When does perfectivity result in atelicity? - Aspectual composition in Polish

Jens Fleischhauer
Department of General Linguistics, University of Düsseldorf
fleischhauer@phil.uni-duesseldorf.de

1. Topic of the talk

The role of grammatical aspect and verbal prefixes in the aspectual composition of the Polish strictly incremental theme verbs *jeść* ‘eat’ and *pić* ‘drink’ (based on Fleischhauer & Czardybon 2016).

Central claims:

- Perfectivity does not entail telicity (not a novel claim but already defended by e.g. Borik 2006, Filip 2000, 2003);
- the (incremental) theme argument of a perfective verb is not always quantized (also not novel; e.g. Filip 2000);
- quantization and telicity depend on the semantic content of the verbal prefixes but not on grammatical aspect.

[Note: The analysis is restricted to strictly incremental theme verbs and does not easily extent to non-strictly incremental theme verbs (like *read, write, sing*)!]

2. Aspectual composition

Incremental theme verbs provide a homomorphic mapping between the event and the incremental theme argument such that the event ends if the referent of the incremental theme argument is totally affected.

→ *eat/drink* are strictly incremental as the same token can be consumed only once (but you can read the same book again and again).

The referential properties of the incremental theme argument affect the telicity of the predication.

(1) Aspectual composition of incremental theme predications:
An incremental theme verb combined with a quantized incremental theme argument yields a telic predication, whereas if it combines with a cumulative incremental theme argument it yields an atelic predication.

(2) Referential properties (based on Krifka 1991):
(a) Quantization: A predicate $P$ is quantized iff
\[
\forall x,y [P(x) \wedge P(y) \rightarrow \neg y < x]
\]

→ Singular count nouns e.g. *apple*

(b) Cumulativity: A predicate $P$ is cumulative iff
\[
\forall x,y [P(x) \wedge P(y) \rightarrow P(x \oplus y)]
\]

→ mass nouns *water*, bare plurals *apples*
German *essen* ‘eat’ and *trinken* ‘drink’ can combine with quantized (3a, c) as well as cumulative incremental theme arguments (3b). A telic interpretation only arises if the incremental theme argument is inherently quantized (3a) or quantized by some type of nominal determination, e.g. the definite article (3c).

(3)

German

(a) *Der Mann hat den Apfel in zehn Minuten gegessen.*
   the man has the apple in ten minutes eaten
   ‘The man ate the apple in ten minutes.’

(b) *Der Mann hat Äpfel (*in zehn Minuten) gegessen.*
   the man has apples in ten minutes eaten
   ‘The man ate apples (*in ten minutes).’

(c) *Der Mann hat die Äpfel in zehn Minuten gegessen.*
   the man has the apples in ten minutes eaten
   ‘The man ate the apples in ten minutes.’

Most Slavic languages lack articles but if the incremental theme verb is used in the imperfective aspect, the incremental theme predication is atelic (4a). A telic predication results, if the incremental theme verb is used in the perfective aspect (4b).

(4)

Polish

(a) *Jan pili wf wodę (*w godzinę).*
   Jan drank water-ACC in hour
   ‘Jan drank/was drinking water.’

(b) *Jan wy-pili w godzinę.*
   Jan WY-drank water-ACC in hour
   ‘Jan drank (all) the water in an hour.’

Inherently quantized incremental theme arguments only result in a telic predication, if the incremental theme verb is used in the perfective aspect (5)

(5)

a. *Ona zjadła kanapkę w godzinę.*
   she Z-eat.PAST sandwich-ACC in hour
   ‘She ate a/the whole sandwich in an hour.’

b. *Ona jadła kanapkę (* w godzinę).*
   she eat.PAST sandwich-ACC in hour
   ‘She ate/was eating a sandwich.’

Two assumptions found in the literature (e.g. Abraham 1997, Kabakčiev 2000, Leiss 2000, Borer 2005):

(i) Instead of using nominal determination, Slavic languages make use of the perfective/imperfective distinction for aspectual composition.

(ii) Perfective aspect (in the Slavic languages) serves the same function than the definite article (in the Germanic languages).

→ See Czardybon & Fleischhauer (2014) for a rejection of the second claim.

→ an event is conceived as a single whole without distinction of the phases that made up the situation (Filip 2005 based on Comrie 1976).

Filip assumes that perfective incremental theme verbs always require a quantized incremental theme argument, “[g]iven that the perfective verb has total events in its denotation, the [homomorphic] mappings [between the event and the object] dictate that the Incremental Theme argument must refer to totalities of objects falling under its description” (Filip 2005: 135; also Filip 1997).

→ This leads to the quantization of the inherently cumulative noun woda ‘water’ in (4b).

→ The aim of the talk is to refine this view on the interaction of aspect, quantization and telicity in aspectual composition of strictly incremental theme verbs.

3. Grammatical aspect in Polish

There is no unique expression of perfectivity in the Slavic languages but perfective verbs can be derived from imperfective ones by – for example – prefixation.

→ Verbal prefixes are derivational rather than inflectional affixes (6). Thus, the prefixes are not inflectional markers of perfective aspect rather they are used for the derivation of (perfective) verbs (e.g. Filip 1993/1999).

(6) Polish
(a) pisaćIMP – prze-pisaćPV
‘write’ ‘copy/rewrite’
(b) daćPV – po-daćPV
‘give’ ‘pass’

The following Polish verbal prefixes combine with the (strictly) incremental theme verbs jeść ‘eat’ and pić ‘drink’; the following do:

(7) po-, wy-, z/-s-, nad-, do-, na-, o-, od-, pod-, prze-, roz-, u-, za-

The discussion is restricted to prefixed verbs which show the following characteristics:
(i) the prefixed verb subcategorizes two arguments, which are an agent and an incremental theme argument;
(ii) the incremental theme argument is realized as the direct object of the verb;
(iii) the referent of the incremental theme argument is consumed in the event of eating/drinking

(8) (a) Piotr o-pił się (piw-em).
 Piotr O-drank REFLEX beer-INST
‘Piotr got drunk (with beer).’
(b) Jan prze-pił swój dom.
 Jan PRZE-drank his house
‘Jan drank away his house.’

→ The undergoer argument (piwo ‘beer’) is optional and not the direct object in (a); in (b) the undergoer argument (dom) is neither an incremental theme argument nor gets its referent consumed during the event.
4. *wy-*/ *z-* vs. *po-*

*wy-* is the most neutral prefix for *pić* ‘drink’ (9) and *z-* for *jeść* ‘eat’ (10); the prefixes indicate that the whole referent of the incremental theme argument is consumed. The incremental theme argument is interpreted as being quantized and the predication is telic.

(9) \textit{Wy-pilem} \textit{pf} \textit{wodę w minutę.}

\textit{WY-drink} \textit{water in minute}

‘I drank the (whole) water in a minute.’

(10) \textit{Z-jadlem} \textit{pf} \textit{gruszki/ truskawki/ zupę w minutę.}

\textit{Z-ate} \textit{pear/strawberries/soup in minute}

‘I ate a/the pear/ (all) the strawberries/ the (whole) soup in a minute.’

→ A definite interpretation arises with plural and mass nouns; with singular count nouns a definite as well as indefinite interpretation is possible.

The prefixes specify that the whole \textit{QUANTITY} of food/beverage has been consumed (11) and specify an endpoint for the process denoted by the verb.

(11) \# \textit{O}na \textit{z}–\textit{jadła kanapkę, ale jak zwykle trochę zostawiła.}

\textit{she Z–ate sandwich-ACC but as usual a bit left}

'She ate a/the sandwich, but as usual she left a bit.'

The prefix *po-* derives a perfective verb and as an additional meaning component indicates that the event lasted just for a certain while/a short time (see Piñón 1993).\(^1\)

(12) a. \textit{Po-pilem} \textit{pf} \textit{herbaty, ale dużo herbaty.}

\textit{PO-drank} \textit{tea-GEN but much tea-GEN}

‘He drank tea for a while but much tea.’

b. \# \textit{Po-pilem} \textit{pf} \textit{herbaty, ale przez dłuższy czas.}

\textit{PO-drank} \textit{tea-GEN but for long time}

‘He drank tea [for a while] but for a long time.’

The incremental theme argument is not – necessarily – quantized (hence we neither get a specific quantity reading nor a definite interpretation of the theme argument). The resulting predication is atelic (13).\(^2\)

(13) \textit{Po-pilem} \textit{pf} \textit{herbaty (*w minutę).}

\textit{PO-drank} \textit{tea-GEN in minute}

‘I drank tea for a certain while.’

Interim summary:
(i) Not all perfective incremental theme verbs require quantized incremental theme arguments.
(ii) Not all perfective incremental theme verbs express telic predications.
(iii) *wy-*/*z-* specify the \textit{QUANTITY} of the referent of the incremental theme argument, *po-* – on the other hand – specifies the \textit{RUN TIME} of the event.

\(^1\) Piñón (1993: 349ff.) shows in detail that delimitative verbs – which he calls ‘pofective’ verbs – are perfective.
\(^2\) See Tatevosov & Ivanov (2009) as well as Filip (2000) for the analysis of Russian delimitative *po-*, which either measures the run time of the event or the quantity of incremental theme argument.
5. A first step towards an analysis


Each relevant subevent is mapped onto a unique degree on a scale (see the appendix for a formalization of the mapping).

→ Incremental theme verbs provide a homomorphic mapping between events and quantity/volume scales, which measure the quantity/volume of the referent of the incremental theme argument (e.g. Beavers 2006, Rappaport Hovav 2008, Tenny 1994).

(14) Telos as a maximum/minimum degree: A telos is the maximum/minimum degree on a scale and a predication is telic if the maximum/minimum degree has to be attained.

[→ maximum telos in Fleischhauer (2013, 2016)]

→ A maximum degree presupposes an upper closed scale; a minimum presupposes a lower closed scale (see Kennedy & McNally 2005 for a discussion of scale structure).

(15) \[\text{[pić]} = \lambda y \lambda x \lambda e [\text{drink}(e) \land \text{AGENT}(e) = x \land \text{INCTHEME}(e) = y \land (\text{QUANTITY}(y, \text{BEGIN}(e)) > \text{QUANTITY}(y, \text{END}(e)))]\]

Based on Filip (2000, 2003) non-directional verbal prefixes can be analysed as extensive measure functions that map an entity (individual or eventuality) onto a measure/scale like VOLUME, QUANTITY or TIME.

\(z\) - and \(wy\)- specify the \text{QUANTITY} to which the incremental theme argument is affected.

(16) a. \[\text{[wy/-z-]} = \lambda P \lambda y \lambda e [P(e) \land \text{QUANTITY}(y, \text{END}(e)) = d_{\min}]\]

b. \[\text{[pić]} = \lambda y \lambda x \lambda e [\text{drink}(e) \land \text{AGENT}(e) = x \land \text{INCTHEME}(e) = y \land (\text{QUANTITY}(y, \text{BEGIN}(e)) > \text{QUANTITY}(y, \text{END}(e)))]\]

c. \[\text{[wy-[pić]} = \lambda y \lambda x \lambda e [\text{drink}(e) \land \text{AGENT}(e) = x \land \text{INCTHEME}(e) = y \land (\text{QUANTITY}(y, \text{BEGIN}(e)) > \text{QUANTITY}(y, \text{END}(e)))] \land \text{QUANTITY}(y, \text{END}(e)) = d_{\min}\]

\(\text{Figure 1: Homomorphic mapping between the run time of the event and the quantity of the incremental theme.}\)

Delimitative \(po\)- measures the \text{RUN TIME} of the event but not the \text{QUANTITY/VOLUME} of the incremental theme argument.\(^3\)

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\(^3\) See Piñón (1993) for a similar analysis of \(po\)- as a (derived) measure function specifying the run time of an event.
As a first generalization it can be said that a telic incremental theme predication only results if the prefix imposes a measure on the QUANTITY to which the referent of the incremental theme argument is affected.

6. nad-

nad- requires a quantized incremental theme argument and measures the quantity to which the incremental theme argument is affected. But, in contrast to z- and wy-, it does not express the total affection of the incremental theme argument. Rather it expresses that the referent of the incremental theme argument is affected slightly/only a bit.

(18) (a) Nad-pilem_{PE} wino (*w minute). NAD-drank wine in minute ‘I drank a bit from the wine.’
(b) Nad-jadlem_{PE} gruszk{e}/truskawki (*w minute). NAD-ate pear strawberries in minute ‘I ate a bit from the strawberries/the pear.’

Monotone decreasing measure functions like English a bit, slightly give rise to an atelic interpretation of degree achievements, whereas monotone decreasing measure functions like significantly result in telic degree achievement predications (Hay et al. 1999: 133).

(20) (a) The independent counsel is broadening the investigation significantly. does not entail
The independent counsel has broadened the investigation significantly.
(b) The independent counsel is broadening the investigation slightly. does entail
The independent counsel has broadened the investigation slightly.
(Hay et al. 1999: 133f.)

nad-, like its English adverbial equivalent a bit, denotes a monotone decreasing measure function. Monotone decreasing measure functions do not induce a lower bound that has to be reached in the event and therefore fails to impose telicity. Rather, nad- as well as a bit induce an upper bound which must not be exceeded.

(21) Telos as a lower bound: A telos is a degree specifying a lower bound on a scale.
→ A lower-bound does not require an upper closed/lower closed scale.
[→ standard telos in Fleischhauer (2013, 2016)]
[A telos which is equated with a maximum/minimum degree can also be interpreted as inducing a lower bound since a bound is just the minimal degree which has to be reached to yield a true predication.]

Conditions for quantized incremental theme arguments (22a)\(^4\) and aspectual composition of strictly incremental theme verbs (22b) in Polish (First attempt).

(22) (a) If the incremental theme verb is perfective and the verbal prefix imposes a measure on the quantity of the incremental theme argument, the incremental theme argument has to be quantized (if it is not inherently quantized, the noun is shifted towards a quantized interpretation [→ ‘universal packager’]).

(b) In case of a perfective incremental theme verb with a quantized incremental theme argument and a lower bound on the quantity to which the referent of the incremental theme argument is consumed, the incremental theme predication is telic.

→ Perfectivity is not sufficient to yield a telic incremental theme predication; the semantic contribution of the prefix is relevant too as the discussion of po- and nad- revealed.

7. Grammatical aspect and aspectual composition

Question: Is perfective aspect necessary for a telic incremental theme predication or is it merely the semantic content of the prefix that leads to a telic reading?

The verb in (23) is a ‘secondary imperfective’ and results in a telic interpretation in contrast to the imperfective verb jeść (24). This shows that the prefixes and not the perfective aspect are responsible for achieving a telic predication.\(^5\)

→ Simple imperfectives do not lead to a telic interpretation, even if the incremental theme argument is explicitly quantized (→ (5; 24b)).

(23) Jan z-jada-l zupę w godzinę.
Jan Z-eat.IMPF-PST soup.ACC in hour ‘Jan used to eat the soup in an hour.’

(24) (a) Jan jadł IMPF codziennie zupę (*w godzinę).
Jan eat.PST every day soup.ACC in hour ‘Jan ate soup every day.’

(b) Jan jadł IMPF codziennie talerz zupy (*w godzinę).
Jan eat.PST every day plate soupGEN in hour ‘Jan ate a plate of soup every day.’

Conditions for aspectual composition of strictly incremental theme verbs in Polish (Final version).

(25) If a verbal prefixes imposes a lower bound on the quantity to which the referent of the incremental theme argument is consumed, the incremental theme predication is telic.

\(^4\) (24a) is only relevant for bare nominals. But it is also possible to quantize nouns by nominal determination (e.g. numerals, demonstrative pronouns), this does not require a perfective verb.

\(^5\) To be precise: the sentence describes the iteration of telic micro-events, thus each single event of eating soup within the event description is described as telic.
8. Conclusion

Telicity of incremental theme verbs in Polish is not dependent on perfective aspect but only on the semantic content of the verbal prefix.

→ This is in line with authors like e.g. Borik (2006) and Filip (2000, 2003), who argue for a clear distinction between telicity and perfectivity and show that both are independent from each other.

Polish verbal prefixes and English/German degree expressions lead under similar semantic conditions to a telic predication: the expression induces a lower bound on a scale measuring the event denoted by the verb.

But: the combination of degree expression (inducing a lower bound) and imperfective incremental theme verb does not result in a telic reading:

(26) #Maria jadła_{IMPF} dużo jabłek w godzinę.
Maria ate many apple GEN.PL in hour
intended: ‘Maria ate many/a lot of apples in one hour.’

The verb in (26) gets a habitual interpretation (see Filip 1993/1999 for stating the same fact for Czech), telicity requires an individuated event.

→ Event individuation – in the Slavic languages – is done by perfective aspect. Thus perfective aspect plays a role in aspectual composition, since it derives verbs that denote individuated events (which is perfectly in line with Flip’s 1993/1999 analysis of perfective aspect).

→ Distinguishing between event individuation and telicity allows to maintain the claim that perfectivity does not induce telicity, although it is a precondition for a telic predication.

9. Appendix

Event-degree homomorphism (Fleischhauer 2016: 307f.)

\( f \) is an attribute which maps an event \( e \) onto a scale

Acknowledgements

The research reported in this talk is partially financed by the project “Kasus und Partitivität in der aspektuellen Komposition” (Case and partitivity in aspectual composition) founded by the Strategische Forschungsfond of the Heinrich-Heine University Düsseldorf.
References


Fleischhauer, Jens. 2013. Interaction of telicity and degree gradation in change of state verbs.

In Boban Arsenijević, Berit Gehrke & Rafael Marín (eds.), Studies in the Composition and Decomposition of Event Predicates, 125–152. Dordrecht: Springer.


