e. they were constrained to only give such responses. For instance, one sentence they received was (7).

- (7) The main cleaned the kitchen {for, in} {1, ..., 100} {milliseconds, seconds, ...}.

Experiment 1b: Temporal overlap task. Participants ($N = 250$) judged what proportion of the mentioned time an event was occurring (from *none* to *entirety*). Each base sentence from Exp. 1a appeared with both *in* and *for*. For instance, (different) participants saw both versions of (8) and were asked to judge over how much of those 15 minutes the cleaning was happening.

- (8) The housekeeper cleaned the kitchen {in, for} 15 minutes.

The duration provided was the most likely duration selected for that sentence in Experiment 1a. The prediction is non-overlap responses correspond to delay or result readings.

