Result states in Hungarian

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July 26, 2011

Abstract

Result states are, broadly speaking, certain kinds of states that are caused by certain types of events both of which share one or two (or possibly even zero) participants. In Hungarian, various verbs, e.g., *kap* 'receive', as well as various combinations of a preverb and a verb, e.g., *zöldre fest* 'paint green' ('green.SUBL paint'), plausibly denote relations between events and result states. In this paper, I propose a semantic account of result states in Hungarian that takes seriously the idea that result states may be modified by temporal modifiers ending in the sublative case suffix *-rA*, e.g., *öt napra* 'for five days' ('five day.SUBL'), and argue that such modifiers may have three readings in conjunction with result states: an actuality-based use, an intention-based use, and an incorporated use. Finally, I argue that the present account of result states is more successful than the treatments proposed by Gyuris (2003), Kiefer (2006), and Bende-Farkas (2007).

1. Result states: a proposal

The interpretation of each of the following sentences appears to involve what may be called a *result state*:[1]

[1]The following abbreviations are used in the glosses: ACC = accusative, COMP = complementizer, DAT = dative, ILL = illative, INF = infinitive, PREV = preverb, SUBL = sublative, TERM = terminative, TRAN = translative. The case suffixes *-rA* 'SUBL' and *-vÁ* 'TRAN' stand for the pairs *-ra/-re* and *-vál/-vé*, respectively, the exact form of the suffix depending on vowel harmony. A centered dot (·) is employed to separate a preverb from its verb if they would be written together according to the rules of Hungarian orthography. All translations from Hungarian are my own.

(1) a. A macskám, Tigris, öt napra el·tűnt.
the cat.my Tigris five day.SUBL PREV-disappeared
'My cat, Tigris, disappeared for five days.'

b. A szomszédkutya, Rex, aki meg·találta, hőssé vált
the neighbor.dog Rex who PREV-found.her hero.TRAN turn
a szememben.
the eye.my.INES
'The dog next door, Rex, who found her, turned into a hero in my eyes.'

(2) a. Egy évre kaptam egy személyi kölcsönt a banktól.
one year.SUBL received.I a personal loan.ACC the bank.ABL
'I received a personal loan from the bank for one year.'

b. A kölcsönből zöldre festettem az összes falamat.
the loan.ELA green.SUBL painted.I the all wall.my.ACC
'From the loan I painted all my walls green.'

In (1a), Tigris was out of sight for five days, and her being gone was the result of her disappearing. In (1b), Rex's being a hero was the result of his turning into one. In (2a), I had the loan from the bank for a year, and my having the loan was the result of my receiving it. Finally, in (2b), all my walls were green, which was the result of my painting them that color.

On the present conception, a result state is inherently a relational notion: a state s is a *result state* with respect to an event e, an individual x, a two-place relation V, and a two-place relation R just in case V holds of e and x, e causes s, e immediately precedes s, and R holds of s and x. To this we should add a "sanity check" to ensure that no result state of type R with respect to x is attained earlier in e. In other words, e should be the "smallest event" that has a result state of type R with respect to x.[2]

(3) $\text{result-state}(s,e,x,V,R) \stackrel{\text{def}}{=}$ ▷ result state
$V(e,x) \wedge \text{cause}(e,s) \wedge e \ll s \wedge R(s,x) \wedge$
$\neg\exists e'\exists s'(e' \sqsubset_{ini} e \wedge V(e',x) \wedge \text{cause}(e',s') \wedge e' \ll s' \wedge R(s',x))$

The definition of a result state in (3) covers the case in which V and R are two-place relations. But sometimes we need to handle the case in which these are replaced by three-place relations. A *result state** is like a result state but involves two individuals shared between the event and the state, as defined in (4), where U stands for a relation between events and two individuals and Q, for a relation between states and two individuals.

(4) $\text{result-state}^\star(s,e,x,y,U,Q) \stackrel{\text{def}}{=}$ ▷ result state*
$U(e,x,y) \wedge \text{cause}(e,s) \wedge e \ll s \wedge Q(s,x,y) \wedge$

[2]The symbol $\ll$ denotes immediate temporal precedence and $\sqsubset_{ini}$ stands for initial proper part.

$$\neg\exists e'\exists s'(e'\sqsubset_{ini}e\wedge U(e',x,y)\wedge\mathsf{cause}(e',s')\wedge e'\ll s'\wedge Q(s',x,y))$$

Finally, for the sake of completeness, a *result state°* is yet a third variation, the case in which no individual is shared between the event and the state, as defined in (5), where E is a predicate of events and S is a predicate of states.

(5)　　result-state°$(s,e,E,S)\overset{\mathrm{def}}{=}$　　　　　　　▷ result state°
$E(e)\wedge\mathsf{cause}(e,s)\wedge e\ll s\wedge S(s)\wedge$
　　$\neg\exists e'\exists s'(e'\sqsubset_{ini}e\wedge E(e')\wedge\mathsf{cause}(e',s')\wedge e'\ll s'\wedge S(s'))$

Generalizing over the definitions in (3), (4), and (5) and we can say that a state s is an *r-state* of an event e just in case s is a result state of e or a result state° of e:

(6)　　r-state$(s,e)\overset{\mathrm{def}}{=}$　　　　　　　　　　　▷ r-state
$\exists x\exists V\exists R(\mathsf{result\text{-}state}(s,e,x,V,R))\vee$
　　$\exists x'\exists y\exists U\exists Q(\mathsf{result\text{-}state}^{\star}(s,e,x',y,U,Q))\vee$
　　　　$\exists E\exists S(\mathsf{result\text{-}state}°(s,e,E,S))$

Returning to (1) and (2), there are two kinds of examples to contend with: (i) where the r-state is overtly expressed (*hőssé válik* 'turn into a hero', *zöldre fest* 'paint green'), and (ii) where the r-state is covertly expressed (*el·tűnik* 'disappear', *kap* 'receive'). Beginning with the latter, it seems plausible to think of certain verbs as lexically expressing the type of r-state involved:

(7)　a.　el·tűnik- 'PREV-disappear-' $\rightsquigarrow$
　　　　$\lambda x\lambda s\lambda e.\mathsf{result\text{-}state}($
　　　　$s,e,x,\lambda x'\lambda e'.\mathsf{disappear}(e',x'),\lambda x''\lambda s'.\mathsf{out\text{-}of\text{-}sight}(s',x''))$
　b.　kap- 'receive-' $\rightsquigarrow$
　　　　$\lambda y\lambda x\lambda s\lambda e.\mathsf{result\text{-}state}^{\star}($
　　　　$s,e,x,y,\lambda y'\lambda x'\lambda e'.\mathsf{receive}(e',x',y'),$
　　　　$\lambda y''\lambda x''\lambda s''.\mathsf{have}(s'',x'',y''))$

In prose, *el·tűnik* 'disappear' denotes the three-place relation between events e, states s, and individuals x such that e is a disappearing of x and e has a result state s in which x is out of sight.[3] Analogously, *kap* 'receive' denotes the four-place relation between events e, states s, and individuals x and y such that e is a receiving of y by x and e has a result state* s in which x has y.

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[3]A reviewer asks about *el·olvas* 'read through', which is more semantically transparent than e.g. *el·tűnik* 'disappear' (because of the verb *olvas* 'read') and less transparent than e.g. *hőssé válik* 'turn into a hero' (where the r-state is transparently encoded by the preverb). My two points in response are: (i) *el·olvas* 'read through', although aspectually an accomplishment (in the sense of Vendler 1967), most likely does not encode an r-state anyway (since not all accomplishments necessarily do; see section 3 for a brief remark); (ii) but even supposing that it did, one could treat the preverb *el* as encoding the r-state in question, though this meaning of *el* would be available only in combination with *olvas*.

Turning to the first kind of example, where the r-state is overtly expressed, here the type of r-state is contributed by the verb's predicate complement:

(8) a. R-vÁ válik- 'turn- into R' $\rightsquigarrow$
         $\lambda R \lambda x \lambda s \lambda e.\text{result-state}(s,e,x,\lambda x' \lambda e'.\text{turn-into}(e',x'),R)$

     b. hős 'hero' $\rightsquigarrow \lambda x \lambda s.\text{hero}(s,x)$

     c. hőssé válik- 'turn- into a hero' $\rightsquigarrow$
         $\lambda x \lambda s \lambda e.\text{result-state}($
         $s,e,x,\lambda x' \lambda e'.\text{turn-into}(e',x'),\lambda x'' \lambda s'.\text{hero}(s',x''))$

(9) a. R-rA fest- 'paint- R' $\rightsquigarrow$
         $\lambda R \lambda y \lambda x \lambda s \lambda e.\text{result-state}(s,e,y,\lambda y' \lambda e'.\text{paint}(e',x,y'),R)$

     b. zöld 'green' $\rightsquigarrow \lambda x \lambda s.\text{green}(s,x)$

     c. a falat 'the wall.ACC' $\rightsquigarrow$ the-wall

     d. zöldre fest- 'paint- green' $\rightsquigarrow$
         $\lambda y \lambda x \lambda s \lambda e.\text{result-state}($
         $s,e,y,\lambda y' \lambda e'.\text{paint}(e',x,y'),\lambda y'' \lambda s'.\text{green}(s',y''))$

     e. zöldre fest- a falat 'paint- green the wall' $\rightsquigarrow$
         $\lambda x \lambda s \lambda e.\text{result-state}($
         $s,e,\text{the-wall},\lambda y' \lambda e'.\text{paint}(e',x,y'),\lambda y'' \lambda s'.\text{green}(s',y''))$

As shown in (9), the verb first combines with the adjective *zöld* 'green' and then with the object *a falat* 'the wall.ACC' to yield a three-place relation between events *e*, states *s*, and individuals *x* such that *x* paints the wall in *e* and *s* is a result state of *e* in which the wall is painted green.

It may be objected that in (8) and (9), neither the translative suffix *-vÁ* nor the sublative suffix *-rA* is explicitly assigned a denotation. But observe that there is no real difficulty here: we could regard the analyses in (8a) and (9a) as derived and treat the suffix in each case as encoding result-state, as shown in (10a) and (11a). The analyses in (8a) and (9a) would then be derived by applying the relations in (10a) and (11a) to the relations between events and individuals given in (10b) and (11b), respectively.

(10) a. -vÁ 'TRAN' $\rightsquigarrow \lambda V \lambda R \lambda x \lambda s \lambda e.\text{result-state}(s,e,x,V,R)$
      b. (válik- 'turn- into' $\rightsquigarrow$) $\lambda x \lambda e.\text{turn-into}(e,x)$

(11) a. -rA 'SUBL' $\rightsquigarrow \lambda V \lambda R \lambda x \lambda s \lambda e.\text{result-state}(s,e,x,V,R)$
      b. fest- 'paint-' $\rightsquigarrow \lambda x \lambda e.\text{paint}(e,x)$

This strategy would be more plausible for *R-rA fest-* 'paint- R' than for *R-vÁ válik-* 'turn- into R' because there is independently an activity verb *fest-* 'paint', whereas *válik* 'turn into' (on this meaning) requires a complement ending in *-vÁ* 'TRAN' from the start. For this reason, it would be more apt to

treat at least the analysis in (8a) as basic.[4]

2.   Temporal modifiers ending in *-rA* 'SUBL'

In this section, I argue that temporal modifiers ending in *-rA* 'SUBL' may be used to determine the duration of an r-state and that there is evidence that they have three interpretations: an actuality-based use, an intention-based use, and an incorporated use. I also argue against the claim (made by Gyuris 2003 and Kiefer 2006) that there is a special (fourth) reading of such modifiers not already covered by one of the three uses established.

2.1.   *The actuality-based use*

A temporal modifier ending in the sublative case suffix *-rA* 'SUBL' may be used to specify the duration of an r-state, as already illustrated in (1a) and (2a). This may be called the *actuality-based* use of a temporal modifier ending in *-rA* 'SUBL':[5]

(12)   -rA^a 'SUBL' $\rightsquigarrow$ ▷ actuality-based
$\lambda S \lambda N \lambda e.\exists s(N(e,s) \wedge S(s) \wedge \text{r-state}(s,e))$

(13)   a.   öt nap 'five day' $\rightsquigarrow \lambda s.\text{num-days}(s) \geq 5$
        b.   öt napra^a 'for five days.SUBL' $\rightsquigarrow$
             $\lambda N \lambda e.\exists s(N(e,s) \wedge \text{num-days}(s) \geq 5 \wedge \text{r-state}(s,e))$

(14)   a.   egy év 'a year' $\rightsquigarrow \lambda s.\text{num-years}(s) \geq 1$
        b.   egy évre^a 'for a year' $\rightsquigarrow$
             $\lambda N \lambda e.\exists s(N(e,s) \wedge \text{num-years}(s) \geq 1 \wedge \text{r-state}(s,e))$

As seen in (12), the meaning of actuality-based *-ra^a* first applies to a predicate *S* of states and then to a relation *N* between events and states, yielding a predicate of events *e* such that there is a state *s* of type *S* and *N* holds of *e* and *s*. The third conjunct serves as a "sanity check" to ensure that *s* really is an r-state of *e*. Finally, the derivation of two particular temporal modifiers is shown in (13) and (14).

The derivation of the relevant part of (1a) is as follows:

(15)   a.   el·tűnik- 'PREV-disappear-' $\rightsquigarrow$ (= (7a))
             $\lambda x \lambda s \lambda e.\text{result-state}($
             $s,e,x,\lambda x' \lambda e'.\text{disappear}(e',x'),\lambda x'' \lambda s'.\text{out-of-sight}(s',x''))$
        b.   Tigris 'Tigris' $\rightsquigarrow$ tigris

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[4]Though I would be inclined to say the same for the analysis in (9a). Moreover, observe that, from a morphological point of view, it would be more adequate for *-vÁ* 'TRAN' and *-rA* 'SUBL' to first combine with the adjective and then with the verb, contrary to how the relations in (8a) and (9a) would be derived.

[5]The variable *N* in (12) stands for a two-place relation between events and states.

    c.   Tigris el·tűnik- 'Tigris PREV-disappear-' $\rightsquigarrow$

$$\lambda s \lambda e.\text{result-state}(\\ s, e, \text{tigris}, \lambda x' \lambda e'.\text{disappear}(e', x'),\\ \lambda x'' \lambda s'.\text{out-of-sight}(s', x''))$$

    d.   Tigris el·tűnik- öt napra[a] 'Tigris PREV-disappear- for five days' $\rightsquigarrow$

$$\lambda e.\exists s(\text{result-state}(\\ s, e, \text{tigris}, \lambda x' \lambda e'.\text{disappear}(e', x'),\\ \lambda x'' \lambda s'.\text{out-of-sight}(s', x'')) \wedge\\ \text{num-days}(s) \geq 5 \wedge \text{r-state}(s, e))$$

The event predicate in (15d) denotes the set of events e such that Tigris disappears in e and there is a state s such that s is a result state of e in which Tigris is out of sight and s lasts for at least five days.[6]

2.2. *The intention-based use*

If a temporal modifier ending in *-rA* 'SUBL' is combined with a verb that takes a volitional argument (typically, an agent), the specified duration of the r-state need not actually hold but it may instead only be intended by the volitional participant to hold, as illustrated by the two examples in (16), which would otherwise be predicted to be contradictory.

(16)   a.   Réka harminc percre   ment ki a   kertbe,   de tizenöt
             Réka thirty   minute.SUBL went out the garden.ILL but fifteen
             perc   után be·jött, amikor el·kezdett   esni.
             minute after in.came when   PREV-began.it rain.INF
             'Réka went out into the garden for thirty minutes but she came in after fifteen minutes when it began to rain.'
    b.   A tolvajok két hétre   bújtak el,   de egy hét   után a
             the thieves two week.SUBL hid   PREV but one week after the
             rendőrség meg·találta őket.
             police   PREV-found them
             'The thieves hid for two weeks but the police found them after one week.'

In order to account for this reading, the analysis of temporal modifiers ending in *-rA* 'SUBL' needs to be made more complex by relativizing the specified

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[6]From (11a) and (12) we see that the sublative case suffix *-rA* 'SUBL' has at least two meanings (or, as we will soon see, arguably at least four), one for adjectives encoding r-states and another for temporal modifiers expressing the duration of r-states. A reviewer asks whether this is a coincidence. While it may not be a coincidence from a diachronic perspective, these two uses of *-rA* 'SUBL' are nonetheless distinct synchronically, though they are semantically related insofar as they both involve r-states. Note, incidentally, that the original spatial meaning of *-rA* 'SUBL' is 'onto'.

duration of the r-state to what the volitional participant intends. This use may be called the *intention-based* use of a temporal modifier ending in *-rA* 'SUBL':[7]

(17) -rA^i 'SUBL' $\rightsquigarrow$ $\triangleright$ intention-based
$\lambda S \lambda M \lambda x \lambda e . \exists s (M(e,s,x) \wedge \text{r-state}(s,e)) \wedge$
$\exists s' (\text{intend}(s',x,{}^{\wedge}\exists s''(M(e,s'',x) \wedge S(s'') \wedge \text{r-state}(s'',e))))$

(18) a. harminc percre^i 'for thirty minute.SUBL' $\rightsquigarrow$
$\lambda M \lambda x \lambda e . \exists s (M(e,s,x) \wedge \text{r-state}(s,e)) \wedge \exists s' (\text{intend}($
$s',x,$
${}^{\wedge}\exists s''(M(e,s'',x) \wedge \text{num-minutes}(s'') \geq 30 \wedge \text{r-state}(s'',e))))$

  b. két hétre^i 'for two week.SUBL' $\rightsquigarrow$
$\lambda M \lambda x \lambda e . \exists s (M(e,s,x) \wedge \text{r-state}(s,e)) \wedge \exists s' (\text{intend}($
$s',x,$
${}^{\wedge}\exists s''(M(e,s'',x) \wedge \text{num-weeks}(s'') \geq 2 \wedge \text{r-state}(s'',e))))$

As shown in (17), the duration specified by the predicate S applies to an r-state s'' of e that is within the scope of the relation intend (where the state of intending is designated by s'). At the same time, there has to be an actual r-state s of e but s need not have the duration specified by S. In other words, the volitional participant intends for e to have an r-state s'' with the duration determined by S, but whether the actual r-state s of e has this duration is left open.

A partial derivation of the first clause of (16a) is shown as follows (see also (20) below):[8]

(19) a. ki·megy- a kertbe 'go- out into the garden' $\rightsquigarrow$
$\lambda x \lambda s \lambda e . \text{result-state}($
$s,e,x,\lambda x' \lambda e' . \text{go}(e',x'), \lambda x'' \lambda s' . \text{out-in-the-garden}(s',x'))$

  b. harminc percre^i ki·megy- a kertbe 'go- out into the garden for thirty minutes' $\rightsquigarrow$
$\lambda x \lambda e . \exists s (\text{result-state}($
$s,e,x,\lambda x' \lambda e' . \text{go}(e',x'), \lambda x'' \lambda s' . \text{out-in-the-garden}(s',x'')) \wedge$
$\text{r-state}(s,e)) \wedge \exists s'' (\text{intend}($
$s'',x,{}^{\wedge}\exists s_1 (\text{result-state}($

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[7]The symbol $^{\wedge}$ in (17) stands for an abstraction operator over possible circumstances (often: worlds). Such an operator is needed here because what one intends need not ever actually be the case, the idea being that what one intends is the case in those possible circumstances compatible with one's intentions. (Note that the variable M stands for a three-place relation between events, states, and individuals.)

[8]I ignore the effect of focusing the temporal modifier. In (16a) and (16b), the focus is justified by the contrast set up by the second clause. (In Hungarian, the focused constituent occupies the preverbal position, in which case the preverb—if there is one—follows the verb. The displaced preverbs in (16) are *ki* and *el*, respectively.)

$$s_1, e, x, \lambda x_2 \lambda e''.\mathsf{go}(e'', x_2),$$
$$\lambda x_3 \lambda s_2.\mathsf{out\text{-}in\text{-}the\text{-}garden}(s_2, x_3)) \wedge$$
$$\mathsf{minute}(s_1) \geq 30 \wedge \mathsf{r\text{-}state}(s_1, e))))$$

In prose, the predicate in (19b) denotes a relation between events e and (volitional) individuals x such that e is an event of going by x, there is a result state s of e in which x is out in the garden, and x intends for e to have a result state s_1 in which x is out in the garden and s_1 lasts for at least thirty minutes. Note, again, that it is possible that the actual result state s of e lasts for less than thirty minutes.

The question arises whether a single sentence with a temporal modifier ending in -*rA* 'SUBL' may really have two readings, an actuality-based one and an intention-based one. Let us consider this question in connection with the following example (cf. (16a)):

(20)   Réka harminc percre   ki·ment a   kertbe.
        Réka thirty   minute.SUBL out-went the garden.ILL
        'Réka went out into the garden for thirty minutes.'

Probably the most natural way of understanding this sentence—given that Réka is the volitional participant of the event described—is to attribute to her the intention of being out in the garden for at least thirty minutes. Suppose, furthermore, that she actually was out in the garden for thirty minutes. This fact alone does not show that the sentence in (20) also has a distinct actuality-based reading, because her actually having been out in the garden for thirty minutes is obviously compatible with her intending to be out in the garden for at least thirty minutes. In this case, it is sufficient to postulate a single reading, the intention-based one, which is compatible with the situations covered by the actuality-based reading.

In order to argue that the sentence in (20) also has an actuality-based reading, we should take care to rule out the corresponding intention-based reading. For example, a context in which Réka was out in the garden for thirty minutes but did not intend to be out in the garden for that long would still make the sentence in (20) true. The following example, which makes use of contrastive focus, is an attempt to force such an interpretation:

(21)   Réka szándékosan csak húsz   percre   ment ki a
        Réka intentionally only twenty minute.SUBL went out the
        kertbe,   de végül   harminc percig   volt ott, így
        garden.ILL but in.the.end thirty   minute.TERM was there so
        vissza·nézve azt   mondhatjuk, hogy harminc percre
        back-looking that.ACC say.can.we   COMP thirty   minute.SUBL
        ment ki   a   kertbe.
        went out the garden.ILL

'Réka intentionally went out into the garden for only twenty minutes, but in the end she stayed there for thirty minutes, so in retrospect we can say that she went out into the garden for thirty minutes.'

This sentence should express a contradiction if the only reading for the final clause were an intention-based one. In this case, it should express a contradiction because Réka could not have both the intention to be out in the garden for only twenty minutes and the intention to be there for thirty minutes at the same time. On the other hand, if the final clause also has a bona fide actuality-based reading, then it would be consistent with the first clause, which obviously has an intention-based reading. Since the sentence in (21) is not contradictory, we may conclude that its final clause also has a bona fide actuality-based interpretation.[9]

A reviewer suggests that although the intention-based reading requires a volitional participant, the volitional participant need not be represented as an argument of the verb. According to the reviewer, the following sentence, with the intransitive verb *ki·nyílik* 'out-open', also has an intention-based interpretation, which (if correct) would pose a concern for the present analysis, which takes the volitional participant to be an argument of the verb:

(22) Harminc percre   ki·nyílt   az ajtó.
     thirty   minute.SUBL out-opened the door
     'The door opened for thirty minutes.'

In attempting to decide whether this sentence has a bona fide intention-based reading, it is useful to bear in mind the distinction between "natural inferences" and semantic content. Given that doors are typically opened by volitional agents, it is natural to infer that in (22) as well, there was an agent who was responsible for the opening of the door and who intended for the door to be open for thirty minutes. But even if this natural inference is drawn, it does not follow that the sentence in (22) has a semantically encoded intention-based reading. (The availability of an actuality-based reading is not in dispute.)

By applying the pattern illustrated in (16), we can construct an argument against the claim that the sentence in (22) has a bona fide intention-based reading, because the following sentence is judged to be contradictory:

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[9]Which in turn strongly suggests that the sentence in (20) also has a bona fide actuality-based interpretation (which, just to repeat, is in line with intuitions about (20)). The only minor concession is that the final clause of (21) involves focus, so we are not literally talking about (20).

(23) ?#Harminc percre   nyílt   ki az ajtó, de húsz   perc   után
       thirty   minute.SUBL opened out the door but twenty minute after
       be·zárt.
       in-closed.it
       ?#'The door opened for thirty minutes, but it closed after twenty min-
       utes.'

From the present perspective, the contrast in acceptability between (23) and
(16) is sufficient for the argument against the view that the sentence in (22)
has a bona fide intention-based reading, but at the same time it must be con-
ceded that there may be creative ways of understanding (23) as expressing a
consistent proposition.[10]

2.3.   The incorporated use

The two interpretations of temporal modifiers ending in *-rA* 'SUBL' discussed
thus far, the actuality-based use and the intention-based use, arguably do not
cover all of the relevant data. Consider the following examples, which at first
glance seem to be canonical instances of the intention-based use:

(24)   a.   Réka három napra   meg·hívta   Tamást.
            Réka three   day.SUBL PREV-invited Tamás.ACC
            'Réka invited Tamás for three days.'
       b.   Tíz hónapra   ki·adtam   a lakást.
            ten month.SUBL out-rented.I the apartment.ACC
            'I rented out the apartment for ten months.'
       c.   Négy évre   ki·nevezték   Rékát   igazgatónak.
            four   year.SUBL PREV-named.they Réka.ACC director.DAT
            'They named Réka director for four years.'

In (24a), Réka invited Tamás for three days, but whether Tamás actually
stayed with Réka for three days or even visited her at all is left open, hence
this appears to be a prime example of the intention-based use of *három napra*
'three day.SUBL'. The worry, though, is that the temporal modifier in this case
does not really modify the r-state of *meg·hív* 'invite'. To see this, let us briefly
consider what the r-state of *meg·hív* 'invite' as illustrated in (24a) plausibly
is. If Réka invites Tamás for three days, then Tamás has an invitation from
Réka to stay with her for three days. Note, crucially, that this is not the same
as Tamás's having an invitation from Réka for three days to stay with her, i.e.,
in the former case, the three days applies to how long he stays with her and

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[10]One such way might be if the door was an automatic door that was programmed to
always open for thirty minutes, yet on this particular occasion it mysteriously closed after
twenty minutes. Insofar as such a reading is acceptable, my claim would be that in this case,
we construe the door *as if* it had the intention to be open for thirty minutes.

not to how long he has the invitation, which may well be significantly longer, e.g., until he (positively or negatively) *acts on* the invitation. If correct, then the r-state of *meg·hív* 'invite' is that the invitee has an invitation from the inviter to do something (in (24a), to stay with the inviter), and yet it is not the having of an invitation that the temporal modifier applies to but rather it is the *content* of the invitation that is pertinent. More informally, in the case of *meg·hív* 'invite', a temporal modifier ending in *-rA* 'SUBL' applies to a state "within" the r-state as opposed to the r-state itself.

The other examples in (24) seem to be similar in this respect. In (24b), for instance, the r-state of *ki·ad* 'rent out' is that the renter has a contract from the owner to stay in the property in question during the term of the contract. The temporal modifier *tíz hónapra* 'ten month.SUBL' applies not to how long the renter has the contract from the owner but rather to how long the renter may stay in the property. In other words, the temporal modifier applies to a state that is part of the content of the contract and not to the having of the contract.

Unfortunately, if this reasoning is correct, it is not feasible to account for this use of a temporal modifier ending in *-rA* 'SUBL' as an instance of either the actuality-based reading or the intention-based reading. I will call this new use of a temporal modifier ending in *-rA* 'SUBL' the *incorporated* use, the main idea being that the modifier is semantically incorporated in this case. In what follows, I sketch a treatment of (24a), well aware that there are a number of details that I cannot address adequately here.

The analysis of *meg·hív* 'invite' is shown in (25), where the subcategorization frame indicates that *meg·hív* 'invite' takes both an NP that is [+temporal +subl] and one that is [+acc].

(25)   meg·hív- 'PREV-invite-': [+ __ NP[+temporal, +subl] NP[+acc]]
        meg·hív- $\rightsquigarrow$
            $\lambda S \lambda y \lambda x \lambda e. \exists s (\text{result-state}^\star ($
                $s, e, x, y, \lambda y' \lambda x' \lambda e'.\text{invite}(e', x', y'),$
                $\lambda y'' \lambda x'' \lambda s'.\text{have-invitation-from}($
                    $s', y'', x'', {}^\wedge \exists s''.\text{stay-with}(s'', y'', x'') \wedge S(s''))))$

The meaning of *meg·hív* 'invite', a four-place relation between an event e, an individual *x* (the inviter), an individual *y* (the invitee), and a predicate *S* of states, affirms that *x* invites *y* in *e* and there is a result state* *s* of *e* in which *y* has an invitation from *x* with the content that there is a state *s''* in which *y* stays with *x* for the time specified by *S*. Observe that the operator $^\wedge$ is employed before the content of the invitation because *y* need not ever actually stay with *x* for the period determined by *S*. Indeed, *y* need not ever actually stay with *x* at all: whether *y* does depends on whether *y* positively acts on the invitation from *x*.

The incorporated use of *-rA* 'SUBL' is shown in (26a), which applies to a predicate *S* of states (syntactically, an NP that is [+temporal]), e.g., the one in

(26b), to yield the same predicate of states but with the additional syntactic feature [+subl], as seen in (26c).

(26)   a.   -rA^{inc} 'SUBL': [[+ NP[+temporal] __], +subl]
            -rA$^{inc} \rightsquigarrow \lambda S \lambda s.S(s)$ ▷ incorporated use
       b.   három nap 'three day': NP[+temporal]
            három nap $\rightsquigarrow \lambda s.\text{num-days}(s) \geq 3$
       c.   három napra^{inc} 'three day.SUBL': NP[+temporal, +subl]
            három napra$^{inc} \rightsquigarrow \lambda s.\text{num-days}(s) \geq 3$

The event predicate corresponding to the sentence in (24a) is then displayed in (27), which is the result of applying the relation in (25) to the predicate of states in (26c), tamás, and réka.

(27)   Réka három napra^{inc} meg·hív- Tamást 'Réka three day.SUBL PREV-invite- Tamás.ACC' $\rightsquigarrow$
       $\lambda e.\exists s(\text{result-state}^\star($
       $\quad s, e, \text{réka}, \text{tamás}, \lambda y' \lambda x' \lambda e'.\text{invite}(e', x', y'),$
       $\quad \lambda y'' \lambda x'' \lambda s'.\text{have-invitation-from}($
       $\quad\quad s', y'', x'', {}^\wedge \exists s''.\text{stay-with}(s'', y'', x'') \wedge \text{num-days}(s'') \geq 3)))$

In prose, this event predicate denotes the set of events e such that Réka invites Tamás in e and there is a result state* s of e in which Tamás has an invitation from Réka to stay with her for three days. Importantly, the state s'' in which Tamás stays with Réka is not the same as the result state* s in which Tamás has an invitation from Réka. Rather, the former is part of the content of the latter (the invitation).

Given the analysis of *meg·hív* 'invite' proposed in (25), observe that neither the actuality-based use of *-rA* 'SUBL' (see (12)) nor its intention-based use (see (17)) is applicable. This is because the result state* s of *meg·hív* 'invite' is already existentially quantified over and so is not available for further modification. The only way for *meg·hív* 'invite' to combine with a temporal modifier ending in *-rA* 'SUBL' is by applying to an instance of the incorporated use.

We can argue that the sentence in (24a) in fact lacks an actuality-based reading by pointing out that the following sentence is contradictory (cf. (21), which is not):

(28) ?#Réka csak három napra   hívta   meg Tamást,   de Tamás
       Réka only three   day.SUBL invited PREV Tamás.ACC but Tamás
       végül   hat napig   maradt nála,   így vissza·nézve azt
       in.the.end six day.TERM stayed with.her so back-looking that.ACC
       mondhatjuk, hogy Réka hat napra   hívta   meg.
       say.can.we   COMP Réka six day.SUBL invited.him PREV

> ?#'Réka invited Tamás for only three days, but in the end Tamás stayed with her for six days, so in retrospect we can say that Réka invited him for six days.'

Although it is not clear why Tamás stayed with Réka for an extra three days, we cannot conclude from the fact that he stayed with her longer that her invitation was for six days instead of the original three. It may be that Réka extended her original invitation at some point during the first three days of Tamás's stay, but this is not a conclusion that we can necessarily draw. It may be that Réka simply tolerated his staying with her for three extra days. In sum, the mere fact that Tamás stayed with Réka for six days does not allow us to conclude that she invited him for six days, hence the sentence in (24a) lacks an actuality-based reading.

By contrast, the sentence in (24a) does very well have an "intention-based" reading in the sense that invitations are intentional, a point that would be rendered more explicit in a more detailed analysis. At the same time, we cannot speak of the intention-based use of -*rA* 'SUBL' here, because the intentionality originates in the meaning of *meg·hív* 'invite' and not in the meaning of the temporal modifier ending in -*rA* 'SUBL'. This claim is supported by the following contrast (pointed out to me by Gyuri Rákosi):

(29) a.   Réka véletlenül   három napra   hívta   meg Tamást.
           Réka accidentally three   day.SUBL invited PREV Tamás.ACC
           'Réka accidentally three day.SUBL invited PREV Tamás.'
      b. #A   tolvajok véletlenül   két hétre   bújtak el.
           the thieves   accidentally two week.SUBL hid   PREV
           ?#'The thieves accidentally hid for two weeks.'

In both (29a) and (29b), the adverb *véletlenül* 'accidentally' associates with the temporal adverbial ending in -*rA* 'SUBL', and yet the sentence in (29a) is acceptable, whereas the one in (29b) is not (the intention-based use of the temporal adverbial is the relevant reading in the latter). The idea is that, in (29b), the meaning of *véletlenül* 'accidentally' contradicts the intention-based use of the temporal adverbial ending in -*rA* 'SUBL', which explicitly makes reference to the agent's intention, whereas in (29a), there is no contradiction because it is the incorporated use and not the intention-based use of the temporal adverbial ending in -*rA* 'SUBL' that is at stake. In (29a), Réka intentionally invites Tamás (since invitations are intentional), but she makes a mistake on the content of the invitation, not intending to invite him for three days. This does not result in a contradiction because the incorporated use of a temporal adverbial ending in -*rA* 'SUBL' does not make reference to the agent's intention.

2.4. A fourth use?

Gyuris (2003, pp. 23–24) claims that temporal modifiers ending in *-rA* 'SUBL'
have a special distinct use, what she calls an "existential use" ["egzisztenciális
használat"]. Kiefer (2006, fn. 42, p. 232) also mentions this use of these
modifiers but calls it instead a "goal adverbial sense" ["célhatározói értelem"].
Three examples that are supposed to illustrate this use are as follows:

(30) a. Főztem   ebédet   három napra.   (= Gyuris's (40a), p. 24)
          cooked.I lunch.ACC three   day.SUBL
          'I cooked lunch for three days.'
      b. Felverte   a   sátrat   két napra.   (= Gyuris's (40c), p. 24)
          pitched.he the tent.ACC two day.SUBL
          'He pitched the tent for two days.'
      c. Bevásároltam egy hónapra.   (= Kiefer's (ii), fn. 42, p. 232)
          did.shopping.I a   month.SUBL
          'I did shopping for a month.'

Unfortunately, apart from naming it, Kiefer does not say anything more about
this use. Gyuris (p. 24) writes that the existential reading "does not require
that the post-state [in present terms: the r-state] be reversible but only that it
have a relevant initial phase whose beginning point is that instant when a thing
came into existence or became available" ["nem követeli meg azt, hogy az
utóállapot visszafordítható legyen, csak azt, hogy legyen egy releváns kezdeti
szakasza, amelynek kezdőpontja az a pillanat, amikor egy dolog létrejött vagy
hozzáférhetővé vált"]. But, unfortunately again, although this remark says
something about what an existential reading is supposed to be, it does not
say why we should postulate an additional special use of temporal modifiers
ending in *-rA* 'SUBL'.[11]

    Let us try to clarify what is at issue. Suppose, for the sake of argument,
that the sentences in (30), minus the temporal modifiers, all contain existential
constructions.[12] The mere fact that temporal modifiers ending in *-rA* 'SUBL'
are compatible with such existential constructions does not necessarily show
that there is a special use of these temporal modifiers, a so-called existential
reading or a goal adverbial sense. There may be such a special use of such
modifiers, but to establish this requires argument. As far as I can tell, nei-
ther Gyuris nor Kiefer has made a case for such a special use (and, if I may

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[11]I set aside Gyuris's claim (present in the quotation) that the so-called existential reading
of temporal modifiers ending in *-rA* 'SUBL' does not require the r-state to be reversible,
because she does not actually argue for it (and yet the truth of the claim is not self-evident).
In any case, reversibility as a semantic condition also is not self-evident—see sect. 3.1.

[12]Although this is likely for (30a) and (30c), it is much less likely for (30b). At any
rate, even if (30b) contains an existential construction, it is not the same kind of existential
construction as in (30a) and (30c). (See Bende-Farkas 2001 for a detailed discussion of
existential constructions in Hungarian.)

add, neither seems to be especially interested in this use, because they both immediately set it aside).

From the present perspective, the question is whether the data in (30) require us to postulate a fourth use of temporal modifiers ending in -*rA* 'SUBL', in addition to the actuality-based use and the intention-based use. (I assume that the incorporated use is not at issue in (30).) As long as an existential construction offers a modifiable r-state, the actuality-based reading or the intention-based reading of a temporal modifier ending in -*rA* 'SUBL' should in principle be available—the "source" of the r-state is immaterial from the perspective of such modifiers.

In what follows, I will sketch a partial analysis of the sentence in (30a), treating it as containing an existential construction. Since the external argument of *főz* 'cook' denotes a volitional participant (an agent), I assume that the intention-based use of -*rA* 'SUBL' is the prominent one here, so I will focus on this reading.

The verb *főz* 'cook' (as an existential verb) is analyzed as in (31), where P is a predicate of individuals. It denotes a four-place relation between events e, states s, (volitional) individuals x, and predicates P such that x cooks something in e and s is a result-state° of e in which there is something of type P that is available. Recall from (5) that in the case of a result-state°, no individual is shared between the event and the state, which arguably is what is called for here.

(31)   főz- 'cook-' $\leadsto$
$\lambda P \lambda x \lambda s \lambda e.\text{result-state}^\circ($
$s,e,\lambda e'.\exists y(\text{cook}(e',x,y)),\lambda s'.\exists x'(P(x') \wedge \text{available}(s',x')))$

Since the internal argument of *főz* 'cook' is a predicate of individuals, it has to be fed such an argument:

(32)   ebédet 'lunch.ACC' $\leadsto \lambda x.\text{lunch}(x)$

Once the relation in (31) is applied to the predicate in (32), we obtain the following relation:

(33)   főz- ebédet 'cook- lunch.ACC' $\leadsto$
$\lambda x \lambda s \lambda e.\text{result-state}^\circ($
$s,e,\lambda e'.\exists y(\text{cook}(e',x,y)),\lambda s'.\exists x'(\text{lunch}(x') \wedge \text{available}(s',x')))$

The analysis of the temporal modifier *három napra* 'three day.SUBL' on its intention-based use is given in (34), which is obtained by applying the relation in (17) to the predicate of states in (26b).

(34)   három napra[i] 'three day.SUBL' $\leadsto$
$\lambda M \lambda x \lambda e.\exists s(M(e,s,x) \wedge \text{r-state}(s,e)) \wedge \exists s'(\text{intend}($

$$s', x, {}^{\wedge}\exists s''(M(e, s'', x) \wedge \mathsf{num\text{-}days}(s'') \geq 3 \wedge \mathsf{r\text{-}state}(s'', e))))$$

Since the three-place relation in (33) is appropriate input for the denotation of the temporal modifier, the latter may be applied to the former, yielding:

(35)   főz- ebédet három napra^i 'cook- lunch.ACC three day.SUBL' $\rightsquigarrow$
$$\lambda x \lambda e. \exists s(\mathsf{result\text{-}state}^{\circ}(\\
s, e, \lambda e'. \exists y(\mathsf{cook}(e', x, y)),\\
\lambda s'. \exists x'(\mathsf{lunch}(x') \wedge \mathsf{available}(s', x'))) \wedge\\
\mathsf{r\text{-}state}(s, e)) \wedge \exists s'(\mathsf{intend}(\\
s', x, {}^{\wedge}\exists s''(\mathsf{result\text{-}state}^{\circ}(\\
s'', e, \lambda e''. \exists y'(\mathsf{cook}(e', x, y')),\\
\lambda s_1. \exists x''(\mathsf{lunch}(x'') \wedge \mathsf{available}(s_1, x''))) \wedge\\
\mathsf{num\text{-}days}(s'') \geq 3 \wedge \mathsf{r\text{-}state}(s'', e))))$$

In prose, this is a two-place relation between events e and (volitional) individuals x such that x cooks something in e and there is a state s that is a result state$^{\circ}$ of e in which there is some food available and x intends for there to be a state s'' that is a result state$^{\circ}$ of e in which there is some food available and which lasts for three days. Note, again, that since the temporal specification applies to the intended result state$^{\circ}$ s'' of e, the actual result state$^{\circ}$ s of e need not last for three days.

If the partial analysis that I have sketched of the sentence in (30a) reasonably reflects its meaning, then it is hard to see the motivation for a fourth use of temporal modifiers ending in *-rA* 'SUBL', despite what Gyuris and Kiefer claim. Thus, in the absence of a compelling reason to the contrary, the present conclusion is that the sentences in (30) do not provide evidence for a fourth use of temporal modifiers ending in *-rA* 'SUBL'.

3. Comparisons

The account advocated in this paper is not the only one that has been proposed of result states[13] in Hungarian. In this section, I critically review two other approaches that I am aware of, that of Kiefer (2006)[14] and that of Bende-Farkas (2007).

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[13]I now return to a less technical sense of *result state*, one that does not necessarily conform to the definition in (3).

[14]Kiefer's account relies on Gyuris (2003) for a number of observations and claims. I choose to discuss Kiefer's account instead of Gyuris's because they are largely in agreement and Kiefer's is the more recent. See also Gyuris & Kiefer (2008, sect. 5.6.5) for a brief discussion of result states.

3.1.   *Kiefer (2006)*

Kiefer adopts Pustejovsky's (1991) framework and proposes (sect. 4.4) that result states[15] be represented in "event structure" as states that follow punctual events or processes. For example, *el·megy* 'leave' ('away-go') and *meg·ír* 'write' ('PREV-write') are said to have the following schematic event structures (where PUNCTUAL, PROCESS, and STATE are to be instantiated by specific predicates appropriate for the verb in question):[16]

(36)   a.   el·megy 'PREV-leave':   (Cf. Kiefer's (47), p. 229)
$$\text{PUNCTUAL}(x, e_1) < \text{STATE}(x, e_2)$$
       b.   meg·ír 'PREV-write':   (Cf. Kiefer's (30d), p. 222)
$$\text{PROCESS}(x, y, e_1) < \text{STATE}(y, e_2)$$

Let me immediately point out—if only to immediately set it aside—that merely saying that some state e_2 involving x temporally follows some punctual event or process e_1 involving x still falls significantly short of an adequate characterization of what a result state is.

Like Pustejovsky, Kiefer assumes (pp. 249–250) that all accomplishments encode a result state in their event structure,[17] an assumption that Gyuris (p. 22) also makes. By contrast, in the approach that I have adopted, this assumption is not made, the view being that some (perhaps even many) but not all accomplishments encode result states. This is a significant theoretical difference: whereas Pustejovsky, Kiefer, and Gyuris take it to be definitional of what an accomplishment is that it have a result state, I take it to be an empirical issue whether a particular accomplishment has a result state or not. Although I cannot embark on a discussion of this difference here, I would simply point out that there are well-known approaches to aspectual composition such as Krifka (1992) and Verkuyl (1993) that treat accomplishments without the notion of a result state, and that the assumption that every accomplishment encodes a result state can easily become dogmatic if it is not said, in the case of a particular accomplishment, what exactly the result state is.

Kiefer (p. 240) introduces two predicates into event structure, REV (for *reversible*) and CONTROL (for *control*), in order to be able to say that a temporal modifier ending in *-rA* 'SUBL' is compatible with a result state *e* if *e* is characterized as reversible (REV(e)) or as controlled by an individual (typically,

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[15]Kiefer uses at least three Hungarian terms for what I call result states—*utóállapot* 'post-state', *végállapot* 'end-state', and *eredményállapot* 'result state'—but as far as I can tell, he uses them interchangeably.

[16]Note that Kiefer employs the same kind of variables for both events and states.

[17]Though how accomplishments that are derived compositionally suddenly acquire a result state is not clear in Kiefer's approach. For example, an accomplishment with *portalanít* 'dust' should encode a result state, but since there is no result state in the lexical entry of *portalanít* 'dust', which Kiefer assumes is an activity verb, it is mysterious how a result state suddenly appears in the course of a derivation (see pp. 215, 222–223).

an agent) x ($\text{CONTROL}(x, e)$). This is illustrated in (37) for REV:

(37)   a.   A tó   két hétre   befagyott.   (= Kiefer's (57c), p. 232)
             the lake two week.SUBL PREV.froze
             'The lake froze for two weeks.'
       b. $[\text{PROCESS}(x, e_1)\ \&\ \text{PATIENT}(x, e_1)] < [\text{STATE}(x, e_2)\ \&\ \text{REV}(e_2)]$
             (Cf. Kiefer's (58), p. 232)

Since the event structure for (37a) in (37b) includes the condition that e_2 is reversible, a temporal modifier ending in *-rA* 'SUBL' may be acceptably applied.

   In the case of events with an agent, Kiefer claims that the presence of CONTROL is the crucial element for the acceptability of a temporal modifier ending in *-rA* 'SUBL'. However, since he postulates ((61), p. 233) that control of a state e by x implies that e is reversible (his formal statement is: $\text{CONTROL}(x, e) \rightarrow \text{REV}(e)$), it would be more economical to get rid of the disjunctive condition (p. 240) for compatibility with a temporal modifier ending in *-rA* 'SUBL' (namely, that the result state should be reversible or controlled), and instead simply say that the result state should be reversible. In other words, since control entails reversibility, it is redundant to stipulate the disjunctive condition of control or reversibility because it would suffice to stipulate reversibility alone.[18]

   The difficulty with Kiefer's notion of reversibility is that not only is it not defined or characterized in any way but also its logical type is incorrect. It does not make much sense to ask of an individual state e whether it is reversible or not (see e.g. (37b)). Since any individual state e holds only once, e is never reversible. If, for example, e is a state in which a particular lake is frozen, e may cease to hold at some point but e, that particular individual state, cannot be "reversed." In other words, the notion of reversibility is not successfully captured as a one-place predicate of individual states.

   If one insisted on adding a notion of reversibility to result states as a condition for the successful application of temporal modifiers ending in *-rA* 'SUBL', a notion that interfaces well with the approach that I have proposed could be defined as follows:[19]

(38) $\text{reversible}(s, x, R) \overset{\text{def}}{=}$ ▷ reversible
       $R(s, x) \wedge \Diamond \exists t\, (\tau(s) \prec t \wedge \neg \exists s'\, (t \sqsubseteq \tau(s') \wedge R(s', x)))$

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[18]Although Gyuris does not say explicitly that control entails reversibility, it is consistent with the table that she provides in her (49) on p. 28. But despite this, she (p. 29) also effectively postulates a disjunctive condition.

[19]In (38), $\Diamond$ is a possibility operator (physical possibility seems to be the appropriate modality), t is a variable for times (instants or intervals), τ stands for a function that returns the time of an event or a state, $\sqsubseteq$ is for part, and $\prec$ denotes temporal precedence.

In prose, we may say *s* is *reversible* with respect to *x* and *R* just in case *R* holds of *s* and *x* and it is possible that there is a time *t* later than the time of *s* and *t* is not a part of the time of a state *s′* such that *R* holds of *s′* and *x*. In other words, and more informally, *s* is reversible with respect to *x* and *R* just in case *R* may cease to hold of *s* and *x* at some point.

A *reversible result state* would then be defined as the conjunction of the notion of a result state with that of being reversible:[20]

(39)   rev-result-state$(s,e,x,V,R) \stackrel{\text{def}}{=}$ ▷ reversible result state
   result-state$(s,e,x,V,R) \wedge$ reversible(s,x,R)

But even with the notion of a reversible result state in hand, it is arguably an undesirable complication to stipulate reversibility as a *semantic* condition for compatibility with temporal modifiers ending in *-rA* 'SUBL'. On the contrary, reversibility is best regarded as an *implicature* of the use of such modifiers (and, more specifically, of numeral phrases). For example, if *két hétre* 'two week.SUBL' is predicated of a result state, as in (37a), the implicature is that the result state ceases to hold after two weeks (in other words, the implicature is that the result state is reversible), for otherwise the speaker should have chosen to specify a different duration. If this reasoning is correct, then it is difficult to justify building a reversibility condition into the semantics of temporal modifiers ending in *-rA* 'SUBL'.

In conclusion, even putting aside any worries about the vagaries of semantic composition in a Pustejovsky-style framework,[21] Kiefer's account is problematic because it says very little about what a result state is and offers no definition or characterization of reversibility, while at the same time attributing to it an incorrect logical type, and yet reversibility plays a crucial role in his (otherwise largely implicit) treatment of temporal modifiers ending in *-rA* 'SUBL'.

3.2. *Bende-Farkas (2007)*

One of Bende-Farkas's main concerns is to argue (p. 55) that "the best method of semantic composition for resultatives involves dynamic semantics with asymmetric merge." To put it another way, the idea is that a predicate denoting a result state is (dynamically) asymmetrically merged with a verbal

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[20]For completeness, it would ultimately also be necessary to define variants of reversibility for the notions of *result state*⋆ and *result state*°, respectively.

[21]Kiefer (p. 238) claims that a (neo-)Davidsonian event semantic approach is not suitable "for the identification of result states" ("az utóállapot azonosítására"), but without further qualification, this claim is a bit misleading. Obviously, in a trivial sense, any event semantic approach without result states will have difficulties in "the identification of result states," but there is no reason why result states cannot be added to a (neo-)Davidsonian event semantic approach. (One such attempt is in Piñón 1999.)

predicate. A couple of analyses of result state predicates offered by Bende-Farkas are as follows (where $\mathscr{E}$ is a dynamic existential quantifier):

(40)   a.   piros-ra 'red-SUBL':   (= Bende-Farkas's (5a), p. 58)
           $\mathscr{E}s$; $red(s)(\alpha)$; $Res(e) = s$
       b.   red-∅:   (= Bende-Farkas's (5b), p. 58)
           $\mathscr{E}s$; $red(s)(\alpha)$; $Cause(e) = s$

In (40a), appeal is made to a function *Res* that "encodes the end state conventionally associated with the event described by the complex verb" (fn. 1, p. 58). According to Bende-Farkas, no such appeal is necessary for the treatment of the result state predicate *red-∅*, as seen in (40b).[22]

Although Bende-Farkas provides a nice comparative linguistic review of resultatives, at least three points are not so clear about the analysis that she sketches in (40).

First, it is not obvious how the function *Res* relates to *Cause*. Indeed, even if *Res* is taken to be primitive, it would be useful to have some kind of characterization of it, given its prominent role.

Second, it is a bit difficult to appreciate the radical difference in the treatment of *pirosra* 'red.SUBL' versus *red-∅*. Bende-Farkas says that there is a difference between Hungarian *fest* 'paint', which lacks a result state in its lexical entry, and English *paint*, which may have a result state in its entry on its telic reading, hence *pirosra* 'red.SUBL' (in contrast to *red-∅*) *adds* a result state. But why could *red-∅* not also add a result state to the atelic reading of *paint*? And what would happen if we tried to merge *red-∅* with the atelic reading of *paint* nonetheless?[23]

Finally, seeing that many resultative predicates in Hungarian (e.g., *pirosra* 'red.SUBL') function as preverbs and consequently typically appear before the verb (e.g., *pirosra fest* 'paint red'), one wonders why verbal predicates should not preferably be asymmetrically merged with resultative predicates rather than the other way around (at least in such cases).

To conclude, let me acknowledge that Bende-Farkas may be right that asymmetric merge in a dynamic semantics is ultimately the preferred way to handle semantic composition, but this is a general theoretical and methodological point, having little to do with resultatives per se (resultatives would simply count as a special instance of asymmetric merge). At the same time, as a concrete analysis of result states in Hungarian, Bende-Farkas's account is significantly incomplete and still needs to address the kinds of issues that are addressed by Gyuris (2003), Kiefer (2006), and in the account that I have

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[22]Bende-Farkas (p. 58) acknowledges being inspired by Kratzer (2005).

[23]Incidentally, it is also not obvious how *pirosra* 'red.SUBL' can literally *add* a result state to the meaning of *fest* 'paint', because if *Res* is defined for the events denoted by *fest* 'paint', then the latter in a sense already have a result state (or so it would seem).

proposed.[24]

4. Potential empirical problems

Sometimes adding a temporal modifier ending in *-rA* 'SUBL' yields an un-
acceptable result. To account for this, both Gyuris (2003) and Kiefer (2006)
claim that the semantics of such modifiers has to make reference to such no-
tions as "control" and "reversibility," as already touched upon in sect. 3.1. As
Kiefer (p. 240) puts it: "A temporal modifier ending in *-rA* is only applicable if
the result state is further characterized by either the predicate CONTROL(x, e)
or REV(e)" ["[A] *-rA* ragos időmódosító akkor alkalmazható, ha az utóállapot
vagy a KONTROLL(x, e) vagy a REV(e) predikátummal egészül ki"].

Recall (also from sect. 3.1) that although we could build a reversibility
requirement into the semantics of temporal modifiers ending in *-rA* 'SUBL',
a more attractive option would be to try to model the "reversibility effect"
as a pragmatic implicature. Nevertheless, there is still potentially a role for
semantics because in the present approach, it is not a matter of definition that
every accomplishment entails a result state, hence insofar as we attempt to
combine a temporal modifier ending in *-rA* 'SUBL' with an accomplishment
that lacks a result state, we should get an unacceptable result.

In this section, I examine three problematic verbs among five that Gyuris
(p. 28) diagnoses as entailing result states that are neither reversible nor con-
trolable.[25]

4.1. ki·vasal *'out-iron'*

What is the problem (if there is one) with the following sentence?

(41) *Egy órára   ki·vasaltam a   ruhámat.
       an   hour.SUBL out-ironed.I the clothes.my.ACC
       (= Gyuris's (48), p. 26; her judgment)
       'I ironed out my clothes for an hour.'

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[24]I do not mean to imply that Bende-Farkas's account could not be adequately fleshed out.
Rather, in its present form, it just seems to be significantly incomplete.

[25]The two other verbs in this class are *meg·mos* 'PREV-wash' and *meg·ír* 'PREV-write'.

Again, just to recall from sect. 3.1, since control of a state *e* is said (implicitly by Gyuris,
explicitly by Kiefer) to imply that *e* is reversible, it would be sufficient to speak of result
states that are not reversible.

Intuitively, the result state of an ironing out[26] event is a state in which (the contextually relevant part of) the thing ironed is free of creases. If correct, then there should not be a *semantic* problem with (41), because I may have had reason to believe that my clothes would need to be ironed again an hour later. In practice, of course, such a situation is unlikely to arise.

Gyuris (pp. 26–27) disagrees with the intuition that an ironing out event results in no creases. She instead offers the following explanation of the unacceptability of the sentence in (41):

> The key to the solution is that although the goal of an ironing event is generally that the ironed thing not be creased, it is not the case for every ironing that this is the consequence. At the same time, at the end of an ironing event it is always possible to say that the thing in question is ironed out, which is thus qualitatively another state than the state where the clothes are not creased. One cannot intentionally put an end to the state where a thing is ironed out [. . .].
>
> [A megoldás kulcsa az, hogy bár a vasalási esemény célja álta-lában az, hogy a kivasalt dolog ne legyen gyűrött, nem minden vasalásra igaz, hogy ez be is következik. Egy vasalási esemény végén ugyanakkor mindig elmondható, hogy az adott dolog ki van vasalva, ami tehát minőségileg más állapot, mint az az álla-pot, hogy a ruha nem gyűrött. Annak az állapotnak, hogy egy dolog ki van vasalva [. . .] nem lehet szándékosan véget vetni.]

Unfortunately, this passage is a bit misleading because of a confounding of ironing (*vasalási*) events with ironing out (*kivasalási*) events. Contrary to what Gyuris says, ironing (*vasalási*) events do not always have a result state in which the thing ironed is ironed out (*ki van vasalva*). If we correct this and focus instead on ironing out (*kivasalási*) events, then we might attempt to say (in the spirit of Gyuris) that the result state of an ironing out (*kivasalási*) event is a state in which the thing ironed is ironed out (*ki van vasalva*), but this claim has nontrivial content to the extent to which we can say what such states are like. But now the difficulty is that, according to Gyuris, looking for no creases will not help because a state in which something is ironed out (*ki van vasalva*) is "qualitatively another state" from one in which the thing ironed is not creased. So what characterizes a state in which something is ironed out (*ki van vasalva*)? Unfortunately, to answer that it is ironed out (*ki van vasalva*)

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[26]One of the editors, Cathie Ringen, finds the use of the verb-particle construction *iron out* infelicitous as an aspectual variant of *iron*. To make two points in reply: (i) although both *vasal* and *ki·vasal* would indeed most naturally be rendered as *iron*, my purpose here is precisely to keep the senses of the two Hungarian verbs apart when mentioning them in English; (ii) some dictionaries (e.g., `http://dictionary.reference.com/browse/iron+out`) cite *iron out* as a possible close synonym of *iron*.

does not help, because that is simply to redescribe what happened.[27]

What does a well-known monolingual Hungarian dictionary say about the meaning of *ki·vasal* 'iron (out)'?

> **ki·vasal** 'out-iron' tr. verb **1.** ⟨Clothes and the like⟩ smooth/straighten out, or shape into the necessary form. *He ironed out the jacket.* [...]
> [**kivasal** ts ige **1.** ⟨Ruhafélét⟩ vasalóval kisimít, ill. a kellő formájúra alakít. *Kivasalta a zakót.* [...]]
> (*Magyar értelmező kéziszótár* [A Concise Explanatory Dictionary of Hungarian], seventh reprint edition, 1987)

This definition seems to confirm the intuition about the kind of result state entailed by *ki·vasal* 'iron (out)' that I described at the outset. If correct, then we are not obliged to follow Gyuris in the mystification of the result states of ironing out (*kivasalási*) events. If a piece of clothing is ironed out, then its contextually relevant part is free of creases. Furthermore, one can very well intentionally put an end to this state, e.g., by making creases in the piece of clothing that has been ironed out. Consequently, there is nothing *semantically* anomalous about the sentence in (41). In fact, similar sentences can be contextualized with a little effort. Consider the following attempt, which sounds more natural than (41):

(42)   Hetente   ki szoktam vasalni az ingemet,   mert   egy hét
         week.every out used.I   iron.INF the shirt.my.ACC because a   week
         után mindig gyűrött lesz.   Ma   megint egy hétre
         after always creased will.be.it today again a   week.SUBL
         ki·vasaltam,   és   most örülök,   hogy megint egy hétre
         out-ironed.I.it and now pleased.am.I COMP again   a   week.SUBL
         ki   van vasalva!
         out is   ironed
         'Every week I iron out my shirt, because after a week it's always creased. Today I ironed it out for another week, and now I'm pleased that it's ironed out for another week!'

Although I believe that the dictionary explanation of the meaning of *ki·vasal* 'iron (out)' cited above fairly accurately reflects the ordinary sense of this verb, it may be pointed out that *ki·vasal* 'iron (out)' has another sense, one in

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[27]Curiously, in connection with an example with *ki·vasal* 'iron (out)' very similar to (41), Kiefer (pp. 230–231) agrees with Gyuris's judgment of unacceptability but at the same time claims that the result state entailed by *ki·vasal* 'iron (out)' *is* reversible (though with no reference to Gyuris at this point). Unfortunately, these two facts together (Kiefer's agreement and his claim) do not really help him, because in his approach this would predict that a temporal modifier ending in *-rA* 'SUBL' should be acceptable with *ki·vasal* 'iron (out)' after all (since the reversibility condition is satisfied), contrary to how he judges the data.

which it suffices to iron (or more colloquially: to run an iron over) the surface of the contextually relevant part of a piece of clothing with no guarantee that that part will be free of creases afterwards. (Arguably, on this reading of *ki·vasal* 'iron (out)', the use of a cold iron would suffice!) This may be the sense that Gyuris has in mind in the passage cited above, and the sentence in (41) is indeed unacceptable on this meaning of *ki·vasal* 'iron (out)'. However, the reason that she gives for the unacceptability is nonetheless still mistaken, because on this meaning of *ki·vasal* 'iron (out)', there is no result state: the event ends when all of the surface of the relevant part of the piece of clothing is ironed. But if there is no result state, then there is no result state for a temporal modifier ending in *-rA* 'SUBL' to modify. From the present perspective, this is all there is to say. In particular, there is no need to postulate (as Gyuris does) a mysterious result state of being ironed out (*ki van vasalva*) that is irreversible and that merely serves to redescribe what happened.

4.2. be·csuk *'in-shut' versus* be·csap *'in-slam'*

The following contrast offers another puzzle:

(43)   a.   Réka tíz percre   be·csukta az ajtót.
              Réka ten minute.SUBL in-closed the door.ACC
              'Réka closed the door for ten minutes.'
        b.   #Réka tíz percre   be·csapta   az ajtót.
              Réka ten minute.SUBL be-slammed the door.ACC
              #'Réka slammed the door for ten minutes.'

Gyuris (p. 29) claims that in the case of *be·csap* 'slam', we do not consider the result state to be reversible ("nem tekintjük visszafordítónak"), whereas in the case of *be·csuk* 'close' we do, which "probably explains" ("valószínűleg megmagyarázza") the contrast in acceptability between pairs like (43a) and (43b). The difficulty, of course, is that it is not so evident why the result state of *be·csap* 'slam'—whatever it is supposed to be exactly—should not be considered reversible.

A more likely explanation is that *be·csap* 'slam' does not entail a result state to begin with, in contrast to *be·csuk* 'close'. The meaning of *be·csuk* 'close' entails that the thing closed is closed (*zárva van*), whereas that of *be·csap* 'slam' does not entail that the thing slammed should be in any particular result state. Significantly, a slammed door need not be closed after the slamming event. But if it is correct that *be·csap* 'slam' does not imply a result state, then modification by a temporal modifier ending in *-rA* 'SUBL' should not be possible, as desired.[28]

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[28]A reviewer points out that although I have argued that *be·csap* 'slam' does not entail a result state in which the thing slammed is closed, this does not exclude the possibility of another kind of result state for *be·csap* 'slam'. This is correct. However, I assume that the

4.3. be·bizonyít 'PREV-*prove*'

Finally, consider the following unacceptable sentence:

(44) #Réka két hétre   be·bizonyította a   tételt.
       Réka two week.SUBL PREV-proved   the theorem.ACC
       #'Réka proved the theorem for two weeks.'

If Réka proves the theorem in question, then she produces a proof of the theorem. (There may be more than one proof of the theorem.) The result state is that there is a proof of the theorem. But once there is a proof of the theorem, there will always be a proof of the theorem, so this is a result state that lasts forever. The use of *két hétre* 'two week.SUBL' in (44) implicates that the result state ended after two weeks. But since this cannot be the case here, the use of *két hétre* 'two week.SUBL' yields a contradictory flavor. If we were nonetheless forced to interpret the sentence in (44), it would seem to imply that there was a critical mistake in the proof—in which case Réka did not really prove the theorem to begin with—and that it was shown that the proof was faulty after two weeks.

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"burden of proof" is on the party (here: Gyuris) who believes that *be·csap* 'slam' entails a result state to say both what it is and why it is not considered reversible. To say, as Gyuris does (p. 29, fn. 10), that the result state of *be·csap* 'slam' is that the thing slammed "is slammed" ("be van csapva") is merely to redescribe what happened and not to identify the result state of *be·csap* 'slam' (assuming that there is one).

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