Zero telicity and no results
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The role of the internal argument in determining the aspectual structure of a predicate has now a long history, going back at least to Verkuyl’s (1972) analysis of specified quantity. From this, a fairly standard family of incremental/scalar approaches has worked to understand the relationship between some mereological structure of the internal argument and the event, which, in the special case of a quantized argument in (1), results in the final relevant part of the argument coinciding with the culmination of the event (Bach 1986; Krifka 1992, 1998; Tenny 1987, 1994; a.o.).

(1) a. John read two emails in 15 minutes/#for 15 minutes.
   b. John drank two beers in 30 minutes/#for 30 minutes.

Such analyses tend to assume a ‘measuring out’ to a telos where the event’s endpoint and culmination co-occur. The events in (1) reach their telos when both emails have been read (1a) or two beers have been consumed (1b). However, this co-occurrence of event endpoint and culmination has been challenged in the literature, particularly concerning events that (may) continue beyond some culmination, e.g., fill the room (up) with smoke (Schein 2002) and eat at least/more than three apples (Borer 2005).

In this paper, I consider another case that challenges the co-occurrence of telicity and culmination by examining the role played by zero and no arguments in what I will call empty accomplishments. Consider the predicates in (2) which appear to license both aspectual in and for phrases (cf. Krifka 1989 for similar observations on not VP).

(2) a. John read zero emails in 15 minutes/for 15 minutes.
   b. John drank no beer in 30 minutes/for 30 minutes.

Setting aside the pragmatic inferences one might draw from these examples, these cases are challenging because, in a sense, nothing happens and yet we can, at first brush, ascribe either a temporal endpoint or a time frame to these empty events (cf. De Swart 1996, Schein 2016, Varzi 2006). This paper will address two questions that emerge from (2). First, what is telic about (2) and how is its telicity ‘measured out’ given nothing happening to zero/any objects. Second, what is atelic about (2) and how does such atelicity emerge? Addressing these two questions will demonstrate how telicity and culmination can come apart.

Turning to the first question, many theories have proposed that telic interpretations emerge in the presence of a quantized object. Quantized objects are those whose predicates fail to be cumulative and/or divisive as defined, for instance, by Borer (2005) in (3).

(3) a. Cumulative: \( \forall x, y \ [P(x) \& P(y) \rightarrow P(x \cup y)] \)
   \( (P \text{ is cumulative iff for all } x \text{ and } y \text{ with property } P, \text{ the union of } x \text{ and } y \text{ also has property } P.)\)
   b. Divisive: \( \forall x \ [P(x) \rightarrow \exists y \ [P(y) \& y<x] \& \forall x, y \ [P(x) \& P(y) \& y<x \rightarrow P(x-y)] \)
   \( (P \text{ is divisive iff for all } x \text{ with property } P \text{ there is a proper part } y \text{ of } x \text{ which also has property } P, \text{ and for all } x \text{ and } y \text{ with property } P \text{ if } y \text{ is a proper part of } x \text{ then the subtraction of } y \text{ from } x \text{ also has property } P.)\)

Assuming that count predicates denote a full lattice structure which includes the bottommost element, \( \bot \), which has cardinality 0 and no proper parts (Bylinina &
Nouwen, 2017; Marti, 2017), by these definitions, zero miles (and similarly, no emails) is cumulative (the union of zero miles with zero miles is still zero miles) but not divisive. Zero miles fails to be divisive because there is no proper part of zero miles that is also zero miles because ⊥ has no proper part. Thus, although zero/no NPs denote empty objects and therefore have no proper parts to map to subevents as internal arguments in (2), they are formally quantized and therefore predict that a telic interpretation of empty accomplishments should be acceptable, as it is in (2).

Turning to the second question, temporal until is also thought to diagnose atelic predicates on a right-bounded event interpretation. However, temporal until is unacceptable with zero/no cases on a right-bounded event interpretation.

(4) a. John read (#two) emails until noon.
   b. John drank (#two) beer(s) until 5pm.

(5) a. John read zero emails #until noon.
   a. John drank no beer #until 5pm.

This suggests that the licensing of aspectual for phrases and temporal until, often collapsed as atelic diagnostics, are distinguishable. It seems like until requires some process described to be realized; whereas, aspectual for merely requires some kind of event cumulativity (cf. incremental homogeneity, Landman & Rothstein, 2012).

In sum, empty accomplishments have no culmination but do have a telic interpretation targetable by aspectual in phrases, perhaps delimiting what Schein (2016) calls “the existence of zones that are asserted to be sterile of what is described”. Their telicity is licensed because they fail to be divisive, but they can also license aspectual diagnostics that only require event predicates to be cumulative.

The behavior of resultatives with empty accomplishments provides further evidence for distinguishing telicity from culmination. Resultative secondary predicates are often analyzed as denoting the result state of a culminating event and are argued to induce telicity. Even with a homogeneous internal argument in (6b) where a straightforward telic interpretation fails to emerge, we can detect the presence of telicity in the iterative interpretation of aspectual for (Wechsler 2005).

(6) a. John painted the canvas red in ten minutes/#for ten minutes.
   b. John painted canvases red #in ten minutes/??for ten minutes. [iterative only]

Such resultatives can also be predicated of empty accomplishments. Although ‘nothing happens’, linguistically a result state can be attributed to the empty event. Here too, both aspectual in and for phrases are licensed, the latter lacking the iterativity of (6b).

(7) a. John painted zero canvases red in ten minutes/for ten minutes.
   b. John painted no canvases red in ten minutes/for ten minutes.

While we might have thought that an empty accomplishment, having no culmination, would have no result, and yet we can still say what its result could have been.