

Durative adverbs: peculiarities and implications

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Problem. The properties of durative *for*-adverbs have been discussed in Bennett and Partee 1972, Dowty 1979 and more recently in Piñón 1999, Rothstein 2004, Zucchi and White 2001, among others. These accounts assume that *for*-adverbs (1a) can be given a single, unique treatment, and the same is possible for *in*-adverbs (1b). Hungarian has several equivalents of these adverbs, all of which have a unique distribution or require distinct definitions. The discussion of the Hungarian adverbs also reveals some peculiarities which translate into implications for the treatment of adverb modification.

Durative adverbs in Hungarian. Telic event descriptions can be modified by *alatt* ('under') and *belül* ('in') adverbs in Hungarian (2). The adverbs measure distinct time intervals: *alatt* measures the event time (ET), and *belül*, the topic time (TT, the time interval under discussion, which is ordered with the event time by (im)perfective aspect (e.g. Klein 1992)). The difference is shown in two environments: (a) *alatt* adverbs enforce a durative interpretation of an instantaneous event description, since they measure the ET. *Belül* adverbs do not affect the ET, but measure the TT, so the ET can be instantaneous (3). (b) The TT of a perfective event description properly contains ET. Thus if the duration of the ET is specified, the *alatt* adverb can measure the specified ET, but a *belül* adverb must measure a longer interval (4). English shows the same distinction: *in*-adverbs measure ET, and *within*-adverbs, TT. All of these adverbs require a telic event description, and telicity is a property of the predicate applying to ET. That is, the adverbs measuring TT require the ET predicate to be telic, placing a non-local restriction on semantic properties.

For-adverbs have several Hungarian equivalents: accusative, *át*, *keresztül* and *-ig* adverbs (5). The time intervals that may be measured are the following: ET, iterative (IT), habitual time (HT) and TT. Speech time modification is independently excluded (Hornstein 1990), and the result time is only modified by a sublative adverb in Hungarian. Accusative adverbs behave similarly to accusative durative adverbs in other languages (e.g. Finnish, Korean, and Polish) and bare adverbs in English: they measure ET but not TT. Hungarian accusative adverbs can also measure IT (unlike English bare adverbs (6)). *Át* and *keresztül* adverbs show more flexibility: they can also measure the HT in addition to ET and IT (7). Finally, *-ig* adverbs can measure all intervals including TT (8). Thus the four Hungarian equivalents of the *for*-adverb differ in the (overlapping) range of time intervals they can measure. English *for* adverbs, in contrast with the Hungarian equivalents, can also measure the result time (9). In addition, the adverbs also show some further quirks. First, note that *-ig* can also appear on goals and punctual adverbs, meaning *until* (10). For the durative usage of *-ig*, I suggest that time intervals can be measured in two ways. It is possible to measure the duration of the interval, as standardly assumed. It is also conceivable that the adverb establishes the right boundary of an interval. Let us assume that *-ig* phrases universally denote an endpoint, a right boundary of an interval or path. Durative *-ig* adverbs then establish the right boundary of a time interval by measuring its distance from an implicit left boundary (11a). The second quirk concerns iterative and habitual environments. *Keresztül* adverbs, unlike *át* or *for*, require strictly regularly occurring events: the gaps between the iterated or habitual events must be evenly spaced (e.g. 7). Building on Piñón 1999, I assume that this is due to the incorporated frequency adverb *regularly* (11b). Other equivalents of *for*-adverbs share a standard definition, based on Hinrichs 1985 (11c).

Implications of Hungarian adverbs. Given the preceding discussion, it is necessary to assume explicit, arbitrary constraints in temporal modification. The time intervals that a given adverb can measure must be explicitly specified for that adverb – by encoding the relevant time(s) in the adverb definition or by assuming a detailed feature checking account (based on a cartographic approach (e.g. Cinque 1999)). An alternative, which builds on the properties of the resulting complex predicate (Arosio 2003 for Italian) or those of the predicate modified, is not viable for Hungarian. In addition, the properties of event descriptions modified by durative adverbs reveal that adverbs can be sensitive to non-local semantic properties. Hungarian *belül* adverbs and English *within*-adverbs measure TT, but require telicity, a

property of the ET predicate. The theory of adverbial modification must then be powerful enough to encode such non-local interactions as well. Finally, several Hungarian *for*-adverb equivalents require distinct definitions, showing that no uniform treatment of these adverbs is possible.

- (1)a Sebastian ate *for three hours* b Sebastian ate the fish steak *in ten minutes*
- (2) Sebestény *fél óra alatt* / *fél órán belül* megette a halat
 S-nom half hour under half hour-on in ate the fish-acc
 'Sebestény ate the fish in half an hour'
- (3)a # Sebestény *fél óra alatt* megbotlott
 S-nom half hour under slipped
 'Sebestény slipped in half an hour' (he was actively trying to slip before he finally did so)
- b Sebestény *fél órán belül* megbotlott
 S-nom half hour-on in slipped
 'Sebestény slipped within half an hour' (he slipped at some point within the 30-minute interval)
- (4) Sebestény (*pontosan*) *egy óra alatt* / # (*pontosan*) *egy órán belül*
 S-nom exactly one hour under exactly one hour-on in
 megírta a levelet
 wrote the letter-acc
 'Sebestény wrote the letter in exactly one hour' [he began writing at 4:00 and finished at 5:00]
- (5) Sebestény *fél órát* / *fél órán át* / *fél órán keresztül* /
 S-nom half hour-acc / half hour-on through / half hour-on across /
fél óráig futott
 half hour-until ran
 'Sebestény ran (for) half an hour'
- (6) Sebestény *fél órát* kopogott
 S-nom half hour-acc knocked
 'Sebestény knocked #(for) half an hour' (iterative time)
- (7) Sebestény (# *két évet*) / (*két éven át*) / (*két éven keresztül*) halat vacsorázott
 S-nom two year-acc/ two year-on through / two year-on across fish-acc had.for.dinner
 'For two years, Sebestény had fish for dinner' (habitual time)
- (8) (# *Másfél órán át*) / (*másfél óráig*) nem esett el Sebestény
 one.and.half hour-on through/ one.and.half hour-until not fell away S-nom
 'For an hour and a half, Sebestény didn't fall' (topic time, there was no event of S. falling)
- (9)a Result time *for*-adverb (E)
 b Event time *for*-adverb (E); accusative (H); *át* (H); *keresztül* (H); *-ig* (H)
 c Iterative time *for*-adverb (E); accusative (H); *át* (H); *keresztül* (H); *-ig* (H)
 d Habitual time *for*-adverb (E); *át* (H); *keresztül* (H); *-ig* (H)
 e Topic time *for*-adverb (E); *-ig* (H)
- (10)a *két óráig*
 two hour-until / o'clock-until
 'until/by two o'clock' (punctual measure phrase) / 'for two hours' (durative measure P)
- b Champaign-*ig*
 Champaign-until
 'to Champaign'
- (11)a *két óráig* (*-ig* for two hours) = $\lambda P . \lambda t . \lambda t' . [LB(t)(t') \& [\forall t'' \subset t [\exists t''' [t'' \subseteq t''' \subset t \& P(t''')]]] \& RB(t)(t' + [2 \text{ hours}])]$
- b *két éven keresztül* (*keresztül* for two hours) = $\lambda P . \lambda t . \lambda e . [regularly(e,t,P) \& |t| = 2 \text{ years}]$
- c *for two hours* = $\lambda P . \lambda t . [\forall t' \subset t [\exists t'' [t' \subseteq t'' \subset t \& P(t'')]] \& |t| = \text{two hours}]$