

Unlikely imperfectives
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This paper offers a novel observation of the event-in-progress reading of the imperfective aspect, as represented by the English progressive in (1).

- (1) Diana Nyad is swimming from Cuba to Florida.

The observation is that “unlikely” progressives like (1)–progressives in which the fully culminated event is unlikely–display vagueness effects. Such effects include borderline cases and participation in the sorites paradox (see Kennedy 2007). For example, the truth of (1) depends on how far Nyad has swum (Dowty 1979, Landman 1992). If she has swum half the distance, speakers are disposed to treat (1) as true; if she has swum only a few meters, speakers are disposed to treat (1) as false (or perhaps infelicitous, see Portner 2011). This setup gives rise to the possibility of a sorites paradox for the progressive, as in (2).

- (2) Premise 1. (At the reference time in the world of evaluation, Nyad has swum 85km (half the distance) on a path from Cuba to Florida.) Nyad is swimming from Cuba to Florida.
Premise 2. Any event of “swimming from Cuba to Florida” in which 1m less is swum is still an event of swimming from Cuba to Florida.
Conclusion. (At the reference time in the world of evaluation, Nyad has swum 3 meters.) ?? Nyad is swimming from Cuba to Florida.

Similarly, speakers may be unsure of whether an event of swimming $\frac{1}{4}$ (or $\frac{1}{8}$, or $\frac{1}{16}$, etc.) of the distance licenses (1). This is a borderline case. However, run-of-the-mill progressives like (3a) don’t display these effects. For instance, (3a)’s correlate to Premise 2 is false (3b) (falsified by the sharp boundary between having something on the page and having nothing on the page, setting aside mental preparatory acts).

- (3) a. Mark was drawing a circle.
b. Premise 2. # Any event of “drawing a circle” in which 1 degree less (of an arc) is drawn is an event of drawing a circle.

These vagueness effects are similar to those displayed by gradable adjectives, as is the split between the vague and non-vague predicates. A modal theory of the progressive (Landman 1992, Portner 1998) combined with a theory of gradable modality (Lassiter 2010, Klecha 2011) will derive both facts. First, this account follows Lassiter (2010) in adopting a probability measure over the set of possible worlds (4a) and a denotation of *likely* as in (4b).

- (4) a. A Probability Space is a pair $\langle W, prob \rangle$, where W is a set of possible worlds and $prob : \mathcal{P}(W) \rightarrow [0, 1]$ is a function from subsets of W to real numbers between 0 and 1 such that $prob(W) = 1$ (and satisfying other conditions omitted here).
b. $\llbracket \text{likely}(\phi) \rrbracket = 1$ iff $prob(\phi) > s$
“ ϕ is likely is true if ϕ ’s probability is greater than a contextually determined standard on the scale of possibility”

The second task is to combine this notion of modality with any modal theory of the progressive. The account adopts Portner’s (1998) modal theory, which expresses the sensible intuition that the progressive ϕ is true if, in the normal course of events, ϕ would have reached completion. Combining Portner’s insights with Lassiter’s theory (and relativizing to an event time) yields (5).

- (5) $\text{Prog}(\phi)$ is true at a pair of an interval and world $\langle i, w \rangle$ iff there is an event e in w such that i is e 's event time, ϕ is *likely* is true, and there is an interval i' such that $\langle i', w' \in \phi \rangle$ and i' includes i as a non-final subinterval.

The semantics in (5) derive the vagueness facts straightforwardly. For instance, (5) is equivalent in relevant respects to (6a) (ι is the type of intervals, see Deo 2010), whose resemblance to (6b) is clear in the underlined portions. Tellingly, (6b) is the denotation of the *positive* morpheme, responsible for vagueness effects in the positive form of relative gradable adjectives. The explanation for vagueness effects in the aspectual and adjectival domains is therefore the same, residing in the contextual standard function s (see Kennedy 2007 for discussion).

- (6) a. $\llbracket \text{Prog}(\phi) \rrbracket = \lambda\phi_{\langle \iota, t \rangle} \lambda i. \exists i' [i \subset_{nf} i' \wedge \underline{\text{prob}(\phi)(i')} > s]$
 b. $\llbracket \text{pos} \rrbracket = \lambda g_{\langle d, t \rangle} \lambda x. \underline{g(x)} > s$

However, (6a) predicts that all progressives should display vagueness effects, when data from run-of-the-mill progressives do not support this prediction (3a, 3b). A choice-functional analysis of the progressive resolves this inconsistency. In particular, let the standard function s be a choice function over the probability space $C(W, \geq)$ (7) (Sen 1970).¹

- (7) If $C(W, \geq)$ is defined, there is a best element in every nonempty subset S of W , where an element w in S is a “best element” of S with respect to \geq iff $\forall y [y \in S \rightarrow w \geq y]$

This account makes the further assumption that there may be many different orderings \geq_i of possibility figuring into the semantics of the progressive. These orderings are all aggregated into the final ordering \geq . This assumption is supported by sentences like (8).

- (8) In one respect, Nyad is swimming from Cuba to Florida, but in another respect, she is not (swimming from Cuba to Florida).

As Sen (1970) shows, where the different orderings agree on what is likely, the choice function is well-behaved. But where the orderings may disagree significantly (i.e. where one ordering places world w_1 near the top of the possibility scale but another ordering places it near the bottom), the choice function gives rise to intransitivities. This account demonstrates how intransitive orderings lead to vagueness effects (more broadly, vagueness effects do not result from the existence of a contextual standard but from how the choice function s sets that standard). The upshot for vagueness effects in the progressive is this: unlikely imperfectives are just those in which judgments of likelihood may vary wildly; run-of-the-mill progressives are those in which judgements of likelihood are apt to agree. Therefore, this account predicts vagueness effects in unlikely imperfectives but not in their run-of-the-mill cousins. Such an approach unifies vagueness phenomena in aspectual and adjectival semantics. Finally, this account captures the progressive’s “description sensitivity,” and it predicts the felicity of some seemingly impossible imperfectives, like *Elena was writing a book (right before she died)*, by relativizing their interpretation to possibility orderings \geq_i that bracket the interrupting event (e.g. Elena’s death).

Refs. Deo 2010, Unifying the imperfective, *L&P*. Dowty 1979, *Word meaning*. Kennedy 2007, Vagueness & grammar, *L&P*. Landman 1992, The progressive, *NLS*. Lassiter 2010, Gradable epistemic modals, *SALT 20*. Portner 1998, The progressive in modal semantics, *Lang.* – 2011, Perfect and progressive, *Int’l Handbook of NLM*. Sen 1970, *Social Choice & Collective Welfare*.

¹(7) ignores the potential incommensurability of worlds in W , though a refinement taking this into account would not alter the point made here.