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Nominal and Verbal Reference

1 Aspectual classification

(1)   *The Vendler/Kenny verb classes*
   a.   STATES: know, own, understand, love, fear, have, ...
   b.   ACTIVITIES: walk, sleep, dream, run, push/pull, rub, wipe, ...
   c.   ACCOMPLISHMENTS: build a house, write a paper, play a game, run a mile, push the cart to the store,
   d.   ACHIEVEMENTS: notice, spot, win, reach the top, arrive, ...

1. How can we tell for any V(P) where it fits? (DIAGNOSTICS)

2. Why do particular V(P)s fall into particular classes? (REFERENCE)

3. Why do V(P)s in particular classes have the properties they have? (LOGICAL FORM)

4. Are we talking about Vs, VPs, or something bigger? (COMPOSITIONALITY)

States vs. non-statess:

(2)   Only (but not all!) non-stative predications:
   a.   occur in the progressive.
   b.   occur as the complement of *force/persuade.*
   c.   occur in the imperative form.
   d.   occur w/the adverbs *deliberately, carefully*, etc.
   e.   license pseudo-clefts.
   f.   have habitual interpretations of simple present.

Accomplishments vs. activities (telic vs. atelic predicates):

(3)   *for*-PPs
   a.   Kim ran for 10 minutes.
   b.   ?Kim ran a mile for 10 minutes.

(4)   *in*-PPs
   a. ??Kim ran in 10 minutes.
   b.   Kim ran a mile in 10 minutes.

(5)   *spend* time
   a.   Kim spent 30 minutes drawing.
   b.   Kim spent 30 minutes drawing a circle.

(6)   *take* time
   a. ??It took Kim 30 minutes to draw.
   b.   It took Kim 30 minutes to draw a circle.

(7)   Entailments with *for*-PPs
   a.   Kim walked for an hour. $\Rightarrow$ ⟦Kim walked⟧ $= 1$ at each instant during that hour
   b.   Kim wrote a story for an hour. $\not\Rightarrow$ ⟦Kim wrote a story⟧ $= 1$ at each instant....

(8)   Entailments of progressive form
    a.   Kim is pushing the wagon. $\Rightarrow$ Kim has pushed the wagon.
    b.   Kim is writing a story. $\not\Rightarrow$ Kim has written a story.

(9)   *stop*
    a.   Kim stopped writing. $\Rightarrow$ Kim wrote.
    b.   Kim stopped writing a novel. $\not\Rightarrow$ Kim wrote a novel.

(10)   *finish*
    a.   ?Kim finished laughing.
    b.   Kim finished running.
    c.   Kim finished running a mile.
    d.   Kim finished running the race.

(11)   Ambiguity with *almost*
    a.   Kim almost drew a circle. (AMBIGUOUS: counterfactual or non-completion)
    b.   Kim almost drew. (UNAMBIGUOUS: counterfactual only)

Achievements:

(12)   Variable acceptability in progressive form, subject to semantic/real world factors
    a.   -Kim is noticing the painting/recognizing Lee.
    b.   -The light is flashing. (only repetitive)
    c.   +Kim is reaching the summit/winning the race.
    d.   +Kim is dying.

(13)   *for/in*-PPs
    a.   Kim won the race in a few minutes.
    b. ??Kim won the race for a few minutes.

(14)   *take/spend* time
    a.   It took Kim a few minutes to recognize Lee.
    b. ??Kim spent a few minutes recognizing Lee.

(15)   Entailments
    a.   Kim ran 10 miles in an hour. $\Rightarrow$ Kim was running 10 miles during that hour.
    b.   Kim won the race in an hour. $\not\Rightarrow$ Kim was winning the race during that hour.

(16)   *finish/stop*
    a. ??Kim finished/stopped noticing the painting.
    b.   Kim ??finished/?stopped dying.

(17)   *almost*
    a.   Kim almost noticed the painting. (counterfactual only)
    b.   Kim almost won the race. (counterfactual = non-completion!)

(18)   Agent-oriented adverbs
    a.   Kim {attentively, studiously, vigilantly, conscientiously, obediently, carefully}
        (i) ??{discovered the solution, detected an error, found a penny, reached Boston,
            noticed the painting}
        (ii) {shattered the glass, shut the door, snatched the bag, dropped the grenade}

Here we have a confound, or at least a question: what is the relation between thematic role and aspectual classification? Mourelatos' notion of 'topic neutrality' is crucial here: *see* as an agentless achievement. The relation between argument structure and even structure is a topic that we will be looking at over the next four weeks.

What about the 'compositionality' question? It should be pretty clear that we're dealing with something more than just verb meaning here:

(19)   a.   I ran.
            b.   I ran laps.
            c.   I ran a mile.
            d.   I ran to the store.
            e.   I ran the soles off my shoes.
            f.   I ran myself ragged.

(20)   a.   Kim ate a bowl of rice.
            b.   Kim ate rice.
            c.   Kim ate a pancake.
            d.   Kim ate pancakes.

(21)   a. ??Kim passed the house for an hour.
            b.   People passed the house for an hour.
            c.   The parade passed the house for an hour.

More on this in a couple of weeks.

2 The algebra of events

Bach's (1986) proposes the relation between objects and events in (22) (cf. Mourelatos 1978), and the classification of eventuality sorts in (23) (Vendler 1957 and Dowty 1979 classes in CAPS).

(22)   **events:processes::things:stuff**

(23)
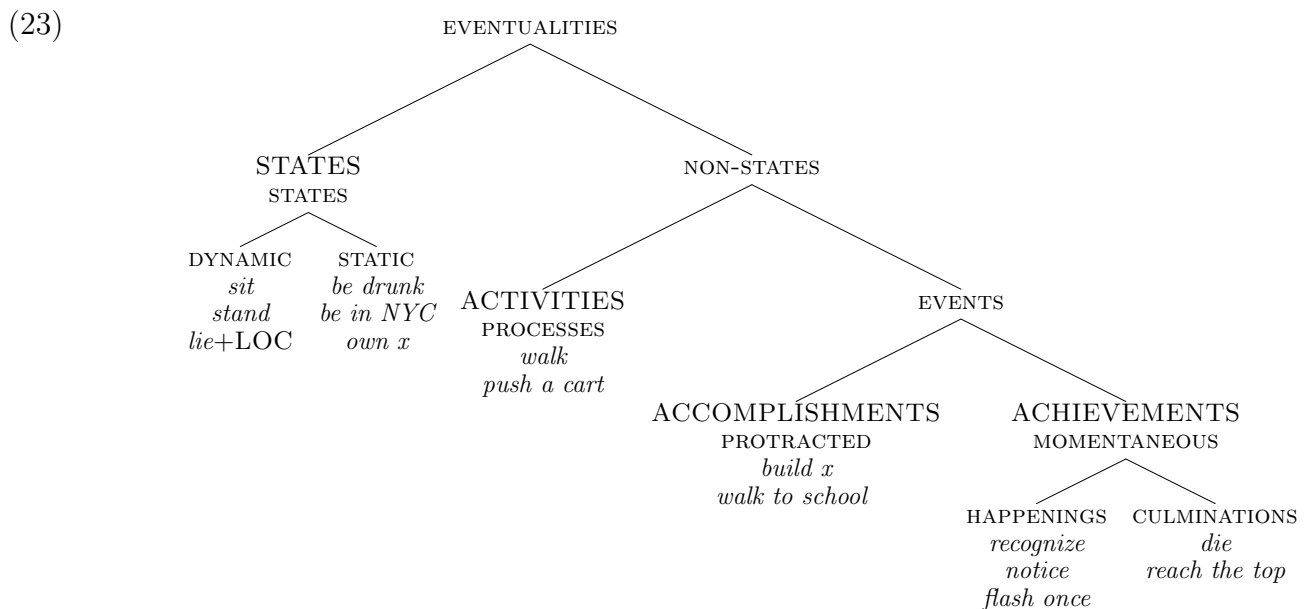
Bach argues that at least at the level of reference, predicates in the different aspectual classes should be treated in the same way that Link (1983) treats mass/count predicates. The system includes the following components (see Bach 1986, pp. 8-9 for the details):

(24)   i.   A set of events with join operations $\cup_e$ and partial ordering $\preceq_e$ (a complete Boolean algebra)

       ii.   A set of atomic events

      iii.   A set of bits of process with join $\cup_p$ and partial ordering $\preceq_p$ (a complete join semilattice)

      iv.   Two temporal orderings on events: a 'strictly precedes' relation and an 'overlaps' relation

       v.   A homomorphism from events to the processes that make them up

We further add the assumption that tenseless clauses in English denote properties of events, and the result is that 'event descriptions' have essentially the same denotational properties as individual/substance descriptions. In particular, we have:

(25)   a. $[\![\text{Max swim}]\!] = \lambda e.e$ *is an occurrence of Max swimming* = PROCESS

      b. $[\![\text{Max swim 50 laps}]\!] = \lambda e.e$ *is an occurrence of Max swimming 50 laps* = ATOMIC EVENT

      c. $[\![\text{Max jump in the pool}]\!]$ $\lambda e.e$ *is an occurrence of Max swimming 50 laps* ATOMIC EVENT

(25a) differs from (25b-c) in denoting a process vs. an atomic event; (25b-c) differ from each other in that the former has subprocesses and the latter does not.

- Note that nothing we've said so far explains *why* these particular predicates have these referential properties; this is an issue of compositional semantics of VP meaning. We will worry about this in a few weeks.

Verbs seem to show count/mass distinctions, just like nouns.

(26)   a.   Much mud was in evidence.

      b. ??Much dog was in evidence.

(27)   a.   Lee slept a lot last night.

      b. ??Lee found his missing watch a lot last night.

(28)   a.   Many dogs were in the yard.

      b. ??Many muds were on the floor.

(29)   a.   Lee woke up three times during the night.

      b. ??Lee slept three times during the night.

The English degree adverbial *a lot* can be used to modify a range of different verb/VP types, but the sort of interpretation we get varies depending on the type of verb/VP:

(30)   a.   Max loves swimming a lot.   *intensity*

      b.   Max swam a lot.   *duration/iteration*

      c.   Max swam 50 laps a lot.   *iteration*

      d.   Max jumped in the pool a lot.   *iteration*

Does this indicate an ambiguity in the modifier, or is it telling us something about the meanings of the verbs/VPs, and if so, what?

Of particular relevance is the fact that we see a similar range of interpretations for *a lot* when we look at its interaction with other categories, specifically adjectives/APs and nouns/NPs:

(31) a. Max swam a lot faster than Kim.   *intensity*
      b. Max displaces a lot of water.   *amount of stuff*
      c. Max swam a lot of laps.   *amount of objects*

Are these accidental parallels, or do they indicate some deeper connection between adjective/noun/verb meanings? Do the different types of interpretations indicate (grammatically) disinct types of measurement or ways of encoding/expressing measurement? The answer is that *a lot* needs an 'unmeasured' input: a mass or plural noun; a process or plural event.

(32) a. a lot of dough
      b. a lot of bagels
      c. ??a lot of bagel

(33) a. Max swam a lot.
      b. Max swam 50 laps a lot.
      c. Max jumped in the pool a lot.
      d. ??Max swam 50 laps yesterday a lot.
      e. ??Max jumped in the pool a few seconds ago a lot.

So 'durativity' and 'iterativity' aren't semantic primitives in any sense (there's no ambiguity here), they're just what we get from measuring a process vs. measuring a plurality of events.

Another kind of measurement of events involves interactions with temporal phrases. There are well-known restrictions on the way we express such measurements, though.

Activity verbs/VPs (or *atelic* predicates) prefer measurement by *for*-PPs:

(34) a. Kim ran for/??in 45 minutes.
      b. Lee studied maps for/??in 2 hours.
      c. Pat worked on the paper for/??in 4 days.

Accomplishment verbs/VPs (*telic* predicates) prefer measurement by *in*-PPs:

(35) a. Kim ran to the park ??for/in 45 minutes.
      b. Lee drew the maps ??for/in 2 hours.
      c. Pat wrote the paper ??for/in 4 days.

Achievement verbs/VPs also appear to prefer measurement by *in*-PPs, though here the PP is not actually measuring the event described by the verb/VP, but rather the 'run-up' to the event:

(36) a. Kim arrived at the park ??for/in 45 minutes.
      b. Lee noticed the maps ??for/??in 2 hours.
      c. Pat finished the paper ??for/in 4 days.

What is responsible for these distinctions? To answer this, we need both an analysis of the aspectual distinctions between these different predicates (and a corresponding analysis of verb meaning) and analyses of the two types of temporal measure phrases.

Whatever we say should also account for the fact that stative verbs also seem to accept modification by *for*-PPs, more or less (*in*-PPs are totally out).

(37) a. ?Max loved playing chess for 10 years.
      b. ??Max knew French for 10 years.
      c. ??Max knew Kim for 10 years.

Again, there are parallels in the nominal domain:

(38)   a.   Kim bought 10 kilos of iron.
            b.   Kim bought 10 kilos of marbles.
            c.   Kim bought 10 kilos of marble.

(39)   a.   Kim bought 10 kilo iron.
            b.   Kim bought 10 kilo marbles.
            c.   Kim bought a 10 kilo marble.

(40)   a.   Kim has a 10 kilo baby.
            b.   Kim has 10 kilos of baby.

References

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