

Culmination phenomena across languages

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Abstract

This article examines culmination phenomena from a cross-linguistic perspective. It provides an overview of various (non-)culmination readings that sentences in different languages may receive in light of much prior literature on this topic, especially from the past 2 decades. An important goal is to showcase facts of defeasible versus entailed culmination and discuss how scholars have dealt with these facts in recent analyses. Although (non-)culmination phenomena are often approached from a semantic perspective in the literature, in the second part of the paper, I also address questions of syntactic representation regarding verbal predicates associated with maximal versus non-maximal event interpretations. This survey of the empirical landscape ultimately shows that, despite the plethora of works on event culmination, there are still numerous puzzles in need of explanation, especially when culmination is examined from a cross-linguistic angle.

1 | INTRODUCTION

This article is about culmination phenomena across languages. The main goal is to provide an overview of the various (non-)culmination interpretations that sentences in different languages allow and also to discuss some recent analyses regarding these interpretations. While I first focus on semantic analyses of different (non-)culmination phenomena, questions of structural representation are also a central theme in the second part of the paper.

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Before proceeding, I would like to make a few terminological remarks: Predicates like *build a house*, *open the door* and *eat an apple* are often described in the literature as predicates of eventualities associated with an inherent endpoint or culmination point. Such predicates are also often characterised as telic since they have a telos, which is directly related to the Greek word *télos* meaning ‘goal’. Predicates like *build a house* and the others mentioned above are thus characterisable as culminating or telic predicates. As will become clear in what follows, predicates associated with a non-culminating construal, the topic of Section 2.1, can also be considered telic since they imply that the events they describe culminate in the evaluation world. Also, another notion that features heavily in the subsequent discussion is maximalization, which is used in different ways in the literature. For example, for Filip and Rothstein (2005) and Filip (2008), discussed in Sections 2 and 3, maximalization over events carried out by the operator MAX_E gives rise to predicates with quantized reference in the sense of Krifka (1989, 1992, 1998) and thus telicity, whereas Borer’s (2023) MAX operator, briefly discussed in Section 4, is necessary, but not sufficient for telicity. Finally, the notion ‘non-maximal’ will be used to describe possible construals of telic predicates in Section 2.1, which is primarily concerned with non-culmination. By contrast in Section 2.2, which focuses on the aspectual properties of degree achievements across languages, that a non-maximal construal of a predicate like *straighten a rod* becomes available means that the predicate can be interpreted atelically. Then in Section 4, Hungarian pseudo-objects like *egyét* ‘one.ACC’ in verbal predicates like *futott egyet* ‘went for a run’ will be claimed to create telicity along with verbal particles like *meg*, while also giving rise to non-maximal event interpretations. Verbal particles like *meg*, however, will be associated with maximal event interpretations in the sense of Filip and Rothstein (2005) and Filip (2008).

The article is structured as follows: In Section 2 I briefly discuss two recent typologies on (non-)culminating predicates. The central objective of this section is twofold: (i) to illustrate facts of defeasible and entailed culmination, mainly based on Martin and Demirdache (2020), and (ii) to provide a description of some strategies that languages use to express maximal events in the sense of Filip and Rothstein (2005) and Filip (2008). Next, in Section 3.1, I overview some key questions scholars have investigated regarding non-culmination by first focusing on semantic accounts including a scalar analysis of the aspectual properties of verbal predicates built on work by Hay et al. (1999), Kennedy (2007) and Kennedy and Levin (2008), a modal account of non-culmination by Beavers and Lee (2020), and an analysis by Altshuler (2014). The later proposes a novel typology of aspectual operators while examining perfective and imperfective forms in Russian and Hindi and the progressive in English. Next, in Section 3.2, I address some questions pertaining to maximalization-based accounts of event culmination. Then, Section 4 is concerned with the structural representation of maximal versus non-maximal events. Finally, in Section 5 I conclude by reflecting on further ways in which languages differ regarding the expression of event culmination and by offering some discussion of questions for future research.

2 | TWO RECENT TYPOLOGIES ON NON-CULMINATION AND MAXIMALIZATION STRATEGIES

2.1 | Non-culminating predicates

Recent papers such as Martin (2019), Martin and Demirdache (2020) and Martin et al. (2021) are concerned with the following interesting puzzle: Accomplishments characterised by

Martin (2019) as predicates compatible with temporal *in*-adverbials and incompatible with temporal *for*-adverbials, in contrast to activities, which show the opposite pattern, have in recent years been reported to be associated with both culminating and non-culminating construals within and across languages (see also Altshuler, 2014; Bar-el, 2005; Bar-el et al., 2005; Beavers & Lee, 2020; Martin & Schäfer, 2017; Soh & Kuo, 2005; Tatevosov, 2008; Travis, 2010). According to Martin and Demirdache (2020: 1196), one might find this surprising since perfective sentences with a telic predicate *P* typically express events which are complete with regard to *P*. These authors argue that, unlike accomplishments like that in *John crossed the street*, which entails that a complete crossing-the-street event is performed by John, accomplishments with non-culmination construals may also be used to express only part of a *P*-event. The sentence in (1) from Karachay-Balkar serves as an example.

- (1) kerim ešik-ni ac-xan-dî, alaj boša-ma-kan-dî.
 Kerim door-ACC open-PFV-3SG but finish-NEG-PFV-3SG
 Literally: ‘Kerim opened the door, but didn’t finish.’
 Karachay-Balkar (Tatevosov, 2008: 396)

As discussed by Martin and Demirdache (2020: 1198), the events described by verbal predicates like that in (1) do not culminate with respect to a result property encoded in the verbal predicate, as shown by the felicity of (1). As pointed out by these authors, a defining property of non-culminating predicates is that they defeasibly imply event culmination.

Another example is provided in (2) from Martin et al. (2021), where Mandarin *shāo* ‘burn’ is also shown to be compatible with a non-culmination construal.

- (2) Mòmo shāo le tā-de shū, dàn méi shāo zhào.
 Momo burn PFV 3SG-DE book but NEG.PFV burn ignite
 Literally: ‘Momo burned her book, but it didn’t get burnt at all.’
 Mandarin Chinese (Martin et al., 2021)

As evidenced by the translation of (2), Mandarin *shāo* ‘burn’ is compatible with a state of affairs in which the referent of the theme does not undergo any change in the course of the burning event. Martin et al. (2021) capture what they call a zero-change construal of the predicate in (2) by arguing that verbs like *shāo* ‘burn’ are associated with an argument that they refer to as a degree of event realization d_e . They distinguish this argument from Kennedy and Levin’s (2008) degree of change d_c , which is aimed at capturing the change that the referent of the theme of a degree achievement verb undergoes in the course of the event denoted by the verb. The truth conditions of (2) are already satisfied if ‘the event is realized to a positive degree’ (Martin et al., 2021) without any change happening to the referent of the theme. By contrast, English *burn* expresses situations in which the theme undergoes a change by burning. Therefore, the English counterpart of (2) is infelicitous. See also Section 2.2.1 for more on degree-based analyses of degree achievements.

Martin and Demirdache (2020: 1203) also stress that non-culmination is not to be confused with non-maximal construals of predicates like *clean the kitchen*. Consider (3).

- (3) Paul cleaned the kitchen in half an hour, although it is not completely clean yet.
(Martin & Demirdache, 2020: 1203, ex. 16b)

Unlike non-culminating accomplishments, the example in (3) entails culmination, albeit only relative to a coarse-grained granularity level. What is negated in the second clause of the sentence is that the kitchen ended up in a maximally clean state at the end of the event denoted by the verbal predicate in the first clause. That the predicate *clean the kitchen* necessarily involves culmination is tested below:

- (4) Paul cleaned the kitchen, #but he hasn't finished cleaning it.
(Martin & Demirdache, 2020: 1203, ex. 17)

The example in (4) shows that *clean the kitchen* is incompatible with the continuation *but he hasn't finished cleaning it*, which can be taken as evidence for the impossibility of the cancellation of event culmination. Such continuations are, by contrast, compatible with non-culminating accomplishments, as discussed by these authors regarding data from Squamish, a Salish language (Bar-el, 2005), and Hindi (Arunachalam & Kothari, 2010), as well as some other languages. Overall, then, predicates like English *clean the kitchen* entail culmination, whereas non-culminating predicates like those in (1) and (2) only implicate it. Crucially, since non-culminating accomplishments imply that the events they describe culminate in the evaluation world and given that culmination presupposes telicity, accomplishments under non-culminating construals remain telic, as pointed out by Martin and Demirdache (2020: 1199).

Non-culminating predicates are also contrasted with atelic uses of accomplishments in Martin (2019) and Martin and Demirdache (2020). Martin (2019: 6) describes atelic accomplishments as follows:

- (5) A sentence *S* built with an incompleted atelic predicate P_{atelic} *defeasibly implies* that the described event *e* does not culminate with respect to the same predicate used telically P_{telic} .

The English examples *build a sand castle for an hour* and *eat the pizza for 10 minutes* illustrate atelic accomplishments. The atelic construal in these cases becomes available thanks to the adverbials *for an hour* and *for 10 minutes*. In the absence of the adverbials, these predicates are telic.

Based on a careful investigation of accomplishments in a variety of languages, Martin and Demirdache (2020: 1223) propose a novel typology of accomplishment readings with the following key properties:

- (6) (a) Accomplishments can have atelic and telic uses, as shown by *eat the pizza for 10 minutes*, which implies event non-culmination, and *eat the pizza*, which entails culmination.¹
(b) Telic uses can be partitive or non-partitive.
(c) Non-culminating uses are partitive uses illustrated by (1) and (2).
(d) Non-partitive uses can be non-maximal (non-precise) or maximal (precise), as illustrated by *clean the kitchen*, discussed above, and *read the whole book*, respectively, where the latter is not compatible with a *but not completely*-clause thanks to the presence of the maximizer *whole* in the predicate.

In recent years, non-culminating predicates have been the topic of numerous works clearly signalling that the grammar of verbal predicates associated with various types of culmination is far from being fully explored. In the remainder of this section, I will refrain from further discussing non-culmination, but return to how non-culmination readings have been represented in some recent works in Section 3.1. Before that, however, I discuss another recent typology regarding culmination phenomena based on Martínez Vera (2021).

2.2 | Maximalization strategies across languages

Whereas Martin (2019) and Martin and Demirdache (2020) focus on non-culminating interpretations, Martínez Vera (2021) examines how maximal event interpretations come about,¹ especially in the context of degree achievements such as *cool the soup* and *straighten a rod*.² The central claim here is that maximal interpretations arise thanks to different marking strategies that languages use in the domains of degrees and events. A four-way descriptive typology is proposed with the four language types differing as to whether they overtly mark degree or event maximalization. Degree maximalization occurs when the scale (i.e., a set of linearly ordered degrees along some dimension) associated with a degree achievement is bounded in an eventuality (Martínez Vera, 2021, p. 3). By contrast, event maximalization induced by the maximalization operator MAX_E gives rise to the effect that unique maximal events are picked out in the denotation of verbal predicates at a given situation, as originally proposed by Filip and Rothstein (2005) and Filip (2008).³ A recent characterisation of MAX_E is provided by Filip (2023) as follows:

- (7) **The maximalization operator MAX_e** is a monadic operator, such that $MAX_e(P) \subset P$ which maps sets of partially ordered stages of an eventuality type P onto sets of its maximal stages $MAX_e(P)$. The maximal stage requirement is satisfied when a P -eventuality ceases to develop in a world at the reference time t_R , and there is no bigger P -eventuality in the world at t_R of which it is a stage.⁴

(Filip, 2023: 12)

Filip (2023) further stresses that a central application condition for MAX_E is that it ‘respect some partial order’ (*ibid.* 12).⁴ This is achieved, for example, in the presence of numerical expressions like *at least three* in *drink at least three beers* in English, or with certain prefixes in Slavic languages, as also mentioned in Section 3.2. In what follows, I also show that the idea that aspectual interpretations involve a maximalization operator has been put to use in the analysis of various aspectual phenomena in typologically different languages such as English, Russian and Hindi, as in Altshuler (2014). However, before I provide a brief overview of key insights in this work and some others regarding mainly the representation of non-culmination, I briefly discuss the different maximalization strategies that are observable in the four language types, English, Hungarian, Southern Aymara and Polish, identified by Martínez Vera (2021).

2.2.1 | The English strategy

English illustrates languages in which event and degree maximalization are not marked but left open; a lot depends on contextual cues when it comes to the availability of maximal event interpretations. This is perhaps best illustrated by degree achievement verbs such as *cool* in the

sentences below discussed by Hay et al. (1999), which is a precursor to Martínez Vera's (2021) work. The term 'degree achievement' is from Dowty (1979).

- (8) a. John cooled the soup for an hour.
b. John cooled the soup in an hour.

Hay et al. (1999) argue that predicates like *cool* or *lengthen* express scalar changes by virtue of being derived from a gradable adjective and by introducing a function INCREASE, which is encoded by a null morpheme in verbs like *cool* and the suffix *-en* in verbs like *lengthen*, as in (9a) and (9b).

- (9) a. Kim lengthened the rope.
b. Kim lengthened the rope 5 inches.

(Hay et al., 1999: 130, exx. (8a) and (8b))

The logical representations that the authors propose for (9a) and (9b) are given below.

- (10) a. $\exists e, d[\text{INCREASE}(\text{long}(\text{rope}))(d)(e)]$
b. $\exists e[\text{INCREASE}(\text{long}(\text{rope}))(5 \text{ inches})(e)]$

(Hay et al., 1999: 132, ex. 17)

In (10a) difference value d represents the measure of the amount to which the referent of the internal argument of the verb changes in the course of the lengthening eventuality. The (a)telicity of the string *lengthen the rope* depends on whether there is a specific bound contributed by the difference value on the measure of change associated with the theme argument (Hay et al., 1999, p. 130). If the difference value provides the measure of change with a specific bound, telicity arises, as in (10b), where the measure phrase *5 inches* ensures that the difference value be explicit. Otherwise, atelicity obtains, as in (10a). As further stressed by the authors, that the analysis does not resort to ambiguity in verbs like *cool* in (8) is a welcome result given that 'there is no independent evidence for a systematic ambiguity in these verbs' (*ibid.* 132–133).

The role of context in the semantics of degree achievements is also at the centre of attention in Kennedy (2007) and Kennedy and Levin (2008), who argue that the interpretation of these predicates is constrained by a principle they call 'Interpretive Economy' given in (11).

- (11) **Interpretive Economy:** Maximize the contribution of the conventional meanings of the elements of a sentence to the computation of its truth conditions.

(Kennedy & Levin, 2008: 169)

The principle above is put to work in different ways depending on whether degree achievements are associated with a top-closed or top-open scale. For instance, with predicates like *straighten the rod*, which have been argued to lexically encode a top-closed scale (*ibid.*), the default interpretation is that the rod ends up in the state of maximum straightness and thus a

maximal construal arises. However, given certain contextual conditions, this predicate may also express that the rod ends up straighter, in which case a non-maximal construal becomes available. Context-dependent truth conditions are possible, but arise as a 'last resort'.

With predicates like *widen the road*, by contrast, contextual factors must be considered when determining how much of the measured property is enough to stand out for the truth of the predication. Nothing in the meaning of the adjective underlying *widen* allows the listener to fix the standard of comparison (Kennedy & Levin, 2008, p. 177). When uttered out-of-the-blue, *widen the road* is atelic, but given specific contextual cues, a telic interpretation may also arise.

As pointed out by Levin and Sells (2009, p. 311), aspectual variability also characterises verbs of surface contact such as *sweep* and *wipe* in the environment of a bounded object, as in *sweep/wipe the counter*. When the object is understood to serve as a measuring-out object, telicity arises, whereas an atelic reading becomes available if the event of the verb is meant to occur repeatedly over the surface denoted by the object. According to Rappaport Hovav (2008), the telic interpretation of such examples along with *mow the lawn* is an implicature.

Aspectual variability is also observable in the class of consumption predicates illustrated by *eat the soup* (for more on this, see Hay et al., 1999, Smollett, 2005, and Piñón, 2008), though such predicates are generally used to illustrate that in English and other similar languages the referential properties of verbal predicates are often directly determined by the referential properties of the internal arguments contained in them: For example, themes such as *two apples*, (which are also referred to as incremental themes in much prior work following Dowty, 1991), characterised by quantized reference, make verbal predicates like *eat two apples* quantized and thus telic. On the other hand, themes like *apples* and *soup*, which have cumulative reference, make their verbal predicates (*eat apples* and *eat soup*) cumulative and thus atelic (Krifka, 1989, 1992, 1998; Tenny, 1994; Verkuyl, 1972, 1993).

In more recent works, Beavers (2009, 2011, 2012) uses Krifka-type semantics (see Krifka, 1989, 1992, 1998) to argue that for telicity to obtain with predicates such as *walk*, *flow* and also *wipe* and *drink*, one needs to consider both the referential properties of the theme and the boundedness of the scale/path along which change occurs. On this view, it is thus not one but two incremental themes (the theme that undergoes some change and the scale/path along which change occurs) that determine aspectual interpretations by being related to the events denoted by verbal predicates by a special type of homomorphic relations, so-called figure/path relations. Kardos (2016) expands this analysis and argues for the overt instantiation of the maximalization operator MAX_E of Filip and Rothstein (2005) and Filip (2008) in Hungarian, on top of Beavers's (2009, 2011, 2012) assumptions, to account for the observed aspectual facts, also briefly discussed in the subsequent sections.

2.2.2 | The Hungarian strategy

Hungarian is a language where the kind of flexibility seen in English is not observable with degree achievements. Consider (12).

- (12) a. János 10 perc-ig/*alatt egyenes-ít-ett egy rud-at.
 János 10 min-for/under straight-CAUS-PST a rod-ACC
 ‘János straightened a rod for 10 minutes.’
- b. János 10 perc alatt/*10 perc-ig ki-egyenes-ít-ett egy rud-at.
 János 10 min under/10 min-for PRT-straight-CAUS-PST a rod-ACC
 ‘János straightened a rod in 10 minutes.’
- Hungarian (adopted from Martínez Vera (2021): exx. (34a) and (47a))

Unmarked forms such as that in (12a) are strictly atelic, as evidenced by the fact that they only admit *for*-adverbials, whereas marked forms associated with event-maximizing particles such as *ki* in (12b) are strictly telic. The latter only admit *in*-adverbials.

Building on Kardos (2016), Martínez Vera (2021) argues that in Hungarian event maximization is overtly marked by verbal particles and lexical maximal degrees are required with predicates like *ki-egyenesít* ‘PRT-straighten’. A maximal construal of (12a) and a non-maximal construal of (12b) do not arise regardless of what contextual cues are available. Another example illustrating this pattern is given in (13).

- (13) a. Enikő 10 perc-ig/*alatt ideges-ít-ett egy tanár-t.
 Enikő 10 min-for/under nervous-CAUS-PST a teacher-ACC
 ‘Enikő spent 10 minutes making a teacher lose their mind.’
- b. Enikő 10 perc alatt/*10 perc-ig fel-ideges-ít-ett egy tanár-t.
 Enikő 10 min under/10 min-for PRT-nervous-CAUS-PST a teacher-ACC
 ‘Enikő made a teacher lose their mind in 10 minutes.’
- Hungarian (adopted from Kardos (2023): 269, ex. 39)

That the denotation of the theme ends up in a specific state at the termination of the event of the verb lexicalizing that state is expressed in (13b), whereas (13a) simply expresses an activity in which Enikő does things that the teacher finds annoying. Neither (13a), nor (13b) is characterised by the context-induced variability observable in the case of English degree achievements discussed above.

Lack of flexibility in Hungarian is also illustrated by the fact that the semantics of themes is also constrained in a way that they must be specific about their quantity in the environment of event-maximizing particles like *ki* and *fel*, as shown by (14).

- (14) Hungarian
- a. János ki-egyenes-ít-ett *rudak-at/egy rud-at/néhány rud-at.
 János PRT-straight-CAUS-PST rods-ACC/a rod-ACC/some rod-ACC
 ‘János straightened a rod/some rods.’
- b. Enikő fel-ideges-ít-ett *tanárok-at/egy tanár-t/néhány tanár-t.
 Enikő PRT-nervous-CAUS-PST teachers-ACC/a teacher-ACC/some teacher-ACC
 ‘Enikő made a teacher/some teachers lose their mind.’

Bare plural themes like *rudakat* ‘rods’ and *tanárokat* ‘teachers’ give rise to unnatural strings with the verbs *ki-egyenesít* ‘PRT-straighten’ and *fel-idegesít* ‘PRT-make somebody nervous’,

maximalizer, unlike Hungarian particles like *ki-* and *fel-*: The former alone does not ensure event maximality, whereas the latter do.

2.2.4 | The Slavic strategy

Slavic languages, which are argued to overtly mark event maximalization, also exhibit some flexibility in that in the presence of event-maximizing prefixes, although lexical maxima are preferred, in line with Interpretive Economy, contextual maxima are also possible. For example, Martínez Vera (2021) argues that, pending contextual cues, the Polish sentence *Marcin wyczyściła szufladę* 'Marcin cleaned the drawer', which contains the prefixed verb *wyczyściła* 'wy-cleaned', may or may not express that the drawer ended up completely clean. Although complete cleanliness is the preferred reading associated with this example, it is defeasible under specific contextual conditions. In this respect, then, Polish seems to be similar to English, since 'lexical maxima are preferred in the out-of-the-blue cases, but contextual maxima are possible if additional cues are present' (*ibid.* 12). As mentioned above, Hungarian, which is another language possessing elements overtly marking event maximization, does not seem to be characterised by this flexibility in light of data like those in (12) and (13).

No flexibility is, however, shown by the semantics of themes in the environment of aspectual prefixes like *wy-* in Polish. As pointed out by Martínez Vera (2021: 12), the only reading that the string *Marcin wyczyściła szufladę* 'Marcin cleaned the drawer' may receive is where the theme is interpreted as a quantity (i.e., cumulative reference is not an option with the theme in this example). In this respect, Polish, and other Slavic languages showing this pattern, is similar to Hungarian.

In light of these two typologies alone, several questions arise that scholars have thought about in the past couple of decades. In the next section I discuss some of these questions and possible answers to them in some detail.

3 | KEY QUESTIONS ABOUT NON-CULMINATION AND MAXIMALIZATION

3.1 | Representations of non-culmination readings

A central question that has been extensively investigated in the literature is how it is best to represent defeasible culmination readings. Here are a few examples of possible answers from recent years:

- (i) Predicates such as *eat* plus an incremental theme have been analysed as gradable predicates associated with various degrees of change, thereby giving rise to telicity or atelicity. See, for example, Piñón (2008) for such an analysis. As mentioned earlier, Kennedy and Levin (2008) use degrees to account for the different (a)telic interpretations that degree achievements like *straighten*, *cool* and *warm* are associated with (see Section 2.2). More recently, building on this analysis, Nederveen (2024) accounts for the different degrees of change (maximal vs. non-minimal) that various control morphemes give rise to in Secwepemctsin, a Salish language. Control transitive predicates like that in

(17) are characterised by defeasible culmination,⁶ though culmination is the default interpretation, whereas limited control transitive predicates have culmination entailments (18).

(17) Control transitive

Context: Hannah worked on a new basket but is out of material. So the basket isn't done yet.

Hannah	k'úl-en-[t]-s	re	mim'c, #(k'émell	ta7
Hannah	make-CTR-TR-3ERG	D/C	basket however	NEG
k	s-wi7-s)			
D/C	NMLZ-finish-3POSS			

'Hannah made a basket but she hasn't finished.'⁷

(18) Limited control transitive

#Bruce	sul-enwén'-[t]-s	re	ts'i7, k'émell	ta7	k
Bruce	freeze-LC-TR-3ERG	D/C	deer however	NEG	D/C
s-t-sul-s		ey			
NMLZ-STAT-freeze-3POSS	still				

Intended: 'Bruce froze the meat but it wasn't yet frozen.'

Secwepemctsin (Nederveen, 2024: exx. (1) and (2))

Nederveen (2024) argues that in examples like (18) the limited control morpheme constrains the denotation of the predicate in a way that the degree of change corresponds to a maximal degree on the scale associated with the predicate, whereas with control predicates there is no such restriction (17). In the case of the latter, the degree to which the referent of the theme changes maps onto a closed scale. Limited control middles and control middles show a different behaviour:

(19) Limited control middle

# Sander	q'wl-enwélln'	te	peták, k'émell	re	c-k'weltsenélten-s
Sander	roast-LC.MID	D/C	potato however	D/C	LOC-stove-3POSS
q'uwúp-úke7.	Ye-rí7	wel	peták ts-xiw	ey	
broken-EVID	DEM-DIST	so	potato STAT-raw	still	

Intended: 'Sander managed to roast some potatoes, but his stove was broken. That's why the potatoes are still raw.'

(20) Control middle

Sander	q'wl-em	te	peták, k'émell	re	c-k'weltsenélten-s
Sander	roast-CTR.MID	D/C	potato however	D/C	LOC-stove-3POSS
q'uwúp-ekwe.	Ye-rí7	wel	peták ts-xiw	ey	
broken-EVID	DEM-DIST	so	potato STAT-raw	still	

'Sander roasted some potatoes, but his stove was broken. That's why the potatoes are still raw.'

Secwepemctsin (Nederveen, 2024: exx. (4) and (3))

(ii) In other works, Tatevosov (2008) and Beavers and Lee (2020) propose that a modal operator encoded by the verb or some other element is responsible for event non-culmination

readings in languages such as Karachay-Balkar and Korean. As for the latter, Beavers and Lee (2020) show that Korean sentences associated with caused change-of-state predicates such as *kkay-ss-ta* in (21) may have culmination or non-culmination readings.

- (21) ku-ka changmwun-ul kkay-ss-ta. haciman changmwun-i
 he-NOM window-ACC break-PST-DECL but window-NOM
 kkay-ci-ci anh-ass-ta.
 break-PASS-COMP NEG-PST-DECL
 Literally: 'He broke the window. But it was not broken.'

Korean (Beavers & Lee, 2020: 1235, ex. 3)

The example in (21) is associated with defeasible culmination, as evidenced by the fact that the inference that the window became broken can be cancelled. Non-culmination readings may correspond to zero-change or partial-change construals given specific grammatical conditions. Zero-change construals are possible if the referent of the subject 'intends the result to obtain by direct causation' (*ibid.* 1275), whereas partial-change construals are available even in the absence of intentionality. Beavers and Lee (2020) capture these different readings by arguing that caused change-of-state predicates in Korean are ambiguous; the zero-change and partial-change readings correspond to two different derivations. The former arise due to a modal operator introduced by a null voice inflection, whereas partial-change readings arise in non-modal environments, as well. Partial-change and culmination readings are analysed as non-quantized change and quantized change along some scale, respectively (see Beavers (2013) for details about this distinction).

- (iii) Other scholars propose a richer typology of aspectual operators yielding different culmination readings. For example, Altshuler (2014) extends the typology of partitive operators in his analysis of perfective and imperfective forms in Russian and Hindi and the progressive in English. He argues that perfective operators require a maximal stage of an event in the denotation of the VP that they combine with, whereas imperfectives do not have this input requirement. Instead, the latter only require a stage of an event in the denotation of the VP they combine with. The maximal stage requirement is satisfied if 'a VP-event culminates or ceases to develop in the actual world' (*ibid.* 739). In Hindi, both simple and complex perfectives, shown in (22) and (23), respectively, satisfy the maximal stage requirement, but culmination is an implicature with the former and an entailment with latter. These data are also discussed in Arunachalam and Kothari (2010).

- (22) maayaa-ne biskuT-ko khaa-yaa par use puuraa
 Maya-ERG cookie-ACC eat-PFV₁, but it.ACC finish
 nahiin khaa-yaa
 not eat-PFV₁
 'Maya ate the cookie, but did not finish it.'

- (23) maayaa-ne biskuT-ko khaa li-yaa #par use puuraa
 Maya-ERG cookie-ACC eat take-PFV₂, but it.ACC finish
 nahiin khaa-yaa
 not eat-PFV₁
 'Maya ate the cookie, #but did not finish it.'

Hindi (adopted from Altshuler (2014): 747, exx. (32) and (33))

According to Altshuler (2014: 771), culmination implicatures arise when aspectual markers are in competition with each other in a given language. For example, in Hindi, the simple perfective may compete with the progressive, whereas in Russian the imperfective competes with the perfective. When the perfective is not possible and a culmination interpretation is necessary for the discourse to be felicitous, the imperfective may be used and a defeasible culmination inference becomes available. See Section 5 in Altshuler (2014) for more on this.

3.2 | Questions about maximalization

On analyses assuming a maximalization operator in the creation of event culmination, an important question pertains to the locus of the maximalization operation. For example, maximalization has been argued by Filip and Rothstein (2005) and Filip (2008) to be a V-level phenomenon in Slavic languages, whereas in English it has been claimed to be applied at the level of VPs/IPs. In another study, based on the (im)possibility of the co-occurrence of the Mandarin Chinese resultative morphemes *-wán* and *-diào* with the progressive, Gu (2023) argues that the operator in the former suffix responsible for maximalization over time points applies at the VP-level, whereas *-diào* associated with maximalization over patients encodes a maximalization operator that applies at the level of Vs. According to this author, the suffix *-wán* expresses event termination by virtue of supplying ‘information about the progress of the denoted event without setting any requirement on the involved patient’, if there is one, whereas the suffix *-diào* expresses culmination and requires that the patient be affected entirely in the course of the denoted event (*ibid.* 466–467). While the former morpheme may co-occur with transitive or intransitive eventive predicates as long as they have some duration, the latter morpheme tends to appear with verbs associated with an incremental theme.

Another question is whether maximalization is overtly or covertly encoded in verbal expressions. Filip (2008) claims that event maximalization occurs covertly in Slavic languages; perfective prefixes are not overt instantiations of the maximalization operator MAX_E , described in Section 2.2. Instead, they only provide an ordering criterion on events, which is necessary for the application of MAX_E (*ibid.* 244). An example that Filip (2008) provides in favour of her claim is given in (24).

- (24) Mozart do.pis.ova.l poslední takty Don Giovanniho
 Mozart TERM.write.IPF.PST.3SG last notes D.G.SG.GEN
 na Bertramce týden / *za týden.
 on B. for a week / *in a week
 ‘Mozart spent a week finishing the last notes of D.G. in the villa Bertramka.’
 Czech (adopted from Filip (2008): 246, ex. 35b)

Two facts need to be mentioned regarding this example: (i) It contains a verb associated with both a perfective prefix (glossed as TERM) and secondary imperfective morphology and (ii) ‘it entails that only some of the last scores of Don Giovanni were written’; a culmination interpretation with respect to the entire theme is only implicated (*ibid.* 247). According to Filip, this is not congruous with the hypothesis that perfective prefixes are overt reflexes of her maximalization operator.

It is also argued that MAX_E is a covert operator in Germanic languages, as well; its application cannot be systematically linked to the direct object or some overt morphology associated with the direct object. For example, quantified expressions like *two apples* in predicates like *carried two apples* do not give rise to a telic interpretation. This example contrasts with predicates like *eat two apples*, where the most natural interpretation is a telic one (see also Section 2.2.1). Filip (*ibid.* 234) appeals to a semantic distinction between *eat* and *carry* to account for the different aspectual readings associated with *eat two apples* and *carry two apples*. While in the former the verb entails a type of homomorphism (a strict incremental relation as in Krifka (1998)) and the object *two apples* ensures that the events in the denotation of the VP be ordered, the verb *carry* does not entail such a relation and so a basic application condition for MAX_E (i.e., a partial order) is not met (see also the discussion below (6) in Section 2.2).

Borer (2005: 172) analyzes Slavic prefixes differently. She argues that quantificational prefixes are markers of telicity, or ‘quantity’ in her terminology. More specifically, such prefixes are proposed here to be phonological realisations of the head feature that assigns range to an open functional value, thereby giving rise to quantity structures (for more on this, see Section 4). Borer (*ibid.*) further claims that this is plausible if it is assumed that secondary imperfectives illustrate a type of outer aspect (i.e., they do not mark aktionsart), as also supported by their different morphological properties. According to this author, perfective forms are to be contrasted with primary imperfective forms, instead of secondary imperfectives, contra the discussion in Filip’s (2008) work briefly referred to above. On Borer’s (2005) analysis, quantity direct objects also have a central role in deriving telic interpretations in English-type languages, as the subsequent discussion reveals.

Finally, Kardos (2016) also argues for the overt expression of MAX_E in Hungarian verbal particles like *meg* and also resultative predicates like *pirosra* ‘lit. onto red’ in expressions like *pirosra fest egy kerítést* ‘paint a fence red’. Such aspectual elements are shown in this work to have a clear truth conditional effect such that the verbal predicate receives quantized reference and entailed culmination arises, and they also structure the VP in specific ways, as also discussed in Section 4.

4 | QUESTIONS ABOUT THE SYNTAX OF (NON-)MAXIMAL EVENTS

Syntactic analyses have typically, though not exclusively, focused on the representation of event culmination or telicity without being concerned with the contrast between defeasible versus entailed culmination. Scholars like Ritter and Rosen (1998, 2000), Borer (2005), Thompson (2006), MacDonald (2008a, 2008b), Ramchand (2008) and Travis (2010) share the view that telic interpretations are directly tied to a functional projection. Telicity on these analyses is a property of syntactic structures. A central argument for the syntactic representation of telicity lies in the clear interaction between specific properties of the object and the telicity of the resulting predicate, as observable across languages (see also Kratzer, 2004). A language often mentioned in the literature in this connection is Finnish, where direct objects receive accusative case in telic eventive predicates, whereas in atelic eventive predicates they receive partitive case (Kiparsky, 1998). See, however, MacDonald (2008b), who takes issue with this argument by claiming that aspect and case are only indirectly related in light of the fact that ‘a predicate can be telic without accusative case and accusative case can be present without a predicate being telic’ (MacDonald, 2008b, p. 174). For example, derived subjects of passives and unaccusatives may induce a telic interpretation without being assigned accusative case, as in *The bottle of beer*

was drunk and *The bottle broke*, whereas accusative case is accompanied by atelicity in the case of statives like *own a T.V.* and *know the answer* (*ibid.* 172–174). See also Kardos and Farkas (2022: 825–826) for the claim that in Hungarian the presence of AspP, directly linked to verbal particles, as discussed below, ensures that the theme receive accusative case in examples like *el-olvastott egy könyvet/*könyvből* ‘PRT-read a book.ACC/*book.ELA’ (cp. *olvastott egy könyvet/könyvből* ‘read a book.ACC/book.ELA’), but accusative case does not ensure the presence of AspP, as illustrated by examples like atelic *hámozta a krumplit* ‘lit. peeled the potato.ACC’ and *értette a feladatot* ‘understood the task.ACC’.

A key question in works such as Thompson (2006), MacDonald (2008a; b) and Travis (2010) is (i) where exactly the functional projection responsible for telicity is located. Related to this are the questions of (ii) what the domain of aspectual interpretation is and (iii) what specific syntactic operation is responsible for the observed aspectual effects. Thompson (2006) argues that AspP is located directly above vP, whereas MacDonald (2008a, 2008b) and Travis (2010) argue for AspP sandwiched between vP and VP. MacDonald (2008a) discusses scope effects associated with time span adverbials and durative phrases to argue for his analysis and against Thompson's (2006), whereas Travis (2010) examines morpheme order in Tagalog reduplication, among some other phenomena, to argue for the presence and position of AspP. As for the former, first, it is shown that time span adverbials such as *in 30 seconds* are interpreted within the scope of durative adverbials like *for an hour*. Consider (25).

- (25) John carried a goat into the barn in thirty seconds (for an hour straight).
(MacDonald, 2008a: 131, ex. 5a)

The only reading that is available in (25) is that carrying a goat into the barn took John 30 seconds each time he did that and this activity occurred for an hour straight. This can be taken as evidence for the claim that the time span adverbial is within the scope of the durative adverbial. Thus, the former can be assumed to be structurally lower than the latter, contra Thompson's (2006) proposal. Second, MacDonald (2008a) also examines bare plurals and mass nouns with verbal predicates headed by verbs such as *carry* and *push* and concludes that they yield different aspectual interpretations, as shown below.

- (26) a. John carried goats into the barn in ten minutes (for an hour straight).
b. John pushed carts into the store in three minutes (for an hour straight).
- (27) a. John carried mud into the barn #in ten minutes (for an hour straight).
b. John pushed ice into the store #in ten minutes (for an hour straight).
(MacDonald, 2008a: exx. (12) and (13))

In (26a) and (26b) a sequence-of-similar-events interpretation is available with bare plurals as internal arguments in the sentence. This means that, for example, sentence (26a) expresses a situation in which it took John 10 minutes to take a goat into the barn and then it took John another 10 minutes to take another goat into the barn, and this activity occurred for an hour straight. Likewise, (26b) can be described in a similar manner. By contrast, this reading is not possible with mass nouns like *mud* and *ice* in (27a) and (27b). The internal arguments give rise to atelic interpretations, as evidenced by the incompatibility of the time span adverbial with the verbal predicates in (27a) and (27b). To account for these interpretive facts, MacDonald

proposes that bare plurals and mass nouns establish different aspectual relations with AspP between vP and VP in a way that the former move to Spec, AspP, whereas the latter enter into an Agree relation with the Asp head. That bare plurals and mass nouns have different aspectual effects is also shown when they occur as complements of goal Ps. It is not clear, as pointed out by MacDonald, how one can account for these facts on an analysis where AspP sits on top of vP, as in Thompson (2006).

A testable hypothesis in the works referred to above is that there is a syntactic domain in which elements may contribute to the aspectual interpretation of the verbal predicate. Elements outside this domain do not affect the aspectual make-up of predicates. On MacDonald's (2008a, 2008b) analysis, for example, telic interpretations are expected to arise due to Asp and elements dominated by AspP (see, for example, direct object NPs and goal/result XPs), whereas elements such as external arguments and location PPs are predicted not to contribute to the aspectual interpretation of the predicate. See also Travis (2010) for a similar view.

As for the specific operation that is directly responsible for the existence of telic structures, scholars such as Thompson (2006) have argued for some feature checking operation, whereas Borer (2005) argues for range assignment, where, for example, the quantity value of an object nominal is copied onto a head that it is attached to in a specific syntactic configuration, specifier-head agreement. This characterises the structures associated with *eat some/two apples* in English. Range assignment associated with Asp_Q, where Q is short for quantity, gives rise to quantity predicates such that they are compatible with both intermediate culmination readings and culmination that corresponds to the end of the event. As noted by Borer (2005: 143), the significance of this distinction is often obscured by the fact that telicity is often equated with the notion 'endpoint'. But telic predicates do not necessarily express situations associated with an endpoint or prominent result state, as illustrated now by empirical data from a variety of different languages. See also MacDonald (2008b: 74) for an analysis where 'there is no resultant state necessarily tied to the end of the event'.

The aspectual effects of elements such as direct objects, result XPs and verbal particles have been shown to vary across languages and various syntactic analyses have been proposed to capture these differences. There is a lot of previous research on cross-linguistic variation with respect to the aspectual influence of direct object NPs in English versus Slavic languages such as Russian and Czech (Filip, 1999, 2000), English versus Malagasy (Travis, 2010), and significant differences arise between English and Hungarian, as well (Kardos, 2016, 2019). For example, change-of-state predicates such as Hungarian *fest egy kerítést* 'paint a fence' are atelic regardless of whether they involve quantities.

- (28) Hungarian
 Sára *egy nap alatt/egy nap-ig festett egy kerítést.
 Sára a day under/a day-for painted a fence.ACC
 'Sára painted a fence for a day.'

In English, by contrast, quantities such as *a fence* in the environment of verbs like *paint* can easily measure out events and yield telic predicates.

- (29) Sara painted a fence in a day.

For telicity to obtain in Hungarian in the case of predicates like that in (28), a verbal particle or result predicate must appear in the sentence, as in (30). See also É. Kiss (2008).

- (30) Hungarian
 Sára egy nap alatt le-festett/pirosra festett egy kerítést.
 Sára a day under PRT-painted/red.SUBL painted a fence.ACC
 ‘Sára painted a fence/painted a fence red in a day.’

Unlike their English counterparts, Hungarian result predicates such as *pirosra* ‘lit. onto red’, and verbal particles such as *le-*, have also been shown to have specific quantificational effects such that they must appear with quantities, as shown in (31). See also Section 2.2.2 and Kardos (2016).

- (31) Hungarian
 Sára pirosra festett/le-festett
 Sára red.SUBL painted/PRT-painted
 több, mint három kerítést/három kerítést /*kerítéseket
 more than three fence.ACC/three fence.ACC /fences.ACC
 ‘Sára painted more than three fences/three fences.’

As shown above, the internal argument in the environment of the particle verb *le-fest* ‘PRT-paint’ must be a quantity, bare plurals like *kerítéseket* ‘fences’ yield ungrammaticality with such predicates. For more on the quantificational effects of Hungarian verbal particles, see Halm (2015).

English particles like *up* do not have such effects, as illustrated in (32).

- (32) We ate up sandwiches (for hours/all afternoon/*in three hours).
 (Borer, 2005: 211, ex. 56a)

Unlike in Hungarian, English bare plural themes are compatible with particle verbs and the resulting predicate is atelic, as shown by the adverbial test. See, however, structures like **Kim ate sandwiches up*, including shifted *up*, which are ungrammatical in the presence of a non-quantity object DP (*ibid.* 210).

To capture these and other differences across languages, scholars have argued for different positions in the aspectual domain that languages use to express event culmination. For example, certain aspectual morphemes in Malagasy have been argued to occupy Asp (Travis, 2010), whereas Hungarian aspectual particles and result predicates responsible for maximal-event interpretations, as well as pseudo-objects giving rise to non-maximal events have been shown to exert their aspectual functions in Spec, AspP between vP and VP (Kardos & Farkas, 2022). The latter are illustrated in (33).

- (33) Anna szárított egyet a haján,
 Anna dried one.ACC the hair.POSS.SUP
 de még lehet rajta szárítani.
 but still possible it.SUP dry.INF
 ‘Anna dried her hair a bit, but it could still use some drying.’
 Hungarian (Kardos & Farkas, 2022: 831, ex. 43)

That the predicate *száritott egyet a haján* ‘dried her hair a bit’ is associated with a non-maximal event interpretation is evidenced by the fact that the predicate in the first clause is compatible with a second clause expressing that the drying of Anna’s hair can still be continued. The authors also show that any amount of activity characterised by the verbal predicate will not satisfy the truth conditions of sentences with the pseudo-object *egyét* ‘one.ACC’, as seen in (34).

- (34) Context: John goes for a run in the forest but after ten meters he stops running and dies of a heart attack.
- | | | | | | |
|----|---|----------|----------|----------|-------|
| a. | János futott egyet, | és | hirtelen | meghalt. | FALSE |
| | János ran one.ACC, | and | suddenly | died | |
| | ‘János went for a run and suddenly died.’ | | | | |
| b. | János futott, és | hirtelen | meghalt. | TRUE | |
| | János ran and | suddenly | died | | |
| | ‘János ran and suddenly died.’ | | | | |
- Hungarian (Kardos & Farkas, 2022: 831, exx. (45a) and (45b))

The aspectual operator associated with pseudo objects like *egyét* ‘one.ACC’ is argued by Kardos and Farkas (2022) to pick out a contextually specified non-maximal subpart of the events in the denotation of verbal predicates. Therefore, any amount of running in (34) will not be sufficient for the truth of the sentence. Also, although telic, the event descriptions of predicates with *egyét* ‘one.ACC’ are not characterisable by a specific result state that obtains when the event culminates. Consider (35).

- (35) A diák futott egyet anélkül, hogy elért volna valahova.
 the student ran one.ACC without, that reached would somewhere
 ‘The student went for a run without getting anywhere.’
 Hungarian (Kardos & Farkas, 2022: 832, ex. 48)

In (35), the continuation that no specific goal point has been reached in the course of the running eventuality is congruous with the predicate *futott egyet* ‘lit. ran one.ACC’. This shows that the notions ‘telicity/event culmination’ and ‘result state’ seem to be independent of each other, as also pointed out by Rappaport Hovav and Levin (2010) in their discussion of the aspectual facts of English degree achievements like *cool* and *warm*. See also Section 5 for more details on this. For more on pseudo-objects in Hungarian, see Farkas (2021).

Measuring-out direct objects like *a fence* in *paint a fence* or *the beer* in *drink the beer* have been argued to Move to Spec, AspP (Thompson, 2006) or Agree with Asp (MacDonald, 2008b) from their VP-internal position. The standard assumption regarding the syntax of secondary resultative predicates like *red* in *paint the fence red* has been that they appear as complements in the VP, both on analyses assuming an aspectual functional projection and small-clause analyses (Den Dikken, 1995; Hoekstra, 1988). Verbal particles like English *up* have been represented as ergative heads by Den Dikken (1995), and as predicates ‘of a small clause in the complement of the verb, predicated of the Theme’ occupying either the complement or the specifier position in a RELATOR phrase (Den Dikken, 2023). As argued by Den Dikken (*ibid.*), the former analysis can capture facts of complex verb-particle constructions like *put the book down on the shelf*, whereas the latter can handle word order variation facts such as *eat an/the apple up* and *eat up an/the apple*. For more on the RELATOR phrase analysis, see Den Dikken (2006).

Finally, Borer (2005) argues for indirect and direct range assignment to capture cross-linguistic differences with respect to how telic/quantity structures come about. English is argued to primarily use the first strategy in the verbal domain, where quantity object DPs in Spec, Asp_Q assign range to an open functional value, represented as [_{AspQ}⟨e⟩_#], through specifier-head agreement, whereas Slavic languages use the second strategy in a way that quantificational prefixes serve as direct range assigners. In the latter type of languages, prefixes like Czech *do*-in (24) are assumed to be the phonological realization of a head feature that assigns range to [_{AspQ}⟨e⟩_#] by virtue of being associated with quantificational force.

In her most recent work on event culmination, Borer (2023) extends the typology of telicity markers and argues that ‘two operations are necessary to create culmination’ or telicity. The first one, which she labels ASP-DIV, creates quantifiable event divisions, whereas the second one, which she calls MAX, is ‘an operation on divided structures, which picks out the requisite number of divisions within it’ (*ibid.* Section 4.1).⁸ Both the ASP-DIV function and the MAX function are associated with a dedicated functional projection within the verbal spine. Telicity marking elements may be associated with either ASP-DIV, or MAX, or with both. For example, valuers of ASP-DIV are English quantity incremental themes and goals, whereas valuers of MAX are some English particles such as shifted *up* in *ate the sandwiches up* and *in*-adverbials. A third type of valuer is one that values both MAX and ASP-DIV: Slavic perfective prefixes, Hungarian particles like *meg* and English adverbs such as *once* and *twice* are provided as illustrative examples. Overall, then, what emerges from this new analysis is that Asp_Q alone from Borer (2005) is not sufficient in the analysis of culmination readings. Borer’s (2023) dual structure associated with two functional nodes instead of just one in telic predicates seems to better capture the aspectual effects that characterise various telicity markers in typologically different languages such as English, Slavic languages and Hungarian.

5 | CONCLUSION

What arises from this survey is that there is a considerable amount of variation regarding the interpretive properties of (non-)culminating predicates within and across languages and the strategies that languages use to encode culmination are also varied. Although culmination is the default interpretation with predicates like *open the door*, *burn the book* and *break the window* in many languages (Beavers & Lee, 2020), non-culmination readings are also often available, sometimes contingent on specific conditions such as intentionality on the part of the subject, as in Korean. In languages such as English, culmination with predicates like *clean the kitchen* is entailed, whereas in Hungarian it is the presence of telicizing verbal particles or that of result predicates that ensures this property with such predicates. Perfective prefixes in Slavic languages such as Polish have a slightly different aspectual effect. Contra much previous literature, event maximality seems to be cancellable in the presence of prefixes like Polish *wy*-in examples like *Marcin wyczyściła szufladę* ‘Marcin cleaned the drawer’. What Hungarian and Slavic languages seem to share, however, is that a culmination interpretation is not available in the absence of verbal particles or perfective prefixes with predicates corresponding to English *clean the kitchen/drawer*.

Culminating predicates within and across languages may also differ in how event culmination and the theme participant’s attainment of a specific result state correlate with each other. For example, in Hungarian, entailed event culmination is not necessarily accompanied by a

result state that obtains at the termination of events in the denotation of VPs, as discussed in Section 4 and further shown in (36).

- (36) Hungarian
 János ki-súrolt egy kádat, de a kád nem
 János PRT-cleaned/scrubbed a tub.ACC, but the tub not
 változott semmit.
 changed nothing.ACC
 Literally: ‘János cleaned/scrubbed a tub, but nothing is different about it.’

As the test taken from Beavers and Koontz-Garboden (2020) shows, the predicate *ki-súrolt egy kádat* ‘PRT-cleaned/scrubbed a tub’ containing event-maximizing *ki-is* is compatible with the cancelation of the inference that the tub remained unchanged in the course of the cleaning eventuality. The English counterpart of this example with the verb *clean* is infelicitious. However, English can also be used to illustrate that result states and event culmination do not always co-occur. Rappaport Hovav and Levin (2010, p. 27), for example, explicitly argue that English result verbs such as *cool* and *warm* are not lexically telic and so they show that at least ‘some instances of telicity cannot be analysed in terms of a result state’.

There are several questions left for future research: One is how event structural representations of caused change-of-state predicates are affected by the novel empirical facts of (non-) culmination uncovered in recent years. Analyses assuming, for example, event decomposition, where the events expressed by predicates like *burn the book* or complex resultatives like *paint the fence white* are decomposed into a process part and a resulting state (Dowty, 1979; Pustejovsky, 1991; Ramchand, 1997, 2008), face difficulties when it comes to predicates where the denoted events do not culminate with respect to a result property. As pointed out by Borer (2005: 225), this also characterises the latter example, as shown by the felicity of the sentence *You can paint these walls white for hours, but they won’t become white*. Thus, Borer (*ibid.* 227) proposes predicate composition instead of event decomposition where items such as *paint* and *white* enter into the semantic computation as complex V-heads compatible with both quantity and non-quantity structures. However, it must also be noted that the interpretive properties of this example may be affected by the modal auxiliary, which naturally leads to the question of how modality and event aspect are related in English.

Another question concerns how various maximality/telicity operators interact with functional categories such as focus and negation across languages. For example, Martínez Vera (2023) shows that in Aymara relative interpretations arise with the degree maximiser *-su* with a focused element in the sentence. Without focus, in an out-of-the-blue context, an absolute/maximal interpretation is available. As for the role of negation in the environment of telicizing elements, Tham (2023) demonstrates that in Mandarin Chinese strings with verbs accompanied by the phase complement *dào* ‘arrive/to’, which is a telicity-marking element, tend to be more productive and less constrained in negative contexts than in positive contexts. As is often the case, a more in-depth understanding of these interactions remains to be explored, along with the range of maximizers yielding culmination or the lack thereof across languages.

ACKNOWLEDGEMENTS

I would like to thank Gergely Pethő and Péter Szűcs for their comments on earlier drafts. I also thank Marcel den Dikken for encouraging me to turn the talk I gave at the International

Workshop on Maximalization Strategies in the Event Domain, held in April 2023 at the University of Debrecen, into a journal article. Finally, I am grateful to my editor, David Basilico, for his assistance during the review process.

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ENDNOTES

- ¹ Predicates like *eat pizza(s)* are simply activities lacking in any culmination interpretations. Therefore, such predicates are not included in the typology in (6).
- ² Degree achievements like English *straighten a rod* are not discussed in Martin (2019) and Martin and Demirdache (2020). Establishing a direct link between the typology discussed in Section 2.1 and the typology proposed by Martínez Vera (2021) requires future research, as also pointed out by Martínez Vera (2021: fn. 30).
- ³ For some critical remarks regarding Filip's (2008) maximalization operator, see Piñón (2023).
- ⁴ Filip (2023: 15) defines stages based on Landman (2004) as follows:
If e_1 and e_2 are events and e_1 is a stage of e_2 , then:
 - i. 'Part of': $e_1 \leq e_2$, e_1 is part of e_2 .
 - ii. Cross-temporal identity: e_1 and e_2 share the same essence; they count intuitively as the same event or process at different times.
 - iii. Kinesis: e_1 and e_2 are qualitatively distinguishable, e_1 is an earlier version of e_2 , e_1 grows into e_2 .
- ⁵ Note that sentences associated with unmarked forms without the suffix *-su* are often translated by Martínez Vera (2021) with the English progressive, as in (15a). Martínez Vera (2021: fn. 5) also notes that in Southern Aymara 'the presence/absence of the progressive does not have an effect on maximalization'. This is different in English, where in the presence of progressive forms like *was straightening* degree maximalization does not occur.
- ⁶ Recall from Section 1 that compatibility with the string *but (s)he hasn't finished/didn't finish (Ving) (it)* signals the availability of a non-culminating contrual, which is what several examples in this section also reflect.
- ⁷ The culmination implicature must be explicitly cancelled in examples like (17), as indicated by the fact that the sentence is infelicitous in the absence of the second clause in the context provided.
- ⁸ On this analysis, MAX alone is not telicity, unlike in the work of Filip and Rothstein (2005) and Filip (2008), as also pointed out by Borer (2023: Section 4.1).

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How to cite this article: Kardos, É. (2024). Culmination phenomena across languages. *Language and Linguistics Compass*, e12528. <https://doi.org/10.1111/lnc3.12528>