Lexical Semantics
Week 11: Aspect and aspectual classes I

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As we saw in Week 5, there are important taxonomic/categorial distinctions within grammatical classes, which crucially have consequences for both syntactic distribution and semantic entailment:

- in the noun class, we discussed the **mass/count** distinction, which is associated with:
    - atomicity and/or distinguishability
    - plural marking
    - composition with quantifiers and/or cardinal modifiers
    - selectional restrictions
- in the adjective class, we saw distinctions in **scalarity** and **gradability**, associated with:
    - adjective order
    - compositional possibilities, including the possibility of composing with different types of noun

It turns out that verbs can also be distinguished on the basis of certain properties of the objects/entities they describe:

- these properties center on the temporal 'contours' or internal temporal structure of the type of situation a verb describes
- so, more broadly than being a 'hitting' or 'breaking' event, or even a 'causative' or 'inchoative event, we can classify verbs/verbal predicates into broader classes based on temporal structure
- different temporal properties correspond to different interpretations and entailments in certain contexts, as well as to differences in compositional behaviour:
    - (next week we'll discuss some parallels between aspectual classes and the mass/count distinctions)

1 The basic aspectual class distinctions

The tradition of classifying events based on their temporal structure, or **Aktionsarten**, goes back a long way in philosophy, drawing on ideas from Gilbert Ryle, Anthony Kenny, and Zeno Vendler. Within linguistics, the best known classification of verbal events is due to Vendler (1957, 1967).

1.1 Vendlerian classes

1. **States:** *know, understand, be cool, be tall*
   States are basically characterized by duration and a lack of change; they can continue indefinitely, without any inherent boundaries, and during this time any given moment 'looks' exactly like any other.
   States 'hold' or 'obtain', but do not 'happen'.

2. **Activities:** *run, jog, talk, sleep, dance*
   Activities take place over time, and, like states, they lack inherent endpoints. They are not uniform over the period during which they occur; e.g., to run you have to move your legs in certain ways, so at one moment during a running event your right foot might be on the ground, but at another your left foot might be. Activities can't really be true at an instant. Sometimes also referred to as **processes**.

3. **Accomplishments:** *draw a circle, build a house, bake a cake*
   Accomplishments also take place over time, but they progress over time and come to an inherent endpoint or culmination. Something is different (some result state holds) at the end of an accomplishment, so they involve a change of state in some sense. As well as the result state, and a change of state, accomplishments are associated with a process that leads to the change of state, but do not necessarily specify details about this process.

4. **Achievements:** *arrive, summit, win, realize*
   Achievements have result states, like accomplishments, but they lack duration: they are punctual, and you can think of them as picking out a moment of transition itself. There may be a process associated with an achievement, but the process is not (necessarily) part of what is described by the verb.

Note: Many more recent classifications add a fifth aspectual class, which doesn't quite fit into Vendler's scheme:

5. **Semelfactives:** *hit, tap, cough, jump, knock*
   Semelfactives are a bit like achievements in that they are punctual, but no real change happens, and there is no result state – if anything, they involve an inherent 'reset' of the starting conditions. They are often interpreted iteratively, and then behave like activities under this interpretation (e.g., *coughing* describes a series of coughs with no inherent endpoints)

1.2 Additional distinctions

Distinctions are sometimes made between two kinds of states and two kinds of achievements:

- **Subclasses of states:** 'prototypical' states last indefinitely, but there are states that are understood to be temporary. These are often described by adjectives: *be angry, be sick, be available, be ready* (see Kearns 2000).

  - this is associated with Carlson's (1977) distinction between two kinds of properties:

  - **individual-level properties** typically characterize an individual ("something that goes to make her the individual she is"; Mittwoch p.4), and are taken to be lasting rather than temporary: *be tall, be altruistic*

  - **stage-level properties** describe things at a particular point or phase, and are often inherently transient properties: *be hot, be available, be hungry*

  - these distinctions correlate with distinctions in interpretation:

    (1) a. Firemen are altruistic.   bare plural $\rightarrow$ generic/universal interpretation

          b. Firemen are available.   bare plural $\rightarrow$ existential interpretation

- **Subclasses of achievements:** some achievements presuppose a process leading to their result states (i.e. a preparation stage), while others do not

  - **achievements with an associated process:** *arrive, reach*

  - **lucky achievements:** *win the lottery, lose the keys* (often spontaenous)

1.3 Vendler's diagnostic tests

More examples of the four classes:

States	Activities	Accomplishments	Achievements
know	run	paint a picture	recognize
believe	walk	make a chair	spot
have	swim	deliver a sermon	find
desire	push a cart	draw a circle	lose
love	drive a car	recover from illness	die

Vendler distinguishes the four classes in terms of two binary **distributional criteria:**

- in English, we can use progressive marking to check whether a situation is internally variable or unchanging (Vendler 1957, Kenny 1963)

  - "...the well-known distinction between verbs that possess continuous tenses and verbs that do not" (Vendler 1957, p.144)

- the *progressive* criterion distinguishes between states and activities, on the one hand:

  (2)   a. *The soup was being cool.   **State**

          b. Juri was dancing.   **Activity**

- and accomplishments and achievements, on the other (for different reasons)

  (3)   a. Juri was baking a cake.   **Accomplishment**

          b. *Juri was reaching the house.   **Achievement**

- the progressive 'looks for' internal change: it singles out processes going on in time

- states are out because every moment of a state is identical to any other, they don't involve action

- achievements are ruled out because they are punctual, so they have no internal duration over which change can take place

- both activities and accomplishments involve an active process, which you can 'watch' as it moves forward in time

- Vendler makes a second distinction in terms of durativity, as tested by modification with *for* adverbials:

  - *durative* events take time, punctual events do not:

    (4)   a. Juri was angry for two hours.   **States**

            b. Juri danced for one hour.   **Activity**

            c. *Juri built a chair for one hour.   **Accomplishment**

            d. *Juri reached the house for one hour.   **Achievement**

  - Accomplishments fail this test not because they are non-durative but because they have an inherent endpoint: a chair is only built when the building is completed, so spending an hour on the process cannot necessarily be described as having 'built a chair'

- **An updated version of the durativity test:** aspectual classes contrast with respect to the types of temporal modifiers they permit.

  - events with inherent endpoints (e.g. points of change, which also have a distinct result state) can combine with *in* adverbials:

    (5)   a. Juri built a chair in one hour.   **Accomplishment**
    It took Juri one hour to build (finish building) a chair.

            b. Juri reached the top in one hour.   **Achievement**

    * Important to note: *in*-adverbials don't modify the punctual event itself, but instead indicate at what point in a process a punctual event occurred (e.g., *Juri engage in the preparatory process for reaching the top for one hour, at the end of which the achievement took place*)

∗ 'lucky' achievements can also be odd with *in*-adverbials

  (6) ?Juri won the lottery in one week

 – durative events without inherent endpoints combine with *for* (see above)

Vendler's two tests can be used to assign binary features to verbal predicates:

Progressive	*Durative*-for	Aspectual class	Example
+	+	Activities	*run, draw, push a cart*
+	−	Accomplishments	*run a mile, draw a circle*
−	+	States	*know, love*
−	−	Achievements	*notice, find, win, die*

2 More on classification

2.1 A more detailed system

- a two-feature binary classification scheme predicts at most four aspectual classes
- a number of researchers have proposed a three-feature scheme instead

Aspectual class features:

1. DYNAMICITY:
   an event is dynamic if it involves change and/or non-uniform internal structure

2. DURATIVITY:
   as above, durative events occupy time

3. TELICITY:
   events are *telic* (also, *bounded*) if they have a natural goal (=*telos*), culmination, or completion point. Events which are not telic are called *atelic*.

Using this three-way system, we get the following breakdown:

Aspectual class	*Dynamic*	*Durative*	*Telic*	Examples
Accomplishment	+	+	+	*draw a circle, build a house, empty a bucket*
Activity	+	+	−	*walk, chat, play, gurgle, pour*
Achievement	+	−	+	*notice, recognize, win, arrive*
Semelfactive	+	−	−	*jump, hit, beep, cough, tap, wink*
State	−	+	−	*be tall, know, contain, understand*

- in principle, there is room for a sixth class in this scheme – such a class would have to be static, non-durative, and atelic: no such class has been proposed
- *question:* why might this be the case?

2.2 Aspectual diagnostics in the three-way system

1. ***In* adverbials:**

   - *telic* predicates take *in*-adverbials, while *atelic* predicates take *for*-adverbials
   - the precise interpretation differs depending on the aspectual class of the modified predicate, as seen above
   - *in*-adverbials modifying dynamic, durative, and telic predicates (accomplishments) express the duration of the event (or at least upper bounds on its duration):

     (7) Jones can eat an apple in 60 seconds.
     It takes Jones 60 seconds to consume an apple from start to finish

   - *in*-adverbials on dynamic, non-durative, telic events describe the 'delay':

     (8) He recognized her in a minute or so.
     There was a delay of a minute or so before he went from not recognizing to recognizing her.

   - atelic predicates are usually bad with *in*-adverbials: we'll discuss the availability of 'repair' readings next class

     (9) #Darcy loved Elizabeth in a year.
     Ok on a repair interpretation: Darcy began to love Elizabeth after a year.

2. **The *take time* construction:**

   - like *in*-adverbials, which it often paraphrases, the *take time* construction picks for telic predicates which are associated (via assertion or presupposition) with a process

     (10) Accomplishments: within-event process duration
        a. It took a minute for Jones to eat an apple.
        b. It took a day for us to build the table.
        c. It took ten minutes for Jones to run a mile.
     (11) Achievements: pre-event process duration
        a. It took a minute for him to recognize her
        b. It took three days for Jones to lose his keys.

   - as noted by Kearns (2000), the *take time* construction with achievements suggests deliberate effort was put into the preparatory process
   - *in*-adverbials do not produce the same impression
   - states can combine with *take time* on a 'repair' reading, as above:

     (12) It took a year for Darcy to love Elizabeth

- activities combine with neither *take time* or *in*-adverbials:

  (13) #It took an hour for them to stand.

3. **For adverbials:**

   - as above, *for* adverbials combine with atelic events, and express the duration of these events

   - thus, in combination with a *for* adverbial, an inherently atelic predicate has temporal boundaries

     (14) a. #Jones ate the apple for a minute.   **Accomplishment**
           b. #They reached the summit for an hour.   **Achievement**
           c. Darcy loved Elizabeth for a year.   **State**
           d. They sang for half an hour.   **Activity**

   - *for*-adverbials can sometimes combine with telic predicates if they modify the atelic result state:

     (15) Ruby flew to Paris for a week.   **Accomplishment**
           Ruby intended to stay in Paris for a week.

4. **The progressive criterion:**

   - the progressive criterion tests for both durativity and dynamicity

   - accomplishments and activities combine with progressive marking because they are both durative and dynamic:

     (16) a. Pythagoras was drawing a triangle.   **Accomplishment**
           b. Zeno was thinking.   **Activity**

   - states are durative, but non-dynamic (static), and fail the progressive criterion

   - achievements are dynamic but non-durative:

     (17) a. #Jones was finding his keys.
           b. #Bertha was turning eighteen.

   - but, as noted, process-associated achievements can combine with the progressive, on an interpretation where the progressive picks out the preparatory phase:

     (18) a. Jones was dying for three months.
           b. Tensing and Hilary were reaching the summit.

5. **Progressive entailments:**

- this diagnostic is distinct from the progressive criterion proposed by Vendler
- Kenny (1963): atelic predicates in the progressive entail the prior occurrence of the same event

  (19)   a.   Jones is singing $\vdash$ Jones has sung.   **Activity**
            b.   Pythagoras is drawing a triangle.   **Accomplishment**
                               $\nvdash$ Pythagoras has drawn a triangle.

- this test is not relevant for predicates which fail the progressive criterion
- entailments under progressive marking are connected to the so-called **imperfective paradox**, which we'll discuss next time

6. **Simple present:**

- if a predicate can be combined with simple present tense to refer to the actual present, then it describes a non-dynamic (static) predicate

  (20)   a.   Kim knows the capitals of all of the states.   **State**
                 interpretation: Kim currently has this information   [refers to the present]
            b.   Kim rides a bicycle.   **Activity**
                 interpretation: Kim habitually/regularly rides a bicycle.   [does not refer to the 'actual' present]
            c.   Kim writes to the mayor.   **Accomplishment**
                 interpretation: habitual
            d.   Kim taps on the glass.   **Semelfactive**
                 interpretation: habitual
            e.   Kim notices the hole in the wall.   **Achievement**
                 interpretation: habitual

- thus, this test picks out states and excludes the other aspectual classes
- **Note:** this test is English-specific! The German present tense combines with non-states, often yielding the readings that English requires progressive marking for

7. **The *what happened* test:**

- (not to be confused with the *what happened to X was* test for the patient semantic role!)
- events that can be combined with *what happened was* are dynamic

  (21)   a.   What happened was that Kim knew the capitals of all of the states.
                                                    State
            b.   What happened was that Kim rode a bicycle.   **Activity**

c. What happened was that Kim wrote the mayor.
Accomplishment

d. What happened was that Kim tapped on the glass. **Semelfactive**

e. What happened was that Kim noticed the hole in the wall.
Achievement

Some cautions about aspectual classes and diagnostics:

- aspectual classes are often described as a classification system for verbs; this isn't quite right

- aspectual class features seem to come together at the level of the VP:

  - for instance, *run* is an activity, but *run a mile* is an accomplishment
  - in order to determine the aspectual class features, we need to take the verb and its complement into account
  - in other cases, a feature-changing complement may not be an NP but a PP
  - subjects can also affect aspectual classification:

    (22) Students eat an apple before class.

  - when using diagnostic tests, it is important to make sure you consider the whole verbal predicate (i.e., the whole event description)

- as noted above, there are sometimes 'repair' readings available

  - we'll talk more about how these arise next week, but …
  - when applying diagnostic tests, it's important to check whether you're producing a modified reading
  - an example of this would be habitual interpretations:

    (23) Kim rides a bicycle.

  - even though this example is fine, *ride a bike* does not pass the 'simple present' test for states, because (23) can only have a habitual interpretation, on which it describes not one, but multiple events (with a relationship to one another)

2.3   Semelfactives

The proposed **semelfactive** aspectual class (Comrie 1976, Talmy 1985):

(24)   a. Jones rapped the table.
       b. Jones blinked.
       c. Jones coughed.
       d. The light flashed.

- **point events** or **full-cycle resettables**[1]
- according to Kearns (2000, p.159):

  > "a semelfactive is a brief event which 'resets,' or returns to the initial situation, and so is inherently repeatable. A number of semelfactives describe physiological events (*sneeze, hiccup, cough*) which are often repeated. Semelfactive verbs of striking (*rap, tap, kick, slap*) describe events which are reset and ready to repeat in that the full action includes the withdrawal of the striking part back out of contact with the thing hit; for example, *slap, kick, tap, pat. Blink* and *flash* are also resettable – the eyes close and then open again, the light goes on and then off again."

- semelfactive events are often countable:

  (25) a. Jones tapped the pipe seven times.

       b. The light flashed three times.

Semelfactives do not fit neatly into the classification scheme established by Vendler's diagnostics:

- on a non-iterated reading, they resemble achievements in being punctual, rather than durative
- despite this, they resist modification with *in* adverbials:

  (26) a. #Jones rapped the table in a minute.

       b. #Jones blinked in a minute.

       c. #Jones coughed in an hour

       d. #The light flashed in ten minutes.

  – the key distinction seems to be that achievements, unlike semelfactives, are often associated with (presuppose) preparatory processes: modifying an achievement with an *in*-adverbial yields an interpretation where the preparatory process occupies the span of time leading up to the point event

      (27) Jessica arrived in an hour.
  Jessica took an hour in transit and then arrived

  – 'lucky' achievements, which are not associated with a process, pattern with semelfactives in resisting *in*-adverbials

      (6) ?Juri won the lottery in one week

  – semelfactives also contrast with achievements in that achievements are associated with a result state (since they indicate a change of state) – semelfactives involve a 'reset'

- semelfactives combine with *for*-adverbials, despite their punctuality, but necessarily produce an iterated interpretation:

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[1]These notes draw primarily on Kearns (2000), Chapter 8.

(28)   a. Jones rapped the table for a minute.
       b. Jones blinked for a minute.
       c. Jones coughed for one hour.
       d. The light flashed for ten minutes.

- similarly, semelfactives 'pass' the progressive criterion, but only on an iterated process interpretation:

  (29)   Jones was rapping the table.

- the availability of an iterated interpretation differentiates semelfactives from the other aspectual classes:

  (30)   a. Students noticed the new projector.   **Achievement**
         b. Kim wrote letters.   **Accomplishment**

  – in these examples, the bare plural (*students, letters*) is needed to support an iterated reading

  – where an example like (11a) describes a single situation of iterated rapping, (13)a-b describe multiple noticing events (by different students) or multiple writing events (involving different letters)

- **upshot:** semelfactives pattern most closely with achievements on their non-iterated interpretation, but with activities (processes) on their natural iterated interpretations

  (31)   Progressive entailments:
         a. Sally is running $\vdash$ Sally has run.   **Activity**
         b. Sally is coughing $\vdash$ Sally has coughed.   **Semelfactive**
         c. ?Sally is arriving. $\nvdash$ Sally has arrived.   Achievement
         d. Sally is building a house. $\nvdash$ Sally has built a house. **Accomplishment**

3   A case study: aspectual verbs

- certain verbs, like *begin, finish, stop, try* are known as **aspectual verbs** because they require certain aspectual class features of the verbal predicates with which they combine

- for example, only accomplishments occur as complements of *finish*

  – *finish* selects for events that involve both a process (which takes time and involves change) and an endpoint/culmination

  – in other words, it requires dynamicity, durativity, and telicity

  (32)   a. Kim finished writing the letter.   **Accomplishment**

    b. ??Dana finished pushing the cart.[2]   **Activity**

    c. ??Kelly finished blinking.   **Semelfactive**

    d. ??Ashley finished noticing the spot.   **Achievement**

    e. ??Pat finished knowing the answer.   **State**

- *Stop* requires its complement to have duration, which can come to a close:

  - this blocks achievements:

    (33)   ??Tensing stopped reaching the summit.[3]   **Achievement**

  - semelfactives can occur as *stop*-complements, but only on their iterated interpretations:

    (34)   a. ??Kelly stopped blinking once.   **Semelfactive, non-iterated**
                 b. Kelly stopped blinking [repeatedly].   **Semelfactive, iterated**

  - despite having duration, non-temporary states (many individual level predicates) also cannot occur as complements of *stop*, for obvious reasons:

    (35)   a. Pat stopped being angry.   **Temporary state**
                 b. ??Pat stopped being tall.   **Non-temporary state**

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[2]This is okay on a certain repair reading, if there's a predetermined distance which the cart was to be pushed across – this is an accomplishment interpretation.

[3]Again, okay on a habitual reading, but this creates an extended process which has duration.