From lexical aspect to event structure: where does telicity come from?

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Journée Agrégation sur l’Aspect
Février 2020
Université Bordeaux Montaigne
Introduction

I- Aspectual classification of VPs

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Introduction

Preliminary observation:

Aktionsart and telicity are grammatically important/significant, esp. in their link with argument structure [Borer 2005: 47-48]

(1)

a. Addition of direct object gives rise to telicity:
   i. Bill ran for five minutes/*in five minutes.
   ii. Bill ran the mile *for five minutes/in five minutes.\(^\text{15}\)

b. Cognate objects give rise to telicity:
   i. Terry sang for an hour/*in an hour.
   ii. Terry sang a ballad ?for an hour/in an hour.

c. X’s way constructions give rise to telicity:
   i. Marcia sang for an hour/*in an hour.
   ii. Marcia sang her way to the Met in 10 years/*for ten years.

d. Fake reflexives give rise to telicity:
   i. Terry swam for an hour/*in an hour.
   ii. Terry swam herself to sleep in an hour/*for an hour.
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e. The conative alternation (cf. (21)) gives rise to atelicity:
   i. I ate the cake for ten minutes/in ten minutes.
   ii. I ate the cake for ten minutes/*in ten minutes.

f. Antipassive gives rise to atelicity:
   i. Junna-p Anna kunip-p-a-a.
      Junna-erg, Anna.abs, kiss-ind-(trans)-3sg./3sg,
      'Junna kissed Anna.'
   ii. Junna (Anna-mik) kunis-si-vu-q.
      Junna.abs.(Anna-intrans) kiss-apass-(intrans)-3sg.a,
      'Junna kisses/is kissing Anna.'
      (Inuit; Bittner and Hale 1996)

g. The addition of an (ECM) object, in resultative constructions, triggers telicity:
   i. Terry ran for an hour/*in an hour.
   ii. Terry ran us ragged in an hour/*for an hour.

h. Verb particles with 'objects' trigger telicity:
   i. Terry thought for an hour/*in an hour.
   ii. Terry thought an answer up in an hour/*for an hour.

Where does telicity come from?
➢c, g and h: from some kind of result state ("ended up at the Met, raggedness, outcome of the thinking process") predicated of an activity (sing, run, think);
➢or from the presence/nature of the D.O. NP (a, b, e) in relation to the verb, to indicate (presence or absence of) endpoint.

Starting point: recognize that verbs (verb/simplex root) may have different inner temporal properties.

Classification of verbs (VPs) in terms of their internal temporal properties, aka **lexical aspect**. Differences between classes best brought out in (and justified by) a certain number of **grammatical properties** (availability of the progressive, patterns of entailment, compatibility with adverbials, etc.). 4 classes: ACTIVITIES (temporal structure, dynamic, durative, atelic), STATES (no change, durative, atelic), ACCOMPLISHMENTS (temporal structure, change, durative, telic), ACHIEVEMENTS (punctual, change, telic), + SEMELFACTIVES (punctual, atelic – Smith 1991).

(2)

*John is knowing geography*

John ran in the park for two hours/* in two hours*.

John ran to the park in two hours / *for two hours*.

John reached the top in two hours.

*If John was running to the park then stopped, did he run to the park? NO*

*If John was running in the park then stopped, did he run in the park? YES*

> sparked research into interrelations between aspectual classes verbs belong to, and numerous **cross-classifications**, as well as fine-grained investigations into the **origins of telicity** and interactions between verb complementation and types of **argument alternations**.
I- Aspectual classification of VPs

> Vendler classification later revisited, certain number of difficulties:

- One major problem: “degree achievements (DAs)” (Dowty 1979, or gradual completion verbs): why do some verbs behave the way they do, i.e. display aspectual cross-classification?

  (3)
  a- The soup cooled in ten minutes/for ten minutes.
  b- The tailor lengthened my pants in/for an hour.

- Some authors showed that aspect is a property of sentences, in particular is calculated on the basis of nominal and verbal properties:

  The durative and non-durative aspects in these sentences appear to be composed of a verbal sub-category on the one hand and a configuration of categories of a nominal nature on the other. (Verkuyl 1972 :4)

Compositional calculus of (a)telicity: material in the VP (nature of direct object NP) + pointed out confusion of agentivity with aspectual diagnostics.

Cf. answers in section II).

Telicity is important (as discriminating factor in classification), two main types of treatment: telicity as result state; telicity as scalar change (variability of endpoint).
II- Telicity understood as the predication of a result state

Verb meanings are construal of events rather than events themselves; verbs name events (Davidson 1967):

“Verbs lexicalize properties of happenings in the world; we use the term EVENT for happenings whose properties are lexicalized by verbs. Verbs, then, are predicates of events (Parsons 1990) and phrases containing verbs can be considered ‘event descriptions’.” (Levin & R. Hovav 2005: 19)

Examples:
- blush/arrossire, same happening construed differently (unergative process in English, unaccusative change of state in Italian). Two different descriptions of same event.

- Hit/break (Fillmore 1970):
  (4) He hit the window with a ball
  He broke the window with a ball

→ may describe same event, but two linguistic construals (hit manner verb; break result verb)

Event structure templates come from a tradition of predicate decompositions. Verb meanings are decomposed into basic elements, with entailments, designed to capture alternations (tr./intr.) for same root; on this view, an event is telic if it lexicalizes a result state (telicity is lexically encoded in verb):
II- Telicity understood as the predication of a result state

5) *The soup was cool.*
*The soup cooled.*
*John cooled the soup.* (Dowty 1979:46)

\[ [X \text{ STATE } <\text{COOL}>] > \text{state} \]
\[ [X \text{ ACT}] > \text{activity} \]
\[ [X \text{ BECOME}] [\text{STATE } <\text{COOL}>] > \text{achievement} \]
\[ [X \text{ ACT}] \text{ CAUSE } [y \text{ BECOME STATE } <\text{COOL}>] > \text{accomplishment} \]

→ Primitive predicates: ACT - CAUSE – BECOME (CHANGE) – <STATE> (event schemas); root: *COOL* (idiosyncratic component of verb meaning). Telic VPs are the [BECOME STATE] primitive predicates.

**Problems with that view of telicity as result state:**

i- For many VPs, what exactly is the result state? (*read the book, sing a ballad*, etc.)
    Event may culminate (reach final stage), but no obvious result state.

ii- How to account for variable (a)telicity facts? (Rappaport Hovav, Rothstein, Beavers, Levin, Kennedy, Filip, etc.)

→ DAs (> change of state verbs): *cool, widen*

(6) *The soup cooled in 10 mns / for 10 mns.* (same state of ‘coolness’)*
II- Telicity understood as the predication of a result state

→ de-adjectival verbs:
  (7) They are straightening the rope /→ they have straightened the rope (telic)
  They are lengthening the rope → they have lengthened the rope (atelic)  [Borer 2005: 151]

→ Directed motion verbs: ascend, descend, exit
  (8) The plane ascended for 5 minutes /*in 5 minutes.
      The plane ascended 1000m*for 5 minutes / in 5 minutes.

iii- Some verbs may have same primitive predicate, yet do not undergo same alternations; ex of splash vs. smear:

  (9) We splashed mud on the wall.
      We smeared mud on the wall.

Both: causative change of location for stuff (CAUSE/BECOME/CHANGE OF STATE). But:

  (10) Mud splashed on the wall.
      *Mud smeared on the wall. [Hale & Keyser 1997: 53]

→ Telicity does not come from verb alone. Need for an alternative approach to telicity: compute it from material in VP.
### III- Second approach: compositional account of telicity (scalar semantics)

- Most English bare verbs (simplex roots) not specified as to their aspectual makeup (contrary to other languages, e.g. Russian), differing Aktionsart properties come from elsewhere. (Bach 1981, Krifka 1989, etc.): choice of a quantized or non quantized (cumulative) NP affects the classification of some NPs (but not all):

  (11) a- eat (apples)/run for five minutes (RU: est’ jabloka v tečenje 5 minut)
  b- eat 3 apples / run a mile in five minutes (RU: s’est’ 3 jabloka za 5 minut)
  c- Mary carried (three) apples in her bag for a whole week / *in a week.

- **Incremental theme** arguments (Dowty 1991) are emblematic/prototypical aspectual arguments. Telic predicates are ‘indivisible’, or ‘quantized’, that is, they describe events which have no proper parts describable by the same predicate. Analysis rests on homomorphism between spatial extension of theme (apples) and temporal extension (runtime) of event lexicalized by verb (eat). Accounts for (a)telicity facts: it is the quantity of apples consumed that measures the runtime of the eating event (finishes when the apples are consumed). (L&RH 2005: 93; Bach 1981, Krifka 1989, Tenny 1994).

- VP like carry 3 apples is not telic (quantized) in spite of the presence of quantity NP because no homomorphic relation holds between the entity apples and the carry event. No subpart of event includes terminal point.

- Allows one to maintain one lexical entry for verbs like, drink, eat, destroy.

  Observation gave rise to many models that proposed to calculate telicity on models (model-theoretic semantics), i.e. model semantics represent meaning of linguistic entities as interpretation (of those entities) on models.
III- Second approach: compositional account of telicity

- This picks out one class of verbs/VPs: **Strictly INCremental (SINC) verbs**, theme argument undergoes change in its (physical) integrity as the eventuality expressed by the verb progresses through the denotation of the theme argument:

(12) SINC verbs: *eat, destroy*

He ate apples / the apples

Drink wine / drink a glass of wine

- Works well for verbs that lexicalize some action leading up to definitive change: verbs of destruction, consumption, creation, motion, etc.. But having an incremental theme does not necessarily lead to telicity: DAs (Dowty 1979) (*cool, lengthen, widen*). Work out more basic principles that help predict (a)telicity + what to do with non-result verbs (*read a chapter, play a game*, etc.)?

- **Scalar vs. non-scalar change of state verbs** (Hay et al. 2001, Kennedy & Levin 2008, Beavers 2008, etc.): it is possible to propose a unified analysis of most VPs if we extract one significant semantic element, i.e. « a function that measures the degree to which an event changes relative to a scalar dimension » (K & L 2007: 1)

- crucial notion of change; evaluated relative to a scale which is independently motivated (Rappaport Hovav, 2008).
III- Second approach: compositional account of telicity

- For Kennedy (2005: 221), a **scale** has three main parameters:
  - a *set of degrees* (measurement values) *totally ordered* with respect to some dimension, which indicates the property being measured (volume, temperature, length, weight, loudness, intensity, etc.); and
  - an *ordering relation* on the set of degrees, which distinguishes between predicates that describe increasing properties (like *tall*) and those that describe decreasing properties (like *short*).

  → scale ordains a series of entities/elements based on the degree to which they possess a measurable property; imported from **semantics of adjectives**: open-scale adjectives vs. closed-scale adjectives.

  *completely straight/empty/dry* → associated to a closed scale.

  *completely long/wide/short* → open scale (no maximal value)

  → Makes it possible to correctly predict telicity facts of some DAs, deadjectival verbs; out of context, *straighten, dry* tend to be telic, *widen, shorten* atelic.

- Typology of aspectual classes improved because it relies on more general principles: there are **verbs of non scalar change** and verbs of **scalar change**, associated with different types of scales. [Rappaport Hovav 2008, Beavers 2008]
III- Second approach: compositional account of telicity

- One argument or co-argument of V is associated with scale (quantity, size, distance, temperature, etc.); existence of an (aspectual) operator (MAXE, maximalisation on events, Filip, Filip & Rothstein 2004) provides criterion to ordain event of drinking (drink)/cooling (cool)/running (run)/absorption (eat) relative to the scale furnished by that (co)-argument, and select the maximal point. **Pick the right scale and calculate telicity!**
  
  “A predication containing a scale with a specified bound will be telic, while a predication containing a scale with no specified bound will be atelic.” [Levin 2010: 1]

- **volume/extent scales** (SINC theme verbs): eat, drink, build, burn, destroy, etc.
  
  (13) Mary ate three sandwiches, ??/*but only finished two. (homomorphism is constraining)

- **property scales** (change of state verbs): lengthen, shorten, dim, open, close, widen, cool, etc.
  
  (14) They straightened the rope in/?? for five minutes.
  The tailor lengthened my pants in/for an hour.
  We emptied/cleaned the kitchen in/?for two hours.
  I emptied the tub, but not completely. (possible bc not SINC verb)
  The snow melted in six days / for six days. (scale is implied, but non necessarily telic)

- Attainment of the maximal point on the scale associated with the VP may depend on pragmatic conditions; some eventualities more naturally telic than others because scale is always present.
III- Second approach: compositional account of telicity

→ Explicit presence of scale makes eventuality telic:

(15) The crack widened for 30 seconds /*in 30 seconds.
The crack widened 10 inches *for 30 seconds / in 30 seconds
(16) The stalactite lengthened for a million years /*in a million years.
The stalactite lengthened to the floor *for a million years / in a million years. [examples: Henderson 2013: 2]

→ path scales (position of the theme on the path; inherently directed motion verbs): ascend, descend, exit, come, go

(17) The plane ascended for twenty minutes.
The plane ascended to its cruising altitude in twenty minutes. [Levin 2010: 1]

→ Essential idea of scalar semantics: telicity is obtained by ordaining (sub)events until their culmination. More general/unified feature.

→ Some verbs lexicalize only two-point scales (strict changes of states: achievements), others multi-point scales (Beavers 2008):

(18) John died vs. The river widened.
(19) We reached the summit vs. We ascended the stairs.
III- Second approach: compositional account of telicity

NB: distinction between two-point and multi-point scale verbs (Hungarian) and gradual attainment of the scale (Russian) is visible in the morphology of the verb in languages that have verbal prefixes.

Hungarian: two-point scale verbs (20) must have a prefix / others (INC verbs, 21):

NO!

(20) A váza el-tört / *tört
     the vase     PREF-broke /   broke
     “The vase broke.”

(21) János 5 perc alatt Ø evett egy almát.
     Janos 5 minute under ate an apple
     “János ate an apple in 5 minutes.” [Kardos 2013]

➢ Russian: different prefixes for different degree on a given scale. IMPFV Verb myt’, «wash» > 2 PFV “partners”: vy-myt’ and po-myt

vy-: maximal degree of change (dirty ➔ clean) vs. po-: lesser degree of change on cleanliness scale;

(22) No vot my poeli žirnoe mjaso, vymyli ruki. (*pomyli)
     ‘We ate greasy meat, and washed our hands.’

(23) [to guest coming for dinner]
     Možete pomyt’ ruki v vanoj. (*vymyt’)
     ‘You can wash your hands in the bathroom.’ [Svetsinskaja 1995: 172]
III- Second approach: compositional account of telicity

Wrapping up:

Scalar semantics leads to better understanding of what a verb is (what it lexicalizes); allows one to better answer the question: is English simplex root aspectually marked (intrinsically ‘change-denoting’) or not? Answer is yes for a handful of scalar change verbs (two-point scale verbs, SINC verbs, deadjectival verbs from closed scale adj.), not for others (most!), non-scalar change verbs > for these, telicity computed from material (VP, sentence).

[-scalar verbs]:
(24) read, examine, analyze, roast, iron, bathe, comb, fry, polish, explain, cover, test, decorate, describe, play, scribble, laugh, scream...

(25) John washed three windows, but got only one of them clean / but none of them got completely clean.

does not imply that windows got completely clean ; 2 scales associated with VP: property (cleanliness) + numerical (numbers of windows) ; sentence (25) implies that change occurred on only one window.

Majority of lexical stock of English verbs not specified as to scale, provided by element exterior to V; verbs can be associated with a scale without lexicalizing a scale:
III- Second approach: compositional account of telicity

- EXAMPLE:
  "... roll, although it does not lexicalize a scale (e.g., a rolling event need not lead to an inference of change of state), may be associated with an XP which denotes a scalar attribute, and thus adds a scale. Comparable XPs may appear with scalar change verbs such as freeze, but with such verbs they further elaborates on a scalar change lexicalized in the verb. [R.H. 2008 : 22-23]

(26) We rolled the lump of butter smooth.
(27) We froze the ice cream solid. [Levin 2010]

Resultatives with non scalar verbs may lexicalize different results:
(28) Cinderella scrubbed her knees sore / the dirt off the table / the table clean.

- Correlates with overarching distinction in English lexicon between manner and result verbs (Levin & R. Hovav 2005, Levin 2010). Result verbs: verbs which lexicalize scalar change vs. manner verbs: verbs that lexicalize non-scalar change.

Conclusion: English verb root not explicitly marked for telicity, no morphological exponent of telicity; telicity derived by uncovering semantic structure (scalar semantics) + by augmentation.
Conclusion: event structure

- Telicity as result state abandoned, scalar semantics account of telicity prevails; however, primitive predicate decompositions is retained in current event structure representations; insights of scalar semantics included. Refined version of event structure (e.g., in Levin et R. Hovav 1998:109).

- Provide basic event types (details spell out scalar semantics), grammatically relevant: so, main idea is that semantic content of lexical entry already contains grammatically relevant information that ensures mapping to syntax + able to capture regular argument alternations (break causative-inchoative, but bloom is not, only intransitive). Root’s meaning is idiosyncratic, not grammatically relevant, only event template is. Incorporates insights into nature of lexicon: manner vs result verbs (scalar vs. non-scalar verbs), only manner verbs can have template augmentation.

(29) Roots are in italics, primitive predicates are Vendler-Dowty’s classes:

- Manner \[ \rightarrow \text{[x ACT }<\text{MANNER}>]\] : jog, run, whistle, creak, sweep…

- Instrument \[ \rightarrow \text{[x ACT }<\text{INSTRUMENT}>]\] : brush, hammer, saw, shovel, poke…

- Container \[ \rightarrow \text{ [x CAUSE] [y BECOME AT }<\text{CONTAINER}>]\] : bag, box, cage, crate, pocket…

- Internally caused state \[ \rightarrow \text{ [x }<\text{STATE}>]\] : bloom, blossom, flower, rot, rust, sprout,…

- Externally caused state \[ \rightarrow \text{ [ [x ACT] CAUSE [y BECOME }<\text{RESULT-STATE}>]\] : break, dry, harden, melt, open, …
References


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References


