RESEARCH

Telicity marking in Hungarian

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This paper explores the encoding of telicity in Hungarian. While proposing a mereological, scalar semantic analysis, it shows that Hungarian uses a telicity-marking strategy in which it contrasts with English, where telicity is not the direct consequence of an overt marker but arises as a cumulative effect of specific, well-definable properties of various components of verbal predicates including the head verb and its argument(s). A major contribution of the analysis, which mainly addresses telicity marking in the class of non-creation/non-consumption predicates in neutral sentences, lies in the fact that it reveals important cross-linguistic differences with respect to the aspectual role of verbal particles and resultative/locative expressions and the referential properties of telic verbal predicates. As for the former, it is demonstrated that Hungarian verbal particles and resultative/locative expressions mark telicity by directly placing bounds on events by virtue of serving an event maximalizing function, whereas the English counterparts of these elements do not have such direct event-bounding effects. As for the latter, it emerges that in Hungarian quantized reference is a necessary and sufficient condition for telicity in cases where in English it is only sufficient.

1 Introduction

This paper is concerned with the encoding of telicity in Hungarian. More specifically, it aims to demonstrate that Hungarian has overt signs of telicity marking and in this it differs from English, where it is not a single element that has a primary role in inducing telic interpretations but it is the verb, its argument(s) and, in some cases, pragmatic context that all contribute to the calculation of telicity (see Verkuyl 1972; 1993; Dowty 1979; Krifka 1989; 1992; 1998; Tenny 1987; 1994, among others). To illustrate this cross-linguistic contrast, I first provide a preliminary description of how telicity obtains in English and Hungarian. I begin with some English data in (1) and (2), where I probe for telicity using the *in/for X time unit* test (Vendler 1957/1967; Dowty 1979).

(1)   a.   John walked the Appalachian Trail in/??for six months.
           b.   John walked to the bank in/?for 10 minutes.

(2)   Peter painted a door in/?for 10 minutes.[1]

The examples in (1) and (2) are similar in that in each case telicity is a confluence of properties contributed by various components of the verbal predicate. Specifically, in all three examples, the predicate contains a verb that expresses some kind of change that progresses gradually, in an incremental fashion, and an element that is responsible for providing a measure for the denoted change. In (1), for instance, the verb *walk* expresses a change of location and the DP *the Appalachian Trail*, which has quantized reference

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[1] The verbal predicate in (2) is intended to describe a non-creation situation.

(Krifka 1989:78), is the measuring device since once it is traversed, an endpoint to the event can be specifically identified. Alternatively, endpoint-denoting PPs can also measure walking events, as demonstrated in (1b). In (2), the verbal predicate is headed by the verb *paint* expressing a change of state, and the measuring device is the patient, the referent of which changes color or tone in an incremental fashion. Once this event participant, whose quantity is specifically identifiable, is painted completely, an endpoint to the event can be determined and telicity results. In contrast, without a measuring DP or PP, these predicates receive a different interpretation. Consider (3).

(3)   a.   John walked for/??in 10 minutes.
         b.   Peter painted doors for/??in 10 minutes.

These data show that in the absence of a bounded path,[2] as in (3a), and with patients that do not have quantized reference, as in (3b), atelicity arises.[3]

   Another example illustrating how various components of the discourse contribute to telic interpretations in English is given in (4).

(4)   Mary lengthened the trousers for/in 10 minutes.

An interesting property of degree achievements like *lengthen* is that they can receive an atelic or a telic reading in the presence of themes with quantized reference. In (4), a telic reading is available if contextual cues enable the listener to identify the length of the trousers at the termination of the event and atelicity arises in the absence of such cues (Hay et al. 1999). Thus, this example demonstrates that in English even pragmatic context can play a role in the calculation of telicity.

   In Hungarian, on the other hand, telic interpretations usually arise in a different manner, at least in the case of predicates that express non-creation/non-consumption situations.[4] More specifically, in this language, telicity is often a direct consequence of the aspectual effect of a particle or a resultative (or locative) expression (É. Kiss 2008). The data below illustrate this, where each example, along with the other Hungarian examples of this paper, represents a neutral sentence, which does not contain a focused element.[5] Here and throughout I use the Hungarian counterpart of the *in/for X time unit* test to probe for telicity.[6]

(5)   a.   János   10   perc-ig   /*10   perc   alatt
               J.NOM   10   minute-for   /*10   minute   under
               hosszabbított   egy   kötel-et.[7]
               lengthened   a   rope-ACC
               'János was lengthening/lengthened a rope for 10 minutes.'

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[2] Throughout this paper I use the term *bounded* with reference to paths in the sense that they are closed.

[3] Although the predicate in (3a) is most naturally interpreted atelically, it can also receive a telic reading under very special circumstances. For more on this, see Dowty (1979: 61).

[4] It is important to note that this paper is not intended to provide an exhaustive theory of the lexical aspectual facts of Hungarian. The discussion that ensues is mainly concerned with non-creation/non-consumption predicates as the lexical aspectual behavior of these predicates is significantly different from what is observable in the case of predicates describing creation/consumption events. That the creation/consumption meaning is written into the grammar of Hungarian verbal predicates is also reflected in the fact that these predicates trigger the definiteness effect (Szabolcsi 1986; É. Kiss 1995; Kálmán 1995; Maleczki 1995). For a brief discussion of aspectual composition in the class of creation/consumption predicates in the context of the analysis proposed in this paper, see Section 4.

[5] Focus has tangible effects on the aspectual interpretation of Hungarian sentences. In this paper I do not discuss these effects. For more on this, see, for example, É. Kiss (2002: 64) and Kiefer (2006: 63–67).

[6] Although the temporal adverbials in this and the other Hungarian examples may also diagnose (im)perfectivity in the sentence, I will follow others in using this test throughout this paper (Piñón 2008c; Csirmaz 2009). Other telicity tests including various entailment tests would confirm the diagnosed telic and atelic patterns.

[7] In Hungarian two verbal paradigms are differentiated: The objective conjugation is used with definite objects and the subjective conjugation is used elsewhere. Since this distinction does not have any bearing on the topic of this paper, I avoid indicating conjugation informaton in the glosses for the sake of simplicity. For more on object agreement and subject agreement in Hungarian, see, for example, É. Kiss (2002: 49–55). Also, accusative case is marked by the suffix *-t*, which is often preceded by a linking vowel like *-e* in (5a) so that the suffix obey rules of vowel harmony.

	b.	János	10	perc	alatt	/*10	perc-ig	
		J.NOM	10	minute	under	/*10	minute-for	
		meg-hosszabbított	egy	kötel-et.[8]				
		PRT-lengthened	a	rope-ACC				
		'János lengthened a rope in 10 minutes.'						

(6)	a.	Péter	10	perc-ig	/*10	perc	alatt	
		P.NOM	10	minute-for	/*10	minute	under	
		festett	egy		ajtó-t.[9]			
		painted	a		door-ACC			
		'Péter was painting/painted a door for 10 minutes.'						
	b.	Péter	10	perc	alatt	/*10	perc-ig	
		P.NOM	10	minute	under	/*10	minute-for	
		le-festett		egy	ajtó-t.			
		PRT-painted		a	door-ACC			
		'Péter painted a door in 10 minutes.'						
	c.	Péter	10	perc	alatt	/*10	perc-ig	
		P.NOM	10	minute	under	/*10	minute-for	
		fehér-re	festett		egy	ajtó-t.		
		white-into	painted		a	door-ACC		
		'Péter painted a door white in 10 minutes.'						

The examples above demonstrate that predicates like *hosszabbít* 'lengthen' and *fest* 'paint' significantly differ from their English counterparts in terms of their aspectual properties in that the former can receive a telic interpretation in the presence of an object that has quantized reference just in case a verbal particle like *meg* or *le*, or a resultative expression like *fehérre* 'lit. into white' appears with them. In the absence of these elements, it is only an atelic reading that is available.

In this paper, I focus on verbal predicates like those in (5) and (6) and propose a mereological, scalar semantic analysis of their (a)telicity facts. I aim to provide evidence for the claims that (i) telicity must be overtly marked in Hungarian and (ii) telic interpretations in the case of (5) and (6) and other similar predicates arise as a result of a telicity-marking strategy whereby particles, resultative (or locative) expressions and certain DPs serve an event-maximalizing function in their respective predicates by virtue of encoding an event-maximalizing operator. Although my primary focus will be on the encoding of telicity in Hungarian, I will also discuss data from English and some Slavic languages in an effort to bring out the aspectual similarities and differences between these languages.

In Section 2, I briefly survey previous literature on the topic of this paper by first focusing on some former findings regarding aspect in Hungarian, and I also outline important theoretical assumptions which I will rely on in the subsequent discussion. In Section 2.1, I review the motivation for a basic distinction between creation/consumption and other predicates in the grammar of Hungarian, briefly comment on some former proposals as to the aspectual role of verbal particles, and refer to a two-component theory of the

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[8] Although Hungarian verbal particles are written together with their host verb when they appear in the immediate preverbal position, I use a hyphen to separate particles from their host verb in (5b) and elsewhere in the paper. Also, I only focus on the aspectual effects of these elements and leave unaddressed what other meanings they can contribute to the predicate as this is an issue that is not immediately relevant in this discussion. For more on the choice of verbal particles in Hungarian verbal predicates, see, for example, Csirmaz (2009).

[9] The example in (6a) can also be interpreted telically if it is understood to describe a creation event in the course of which a picture depicting a door comes into existence. I will briefly address this creation pattern in Sections 2.1 and 4.

aspectual system of this language, important facets of which I also assume in this work. In Section 2.2, I first provide an informal description of the grammatical relevance of scalar properties in the meaning of verbs. Then, I address Beavers's (2012) figure-path relations model, which is a mereological, scalar semantic model of telicity, an extension of former scalar semantic works, and which serves as the immediate theoretical framework for my analysis. In Section 3, I discuss in detail Filip & Rothstein's (2006) and Filip's (2008) theory of event maximalization, facets of which will be necessary to supplement the figure-path relations model, and, then, provide evidence for the event-maximalizing role of Hungarian particles and resultative/locative expressions in the class of degree achievements, achievements, and accomplishments exclusive of creation/consumption predicates. I devote Section 4 to a brief discussion of how telicity can arise in the class of creation/consumption predicates in Hungarian and in Section 5 I explore, albeit briefly, signs of telicity marking in other languages, focusing on a Slavic language, Polish. In Section 6, I draw conclusions.

2 Background
2.1 Some aspectual facts of Hungarian
The aspectual structure of verbal predicates in Hungarian has stimulated a number of interesting questions and answers in the past few decades. For instance, it has been revealed that there is a divide between creation/consumption and other dynamic predicates, as evidenced by differences regarding their grammatical behavior including aspectual composition. In particular, contra the pattern shown in (5) and (6) in the previous section, in the case of creation/consumption predicates, telicity arises only in the presence of an object with quantized reference (Wacha 1976; Kiefer 1992; 2006; Maleczki 1995; 2008; Szili 2001; É. Kiss 2005; 2008; Csirmaz 2008a; Piñón 2008c). I first illustrate this with the verbs *farag* 'carve' and *köt* 'tie', which can both head predicates expressing the creation of an entity, as shown in the (a) and (b) examples, or simply a change of state other than creation, as is clear from the (c) and (d) examples.

(7) a. János   egy nap   alatt   faragott   egy   szobr-ot.
         J.NOM   a   day   under   carved   a   sculpture-ACC
         'János brought a sculpture into existence by carving in a day.'
     b. János   egy nap-ig   /*egy   nap   alatt
         J.NOM   a   day-for   /*a   day   under
         szobrok-at   faragott.
         sculptures-ACC   carved
         'János was bringing/brought sculptures into existence by carving for a day.'
     c. János   10 perc-ig   /*10   perc   alatt
         J.NOM   10 minute-for   /*10   minute   under
         faragott   egy fadarab-ot.
         carved   a   piece.of.wood-ACC
         'János was carving/carved a piece of wood for 10 minutes.'
     d. János   10 perc   alatt   /*10   perc-ig
         J.NOM   10 minute   under   /*10   minute-for
         szét-faragott   egy fadarab-ot.
         PRT-carved   a   piece.of.wood-ACC
         'János carved a piece of wood into pieces in 10 minutes.'

(8)   a. Péter   10   perc   alatt   kötött   egy   görcs-öt.

             P.NOM   10   minute   under   tied   a   knot-ACC

             'Péter tied a knot in 10 minutes.'

       b. Péter   10 perc-ig   /*10   perc   alatt

             P.NOM   10 minute-for /*10   minute under

             görcsök-et kötött.

             knots-ACC tied

             'Péter was tying/tied knots for 10 minutes.'

       c. Péter   10   perc-ig   /*10   perc   alatt

             P.NOM   10   minute-for /*10   minute under

             kötött   egy   cipő-t.

             tied   a   shoe-ACC

             'Péter was tying/tied a shoe for 10 minutes.'

       d. Péter   10   perc   alatt   /*10   perc-ig

             P.NOM   10   minute   under   /*10   minute-for

             meg-kötött egy   cipő-t.

             PRT-tied   a   shoe-ACC

             'Péter tied a shoe in 10 minutes.'

As is apparent, in the absence of a particle, telicity arises only on the creation reading of *farag* 'carve' and *köt* 'knit' on the condition that the object has quantized reference. Conversely, when containing an object that refers cumulatively (Krifka 1989: 78), these predicates are interpreted atelically, as shown by (7b) and (8b). This is in fact reminiscent of the aspectual composition characterizing creation/consumption predicates in English (Verkuyl 1972; 1993; Tenny 1987; 1994; Krifka 1989; 1992; 1998). In contrast, on the non-creation reading, these predicates are interpreted atelically in the presence of an object with quantized reference, as shown in (7c) and (8c). The telic reading of the non-creation predicates *széfarag egy fadarabot* 'carve a piece of wood into pieces' and *megköt egy cipőt* 'tie a shoe' in (7d) and (8d) is due to the particles *szét* and *meg*, respectively.

  A number of authors – among them Szabolcsi (1986), Bende-Farkas (1995), Kálmán (1995), É. Kiss (2005), Peredy (2008), and Piñón (2008b) – have shown that what makes predicates like those above or (9a), taken from É. Kiss (2005), creation predicates is that they assert the coming into being of a previously non-existing individual, the referent of their patient argument, and they can occur in out-of-the-blue contexts. These predicates contrast with predicates like (9b), which are only felicitous in contexts where the referent of the internal argument is familiar from the previous discourse.

(9)   (adapted from É. Kiss 2005: 69, (30b) and (30a))

       a. A   háziasszony   sütött   egy   kalács-ot.

          the   housewife.NOM baked   a   sweet.bread-ACC

          'The housewife baked a loaf of sweet bread.' → 'There is a loaf of sweet bread.'

       b. A   háziasszony   meg-sütötte a   kalács-ot.

          the   housewife.NOM PRT-baked   the   sweet.bread-ACC

          'The housewife was baking the sweet bread. The sweet bread became ready to eat.'

The examples in (9a) and (9b) differ in that the former expresses a creation event in the course of which a loaf of sweet bread comes into existence, whereas the latter simply describes a change of state, which is linked to the previous discourse. Therefore, as É. Kiss (2005: 69) points out, the sentence in (9b) cannot occur on its own; instead, it can appear in a context like the following:

(10)   (adapted from É. Kiss 2005: 69, (29))
        A   háziasszony   egész   délelőtt   a   konyhá-ban   tüsténkedett
        the   housewife.NOM whole   morning   the   kitchen-in   worked
        és   kettő-re   meg-sütötte   a   kalács-ot.
        and   two-by   PRT-baked   the   sweet.bread-ACC
        'The housewife was working in the kitchen all morning, and by two she had
        baked the sweet bread.'

Consumption verbs like *eszik* 'eat' and *iszik* 'drink' can also be argued to form a class with creation predicates in that they also describe events as a result of which an entity becomes available or comes into existence for another entity and they also show the definiteness effect (Szabolcsi 1986). Overall, then, these facts suggest that creation/consumption predicates form a grammatically relevant class in Hungarian, similarly to some other languages (see, for example, Soh & Kuo 2005 on Mandarin Chinese and Næss 2011 on Berber (Afro-Asiatic), Bororo (Macro-Ge, Brazil), Hindi, and Kalkatungu (Pama-Nyungan, Australia)). Although I believe my proposal is ultimately compatible with these verbs, due to their unique semantics, which will be briefly addressed in Section 4, they have to be handled differently. Therefore, I will mainly focus on the aspectual structure of predicates expressing non-creation/non-consumption events.

   Another topic that has received much attention in the literature is how exactly verbal particles affect the aspectual make-up of the Hungarian sentence. A number of researchers including Kiefer (1992), Piñón (1995), Kiefer & Ladányi (2000), É. Kiss (2002), and Alberti (2004) proposed that particles determine grammatical/viewpoint aspect (Smith 1991/1997) by functioning as perfectivizing operators in the sentence. More recently, however, É. Kiss (2008: 17) argued persuasively that particles affect grammatical aspect only indirectly and it is in fact lexical/situation aspect on which they have direct effects by virtue of delimiting events. In particular, É. Kiss (*ibid.*) states that the presence or absence and the position of verbal particles do have an effect on the grammatical aspectual interpretation of the Hungarian sentence, but given that not all perfective sentences contain a verbal particle and that not all sentences containing a verbal particle are perfective, we cannot say that particles are directly responsible for the grammatical aspectual value of the sentence. As for the specific semantic role of verbal particles, É. Kiss proposes that they are secondary predicates predicated of the theme argument. As pointed out by Kardos & Pethő (2015), although this may be an accurate characterization of particles like *el* 'away' in (11), it will not apply to verbs like *elalszik* 'PRT-sleep' and *elesik* 'PRT-fall' in (12a) and (12b), as shown below.

(11)   Péter   el-itta   a   pénzé-t.
        P.NOM   away-drank   the   his.money-ACC
        'Péter drank his money away.'

(12)   (Kardos & Pethő 2015: 6, (19) and (20))
        a.   Kati   el-aludt.
              K.NOM   away-slept
              'Kati fell asleep.'
        b.   Kati   el-esett.
              K.NOM   away-fell
              'Kati fell.'

Whereas in (11) it can be argued that the particle *el* 'away' is responsible for the meaning that Péter's money is gone, in (12a) and (12b) it is clearly not the case that the theme *Kati* is gone. Instead, in each example, the particle contributes the meaning that

the denoted events culminate. This is what I propose in this work by more specifically claiming that verbal particles are event-maximalizing elements in the predicate.

Furthermore, in line with É. Kiss (2008), I assume that lexical aspect and grammatical aspect are distinct categories in the grammar of Hungarian, an idea that was, to my knowledge, first argued for by Csirmaz (2008b). As is well known, lexical aspect concerns the inherent temporal properties of situations such as telicity, durativity, and dynamicity, whereas grammatical aspect is responsible for describing the viewpoint that the speaker has of the denoted situation. As for the latter, it is generally assumed that there is a distinction between perfective and imperfective aspect. The former presents situations as complete units including their initial and final bounds, whereas the latter focuses on only a part of the denoted situation (Smith 1991/1997).[10] Signs of this contrast are apparent in languages including Hungarian. This is what I illustrate in (13) and (14), where the word order difference involving the verb and its particle yields a grammatical aspectual difference.

(13) A   macska   fel-mászott   a   fá-ra.
      the   cat.NOM   PRT-climbed   the   tree-to
      'The cat climbed up the tree.'

(14) A   macska   'mászott   'fel   a   'fá-ra,
      the   cat.NOM   climbed   PRT   the   tree-to
      amikor   a   kutya   kinézett   az   óljá-ból.
      when   the   dog.NOM   looked.out   the   his.doghouse-from
      'The cat was climbing up the tree when the dog looked out of his house.'

When it comes to particle verbs, Hungarian often indicates the contrast between perfective and imperfective aspect in the syntax in a way that, in the case of perfective sentences, the particle occupies the immediate preverbal position, as in (13), whereas in the case of imperfective sentences it comes after the verb, as in (14). In addition, the two types of sentences also differ in terms of the stress pattern they are associated with, as shown by the 'sign indicating primary stress.[11]

Csirmaz (2008b) argues that (im)perfectivity is independent of the lexical or situational aspectual properties of these descriptions. She uses the following data, which illustrate the framing effect (Jespersen 1931), to support this claim:

(15) (Csirmaz 2008b: 113, (15))
      a.   János   'megy   'fel   a   'lépcső-n.
           J.NOM   goes   up   the   stair-on
           'János is going up the stairs.'
      b.   János   'ment   'fel   a   'lépcső-n.
           J.NOM   went   up   the   stair-on
           *(amikor   csengettek).
           *(when   they.rang)
           'János was going up the stairs *(when the bell rang).'

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[10] Smith's (1991) classification also includes a neutral aspectual category, which, however, I do not assume in this work. For arguments on why it is sufficient to distinguish only between perfective and imperfective aspects, see Csirmaz (2008b).

[11] Although this pattern is very common in Hungarian, it does not characterize all particle verb constructions. For instance, the particle verbs *felolvas* 'recite' and *felszolgál* 'serve' can appear in both perfective and imperfective sentences with the particle *fel* occupying the immediate preverbal position (É. Kiss 2002: 63; Kiefer 2006: 43). Also, the contrast illustrated in (13) and (14) characterizes only neutral sentences, which do not contain a focused element. If, for example, the constituent *a macska* 'the cat' is focused in (14), a perfective interpretation becomes available.

The examples in (15) show that situations viewed imperfectively can only be interpreted relative to some specific time. This can be the utterance time in the present tense, as in (15a), or, in the case of sentences containing past tense, the time of another situation described in the sentence, as in (15b). Crucially, this effect does not characterize perfectively viewed situations, as illustrated in (16), where the sentence is interpretable without the consideration of the time of some situation other than János's going up the stairs.

(16)   János   fel-ment   a   lépcső-n.
          J.NOM   up-went   the   stair-on
          'János went up the stairs.'

Therefore, although the above examples are similar in that they contain a verbal predicate whose lexical aspectual properties remain unchanged (i.e. the verbal predicate is dynamic, durative, and telic), they are also different since they apparently encode different types of grammatical aspectual information.[12] This informs us of the independence of grammatical aspect of lexical aspect in Hungarian.

   Another argument for the independence of these two aspectual categories lies in the fact that Hungarian perfective and imperfective clauses are interpreted differently when accompanied by a *when*-clause. Consider (17).

(17)   (Csirmaz 2008b: 113, (16))
        a.   Amikor   csengettek,   János   le-ment   a   lépcső-n.
              when   they.rang   J.NOM   down-went   the stair-on
              'When the bell rang, János went down the stairs.'
        b.   Amikor   csengettek,   János   'ment   'le   a   'lépcső-n.
              when   they.rang   J.NOM   went   down   the stair-on
              'When the bell rang, János was going down the stairs.'

The examples above are different in that the clauses in (17a) are interpreted consecutively with the situation described in the perfective main clause occuring after the situation described in the *when*-clause, whereas in (17b), the situation in the imperfective main clause is taken to be in progress at the time of the situation expressed in the *when*-clause. This again suggests that grammatical/viewpoint aspect and lexical/situation aspect are to be treated as independent categories in the grammar of Hungarian.

   In this paper I disregard the domain of grammatical aspect and focus on the encoding of a single lexical aspectual property, telicity. In the following section I discuss some more recent proposals with respect to the representation and calculation of this property, important facets of which I will rely on in my analysis in Sections 3 and 4.

2.2 The representation and calculation of telicity

A central question that has long been at the forefront of attention in aspectual studies is how to model telicity, i.e. the effect of various aspectually relevant arguments (or incremental themes in the sense of Dowty 1991) and other constituents on the interpretation of the predicate in which they are contained. Some highly influential proposals from past decades include Henk Verkuyl's Plus-principle (Verkuyl 1972; 1993), David Dowty's result state model (Dowty 1979), Carol Tenny's aspectual theory (Tenny 1987; 1994), Manfred Krifka's event-argument homomorphism-model (Krifka 1989; 1992; 1998), and theories like Borer (2005) and Ramchand (2008), where it is argued that it is not the lexi-

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[12] The telicity of the predicate *felmegy a lépcsőn* 'go up the stairs' is, for example, evidenced by the fact that the progressive sentence *János ment fel a lépcsőn* 'János was going up the stairs' does not entail the corresponding perfective sentence *János felment a lépcsőn* 'János went up the stairs'. This phenomenon, which is often referred to as the imperfective paradox in the literature, is a characteristic property of telic, accomplishment predicates (Dowty 1979: 133-134).

cal semantics of the verb and that of other elements, but a specifically characterizable syntactic configuration that gives rise to telic interpretations. A more recent line of research seeks to calculate telicity in light of the scalar properties of verbal predicates (Hay et al. 1999; Kennedy 1999; Kennedy & McNally 2005; Wechsler 2005; Kennedy & Levin 2008; Rappaport Hovav 2008). The advocates of this approach generally assume a two-way distinction between verbs that express a scalar change and verbs expressing non-scalar changes. A scalar change can be characterized as follows:

(18)   (Rappaport Hovav 2008: 17)
        A scalar change is one which involves an ordered set of changes in a particular direction of the values of a single attribute and so can be characterized as movement in a particular direction along the scale.

The scales of such changes are associated with some property/dimension δ, a set of degree values S for having this property, and an ordering relation R for specifying the direction of the change as encoded in the verbal predicate. Verbs expressing a scalar change, which are hence often called scalar verbs, contrast with verbs that are associated with a combination of changes. The latter are generally referred to as non-scalar verbs. Canonical examples of scalar verbs are degree achievements like *cool* and *warm*, which specify an ordered change in a single attribute, i.e. the temperature, of the referent of the theme argument. In other words, these verbs can be characterized as encoding a temperature scale along which the denoted events progress in an orderly fashion. Members of the class of non-scalar verbs are, on the other hand, often represented by activity verbs like *play* and *dance*, which express a complex change (Rappaport Hovav 2008: 18). On this approach, telicity arises if the predicate or pragmatic context supplies information as to the endpoint of the scale encoded in the predicate. Otherwise, i.e. in the absence of a bounded scale, the predicate is interpreted atelically.

Scalar verbal expressions are further grouped into different classes based on the type of scale with which they are associated (Rappaport Hovav 2008: 17). These classifications reflect the intuition that scalar predicates can differ in terms of the type of change that they describe and these differences have important grammatical consequences. For instance, change-of-state verbs like *warm, cool, break,* and *die* encode property scales, i.e. scales along which change in an abstract property (e.g. the temperature) of an event participant occurs, whereas verbs of directed motion like *ascend, descend, enter, exit,* and *cross* each encode a path scale, which is traversed by the participant that undergoes a change of location. The latter can be illustrated with the example *John crossed the desert,* which expresses an event in the course of which the individual John traverses what is expressed by the direct object *the desert*. A third type of scale, which is often referred to as an extent/volume scale, is assumed in the case of verb phrases like *eat an apple, drink a beer,* and *build a house,* which all express the creation or consumption of an individual. What is unique to these predicates is that the events that they describe progress along the physical extent of the event participant that undergoes change. For example, in the case of predicates like *eat the apple* and *build the house,* it is the physical extent of the apple and the house, respectively, along which the denoted event advances.

Furthermore, it is also assumed that, in the class of scalar predicates, there is a distinction between verbs associated with scales having multiple degree values and verbs encoding scales which have only two degree values (Beavers 2008). The former is illustrated by verbs like *warm* and *cool,* which describe a change along a scale consisting of at least three degrees ordered on the dimension of temperature. They contrast with verbs like *die, break, enter,* and *exit,* which are often associated with scales consisting of a set of exactly two degrees. For instance, *break* encodes a property scale whose initial degree

value corresponds to a state of affairs in which the entity undergoing a change is not broken, while the final degree value corresponds to a state of affairs in which it is broken. Likewise, the property scale of *die* constitutes a set of degree values such that they correspond to a state in which the entity that undergoes change is alive and a state in which it is dead, respectively.[13] Given that these degree values obligatorily constitute the scales of these verbs (notice, for example, that there is no dying without a final state of death), the predicates that these verbs head are inherently telic.

A further distinction that is proposed concerns the class of verbs encoding scales with multiple degree values. Specifically, verbs like *cool* and *warm* contrast with verbs like *empty* and *straighten* in that the former have open scales, while the latter lexicalize closed scales, which are characterized by a maximal degree value thanks to their adjectival base *empty* and *straight,* respectively (Kennedy & McNally 2005; Wechsler 2005). The maximality of a degree value on a scale is to be interpreted in a way that there exist no higher degrees on the scale (von Stechow 1984; Hay et al. 1999; Kearns 2007).[14] The contrast between open-range and closed-range verbs has important aspectual consequences since a telic reading is more readily available in the case of predicates containing verbs like *empty* and *straighten* than in the case of predicates headed by open-range verbs. This is due to the fact that it is clearly easier to determine where the event culminates if the verb already lexicalizes an endpoint. If this does not hold, as in the case of open-range verbs, a telic interpretation arises just in case (i) there is some specific sentential material other than the verb that contributes where the event culminates or (ii) the listener can resort to pragmatic context for information about the endpoint of the event. Consider (19) and (20) below.

(19)   Kate emptied the fridge in/??for 10 minutes.

(20)   a.   Kate warmed the soup to 80 degrees in/*for 10 minutes.
        b.   Kate warmed the soup in 10 minutes. (telicity is due to pragmatic context)
        c.   Kate warmed the soup for 10 minutes.

In the examples above, the *in/for X time unit* diagnostic reveals that whereas the expression *empty the fridge* can be easily interpreted telically without any specific endpoint-denoting material in the sentence, a telic reading of predicates headed by *warm* is available just in case a measure expression like the PP *to 80 degrees* also constitutes part of the predicate, as in (20a), or pragmatic context supplies specific information as to the endpoint of the warming event. If these conditions do not obtain, an atelic reading results, as in (20c).

More recently, it has been proposed by Beavers (2012) that property scales, path scales, and creation/consumption scales are arguments characterized under one rubric as connected, directed paths associated with a mereological part structure (Link 1983), which also characterizes events (Bach 1986).[15] The lexical aspectual effect of scales, as discussed above, is captured by virtue of the assumption that the part structure of scales is homomorphically mapped to the part structure of events, an idea pursued, for example, in work by Krifka (1989; 1992; 1998).[16] On this approach, where all verbs entailing a change in

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[13] Beavers (2008) shows that verbs like *enter* and *exit* can also be associated with complex scales, and this can give rise to a durative interpretation.

[14] Whether or not maximality is part of the head verb's meaning has been the subject of debate in the literature (see Kennedy & Levin 2008 for an exposition of this). Since this is peripheral to my discussion, I will not address it any further.

[15] That different kinds of dynamic predicates, including those expressing a change in a property of an event participant and creation/consumption predicates, can be analyzed under one rubric has been proposed in analyses like Hay et al. (1999), Kennedy & Levin (2008), and Piñón (2008a). Also, Tenny (1987; 1994), Dowty (1991) and Jackendoff (1996), put forward similar ideas, albeit in a non-scalar context.

[16] The claim that homomorphisms figure into calculating telicity has been called into question by Kratzer (2004) and Rothstein (2004), among others. For more on some of the objections raised in these works and possible ways to address these objections, see Beavers (2014).

some property of a theme, are assumed to be scalar, scales are analyzed as in (21), where P_H represents the set of connected, directed paths and the precedence relation «$_H$ is responsible for partially ordering paths in P_H.

(21) (Beavers 2012: 53, (2.54))
   a. Each scale $s \in P_H$ represents a specific property.
   b. Degrees on s are atomic subparts of s.[17]
   c. Precedence relation «$_H$ orders subparts of s.

That is, dynamic predicates expressing motion or a change in some abstract property of an event participant (e.g. temperature, length, or width), and even those describing the creation/consumption of an entity, are assumed to be similar in denoting events in which the referent of some theme x moves (abstractly in the case of predicates of creation/consumption and property change) along a scale s towards some goal g on s, where g is an atomic subpart of s.

   Thus, the scales of Hay et al. (1999), Kennedy & McNally (2005), Rappaport Hovav (2008), and others are reinterpreted as connected, directed paths forming a mereological part-stucture, which is homomorphically mapped to the part structure of the events denoted by verbal predicates, thereby determining the aspectual interpretation of these predicates.

   There are two facets of Beavers's (2012) proposal that are immediately relevant for the subsequent discussion and thus need to be addressed here. First, a revised version of Krifka's definition of telicity (Krifka 1998: 207, (37)) is provided, as in (22).[18]

(22) (Beavers 2012: 35, (2.23))
      A predicate X over events is telic iff for any event it describes it does not
      describe any non-final subevent of that event.

Beavers's definition is a relaxed version of Krifka's (1998), and is in fact a restatement of the definition found in Krifka (1992: 35), in that it is void of the notion of initial subevent, which corresponds to the source point of the path traversed in the course of the event. Beavers motivates this by stressing that telicity is only about reaching a culmination or goal point. This is corroborated by the fact that predicates which do not supply specific information about the source point can still be interpreted telically on the condition that they specify the goal. The predicate in (23) exemplifies this.

(23) John ran (from the bank) to the station in 10 minutes/??for 10 minutes.

The optionality of the PP *from the bank* serves as evidence that the specification of the source point by the predicate is not a necessary condition for a telic interpretation. The example *John ran to the station* can apply both to a situation where John ran from the bank to the station and to a situation where John ran from a meter from the bank to the station. Thus it is the goal point specified thanks to the PP *to the station* that necessarily figures into calculating telicity.

   Another crucial observation that is implemented in Beavers's theory, one which is generally not built in other semantic aspectual theories like Krifka (1998) and Hay et al. (1999) or syntactic theories like Borer (2005) and Ramchand (2008), is that the aspectual structure of predicates of change is often determined by not one but two incremental

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[17] For more on atoms, i.e. smallest elements ordered by the part-of relation, see, for example, Link (1983) and Bach (1986).

[18] The formal definition of telicity as provided by Beavers (2012: 35), where U_E represents the domain of events, $\leq_E$ is the part of relation over events, and FIN_E is the final part of relation over events, is as follows: $\forall X \subseteq U_E [TEL_E(X) \leftrightarrow \forall e \forall e' \in U_E [X(e) \wedge X(e') \wedge e' \leq_E e \rightarrow FIN_E (e',e)]]$.

themes: the participant that undergoes change (the *figure* in Beavers's terminology) and the scale that is traversed in the course of the denoted event, an idea which originates in earlier work, such as Jackendoff (1996) and Filip (1999). The data in (24) exemplify multiple incrementality in the domain of activities like *shake*.

(24)   (Filip 1999: 100, (33))
        a.   The earthquake shook a book off the shelf in/?for a few seconds.
        b.   The earthquake shook books off the shelf for/??in a few seconds.[19]
        c.   The earthquake shook a book for/??in a few seconds.
        d.   The earthquake shook books for/??in a few seconds.

What is interesting about (24) is that a telic interpretation arises just in case two conditions are met: (i) the figure argument has quantized reference, as in (24a) and (24c), and (ii) the path traversed by the referent of the figure argument is bounded, as in (24a) and (24b). Failure for either of these conditions to obtain gives rise to atelicity, as in (24b), (24c), and (24d). To accommodate these facts, Beavers proposes a novel type of homomorphic relations, to be referred to as figure-path relations (FPRs), which obtain between the part structure of events and that of the two incremental themes, i.e. the figure and the scale. FPRs are ternary homomorphic relations, which ensure that the event is measured relative to the structure of the scale argument and also to the structure of the figure argument.[20] The informal definition of the figure-path relation is given in (25).

(25)   (adapted from Beavers 2011b: 14, (19))
        Figure/path relation: Every unique part of a figure argument *x* corresponds to a unique subevent *e'*, a proper part of *e*, and the sum of all such subevents constitutes *e*. For each such *e'*, every unique part of *e'* corresponds to a unique part of path *p* and vice versa; temporal adjacency in *e'* corresponds to spatial adjacency in *p*.

Events as described by verbal predicates of change are thus decomposed by parts of the figure into proper subevents, which are each mapped homomorphically (more precisely, isomorphically) to subparts of the path (*ibid.*). On this approach, the event is viewed as progressing in a way that each part of the figure moves along some part of the path towards a single goal point and it culminates when the final proper part of the figure reaches this point.[21] Thus, in order for telicity as defined in (22) to arise, the predicate must supply specific information as to how much figure ends up where on the path. Put differently, a telic reading becomes available just in case the following two conditions hold: (i) the quantity of the referent of the figure argument is determined and (ii) the boundedness of the path is ensured. This is in line with the (a)telicity facts in (24).[22]

    As Beavers points out, multiple incrementality effects are also observable when it comes to the calculation of another lexical aspectual value, durativity (see also Jackendoff 1996 and Filip 1999). That is, the durative/punctual nature of events is arguably determined by the internal (mereological) complexity of both the path/scale and that of the figure in the following way: If the path/scale has a simplex internal structure (i.e. it has just a

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[19] For some speakers the example in (24b) is possible with *in*-modification when the predicate is interpreted in a way that shaking each book off the shelf took a few seconds.

[20] For arguments as to why why we need to assume that the event is measured in a way that the two incremental themes are interrelated by the FPR and it is not, for example, a strict incremental relation and a movement relation (in the sense of Krifka 1998) that independently map the figure and the scale to the event, see Beavers (2012: 35-37).

[21] For a detailed discussion of how the event is structured relative to the path and the figure, see Beavers (2012: 42-43).

[22] This notion of telicity faces problems when it comes to examples like *eat more than three apples* and *drink at least three beers* given that these predicates contain figure arguments that have non-quantized reference and yet they are interpreted telically. For a possible solution compatible with the FPR analysis, see Sections 3.2 and 3.3.1, and also Beavers (2014).

beginning and an end) and the referent of the figure argument is viewed as undecomposable, the event is punctual, whereas in all other cases it is durative. Consider (26).

(26) (Beavers 2012: 49, (2.49))
    a. The settler will cross the border in an hour.   (after)
    b. The settler will cross the desert in an hour.   (during/after)
    c. The settlers will cross the border in an hour.   (during/after)
    d. The settlers will cross the desert in an hour.   (during/after)

The examples above show that when containing a simplex path like *the border* and a figure argument whose referent is viewed as undecomposable, which characterizes *the settler,* the predicate headed by the verb *cross* has only an *after*-reading in the presence of the frame adverbial *in an hour.* In other words, the predicate has a single interpretation such that the crossing event begins after an hour passes. This is indicative of the punctual nature of the situation described in (26a). By contrast, a complex path like *the desert* (i.e. a path that has more than just a beginning and an end by virtue of having a middle part as well) and/or a complex figure like *the settlers,* whose referent is viewed as decomposable, give rise to both a *during*-reading, where the predicate is interpreted in a way that the duration of the crossing is one hour, and an *after*-reading, which is a sign of durativity. This is observable in (26b), (26c), and (26d).[23] These facts fall out of the FPR analysis and thus provide further support for it.

Overall, then, Beavers's (2012) FPR-based theory has at least two important merits: (i) it captures multiple incrementality effects, to be further illustrated with Hungarian data in Sections 3 and 4, and (ii) it gives a very precise characterization of the truth-conditional content of verbal predicates by virtue of providing a specific characterization of the inter-related homomorphic mappings that obtain between the part structure of events, tha part structure of figures, and the part structure of scales. Beavers argues if a theory of lexical meaning is only about determining some specific location that some theme reaches, which is basically what the scalar semantic theories cited above achieve by assuming that telicity obtains if the predicate is associated with a bounded difference value (Hay et al. 1999: 133), it misses a larger point since "the goal of a theory of lexical meaning is not simply that it predict things like which predicates are telic, but that it more broadly capture their overall truth conditional content, ideally in a way that ultimately derives facts like telicity" (Beavers 2012: 44).

In my analysis of the situational aspectual facts of Hungarian verbal predicates, I assume an FPR-based view of telicity with the caveat that it needs to be supplemented with event maximalization, originally proposed in Filip & Rothstein (2006) and Filip (2008), to accommodate the aspectual effects of particles, resultative/locative expressions, and certain DPs. The next section is devoted to the elaboration of this idea.

3 Event maximalization

In this section I argue that Hungarian contrasts with English in that it has specific markers to determine telicity for various verbal predicates. I limit this discussion to non-creation/non-consumption predicates and focus on the telicity-marking role of verbal particles and that of resultative/locative expressions in this domain. With the theoretical assumptions in Section 2 in mind, I show that these elements give rise to telicity by virtue of directly imposing a bound on the denoted event and that they contrast with their English counterparts, which only bound the scale. The latter, as is predicted on an FPR-based view of telicity, is a necessary but not sufficient condition for a telic interpretation to arise (cf. (24b)).

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[23] For a detailed, formal characterization of mereologically simplex and complex entities and for more on how the internal complexity of paths and that of themes determine the punctual/durative nature of events, see Beavers (2012: 47-52).

I further propose that the relation between events and themes characterizing Hungarian predicates is due to a "form-to-meaning" principle, formulated in (27), which ensures that telicity be encoded in specific, event-bounding elements.[24]

(27)   **The Principle of Telicity Marking**: Telicity must be overtly marked by event bounders.

Building on Filip & Rothstein (2006) and Filip (2008), I also suggest that it is particles, resultative/locative expressions, and certain DPs that carry out event bounding by virtue of encoding an event-maximalizing operator MAX_E, to be defined in Section 3.2, which applies to sets of events and picks out the largest events in the denotation of verbal predicates. The overt marking of event maximalization has the effect that, when containing such particles, resultative/locative expressions or DPs, Hungarian predicates of change receive a strictly telic interpretation. In other words, aspectual duality does not arise. By contrast, in English, where MAX_E is covert, telicity emerges as a confluence of properties contributed by verbal, nominal, adjectival, and prepositional constituents and, in some cases, by pragmatic context. An important consequence of the fact that contextual cues can also have an effect on the aspectual structure of verbal predicates is that English has instances of aspectual variability. It is also important to note that the FPR alone predicts the majority of the (a)telicity facts of English, and this suggests that an extra operation of event maximalization may not be necessary to achieve telicity in the case of all predicates. For data illustrating the fact that the FPR may, however, underlie event maximalization in cases where telicity arises in the presence of a theme with non-quantized reference (see Section 3.2), see Beavers (2012: 46).

I present the following discussion in three main subsections: In Section 3.1, I revisit the contrast between English and Hungarian regarding the emergence of telicity. Then, I devote Section 3.2 to a more general characterization of the operation of event maximalization. In Section 3.3, I examine different predicate types in Hungarian and demonstrate how an FPR-based analysis which also accommodates event maximalization can account for a wide range of phenomena in this language. In Section 3.3.1, I focus on the (a)telicity facts of degree achievements, which often serve as the basis of scalar semantic investigations given their apparent scalar properties (Hay et al. 1999; Csirmaz 2009). In Section 3.3.2, I look into achievements and in Section 3.3.3 I turn to accomplishments expressing a change other than the creation or consumption of an event participant.

3.1 Revisiting the contrast between (a)telic predicates in English and Hungarian

The previous sections have demonstrated that telicity in Hungarian is often strictly dependent on the presence of a verbal particle or a resultative expression. I now further illustrate this with the degree achievements *melegít* 'warm' and *felmelegít* 'PRT-warm', which both describe warming events in the course of which an event participant undergoes a scalar change on the dimension of temperature. For similar facts, see also Csirmaz (2009).

(28)   a.   Mari   10 perc-ig   /*10   perc   alatt   melegített
             M.NOM   10 minute-for   /*10   minute   under   warmed
             egy csészé-t,
             a   cup-ACC,
             (#de   a   csésze   nem   lett   melegebb).
             (#but   the   cup   not   became   warmer)
             'Mari warmed a cup for 10 minutes, (#but the cup did not become warmer).'

_____
[24] That form determines interpretation is also observable in other areas of the grammar of Hungarian, namely quantification and focusing. For more on this, see É. Kiss (2002).

b.	Mari	10 perc	alatt	/*10	perc-ig	fel-melegített
	M.NOM	10 minute	under	/*10	minute-for	PRT-warmed

egy csészé-t,
a cup-ACC,
(#de a csésze nem lett melegebb).
(#but the cup not became warmer)
'Mari warmed a cup in 10 minutes, (#but the cup did not become warmer).'

In (28a) and (28b), the verbs *melegít* 'warm' and *felmelegít* 'PRT-warm' express an increase in the temperature of the referent of the affected argument *egy csészét* 'a cup. ACC'. This meaning component is due to the gradable adjective *meleg* 'warm.ADJ' underlying the verb, just like in English (Kennedy & Levin 2008: 156). That an increase in the temperature of the cup is entailed in both (28a) and (28b) is evidenced by the fact that the cancellation of this meaning yields semantic anomaly, as indicated by the # sign. Another property that is relevant here concerns the (a)telicity of the verbal predicates. Unlike their English counterparts, these degree achievements are characterized by aspectual invariability. The predicate containing the base verb *melegít* 'warm' receives an atelic interpretation only, as evidenced by the acceptability of the durative adverbial and the unacceptability of the frame adverbial, whereas the predicate headed by the particle verb *felmelegít* 'PRT-warm' is invariably telic. Recall that in English verbal predicates containing degree verbs like *warm* and an affected argument with quantized reference are associated with aspectual duality. That is, if context allows the listener to identify an endpoint to the temperature scale and hence the denoted event, telicity arises, whereas in the absence of such contextual support, only an atelic reading is available (cf. (20b) and (20c) in Section 2.2). By contrast, in Hungarian, pragmatic contextual cues do not affect the aspectual structure of degree achievements. Telicity arises just in case a particle or a resultative expression appears in the predicate. In light of the discussion of Section 2, it could, of course, be argued that these elements provide an endpoint to the scale of the verbal predicate, just like in English (as will be demonstrated further in Section 3.3.1), and not directly to the denoted event. Nevertheless, I suggest an alternative to this. I aim to argue for the event-bounding capacity of Hungarian particles and resultative expressions. Before this, however, an important question that remains in light of the discussion so far is how exactly verbal particles and resultative (or locative) expressions carry out event bounding in the predicate. A discussion on this follows next.

3.2 A general overview of the operation of event maximalization

Building on Beavers (2012), on the one hand, and Filip & Rothstein (2006) and Filip (2008) on the other, I propose that telicity in Hungarian arises as a direct consequence of an event-maximalization operation in the following way: Aspectual particles and resultative/locative expressions encode a maximalization operator, to be referred to as MAX_E, which applies over predicates denoting events measured by both figure arguments and scalar arguments by virtue of having FPR-type homomorphisms between them. A crucial effect of this operation is the determination of quantized reference to the verbal predicate and ultimately the interpretive constraints that characterize the figure and the scale such that the figure must be minimally quantized and the scale must be bounded. Thus, the following cross-linguistic difference falls out of the analysis: Hungarian contrasts with English in that in the former quantized reference of the VP seems to be a necessary and sufficient condition for a telic reading to arise in cases where in English, which does not seem to require event maximalization for telicity in the case of most verbal predicates, this condition is only sufficient.

To give a more precise characterization of the operation of event maximalization, I first cite Filip & Rothstein's (2006: 139, (2)) definition in (29), which I will adopt in a slightly different version, to be discussed later in this section.

(29)   Telicity corresponds to the *maximalization operator MAX_E*. It is a monadic operator, such that $MAX_E(\Sigma) \subset \Sigma$, which maps sets of partially ordered events Σ onto sets of maximal events $MAX_E(\Sigma)$.

To demonstrate that a maximalization account of telicity is compatible with one that assumes figure-path relations, I now discuss the most important elements of the theory behind (29).

First, Filip & Rothstein (2006) assume a Krifka-style semantics combined with the scalar semantics of Gazdar (1979) and Horn (1972). An important facet of their theory, in which respect it actually departs from Krifka's, is that events expressed by verbal predicates are ordered with respect to scales, which are often encoded in verb-external elements in languages like English. A scale on this view is not an argument of the verb, as in the FPR model, but functions as a 'measuring device' such that it allows the identification of the size of events in the denotation of a verbal predicate. This is crucial for telicity since, in order for MAX_E to apply, the largest events in the denotation of predicates must be determined. According to Filip (2008), in order for a predicate to receive a telic interpretation, the following conditions need to hold: The predicate is characterized by having a verb that encodes a homomorphic relation, which is either a strictly incremental relation (Krifka 1998: 213, (51)) characterizing verbs like *eat* and *drink*, or an incremental relation (Krifka 1998: 219, (59)) encoded in verbs like *read* and *study*. Furthermore, it is also a necessary condition for telicity that an incremental theme or the verb itself allow the identification of a measuring scale by virtue of providing an ordering criterion for the events in the denotation of the verbal predicate.[25] This characterizes expressions like *drink two beers* and *read two novels*, where the incremental theme has quantized reference, or base verbs like *empty*, which encode a closed scale. If these conditions obtain, the event maximalization operator MAX_E applies to a partially ordered set of events and returns the largest unique event at a given situation, thereby providing the predicate with quantized reference. This in turn gives rise to a telic interpretation. If, on the other hand, a measuring scale cannot be deduced by the listener, MAX_E cannot apply and it is only an atelic reading that becomes available.[26]

As Filip (2008: 223–225) argues, an important merit of this analysis is that it can predict telicity in the case of predicates like *eat more than three apples* or *drink a large quantity of orange juice*, which represent what has been referred to as the quantization puzzle in the literature. The gist of this puzzle, which has been discussed by researchers like White (1994), Krifka (1998), Zucchi & White (2001), and Rothstein (2004), is that predicates headed by verbs like *eat* and *drink* can be interpreted telically not only in the presence of incremental themes with quantized reference such as *three apples* and *a glass of orange juice*, but also with incremental themes like *more than three apples* and *a quantity of orange juice*, which have non-quantized reference. Filip claims that the telicity of these predicate is due to the fact that "MAX_E adds the requirement to pick (at a given situation) the largest

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[25] On this account it is also possible for constructions, as in *Mary waltzed into the room*, to ensure the identification of a measuring scale (Filip 2008: 237).

[26] As will be further discussed in Section 3.3.1, an alternative characterization of telicity is that it does not necessarily require event maximalization so that it can emerge. In the case of examples like English *ate two apples* and its Hungarian counterpart *evett két almát*, where the verbal predicate is quantized thanks to the theme with quantized reference, the FPR is sufficient to calculate telicity.

unique event e_i, which leads to the most informative proposition among the alternatives in a given context" (Filip 2008: 224). Event maximalization here is possible as it is based on scalar implicatures introduced by the VP.

There are two general points that need to be addressed here: First, Beavers (2012: 46) suggests that Filip's (2008) extra step of inducing a scale may not be necessary if we assume that event maximalization is contingent on the verb assigning a figure-path incremental role and a theme DP that is quantified; in this case telicity arises as "no non-final subevent of any event related to some specific quantity of the theme is also an event related to the same specific quantity of the theme". In my analysis I adopt this idea, and can thus maintain the FPR-based view that all non-creation/non-consumption predicates of change, telic or atelic, are associated with a scalar argument, with the caveat that once these two conditions obtain, event maximalization is required; in other words, a verb assigning a figure-path relation and a quantified theme DP are a necessary and sufficient condition for event maximalization to apply. Second, Filip and Rothstein (2006) assumes that there is a proper subset relation between the input and the output of MAX_E. This poses problems in the case of predicates whose telicity is due to a theme DP with quantized reference, as in the case of *eat two apples* and *build two houses*, since these examples are true of events in which two apples have been eaten and two houses have been built, respectively, and no proper subpart of those events are in the denotation of these predicates. This problem also arises in the case of achievements, in which case Filip and Rothstein (2006) do not assume event maximalization, but the present FPR-based analysis does, at least in the case of Hungarian. For this reason I assume that it is not a proper subset relation but a subset relation that obtains between the input and the output of the event maximalization operator.

Moving on, in addition to English, Filip also examines data from Slavic languages and claims that the two types of languages differ in that MAX_E operates at the level of VPs and IPs in English and at the level of Vs in Slavic languages. More specifically, she proposes that while in English telicity is calculated fully compositionally, in Slavic languages it is perfective underived or derived verbs that express the type of events that can serve as input to event maximalization. Further, she argues that English-type and Slavic languages are also similar in that MAX_E is a covert operator in both types of language. As for English, it is clear that verbal particles, which could be possible candidates for the role of encoding MAX_E, do not have a maximalizing effect in the predicate, as will be demonstrated in Section 3.3.1. In Slavic languages, on the other hand, it is perfectivizing prefixes that could in principle encode MAX_E, which gives rise to telic readings. Filip, however, rejects this possibility due to the following reason: If perfectivizing prefixes encoded MAX_E, we would expect that event descriptions that formally perfective prefixed verbs express are always associated with an inherent endpoint. This, however, has to be refuted since perfective prefixes like *do-* in Czech can actually occur in perfective verbs expressing maximal events and also in imperfective verbs denoting non-maximal events. This is shown in (30), where the superscripts 'P' and 'I' stand for perfective and imperfective, respectively.

(30)   *Czech* (Filip 2008: 246, (35))

     a.   Mozart **do**.psal[P]   poslední   takty   Don Giovanniho   na

            Mozart TERM.wrote.3SG   last   notes   D.G.SG.GEN   on

            Bertramce   *týden   / za týden.

         B.   *for a week   / in a week

         'Mozart finished composing the last notes of D.G. in the villa Bertramka in a week.'

    b.   Mozart **do**.pis.ova.l^l poslední   takty
         Mozart TERM.write.IPF.PAST.3SG   last   notes
         Don Giovanniho   na   Bertramce   týden   / *za týden.
         D.G.SG.GEN   on   B.   for a week   / *in a week
         'Mozart spent a week finishing the last notes of D.G. in the villa Bertramka.'

Filip (2008: 246–247) points out that although both examples above satisfy the input require-ment for MAX_E by virtue of expressing events that are partially ordered with respect to some scale and its upper bound, it is only (30a), which contains the perfective verb *dopsal*, that entails that all the parts of Don Giovanni were composed. That (30b), where the imperfec-tive verb also contains the perfective prefix *do-*, is not characterized by this entailment is evidenced by the fact that it is compatible with the continuation '... but he still continued finishing Don Giovanni on his return to Vienna'. This leads Filip to conclude that it is not the perfective prefix *do-* that introduces the maximalization operator MAX_E into the predicate.[27]

    Without delving into more specific properties of telic predicates in Czech and other Slavic languages in this section, I now turn to Hungarian and suggest that the data exam-ined so far and to be presented next are also amenable to an event-maximalization analy-sis, with the caveat that the analysis has to accommodate figure-path relations. That is, it seems reasonable to propose that the telicity of Hungarian non-creation/non-consump-tion predicates arises as a result of a maximalization operation on sets of events, where, in accordance with the FPR, the events are partially ordered relative to the part structure of the figure argument and the part structure of the scale, which is lexically specified by the head verb. Notice that this is a departure from Filip's (2008) proposal according to which it is only verbs like English *melt* and *empty* that are lexically associated with a scale, whereas in the case of other predicates it is a verb-external element (e.g. the object) that provides the scale. This, however, leaves unexplained multiple incrementality effects observable with all kinds of dynamic predicates, as illustrated even with English *wipe* and also with *eat* and *drink* in Beavers (2012: 55-57). On an FPR analysis these facts are predicted given the assumption that all these predicates lexically specify two incremental themes, a figure and a scale, and a ternary figure-path relation ensuring that the semantic properties of the two themes are constrained relative to each other.

    Furthermore, in Hungarian there is good reason to believe that it is elements like ver-bal particles and resultative/locative expressions that overtly encode the maximaliza-tion operator MAX_E, thereby satisfying the Principle of Telicity Marking in (27). In other words, the semantic function of these elements is such that they add a maximalization requirement on the set of events in the denotation of verbal predicates. The primary moti-vation for this claim is that in Hungarian non-creation/non-consumption situations asso-ciated with an inherent endpoint are obligatorily expressed by predicates containing a verbal particle or a resultative/locative expression, and also, the presence of one of these elements guarantees the telicity of the predicate, i.e. aspectual duality does not arise. This dovetails with the generalization cited by Filip from Partee (1999), according to which "lexical items that are grammatically marked with respect to a given distinction do not easily undergo a shift in meaning" (Filip 2008: 250).

    As for the syntax of telicizing particles and resultative/locative expressions, I follow É. Kiss (2002) in assuming that they are lexically selected arguments of the verb but they are in a derived position (the specifier of an aspectual functional projection) in the sentence. Movement of these elements is triggered by the fact that in their base-generated position

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[27] Łazorczyk (2010) provides a significantly different analysis of imperfective verbs in Slavic languages. Spe-cifically, she argues for the telicity-marking role of perfective prefixes in these verbs and further claims that the secondary imperfective is a partitive atelicizer, and is thus a marker of lexical aspect. For some of Łazorczyk's arguments for the telicity-marking role of Slavic prefixes, see Section 5.

they would violate the referentiality constraint, which disallows non-referential expressions in the postverbal position, and they also need to check the aspectual feature of an Asp head, which I claim is responsible for event maximalization. This analysis is compatible with the view that MAX_E in Hungarian applies to the denotation of the VP thereby constraining the semantics of the theme such that the quantity of its referent must be known and the semantics of the scale such that it must be bounded.

Now, if this analysis is along the right lines, i.e. telicity in Hungarian arises thanks to an event maximalization operation induced by MAX_E, it also follows that, in this language, telicity in the verbal domain examined here always amounts to quantized reference by virtue of MAX_E picking out the largest unique event in the denotation of a verbal predicate at a given situation: If the predicate is quantized, then for any event *e* described by the predicate, there is no subevent *e'*, such that it is a proper part of *e*, which is also described by the predicate. In the remainder of this paper, I wish to demonstrate that this view of telicity and the assumption that telicity must be overtly marked in Hungarian can predict a wide range of facts in different predicate classes.

3.3 Signs of event maximalization in Hungarian

3.3.1 Degree achievements

In this section I provide evidence for both obligatory telicity marking in Hungarian and the event-maximalizing function of verbal particles and resultative expressions in the class of degree achievements. First, if (i) telicity must be accompanied by an event-maximalization operation in this domain, (ii) event maximalization is encoded in verbal particles and resultative expressions and is contingent on the presence of quantified themes and bounded scales, and (iii) events denoted by dynamic verbal predicates of change are measured relative to multiple incremental themes, the figure and the scale by virtue of the head verb's encoding homomorphic figure-path relations, we expect that bare figure arguments, whose quantity is left unspecified, cannot occur in the presence of particles and resultative expressions. The examples in (31) and (32) bear this out.

(31) a. *A   kukták   fel-melegítettek csészék-et.
          the sous chefs.NOM PRT-warmed   cups-ACC
      a'. A   kukták   fel-melegítettek három   csészé-t.
          the sous chefs.NOM PRT-warmed   three   cup-ACC
          'The sous chefs warmed three cups.' (telic)

(32) a. *A   munkások   ki-szélesítettek utak-at.
          the   workers.NOM PRT-widened   roads-ACC
      a'. A   munkások   ki-szélesítettek három   ut-at.
          the   workers.NOM PRT-widened   three   road-ACC
          'The workers widened three roads.' (telic)
      b. *A   munkások   autópályá-vá szélesítettek utak-at.
          the   workers.NOM freeway-into widened   roads-ACC
      b'. A   munkások   autópályá-vá szélesítettek három ut-at.
          the   workers   freeway-into widened   three road-ACC
          'The workers widened three roads into a freeway.'

The affected argument in each case above must be specifically determined, or else the sentence is ungrammatical, which is what (31a), (32a), and (32b) illustrate.[28] This effect is due

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[28] That the referential properties of the internal arguments of particle verbs and verbs appearing with a resultative expression are constrained in Hungarian has been discussed by Kiefer (1992), Komlósy (1992; 1994), É. Kiss (1995; 2005; 2008), and Szili (2001), among others. Also, an interesting characteristic of particle verbs in a variety of verbal domains is that they require the obligatory expression of the internal argument. This may also point to telicity marking via particles in Hungarian if we assume that particles introduce a result state subevent into the event structure of the verbal predicate and that there is a correlation between event structure and argument structure such that each subevent in the lexical semantics of verbs must be paired up with a syntactically realized argument (Rappaport Hovav & Levin 2001).

to the particles *fel* and *ki* and the resultative expression *autópályává* 'into a freeway', which constrain the predicate in a way that it must be telic. A similar phenomenon is observable in Slavic languages, where in the environment of perfective verbs encoding an event-maximalizing operator the affected argument must have a specific interpretation (for examples, see Filip 2008: 250). Notice that in English there is no such constraint that particles and resultative expressions impose on the predicate, from which interpretive properties of the affected argument would follow. For illustration, I provide the examples in (33).[29]

(33)   a.   The sous chefs warmed up cups for/*in an hour.
       b.   The sous chefs warmed up three cups in /*for an hour.

The grammaticality and the atelic interpretation of (33a) can lead us to conclude that *up* in the verbal expression *warm up* is not an event-maximalizing element. Instead, it is responsible for placing a bound on the temperature scale encoded in the verb *warm*. Telicity arises just in case a specifically determined figure argument appears in the sentence and the scale is bounded, as in (33b).[30] Likewise, the resultative expression *into a freeway* in (34) is by itself insufficient for a telic interpretation to arise, which again suggests that English resultatives place bounds on scales only, and not on events.

(34)   a.   The workers widened roads into a freeway for /*in a year.
       b.   The workers widened the roads into a freeway in /*for a year.

That English particles and resultatives do not have an event-maximalizing role is also illustrated by predicates other than degree achievements. Consider (35) and (36) taken from Levin & Sells (2009), where each predicate contains a resultative expression or a particle, and yet they all receive an atelic reading.

(35)   (Levin & Sells 2009: 314–315, (27))
       a.   Sam wiped furniture clean for an hour.
       b.   Phil pounded scrap metal flat for an afternoon.

(36)   (Levin & Sells 2009: 314–315, (28))
       a.   She swept dirt off the floor for/*in 2 minutes.
       b.   He wiped toothpaste out of the sink for/*in 5 minutes.

Overall, the English data discussed so far suggest that the FPR-analysis, which does not assume event maximalization, is sufficient to deliver the facts of English in the case of a variety of verbal predicates. As was mentioned in Section 3.2, it is, for example, telic predicates representing the quantization puzzle that require us to assume an event maximalization operation in English, as well, as also discussed by Beavers (2012: 44–47). The gist of Beavers's idea, which is actually rooted in Zucchi & White's (2001) theory of the telicity facts of these predicates, is that in the environment of verbs encoding homomorphisms between the part structure of themes and that of events, theme DPs occurring with quantifiers like *at least three* or *more than three* are interpreted with quantized reference due to maximalization at the level of the VP, and this satisfies a basic requirement for telicity.

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[29] Similar facts are discussed by Borer (2005: 211), who also notes that native speakers' judgements vary concerning data like (33a). Some people assign a question mark, while others assign full grammaticality to such examples. As for Hungarian, native speakers tend to agree that particle verbs like those in (31) and (32) are unacceptable with bare plural objects in neutral sentences.

[30] Notice that data like (33a) pose a problem for theories like Ramchand (2008), where verbal particles identify a resultative head in a verbal decomposition and thus they give rise to telicity. For the analysis proposed in this paper, this is not a problem given that the bare plural noun *cups* is not specific about the quantity of the figure, which predicts that telicity cannot arise.

As for Hungarian, predicates similar to those above show effects that are observable in English, i.e. with these predicates telicity can emerge in the environment of a nominal expression that does not have quantized reference.

(37)   a.   A   kukták   10 perc   alatt   /*10 perc-ig   fel-melegítettek
            the   sous chefs.NOM 10 minute under   /*10 minute-for PRT-warmed
            több, mint   három   csészé-t.
            more, than   three   cup-ACC
            'The sous chefs warmed more than three cups in 10 minutes.'

        b.   A   munkások   10 év   alatt /*10 év-ig   autópályá-vá szélesítettek/
           the   workers.NOM 10 year under/*10 year-for freeway-into widened/
           ki-szélesítettek több, mint   három ut-at.
           PRT-widened more than   three   road-ACC
           'The workers widened more than three roads (into a freeway) in 10 years.'

Now, if the analysis proposed here is correct and telicity must be overtly marked by event-bounding elements, as stated in (27), and event maximalization is not only contingent on a verb assigning a figure-path incremental role and a quantified theme DP, as tentatively suggested by Beavers (2012: 46), and but it is also required, we expect that bare verbs from this class will not be acceptable in the environment of nouns occuring with quantifiers like *több, mint három* 'more than three'. Consider (38).

(38)   a. ??A   kukták   melegítettek több,   mint   három csészé-t.
           the sous chefs.NOM   warmed   more, than three   cup-ACC
       b. ??A   munkások   szélesítettek több,   mint   három ut-at.
           the workers.NOM   widened   more, than three   road-ACC

The examples in (38) show that it is quite unusual for verbs like *melegít* 'warm' and *szélesít* 'widen' to appear without a particle or a resultative phrase in the environment of quantified expressions like *több, mint három csészét* 'more than three cups' and *több, mint három utat* 'more than three roads'. Once a particle or a resultative expression accompanies the verb, the examples become perfectly acceptable, as is clear from (37).[31]

Having demonstrated the interpretive constraints and the lack thereof observable in the case of verbal particles and resultative expressions in Hungarian and English, I now turn to the second argument for the event maximalizing role of Hungarian verbal particles and resultative expressions. In particular, if telicity must be accompanied by an event-maximalization operation in this domain and event maximalization is encoded in verbal particles and resultative/locative expressions, we expect that, in the presence of verbal particles or resultative expressions, the inference that a specific final state on the path/scale has been attained cannot be cancelled. This is illustrated in (39), where the continuations asserting that a specific result state has not been attained give rise to semantic ill-formedness. As expected, in the absence of a verbal particle, this problem does not arise.[32]

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[31] Notice that with the exception of these examples, the maximalization operator in Hungarian seems vacuous since verbal complexes including a particle verb and a theme DP are already quantized, and thus the events that they denote are maximal.

[32] If speakers have different degrees of standard in mind with these events (notice that what is warm or cool enough for one person may not be warm or cool enough for another person), it is possible to interpret these sentences.

(39) a. Kati   fel-melegítette a   leves-t,
          K.NOM   PRT-warmed   the   soup-ACC,
          #de   a   leves   nem   lett   elég   meleg.
          #but the soup   not   became   enough warm
            'Kati warmed the soup, #but the soup did not become warm enough.'
      b. Kati   le-hűtötte   a   leves-t,
          K.NOM   PRT-cooled   the   soup-ACC,
          #de   a   leves   nem   lett   elég   hideg.
          #but   the   soup   not   became   enough   cold
            'Kati cooled the soup, #but the soup did not become cold enough.'

Next, if the claim that telicity must be marked via event-bounding particles or resultative expressions in the class of degree achievements is correct, predicates containing a degree verb that encodes a multi-point closed scale are expected to contain a particle or a resultative expression. This is what I test in (40) – (43).

(40) a. *Egy   kamion   lapított   egy   Trabant-ot.
           a   truck.NOM   flattened   a   Trabant-ACC
      b.   Egy   kamion   ki-lapított   egy   Trabant-ot.
           a   truck.NOM   PRT-flattened a   Trabant-ACC
            'A truck flattened a Trabant.'
      c.   Egy   kamion   palacsintá-vá lapított   egy   Trabant-ot.
           a   truck.NOM   pancake-into   flattened   a   Trabant-ACC
            'A truck flattened a Trabant into a pancake.'

(41) a. *Mari   ürített   egy   szobá-t.
           M.NOM   emptied   a   room-ACC
      b.   Mari   ki-ürített   egy   szobá-t.
           M.NOM   PRT-emptied   a   room-ACC
            'Mari emptied a room.'

(42) a. *A   folyómeder   telt.
           the   riverbed.NOM   filled
      b.   A   folyómeder   meg-telt.
           the   riverbed.NOM   PRT-filled
            'The riverbed filled up.'

(43) a. *Sándor   egyenesített   egy   kötel-et.
           S.NOM   straightened   a   rope-ACC
      b.   Sándor   ki-egyenesített   egy   kötel-et.
           S.NOM   PRT-straightened   a   rope-ACC
            'Sándor straightened a rope.'

The examples show that it is not possible for predicates like *lapít* 'flatten', ürít 'empty', *telik* 'fill', and *egyenesít* 'straighten', which all lexicalize closed scales, to appear without a particle or a resultative expression in perfective sentences, which are facts pointing towards obligatory telicity marking.

Perhaps even more convincing evidence is expected with respect to obligatory telicity marking via event-bounding elements in the class of achievements, given the inherently bounded scalar change with which the members of this class are associated. This is what I explore next.

3.3.2 Achievements

I begin this section with some illustrative examples of Hungarian achievements in (44).

(44) a. János   el-tört   egy   vázá-t.
         J.NOM   PRT-broke   a   vase-ACC
         'János broke a vase.'
     b. Feri   el-tépett   egy   ruhá-t.
         F.NOM   PRT-tore   a   dress-ACC
         'Feri tore a dress.'
     c. Károly   el-felejtett egy   jelszó-t.
         K.NOM   PRT-forgot   a   password-ACC
         'Károly forgot a password.'
     d. Lajos   fel-robbantott egy   ház-at.
         L.NOM   PRT-exploded   a   house-ACC
         'Lajos exploded a house.'
     e. Péter   meg-halt.
         P.NOM   PRT-died
         'Péter died.'
     f. István   el-érte   a   hegycsúcs-ot.
         I.NOM   PRT-reached   the   hilltop-ACC
         'István reached the hilltop.'
     g. Zoltán   meg-érkezett az   állomás-ra.
         Z.NOM   PRT-arrived   the   station-to
         'Zoltán arrived at the station.'

An important property relevant to this discussion is that Hungarian achievements like those in (44) cannot occur with bare nominal expressions, as illustrated with some examples in (45)–(48).

(45) a. *Kati   el-tört   vázák-at.
         K.NOM   PRT-broke   vases-ACC
     b. Kati   el-tört   három   vázá-t.
         K.NOM   PRT-broke   three   vase-ACC
         'Kati broke three vases.'

(46) a. *Mari   el-tépett   függönyök-et.
         M.NOM   PRT-tore   curtains-ACC
     b. Mari   el-tépett   két   függöny-t.
         M.NOM   PRT-tore   two   curtain-ACC
         'Mari tore two curtains.'

(47) a. *Bertalan el-felejtett jelszavak-at.
         B.NOM   PRT-forgot   passwords-ACC
     b. Bertalan   el-felejtett egy   jelszó-t.
         B.NOM   PRT-forgot   a   password-ACC
         'Bertalan forgot a password.'

(48) a. *Károly   fel-robbantott olaj-at.
         K.NOM   PRT-exploded   oil-ACC
     b. Károly   fel-robbantott egy   hordó   olaj-at.
         K.NOM   PRT-exploded   a   barrel   oil-ACC
         'Károly exploded a barrel of oil.'

The ungrammaticality of the (a) examples is expected if we assume that the particles *el* and *fel* encode event maximalization such that it is contingent on the presence of quanti-

fied themes and bounded scales. Although the boundedness of the scale is met thanks to the lexical specification of the head verb, the bare plurals *vázákat* 'vases.ACC', *függönyöket* 'curtains.ACC', *jelszavakat* 'passwords.ACC', and *olajat* 'oil.ACC' give rise to ill-formedness. This problem does not arise in the (b) examples, which contain figures whose quantity is known.

Another argument for obligatory telicity marking in the class of achievements is as follows: If (i) telicity must be overtly marked by event-bounding elements, (ii) event bounding is encoded in elements like verbal particles or resultative/locative expressions, and (iii) scales of achievement verbs are inherently bounded by virtue of containing only an initial and a final subscale, then a particle or resultative/locative expression must occur in achievements.[33] Consider the examples below.

(49) a. *Kati   tört   egy   vázá-t.
          K.NOM   broke   a   vase-ACC
      b. Kati   el-tört   egy   vázá-t.
          K.NOM   PRT-broke   a   vase-ACC
          'Kati broke a vase.'
      c. Kati   darabok-ra   tört   egy   vázá-t.
          K.NOM   pieces-into   broke   a   vase-ACC
          'Kati broke a vase into pieces.'

(50) a. *István   tépett   egy   függöny-t.
          I.NOM   tore   a   curtain-ACC
      b. István   szét-tépett   egy   függöny-t.
          I.NOM   PRT-tore   a   curtain-ACC
          'István tore a curtain.'
      c. István   darabok-ra   tépett   egy   függöny-t.
          I.NOM   pieces-into   tore   a   curtain-ACC
          'István tore a curtain into pieces.'

(51) a. *Károly   halt.
          K.NOM   died
      b. Károly   meg-halt.
          K.NOM   PRT-died
          'Károly died.'

(52) a. *János   érte   a   hegycsúcs-ot.
          J.NOM   reached   the   hilltop-ACC
      b. János   el-érte   a   hegycsúcs-ot.
          J.NOM   PRT-reached   the   hilltop-ACC
          'János reached the hilltop.'

As illustrated above, the Hungarian counterparts of the achievement predicates *break a vase*, *tear a curtain*, *die*, and *reach the hilltop* must contain a verbal particle or a resultative expression. If such an element is missing, the sentence becomes ungrammatical. In terms of their semantics, both the particles *el*, *szét*, and *meg* and the resultative expression *darabokra* 'into pieces' have similar aspectual functions by virtue of determining endpoints to the denoted events, and they are also different in that the resultative expression contributes more descriptive content to the predicate by specifying the result state that

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[33] The generalization that verbal particles or resultative expressions are typically obligatory components of achievement predicates like *tör* 'break' has been noted by several authors including Komlósy (1994), Szili (2001), É. Kiss (2005; 2008), and Dékány (2008).

the theme ends up in.[34] It is in fact also possible for both types of expressions to simultaneously appear in the sentence.

(53) a. István   el-tört   egy   vázá-t   darabok-ra.
          I.NOM   PRT-broke   a   vase-ACC   pieces-into
          'István broke a vase into pieces.'
      b. István   szét-tépett   egy   függöny-t   darabok-ra.
          I.NOM   PRT-tore   a   curtain-ACC pieces-into
          'István tore a curtain into pieces.'

As we will see, this pattern is not unique to change-of-state predicates, but is also observable in the domain of motion predicates. I provide more illustration and insights on multiple event-bounding elements later in this section.

Potential counterexamples to the analysis are given in (54) and (55), where the predicates *tör egy darab kenyeret* 'break a piece of bread' and *tör egy darab papírt* 'tear a piece of paper' both belong to the class of achievements and yet appear without an event-maximizing particle or resultative expression.

(54) Kati   tört   egy   darab   kenyer-et.
      K.NOM   broke   a   piece   bread-ACC
      'Kati broke off a piece of bread, thereby making this available for herself or someone else.'

(55) Mari   tépett   egy   darab   papír-t.
      M.NOM   tore   a   piece   paper-ACC
      'Mari tore off a piece of paper, thereby making this piece available for herself or someone else.'

A possible explanation of the grammaticality of the examples above is that they contrast with (53a) and (53b) in that while *tör egy darab kenyeret* 'break off a piece of bread' and *tör egy darab papírt* 'tear off a piece of paper' express that an entity becomes available at the culmination of the denoted event (i.e. such verbs express the creation of an entity), the examples in (53a) and (53b) simply express change-of-state events. As mentioned in Section 2, this contrast gives rise to crucial differences in the grammatical behavior of verbal expressions in Hungarian.[35]

As for the aspectual structure of achievements describing a change in the location of an event participant, we can again observe what characterizes change-of-state verbal expressions: An event-bounding element, i.e. a particle or in this case a locative XP, must appear in the predicate, as shown in (56) and (57). For a similar observation, see É. Kiss (2008: 27).

(56) a. *Kati   lépett.
              K.NOM   stepped
      b. Kati   be-lépett.
          K.NOM   PRT-stepped
          'Kati stepped inside.'

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[34] É. Kiss (2008: 19) also provides examples illustrating this contrast including *Éva szőkére festette a haját* 'Éva dyed her hair blonde' versus *Éva befestette a haját* 'Éva dyed her hair' and *A hús puhára főtt* 'The meat cooked tender' versus *A hús megfőtt* 'The meat cooked', where *szőkére* 'lit. blonde-into' and *puhára* 'lit. tender-into' convey specific information as to the result state of the theme, whereas the particles *be* and *meg* only determine an endpoint to the painting and cooking events, respectively.

[35] Szabolcsi (1986) identifies several other verbs including *születik* 'be born', *kap* 'get', *talál* 'find', and *szerez* 'obtain', which behave similarly when it comes to such different phenomena as the definiteness effect and the encoding of telicity as a result of expressing creation events.

    c. Kati   a   szobá-ba lépett.
        K.NOM the   room-into stepped
        'Kati stepped into the room.'[36]

(57) a. *A   labda   esett.
          the   ball.NOM   fell
     b. A   labda   le-esett.
         the   ball.NOM   PRT-fell
        'The ball fell (e.g. off the table).'
     c. A   labda   a   föld-re   esett.
         the   ball.NOM   the   ground-to fell
        'The ball fell to the ground.'

An alternative pattern to what is observable in the (b) and (c) examples above is illustrated in (58), where there appear both a particle and a locative XP in the sentence. For more examples, see É. Kiss (2008: 33).

(58) a. Kati   be-lépett   a   szobá-ba.
         K.NOM PRT-stepped the   room-into
        'Kati stepped into the room.'
     b. A   labda   le-esett a   föld-re.
         the   ball.NOM   PRT-fell the ground-to
        'The ball fell to the ground.'

The motion predicates in (58) are reminiscent of the change-of-state predicates in (53) in that the former also contain both a verbal particle and an expression that contributes more descriptive content about the endpoint of the denoted event. A possible analysis of this phenomenon is that both the particle and the endpoint-denoting locative or resultative expression introduce event maximalization into the predicate with the effect that one of these operators will be aspectually redundant since if MAX_E takes a quantized predicate, it will return a quantized predicate. Put differently, the predicates that are the outputs of event maximalization can be characterized in terms of having the same aspectual value (i.e. they are both telic) due to the fact that they are both interpreted with quantized reference.

3.3.3 Accomplishments

Finally, the telicity facts of accomplishments expressing non-creation/non-consumption events are reminiscent of what is observable in the other predicate classes examined so far: Telicity arises in the presence of a particle or resultative/locative expression since these elements have an event-maximalizing role in the predicate. Examples illustrating this are given below.

(59) a. *Péter   piros-ra/le   festett   kerítések-et.
         P.NOM red-into/PRT painted   fences-ACC
     b. Péter   piros-ra/le   festett   három   kerítés-t.
         P.NOM red-into/PRT painted   three   fence-ACC
        'Péter painted three fences (red).'

As predicted by the analysis, in the presence of the event-maximalizing elements *pirosra* 'lit. into red' and *le* above, the expression *kerítéseket* 'fences', which is not

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[36] In the case of the verb *lép* 'step', telicity marking can also be carried out by the pseudo-object *egyet* 'once (ACC)', as illustrated by the example *Kati lépett egyet* 'Kati stepped once'. This phenomenon is also observable in the case of other, semelfactive verbs like *ugrik* 'jump' as in *János ugrott egyet* 'János jumped once' and *tüsszent* 'sneeze' as in *Kati tüsszentett egyet* 'Kati sneezed once'.

specific about the quantity of the referent of the figure, gives rise to unacceptability, whereas the quantified expression *három kerítést* 'three fences' yields a grammatical sentence.

Next, the aspectual behavior displayed by verbs of surface contact also reveals that there is overtly marked event-maximalization in the class of accomplishments as well. This becomes especially clear if these verbs are contrasted with their English counterparts. Consider (60) and (61).

(60) a. Sam scrubbed a table in/for 10 minutes.
  b. Rob wiped the plates in/for 10 minutes.
  c. Mary swept the floor in/for 10 minutes.

(61) a. Károly   10 perc-ig/*10 perc   alatt   súrolt
    K.NOM   10 minute-for/*10 minute   under   scrubbed
    egy   asztal-t.
    a   table-ACC
    'Károly scrubbed a table for 10 minutes.'
  a'. Károly   10 perc   alatt   /*10 perc-ig   meg-súrolt
    K.NOM   10 minute   under   /*10 minute-for   PRT-scrubbed
    egy   asztal-t.
    a   table-ACC
    'Károly scrubbed a table in 10 minutes.'
  b. Ili   10 perc-ig   /*10 perc   alatt   törölt   egy   tányér-t.
    I.NOM   10 minute-for   /*10 minute   under   wiped   a   plate-ACC
    'Ili wiped a plate for 10 minutes.'
  b'. Ili   10 perc   alatt   /*10 perc-ig   el-törölt
    I.NOM   10 minute   under   /*10 minute-for   PRT-wiped
    egy   tányér-t.
    a   plate-ACC
    'Ili wiped a plate in 10 minutes.'
  c. Mari   10 perc-ig   /*10 perc   alatt   sepert   egy   szobá-t.
    M.NOM   10 minute-for   /*10 minute   under   swept   a   room-ACC
    'Mari swept a room for 10 minutes.'
  c'. Mari   10 perc   alatt   /*10 perc-ig   fel-sepert
    M.NOM   10 minute   under   /*10 minute for   PRT-swept
    egy   szobá-t.
    a   room-ACC
    'Mari swept a room in 10 minutes.'

As for the English verbs *scrub, wipe,* and *sweep*, it has been observed that, when appearing with a location object that has quantized reference, they allow either a telic or an atelic interpretation (Rappaport Hovav & Levin 2005; Levin & Sells 2009). Telicity is more likely to arise in the absence of context, which means with respect to the examples in (60) that the predicate is interpreted in a way that the event is over when the entire surface of the referent of the internal argument *a table, the plates,* and *the floor* has been scrubbed, wiped, and swept, respectively. Alternatively, in the presence of contextual cues, these predicates can also receive an atelic interpretation, as diagnosed by the *in/for X time unit* test, such that the denoted event is taken to occur repeatedly in an indefinite number of times (Levin & Sells 2009: 311). The same ambiguity does not characterize Hungarian predicates headed by *súrol* 'scrub', *töröl* 'wipe', and *seper* 'sweep'. They are either telic or atelic depending on whether an event-maximalizing element like the particle *meg* in (61a'), *el* in (61b'), and *fel* in (61c') occurs in the predicate.

Likewise, this behavior is also exhibited by motion predicates, as shown in (62), where the particle *ki* or the locative expression *az állomásra* 'to the station' gives rise to a telic reading. In the absence of these elements, only an atelic reading is available.

(62) a. János   10 perc-ig   /*10 perc   alatt   sétált.
         J.NOM   10 minute-for   /*10 minute   under   walked
         'János walked for 10 minutes.'
     b. János   10 perc   alatt   /*10 perc-ig   ki-sétált.
         J.NOM   10 minute under   /*10 minute-for   PRT-walked
         'János walked out in 10 minutes.'
     c. János   10 perc   alatt   /*10 perc-ig   az   állomás-ra   sétált.
         J.NOM   10 minute under   /*10 minute-for the   station-to   walked
         'János walked to the station in 10 minutes.'

Finally, I provide some examples from the motion domain which can be interpreted telically without a particle or a resultative expression and which may thus seem to be apparent exceptions to the proposed analysis.

(63) a. Kati   egy óra   alatt   futott   három   kör-t.
         K.NOM   an hour   under   ran   three   circle-ACC
         'Kati ran three laps in an hour.'
     b. Mari   egy óra   alatt   úszott   három   hossz-t.
         M.NOM   an hour   under   swam   three   length-ACC
         'Mari swam three laps in an hour.'

This pattern is not unique to motion predicates, but is also observable in the class of degree achievements, as shown in (64).

(64) A Föld   300   év   alatt   melegedett egy   fok-ot.
     the Earth.NOM   300   year   under   warmed   a   degree-ACC
     'The Earth warmed by one degree in 300 years.'

The examples above are similar in that they supply specific information as to the entire extent of the scale and the quantity of the figure, thereby meeting the conditions that are necessary for telicity to obtain on an FPR-based analysis. Given that they share aspectual properties with several other Hungarian telic examples of this paper by virtue of, for example, being invariably telic, perhaps it is reasonable to assume that scalar DPs like *három kört* 'three laps.ACC (in running)', *három hosszt* 'three laps.ACC (in swimming)', and *egy fokot* 'one degree.ACC' form a class with particles and resultative/locative expressions, which are paradigmatic examples of telicity-marking elements in Hungarian.

4 Some remarks on creation/consumption predicates

In this section I will briefly address how telicity can emerge in the class of creation/consumption predicates with the scalar semantic analysis of this paper in mind.

As was mentioned earlier, creation/consumption predicates differ from other verbal predicates of change in that they can receive a telic interpretation in the presence of bounded objects and in the absence of verbal particles and resultative expressions. With bounded objects an atelic reading is also available and plural or mass objects give rise to a strictly atelic interpretation. All these patterns are illustrated in (65) with the consumption verb *eszik* 'eat'.

(65) a. János   10 perc   alatt   /10 perc-ig   evett   egy   almá-t.
         J.NOM   10 minute   under   /10 minute-for   ate   an   apple-ACC
         'János ate an apple in/for ten minutes.'

b. János   tíz perc-ig   /*tíz perc   alatt   rizs-t   /almák-at   evett.
   J.NOM   ten minute-for   /*ten minute   under   rice-ACC   /apples-ACC ate.
   'János ate rice/apples for ten minutes.'

In (65a), the patient *egy almát* 'an apple.ACC' can give rise to a bounded or an unbounded interpretation, whereas patients like *rizst* 'rice.ACC' and *almákat* 'apples.ACC' yield atelicity, as diagnosed by the temporal adverbial test. That atelicity can emerge in the environment of bounded objects in this predicate class can also be exemplified with data from English. Consider (66).

(66) a. (http://hemroidstreatments.blog.fc2.com/page-9.html)
          I ate the soup for a week and then my urinary tract infection was over.
      b. (Smollett 2005: 50, (18))
          John built a Lego tower in three hours/for three hours.

In (66a) and (66b) compatibility with the durative adverbials *for a week* and *for three hours* serves as evidence that an atelic reading is actually available in the presence of bounded objects like *the soup* and *a Lego tower* with verbs like *eat* and *build*. In other words, signs of aspectual duality can be found in the class of creation/consumption predicates in English, as well.

   A possible explanation of the fact that Hungarian creation/consumption predicates can be interpreted telically with just an object whose quantity is specifially determined is that these predicates are different from others (e.g. degree achievements) in that their objects specifically determine the structure of the scales and that of the denoted events as they come about or disappear. More specifically, scales of creation, for example, reflect the increase of quantity in a way that the initial subpart of the scale corresponds to a state of affairs where there is no object and the final subpart of the scale indicates that the whole quantity exists. Consumption scales can be characterized along similar lines with the caveat that their scales represent the decrease of quantity. Thus, in this class, quantity objects give rise to bounded scales and hence telicity can arise, whereas mass and plural objects yield unbounded scales and with that atelicity. For space reasons, I leave aside further details of how exactly the object determines the scalar structure of creation/consumption predicates.

   That the object-marking strategy illustrated in this section is significantly different from telicity marking in the non-creation/non-consumption class is supported by the fact that once an event-maximalizing particle appears with creation/consumption verbs, aspectual duality is no longer exhibited by the predicate. This is shown in (67).

(67) a. Kati   10 perc   alatt /*10 perc-ig   meg-evett egy almá-t.
          K.NOM 10 minute under /*10 minute-for PRT-ate   an   apple-ACC
          'Kate ate an apple in 10 minutes.'
      b. János egy év alatt   /*egy év-ig   fel-épített egy   ház-at.
          J.NOM a year under   /*a year-for   PRT-built   a   house-ACC
          'János built a house in a year.'

The effect illustrated above is also observable with verbs containing the diminutive morpheme *-gat/-get* (Kiefer 2006: 162-164). First, I present such verbs without a particle attached to them.

(68) a. Kati   10 perc-ig   /*10 perc   alatt   esze**get**ett
          K.NOM 10 minute-for   /*10 minute   under   ate.in.tiny.bites
          egy almá-t.
          an   apple-ACC
          'Kati spent 10 minutes eating tiny bites from an apple.'

b. János   egy órá-ig   /*egy óra alatt   iszo**gat**ott   egy   sör-t.
    J.NOM   an hour-for /*an hour under drank.in.small.sips a   beer-ACC
    'János spent an hour drinking small sips of a beer.'

These examples are different from others discussed in this section as they receive a strictly atelic interpretation despite containing bounded patients. A similar phenomenon also characterizes a specific subset of English creation/consumption verbs, namely, conatives like *drank at a glass of wine* (*for/*in 10 minutes*). As discussed by Beavers (2011a), this may be due to the fact that the predicate imposes a semantic constraint on the encoded scale such that its goal point be existentially bound. This, violating one of the conditions necessary for telicity, yields invariable atelicity for the predicate. I suggest that the data in (68a) and (68b) be analyzed along similar lines with the caveat that in Hungarian it is the diminutive morpheme *-gat/-get* that is responsible for the atelicizing effect. This claim is further strengthened by the data in (69a) and (69b), where *-gat/-get* is responsible for deriving the strictly atelic iterative predicates *ütöget* 'iterative hit' and *integet* 'wave' from *üt* 'hit' and *int* 'wave once', respectively.

(69) a. Mari   tíz perc-ig   /*tíz perc   alatt   ütögette   az asztal-t.
          M.NOM   ten minute-for /*ten minute under iterative hit the table-ACC
          'Mari hit the table repeatedly for ten minutes.'
      b. János   tíz perc-ig   /*tíz perc   alatt   integetett.
          J.NOM   ten minute-for /*ten minute under waved
          'János waved for ten minutes.'

When verbs like those in (68) appear with an event-maximalizing particle, as in (70), the aspectual value assigned to the predicate is strictly telic.

(70) a. Kati   10 perc   alatt   /*10 perc-ig   meg-eszegetett
          K.NOM   10 minute under /*10 minute-for PRT-ate.in.tiny.bites
          egy   almá-t.
          an   apple-ACC
          'Kati ate an apple in small bites in 10 minutes.'
      b. János   egy óra   alatt   /*egy órá-ig   meg-iszogatott
          J.NOM   an hour   under /*an hour-for   PRT-drank.in.small.sips
          egy   sör-t.
          a   beer-ACC
          'János drank a beer in small sips in an hour.'

Overall, then, these data show that creation/consumption predicates in Hungarian exhibit both the object-marking strategy known from English and telicity marking via event-maximalizing particles and resultative/locative expressions when it comes to encoding event delimitedness. The former appears to be less strict in that it allows aspectual duality, whereas the latter guarantees telicity.

5 Signs of telicity marking in other languages

In the previous sections I have explored two different strategies regarding the encoding of telicity mainly in English and Hungarian. I have shown that whereas in the former telicity arises cumulatively based on the lexical semantics of the verb and its argument(s) and sometimes the pragmatic context, in the latter it is overtly marked by event-maximalizing particles, resultative/locative expressions and certain objects. An obvious quesion that arises is whether languages other than Hungarian also rely on overt markers to express inherently bounded eventualities. In the literature there is reference to telicity marking in a variety of languages including Vietnamese (Fukuda 2007), Malagasy (Travis 2005) and Slavic languages. As for the latter group of languages, there is disagreement as to how

exactly telicity emerges. As was discussed in Section 3.2, Filip (2008), for example, claims that telicity arises as a result of event maximalization covertly encoded in perfective verbs. By contrast, Borer (2005), Ramchand (2008), Łazorczyk (2010), and Corre (2015) argue for verbal prefixes being overt markers of telicity. In this work, I cannot provide an in-depth analysis of this question, but now I will review some arguments that Łazorczyk (2010) provides in favor of overt telicity-marking via prefixes in Polish.

First, the *in/for X time unit* test provides support for the claim that Polish verbal prefixes have a telicizing role since prefixed verbs like *ostudził* 'PREF-cooled' are only compatible with *in*-modification, whereas base verbs like *studził* 'cooled' can only appear with *for*-modification, as shown in (71).

(71) *Polish*
     a.   Jan   studził   zup-ę   przez/*w   10 minut.
          J.NOM   cooled   soup-ACC   for/*in   10 minutes
          'Jan cooled the soup for 10 minutes.'
     b.   Jan   o-studził   zup-ę   w/*przez   10 minut.
          J.NOM   PREF-cooled soup-ACC   in/*for   10 minutes
          'Jan cooled the soup in 10 minutes.'

Second, similarly to Hungarian, canonical examples of achievement predicates obligatorily contain a prefix. This is illustrated by the examples below:

(72) *Polish*
     a.   Jan   *(s)-tłukł   wazon.
          J.NOM   PREF-broke vase
          'Jan broke a vase.'
     b.   Jan   *(po)-darł   sukienk-ę.
          J.NOM   PREF-tore   dress-ACC
          'Jan tore a dress.'
     c.   Jan   *(u)-marł.
          J.NOM   PREF-died
          'Jan died.'

That inherently bounded situations are expressed by predicates obligatorily containing prefixed verbs is strong evidence for the telicity-marking nature of prefixes in Polish.

Third, by virtue of their telicity-marking functon, prefixes turn stative verbs into change-of-state verbs. The examples in (73) demonstrate this.

(73) *Polish*
     a.   Kasia   rozumiała   teori-ę.
          K.NOM understood   theory-ACC
          'Kasia understood the theory.'
     b.   Kasia   z-rozumiała   teori-ę.
          K.NOM PREF-understood theory-ACC
          'Kasia came to understand the theory.'

In Hungarian, a similar pattern is observable, as is clear from (74) and (75) from Kardos & Pethő (2015).

(74) a.   Kati   értette   az   elmélet-et.
          K.NOM understood   the   theory-ACC
          'Kati understood the theory.'
     b.   Kati   meg-értette   az   elmélet-et.
          K.NOM PRT-understood the   theory-ACC
          'Kati came to understand the theory.'

(75)   (Kardos & Pethő 2015: 2-3, (6) and (7))
        a.   Péter   tudta   az   igazság-t.
              P.NOM   knew   the   truth-ACC
              'Péter knew the truth.'
        b.   Péter   meg-tudta   az   igazság-ot.
              P.NOM   PRT-knew   the   truth-ACC
              'Péter learned the truth.'

The (a) and (b) examples above differ in that the former, which contain the base verbs *értette* 'understood' and *tudta* 'knew', describe stative situations, wheres the latter including the particle verbs *megértette* 'came to understand' and *megtudta* 'learned' express a change in the mental state of the referent of the experiencer. It is clear in both cases that the telic interpretation that arises in the (b) examples is due to the particle *meg*.

Łazorczyk (2010) provides a more extensive discussion of telicity marking in a number of Slavic languages, thereby seriously challenging the traditionally held view that Slavic prefixes are directly responsible for grammatical aspect by virtue of perfectivizing or imperfectivizing verbal predicates. The data presented in this paper suggest that Hungarian and Slavic languages are quite similar when it comes to the encoding of aspectual information in the sentence; however, contrary to what has long been argued, it is not grammatical aspect but the lexical aspectual structure of verbal predicates that Hungarian verbal particles and Slavic prefixes directly influence.

6 Conclusion

In this paper I have demonstrated telicity marking in Hungarian as achieved by verbal particles, resultative/locative expressions and various object DPs in a variety of verbal domains. A significant result of this paper lies in the fact that by proposing the Principle of Telicity Marking, a novel "form-to-meaning" principle, and telicity marking through event maximalization based on an FPR-type incremental relation, it has offered a possible explanation for a variety of cross-linguistic differences between English and Hungarian including the various interpretive effects and the obligatory nature of particles and resultative/locative expressions in different predicate classes. Also, it has been revealed that although both English and Hungarian seem to employ (i) a strategy whereby a theme whose quantity is known and a scale, mutually constrained by the FPR, give rise to a bounded-event interpretation and (ii) a strategy further constrained by event maximalization, when it comes to inducing telicity, they rely on these strategies to different extents. While in English assuming the former strategy allows us to derive the vast majority of (a)telicity facts, in Hungarian a stricter event-maximalizing operation is also necessary in the case of most predicates.

Abbreviations

ACC = accusative, GEN = genitive, IPF = imperfective, NOM = nominative, PREF = prefix, PRT = particle, SG = singular, TERM = terminative.

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Competing Interests

The author declares that she has no competing interests.

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