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Future Reference in Hungarian with and without Future Marking

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Abstract
There are two main expressions which can give rise to future-oriented interpretations in Hungarian. The fog construction, which consists of an auxiliary verb and an infinitival main verb is obligatorily associated with future interpretations. The second expression, the non-past, consists of a verb inflected for person and number, with no grammatical marker of temporal reference. Interestingly, atelic predicates give rise to event-in-progress readings and telic non-past predicates give rise to future readings in the absence of future-oriented contexts or adverbs.

I provide a semantics of fog and the non-past construction that accounts for these patterns through the interaction of the situation aspect of the predicate with temporal properties of the constructions in question. I argue that fog is a simple existential quantifier over future intervals, whereas the non-past restricts the time that the predicate can hold to the interval extending from now to infinitely in the future. There are three logical possibilities for how an atelic predicate like "john run" can hold of this interval. Either the predicate holds only over the the moment of speech, P holds over some interval after speech time, or P holds of the interval where John's running would begin at speech time and extend into the future. I argue that because telic predicates do not have the Subinterval Property, they cannot hold punctually of now, and so do not give rise to ongoing readings.

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1 Introduction

Within the linguistics literature and in the broader world of language studies, there has been a long-standing tradition of viewing expressions which give rise to future-oriented interpretations as involving future tense. Most fundamentally, a tense is a grammatical marker which locates eventualities in time. Many syntactic properties have been attributed to tense, but the following three are commonly agreed upon and provide an appropriately broad conception of tense.

(1) A tense is:
   a. A systematically used grammatical marker, often involving verbal inflectional morphology, a particle, or auxiliary.
   b. Obligatory in clauses that convey temporal information, at least in unmarked contexts.
   c. Usually unable to co-occur with other tenses. (Smith 2008, Hayashi 2011)

As it turns out, the perspective that tense is generally responsible for the contribution of temporal reference and temporal location of events faces a serious empirical problem. Cross-linguistically, future tenses are not particularly common.[1] Instead, future reference is often achieved through the use of mechanisms for which future-oriented intepretations are a secondary or indirect consequence of the interaction of the temporal properties of a variety of elements in the sentence. Sentences of this kind often turn out to involve no overt future marking at all.

As a result of these empirical facts, structures which give rise to future reference without overt future marking have been a topic of growing interest in recent years, and increasing consideration has been given to the mechanisms involved. The following are some frequently encountered forward-shifting mechanisms in languages where future reference occurs without systematic grammaticalized future marking (Dahl 2000, Bittner 2005, Tonhauser 2011).

(2) a. Forward-shifting grammatical and lexical aspect (especially prospective aspect), with and without overt aspectual marking
   b. Future-referring temporal adverbs
   c. Future time contexts

As a result of the new perspectives offered by these works on the semantics of future reference, any analysis of future reference in any language should minimally grapple with the following three questions:

(3) a. How can future reference be accomplished without future marking in a language?
   b. How do aspectual properties of the predicate and aspectual markers impact future reference in a language?
   c. How do other features of the language that might impact future reference (such as context, temporal adverbs, and modals) function, and what effects do they have on the forward-shifting of events?

This paper focuses predominantly on the first two questions, identifying and explaining the two main future-referring expressions in Hungarian. These are the non-past and the *fog* construction. A semantics for these constructions is proposed, as well as for non-future-referring non-past sentences with future-referring temporal adverbs.

[1] Even in Europe, where inflectional future tenses have been comparatively well-documented and studied, they are likely minority. Some evidence for this stems from Dahl (2000). Of 30 languages examined in Dahl (2000), only 12 involve inflectional futures. In addition, due to the large-scale typological nature of Dahl's work, his categorization of future markers is a rough one, and includes prospective aspect markers (e.g., English *be going to*) and other elements whose status as future tenses is questionable (e.g., English *will*).

1.1 Roadmap & Claims

In Section 2, this paper presents the Hungarian non-past and *fog* constructions in more detail and discusses the distributional patterns of future-oriented interpretations which prove relevant for this analysis. Specifically, I argue that aspectual properties of predicates interact with the meaning of the non-past construction to give rise to ongoing and future readings, and it is this interaction which is responsible for distributional differences between the interpretations of the non-past and *fog* constructions. Whereas future reference arises from the interaction of situation aspect and temporal properties of the predicate in the case of the non-past, the forward-shifting of the event time in the *fog* construction is part of the meaning of the morpheme *fog*. In Section 3 a semantics is presented for *fog* and the non-past which gives rise to the expected restrictions on interpretations when it interacts with telic predicates and temporal adverbs.

1.2 Future-referring Expressions in Hungarian

In Hungarian there are three types of expressions that can give rise to future reference. These are the future copula, the auxiliary *fog*, and the non-past construction. The future copula, shown in (4), is a future form of the copula *van*, which has distinct past, present, and future forms, and inflects for person and number. It also has an imperative form, and can inflect for mood. The future form occurs only with adjectival predicates and locates states in the future of the speech time. The copula is the only verb in the language that has an inflected future form.

(4) János magas **lesz**
john tall be.FUT.3SG
'John will be tall' *Future copula*

This paper deals mainly with the remaining two expressions that give rise to future reference. These are the *fog* and the non-past construction. The *fog* construction involves a future marker *fog* and gives rise to future reference obligatorily in all contexts. *Fog* is an auxiliary verb which conjugates for person and number and is followed by the infinitival form of a main verb, as in (5).

(5) A bulí-ba **fog-unk** menni (ma este)
the party-ILL *fog*-NPST.1PL.INDEF go.INF (today evening)
'We will go to the party (this evening)' [2] *Fog construction*

The non-past construction can give rise to future reference without overt future marking, as shown in (6a). Non-past sentences involve a finite verb conjugated for subject person and number, and object definiteness. In Section 2 it is shown that whether or not future-oriented readings are available is dependent on the aspectual properties of the predicate. When future-oriented readings are unavailable, the non-past gives rise to an ongoing reading, as in (6b).

(6) a. János **meg-főz-i** a csirkét ma este
john PART-cook-NPST.3SG.DEF DEF chicken.ACC today evening
'John will cook the chicken this evening' *Future*
b. János **meg-főz-i** a csirkét
john PART-cook-NPST.3SG.DEF DEF chicken.ACC
'John is cooking the chicken' *Ongoing*

[2] I use the following notations for glosses in addition to standard person and number abbreviations: NPST = non-past construction, DEF = definite object marker, INDEF = indefinite object marker, INF = infinitive marker, PART = particle, ILL = illative case marker, TEM = temporal case, INE = inessive case marker, ACC = accusative case marker, DAT = dative marker, ADE = adessive case marker, ALL = allative case marker.

2 The Hungarian Facts

2.1 The *Fog* Construction

The *fog* construction, shown in (7) with a variety of predicates, obligatorily gives rise to future reference in all contexts.

(7) a. János lak-ni **fog** NY-ban
john live-INF fog.NPST.3SG.INDEF NY-INE
'John will live in NY' *State*

b. János tv-t néz-ni **fog**
john tv-ACC watch-INF fog.NPST.3SG.INDEF
'John will watch tv' *Activity*

c. A buli-ba **fog-unk** menni
the party-ILL *fog*-2PL.INDEF go.INF
'We will go to the party' *Accomplishment*

d. Miklos el-felejteni **fogja** a leckét
michael PART-forget.INF fog.NPST.3SG.INDEF DEF lesson.ACC
'Michael will forget the lesson' *Achievement*

The fact that *fog* always gives rise to future reference means that sentences which force a non-future interpretation as a result of the presence of obligatory past or present-oriented elements, such as 'yesterday' in (8), are unacceptable.

(8) #**Tegnap** amikor haza-jöttem, Attila mond-ta hogy valamít
yesterday when PART-come.PST.1SG.INDEF, attila this.ACC say-PST.3SG.DEF that
fog énekel-ni
something.ACC fog.NPST.3SG.INDEF sing-INF
#'Yesterday when I got home, Attila said that he will sing something'

If *fog* were a prospective aspect marker, we would expect such sentences to be possible. Prospective aspect markers locate the reference time in the future of the event time, but the location of the event time is not restricted, so both the reference time and the event time can be in the past, and a sentence with a prospective aspect marker and a past-oriented adverb should, therefore, be acceptable. The fact that (8) is not rules out the possibility that *fog* is a prospective aspect marker.

There is no evidence of restrictions on the flavor of futurity with which *fog* can be used. (9a) shows *fog* with a scheduled future. (9b) shows an unscheduled prediction future. (9c) shows an intention future where the speaker is the agent of the action, and (9d) shows an intention future where the speaker is not the agent.

(9) a. 3-kor indul-ni **fog** a vonat
3-at set.out-INF fog.NPST.3SG.INDEF DEF train
'The train will leave at 3' *Scheduled future*

b. Es-ni **fog** az eső
fall-INF fog.NPST.3SG.INDEF DEF rain
'It will rain' *Non-scheduled prediction future*

c. **Fog-ok** haza-menni a buli után
fog-NPST.1SG.INDEF PART-go.INF DEF party after
'I will go home after the party' *Speaker intention*

d. Réka **fog** haza-menni a buli után
réka fog-NPST.3SG.INDEF PART-go.INF DEF party after
'Réka will go home after the party' *Non-speaker agent intention*

2.2 The Non-past Construction

Hungarian shows a prominent past/non-past tense distinction, which is obligatorily marked in finite clauses. The Hungarian past tense is marked with a suffix on the verb, the form of which varies considerably depending on the phonological properties[3] of the verb involved, the person and number of the subject, and the definiteness of the object, as in (10).

(10) a. Péter ve**tt** a könv-et
peter buy.PST.3SG.INDEF DEF book-ACC
'Peter bought the book' *3sg subject, definite object*

b. Ve**sztunk** egy új kocsít
buy.PST.1PL.INDEF INDEF new car.ACC
'We bought a new car' *1pl subject, indefinite object*

c. Zoltán fel-hív**ta** a Péter-t
zoltan PART-call..PST.3SG.DEF DEF peter-ACC
'Zoltán called up Peter' *3sg subject, definite object*

Morphologically, the non-past has no overt tense marking. Person and number of subject and definiteness of object are marked on the verb as with the past tense.

(11) a. Péter al**szik** ma este
peter sleep.NPST.3SG.INDEF today evening
'Peter will sleep this evening'

b. Jövő év-ben János lak-**ik** NY-ban
next year-INE John live-NPST.3SG.INDEF NY-INE
'Next year John will live in NY'

Note that non-past future-referring sentences often contain temporal frame adverbs, as in (11). These are not required for future interpretations in cases where context or aspectual properties of the predicate serve to rule out ongoing readings. This pattern will be explained in the following subsection.

The temporal frame adverbial *majd* is very often used with non-past future-referring sentences when the exact temporal location of the event is unknown or irrelevant. *Majd* has a variety of meanings, all of which are constrained to the future, some of which are similar to: 'soon' (as in (12)), 'then', 'presently', 'in time', and just simply 'in the future'.

(12) **Majd** veszek neked egy biciklít
In.the.future buy.NPST.1SG DAT.2SG a bicycle.ACC
'I will buy you a bicycle.'

2.3 Aspect and the Non-past

As we have seen (illustrated in Section 1 in (6)), the non-past construction is compatible with both a future and an event-in-progress or ongoing reading.[4]

Note that in (13b), a future-oriented context would allow the sentence to give rise to a future reading. Without such a context, the interpretation is ongoing.

[3]Hungarian verbs show vowel harmony alternations and place of articulation assimilation, among other phonological changes affecting suffixation.

[4]The non-past is also compatible with a number of other aspectual readings. The non-past can be habitual, as in (1). I assume that some kind of GEN operator is such cases.

(1) Reggel, be-fejez-i a leckéjet 20 perc alatt, és
morning, PV-finish-NPST.3SG.DEF DEF homework.POSS.3SG.ADD 20 minute under, and
fut hogy el-kap-ja a busz-t
run.NPST.3SG.INDEF that PV-catch-INDEF.3SG.DEF DEF bus-ACC
'In the morning, he finishes up his homework in 20 minutes and rushes to catch the bus'

(13) a. János zongorázik holnap délután
john play.piano-NPST.3SG.INDEF tomorrow afternoon
'John will play the piano tomorrow afternoon' *Future*

b. János zongorázik
john play.piano-NPST.3SG.INDEF
'John is playing the piano' *Event-in-progress*

A closer look at the distribution of future-referring and event-in-progress readings of non-past sentences reveals that the availability of future referring interpretations with non-past sentences is crucially tied to the aspectual properties of the predicate.

Atelic non-past sentences (both stative and eventive) and non-durative (achievement) non-past sentences produce event-in-progress readings, as in (14a), (14b), and (14c). In the presence of adverbs[5], these sentences obligatorily give rise to future reference, as seen above in (13a). Durative telic (accomplishment) non-past sentences, on the other hand, give rise to future readings even without temporal adverbs, as in (14d).

(14) a. Magda szeret-i a Zolít
magda love-NPST.3SG.DEF DEF zoli.ACC
'Magda loves Zoli' *Atelic (Stative); Ongoing*

b. Tanul-unk
study-NPST.1PL.INDEF
'We are studying' *Atelic (Eventive); Ongoing*

c. János kap-ja az ajándék-ot
john receive-3SG.NPST.DEF the present-ACC
'John is getting a present (currently)' *Non-durative Telic; Ongoing*

d. Lilla el-olvas-ja a könyv-et
Lilla PV-read-3SG.NPST.DEF the book-ACC
'Lilla will read the book' *Durative Telic; Future*

Given that the availability of future readings is tied directly to the situation aspect of the predicate, it is worthwhile to formally define what it means for a predicate to be telic. I follow Krifka (1998) in taking telicity to be defined formally as in (15).

(15) $\text{TELIC(X)} \longleftrightarrow \forall e, e'[X(e) \wedge X(e') \rightarrow \neg e' < e]$

(15) simply states that for any two events, if they are events in some predicate X, then one event cannot be a proper subevent of the other.

The non-past is also compatible with both perfective and progressive (Piñon 1995), a viewpoint aspect distinction which only surfaces overtly in Hungarian in the context of certain preverbal event modifiers (particles, bare nominals, etc.), and is conveyed through word order difference, as in the following example from Csirmaz 2006 (labels mine).

(2) a. János haza ment (amikor meg látta Marit)
john PART go.PST.3SDG.INDEF (when PART see.PST.3SG.DEF mary.ACC)
'John went home (when he saw Mary)' *Part V; Perfective*

b. János ment haza (amikor meg látta Marit)
john go.PST.3SDG.INDEF PART (when PART see.PST.3SG.DEF mary.ACC)
'John was going home (when he saw Mary)' *V Part; Progressive*

Many authors take (2b) to involve a general imperfective, rather than progressive (Kiefer 1982, Csirmaz 2006, Kiss 2006), and although I tentatively take the construction involved to be progressive due in part to interpretations provided by informants as always involving the reference time contained within the event time, but also because the word order in (2b) does not arise with habituals, which we might expect if it was associated with a general imperfective. Teasing apart the differences in viewpoint aspect and their relationship with word order is an immediate goal of future work on this topic, but for now will be put aside.

[5]Future contexts have the same effect of eliminating the ongoing interpretation as temporal adverbs do.

It is worth noting that the pattern of availability of future-oriented interpretations described above can be seen not only through speaker judgements, but also through the distribution of telic and atelic predicates with non-past and *fog* sentences in Hungarian texts. The table in (16) shows the percentages of telic and atelic sentences in a selection of future-referring sentences gathered (manually) from a variety of texts.[6] The table in (16) shows that 84% of future-referring non-past sentences are telic, while only 16% of future-referring non-past sentences are atelic. This is a significant numerical asymmetry, and warrants an explanation. I include the *fog* sentences to reflect that the asymmetry in the number of telic and atelic non-past sentences is not likely to be a fact about the language in general. With *fog* sentences, atelic predicates are significantly more common than telic predicates, adding yet more incentive to provide an explanation of future reference that explains the asymmetry in numbers between aspectually different future-referring non-past sentences.

(16)

	Telic	Atelic
non-past (n=51)	**84%**	**16%**
fog[7] (n=101)	**37%**	**63%**

In sum, the empirical claim of this section is that atelic and non-durative predicates give rise to event-in-progress readings with the non-past construction, while durative telic predicates give rise to future interpretations with the non-past. Section 3 provides a semantics which accounts for this distribution.

3 Analysis of the Temporal Components of the Non-past (and *Fog*)

In this section I propose a formal analysis of the temporal components of the *fog* and non-past construction. The distributional differences in future-referring interpretations between telic and atelic predicates with these constructions which were discussed above fall out from the interaction of telicity with the meaning of *fog* and the non-past.

3.1 The Semantics of the *Fog* Construction

Recall that both *fog* and the non-past construction can take either eventive or temporal predicates. This means that elements like temporal adverbs, which are functions that take an eventive predicate and return a temporal predicate, can appear with *fog* and the non-past, as in (17).

(17) a. László menni fog a bulí-ba (ma este)
laszlo go.INF *fog*-NPST.3SG.INDEF the party-ILL (today evening)
'Laszlo will go to the party (tonight)' *Fog*

b. László megy a bulí-ba (ma este)
laszlo go.NPST.3SG.INDEF the party-ILL (today evening)
'Laszlo will go to the party (tonight)' *Non-past*

As a result, we need to define instantiation of predicates for both types of predicates: eventive and temporal. Instantiation of predicates with respect to a world and time is therefore defined here, as shown in (18), in terms of the AT relation, adapted from Condoravdi 2002, and this definition reflects that *fog* and the non-past can take either eventive predicates or temporal predicates.

(18) $\text{AT}(P,i) = \begin{cases} \exists e\,[P(e) \wedge \tau(e) \subseteq i] & \textit{Eventive} \\ P(i) & \textit{Temporal} \end{cases}$

[6]The tables are based on 152 future-referring non-past and *fog* sentences that were systematically gathered from from fables (*Minden napra egy mese* by T. Aszódi Éva), a novel (*Édes Anna* by Kosztolányi Dezső), blogs, web-based news sources, and biblical texts (http://spiritlessons.com/Documents/Bible/Hungarian_HTML_Bible/index.htm with English translations from the correlated online American Standard bible at http://www.htmlbible.com/asv/index.htm.)

As we have seen, the *fog* construction always gives rise to future reference. I take *fog* to be a simple existential quantifier over future intervals, as in (19).

(19) $[\![\text{FOG}]\!] : \lambda P \lambda w. \forall w' [w' \in \text{MB}(w, now) \longrightarrow w' \in \exists i [i > now \wedge AT(P, i)]]$

Fog takes eventive or temporal predicates and returns a set of propositions such that for every world in the modal base (MB) with respect to the evaluation world at the *now* of speech time, those worlds are also worlds in which the proposition holds at some interval after *now*.

A sample derivation of a *fog* sentence is given in (20). (20a) shows the Hungarian sentence and its English translation. In (20b) contains the eventuality description. (20c) shows FOG applied to the eventuality description and the intermediate and final steps of the application.

(20) a. János fut-ni fog
john run-INF FOG.NPST.3SG.INDEF
'John will run'

b. $[\![\text{john run}]\!] = \lambda e.\text{john-run}(e)$

c. $[\![\text{FOG}(\text{john run})]\!] =$
$\lambda P \lambda w. \forall w' [w' \in \text{MB}(w, now) \longrightarrow w' \in \exists i [i > now \wedge AT(P, i)]](\lambda e.\text{john run}(e))$

$= \lambda w. \forall w' [w' \in \text{MB}(w, now) \longrightarrow w' \in \exists i [i > now \wedge AT(\lambda e.\text{john run}(e), i)]]$

$= \lambda w. \forall w' [w' \in \text{MB}(w, now) \longrightarrow w' \in \exists i [i > now \wedge \exists e.\text{john run}(e) \wedge \tau(e) \subseteq i]]$

In (20), the predicate holds of some interval *i* that is after *now*. In other words, 'john run' is true of some period of time that occurs after the time of speech.

Note that under this analysis, the telicity (situation aspect) of the predicate has no effect on the forward-shifting properties of *fog*. This is compatible with the data in Section 2. Though there was a distributional asymmetry between telic and atelic *fog* sentences (seen in (16) in Section 3), this does not suggest that the situation aspect of the predicate impacts the availability of future-oriented interpretations with *fog* predicates. Rather, the asymmetry with *fog sentences* is an epiphenomenon resulting from the interaction of the non-past with atelic predicates.

Atelic predicates with the non-past give rise to an event-in-progress reading, meaning that in order to get a future reading with atelic predicates, either temporal adverbs or the *fog* construction is needed. This is not so with telic predicates, which give rise to future reference with the non-past. It is, therefore, no surprise that the *fog* construction would be used more often with atelic predicates than with telic predicates, because atelic predicates require some forward-shifting element in order for the sentence to give rise to future interpretations.

3.2 The Non-past with Atelic Predicates

I propose the following meaning for the non-past construction in Hungarian, which is compatible with both future and event-in-progress readings.

(21) $[\![\text{NPAST}]\!] = \lambda P \lambda w. \forall w' [w' \in \text{MB}(w, now) \longrightarrow w' \in \text{AT}(P, [now, \infty))]$

NPAST denotes a function from eventive or temporal predicates to a set of worlds in the modal base such that these worlds are all worlds where *P* holds in the interval extending from the *now* of speech time to infinitely in the future. A derivation of the atelic predicate 'john-run' is given in (22).

(22) a. János fut
john run.NPST.3SG.INDEF
'John runs'

b. $[\![\text{john-run}]\!] = \lambda e.\text{john-run}(e)$

c. $[\![\text{NPAST}(\text{john-run})]\!] =$
$\lambda P \lambda w. \forall w' [w' \in \text{MB}(w, now) \longrightarrow w' \in \text{AT}(P, [now, \infty))](\lambda e.\text{john-run}(e))$

$= \lambda w. \forall w' [w' \in \text{MB}(w, now) \longrightarrow w' \in \text{AT}(\lambda e[\text{john-run}(e), [now, \infty)])]$

$= \lambda w. \forall w' [w' \in \text{MB}(w, now) \longrightarrow w' \in \exists e[\text{john-run}(e) \wedge \tau(e) \subseteq [now, \infty)]]$

In the denotation of NPAST given in (21), the AT relation holds between P and the interval $[now, \infty)$. This has the effect of restricting the time interval over which the predicate can hold to the interval starting from the speech time and extending infinitely into the future. Because the AT relation requires that the temporal trace of the P event must be a subpart of this larger interval, the temporal trace could have one of the following three relationships to now:

(23) 1. $\tau(e) \subseteq now$
2. $\tau(e) > now$
3. $\tau(e) \subseteq i \wedge now \subseteq_{ini} i$

Atelic predicates can hold in the interval $[now, \infty)$ in any of the three ways given in (23). This means that the event described in a predicate can occur at the speech time (*now*), after the speech time, or it can occur beginning at the speech time and extending into the future. Telic predicates, on the other hand, are restricted in how they can hold in the interval $[now, \infty)$.

3.3 The Non-past with Durative Telic Predicates

Recall that telic predicates with the non-past give rise to future-oriented interpretations. This fact will fall out from the definition of telicity and the meaning of the non-past. (24) shows the derivation of a durative telic sentence with the non-past. (24a) shows the Hungarian sentence and English translation. (24b) gives the eventuality description, and (24c) shows the non-past applied to the eventuality description.

(24) a. László fel-mossa a padlót
laszlo PV-wash.NPST.3SG.DEF the floor.ACC
'Laszlo washes up the floor'

b. $[\![\text{laszlo-washes-up-the-floor}]\!] = \lambda e.\text{laszlo-washes-up-the-floor}(e)$

c. $[\![\text{NPAST}(\text{laszlo-washes-up-the-floor})]\!] =$
$\lambda w. \forall w' [w' \in \text{MB}(w, now) \longrightarrow w' \in \text{AT}(\lambda e[\text{laszlo-washes-up-the-floor}(e), [now, \infty))]]$

$= \lambda w. \forall w' [w' \in \text{MB}(w, now) \longrightarrow w' \in \exists e[\text{laszlo-washes-up-the-floor}(e)$
$\wedge \tau(e) \subseteq [now, \infty)]]$

The derivation in (24) works identically to that shown in (22) for atelic predicates, but we still need to derive the fact that durative telic non-past sentences give rise to future interpretations, not ongoing interpretations. In Section 2, the definition of telicity was provided, and is repeated here for convenience in (25). For a predicate to be telic, it must be true that for any 2 events, if they are in the predicate X, one cannot be a proper subevent of the other.

(25) $\textbf{TELIC}(X) \longleftrightarrow \forall e, e'[X(e) \wedge X(e') \rightarrow \neg e' < e]$

As shown in Section 2, telic predicates give rise to future interpretations with the non-past, and I argue that it is the interaction of telicity with the meaning of the non-past which produces this distribution. However, the definition of telicity in (25) is one which quantifies over events. This is incompatible with the AT relation, which deals with intervals. As a result, it is necessary to introduce a version of (25) for intervals, called the Anti-subinterval Property. This is given in (26), and is simply the equivalent of the definition of telicity, but quantifies over intervals rather than events. Therefore, it's expected to hold of telic temporal predicates.

(26) **Anti-subinterval Property:** $\forall i, i' \exists e[\text{AT}(P,i) \wedge \text{AT}(P,i')) \rightarrow \neg(i' \subset i)]$

The Anti-subinterval property is useful in understanding why durative telic predicates can't give rise to future interpretations. I argue that durative telic predicates cannot hold over $[now, \infty)$ as in possibility 1 in (23). This fact gives the result that we want. Namely, that telic predicates cannot give rise to event-in-progress readings with the non-past. The reasoning for this is as follows:

- Durativity of a predicate means that for some interval and some P event, the temporal trace of that event is equal to the interval. Formally, $\exists i \exists e[P(e) \wedge \tau(e) = i]$
- If the i in question (the i over which P is true) is ongoing at speech time, the moment of speech time is a subinterval of the interval over which P holds.
- Accomplishments (durative telic predicates), as in (24), have the Anti-subinterval Property.
- If P has the Anti-subinterval Property, then P holds of no proper subinterval of i, in particular, not *now*.
- Therefore, possibility 1 in (23) is not available for accomplishments.

Note that non-durative telic predicates can hold of the speech time as in (23a). Because of their punctuality, they can hold of *now* or of any subsequent interval. This is compatible with the data given in (14c), which shows that a non-durative telic predicate can give rise to an ongoing interpretation.

3.4 The Non-past with Temporal Predicates

All predicates give rise to a future interpretation when they occur with temporal adverbs and the non-past, regardless of the situation aspect of their predicates. In this section I show how this falls out from the combined meaning of the non-past construction and the meaning of temporal adverbs.

Temporal adverbs take eventive predicates and return temporal predicates (Abusch 1998, Condoravdi 2002, Deo 2009). The meaning of 'tomorrow' is given in (27):

(27) $[\![\text{TOMORROW}]\!] = \lambda P \lambda i.\text{AT}(P, i \cap tomorrow)$

(27) simply says that TOMORROW is a function that takes a predicate and returns a set of intervals such that the predicate is instantiated at the intersection of that interval with tomorrow.

(28) shows the derivation of an atelic predicate with the temporal adverb 'tomorrow'. In the derivation, the version of AT for temporal predicates is used, because when tomorrow is applied to the eventive predicate "john-run", a temporal predicate is returned. The non-past is then applied to this temporal predicate.

(28) a. János fut
john run.NPST.3SG.INDEF
'John runs'

b. $[\![\text{john-run}]\!] = \lambda e.\text{john-run}(e)$

c. $[\![\text{TOMORROW}]\!] = \lambda P \lambda i.\text{AT}(P, i \cap tomorrow)$

d. $[\![\text{TOMORROW}(\text{john-run})]\!] = \lambda P \lambda i.\text{AT}(P, i \cap tomorrow)(\lambda e.\text{john-run}(e))$

$= \lambda i.\text{AT}(\lambda e[\text{john-run}(e)], i \cap tomorrow)$

$= \lambda i \exists e[\text{john-run}(e) \wedge \tau(e) \subseteq i \cap tomorrow]$

e. $[\![\text{NPAST}(\text{TOMORROW}(\text{john-run}))]\!] =$
$\lambda P \lambda w.\forall w'[w' \in \text{MB}(w,now) \longrightarrow w' \in \text{AT}(P,[now,\infty))](\lambda i \exists e[\text{john-run}(e) \wedge \tau(e) \subseteq i \cap tomorrow])$

$= \lambda w.\forall w'[w' \in \text{MB}(w,now) \longrightarrow w' \ \text{AT}(\lambda i \exists e[\text{john-run}(e)] \wedge \tau(e) \subseteq i \cap tomorrow), [now,\infty)]$

$= \lambda w.\forall w'[w' \in \text{MB}(w,now) \longrightarrow w' \in \exists e[\text{john-run}(e) \wedge \tau(e) \subseteq [now,\infty) \cap tomorrow]]$

The time at which the predicate holds is the intersection of tomorrow with the interval extending from now to infinity. This prevents ongoing or event-in-progress readings from arising with any predicate, regardless of telicity or other aspectual properties. Only a future reading is available.

4 Conclusion

In Hungarian, overt future marking is not always required for future reference, and it is situation aspect rather than tense which contributes to the forward-shifting of the event in cases where future-oriented interpretations occur without future marking. This paper has provided an initial analysis of the non-past and *fog* constructions in Hungarian. On this account, the asymmetry in the distribution of ongoing and future-referring interpretations of non-past sentences falls out from the interaction of the telicity of the predicate with the temporal properties of the non-past construction.

It may be possible in future work to account for cross-linguistic variation in the functions of non-past constructions through similar mechanisms, in which the aspectual categories distinguished in a particular language interact with the semantics of a general non-past to give rise to certain interpretations.

Further, future work on this topic will focus on other functions of the non-past and forming a more complete picture of the semantics of the aspectual system in Hungarian.

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