

## ***Wh-hell: The view from Hungarian\****

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### **1. Introduction**

In this paper, we discuss two points of contrast between English (1) and Hungarian (2) multiple *wh-hell* questions. First, English *wh-hell* phrases must always be ex-situ (1a), and may never appear in-situ (1b) (Pesetsky 1987, den Dikken and Giannakidou 2002), while Hungarian *wh-hell* phrases may appear both in-situ (2b) and ex-situ (2a). Second, while well-formed multiple *wh-hell* questions in English have both a single-pair (SP) and a pair-list (PL) reading (1a) (Bruening 2013, *contra* den Dikken and Giannakidou 2002), the availability of PL depends on the position of the *wh-hell* phrase in Hungarian: if it is ex-situ, only SP is available (2a), and if it is in-situ, both SP and PL are available (2b).<sup>1</sup>

- (1) a. **Who the hell** loves who? [ex situ: SP, PL]  
b. \*Who loves **who the hell**? [in situ: \*]
- (2) a. **Ki a fene** szerelmes kibe?  
who the hell in.love who.ILL  
'Who the hell is in love with who?' [ex situ: SP, \*PL]
- b. **Ki** szerelmes **ki a fenébe**?  
who in.love who the hell.ILL  
'Who loves who the hell?' [in situ: SP, PL]

There are thus two questions that we address in this contribution:

1. Why does Hungarian allow in-situ *wh-hell* (2b), while English does not (1b)?
2. Why can Hungarian ex-situ *wh-hell* questions not have a PL reading (2a), while the English ones can (1a)?

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\*We would like to thank the audiences of the Syntax-Semantics Lab at the University of Delaware and of NELS49 at Cornell University for their insights and feedback on our work.

<sup>1</sup>The questions in (2) are of the partial-fronting type. The multiple-fronting type is discussed in Section 3.

Our answers to these questions rely on two key differences between Hungarian and English when it comes to *wh*-syntax and the semantics of *wh*-hell. Section 2 focuses on syntax, and presents our answer to question 1 (concerning in situ *wh*-hell). Section 3 focuses on semantics, and presents our answer to question 2 (concerning interpretative differences). Section 4 concludes.

## 2. The syntax of *wh*-hell questions

In this section, we propose that the contrast between in-situ *wh*-hell in English (1b) and Hungarian (2b) is due to a difference in what drives *wh*-movement in the two languages. We begin by showing why Hungarian *wh*-syntax allows in-situ *wh*-hell. Then, we explain why English *wh*-syntax forces English *wh*-hell phrases to be ex-situ. And finally, we argue against den Dikken and Giannakidou's (2002) claim that *wh*-hell phrases are NPIs.

### 2.1 Hungarian *wh*-hell questions

Hungarian is well-known for having a dedicated syntactic position for focus in its left periphery (Puskás 2000, É. Kiss 2002). Due to the similar behavior of focus and *wh*-items in the language, many have proposed that this focus position is the landing site for *wh*-movement as well (Puskás 2000, Surányi 2002). In this paper, we adopt Surányi's (2002) syntactic analysis of Hungarian *wh*-questions. According to Surányi, all *wh*-items have a [wh] feature, and at least one *wh*-item per *wh*-question has a [focus] feature. This [focus] feature is checked via overt movement to FocP, whereas the [wh] feature can be checked in-situ without movement. In other words, whichever *wh*-phrase carries [focus] moves overtly to FocP, while others can stay behind<sup>2</sup>.

Crucially, any *wh*-phrase may carry [focus] in multiple *wh*-questions.<sup>3</sup> Thus, if we make the plausible assumption that the Hungarian equivalent of *the hell* does not interfere with [focus], in-situ *wh*-hell simply arises when the non-*wh*-hell phrase carries [focus]. The schematic structures corresponding to the examples in (2) are shown in (3).

- (3) a. [FocP ki a fene<sub>[focus,wh]i</sub> ... [ ... [TP *t*<sub>i</sub> ... kibe<sub>[wh]</sub> ]]]  
 b. [FocP ki<sub>[focus,wh]i</sub> ... [ ... [TP *t*<sub>i</sub> ... ki a fenébe<sub>[wh]</sub> ]]]

Now, it should be noted that Hungarian has two variants of multiple *wh*-questions (Surányi 2002): one with partial *wh*-fronting (4a), and one with multiple *wh*-fronting (4b). Because

<sup>2</sup>Surányi (2002) allows there to be multiple *wh*-items with [focus]. For those, he assumes covert movement to FocP. Nevertheless, the fact remains that at least one [focus]-carrying *wh*-phrase *must* front.

<sup>3</sup>The fact that Hungarian *wh*-questions do not obey superiority, as shown in (i), further illustrates this freedom in *wh*-fronting.

- (i) a. Ki a fenébe szerelmes ki?  
 who the hell.ILL in.love who.NOM  
 b. Kibe szerelmes ki a fene?  
 who.ILL in.love who.NOM the hell

in-situ wh-hell is only relevant for partial wh-fronting, we postpone the discussion of the multiple-fronting type to Section 3, where we show how our semantic analysis of partial-fronting multiple wh-hell questions extends to the multiple-fronting type.

- (4) a. Ki szerelmes kibe?  
 who in.love who.ILL  
 ‘Who is in love with who?’  
 b. Ki kibe szerelmes?  
 who who.ILL in.love  
 ‘Who is in love with whom?’

## 2.2 English wh-hell questions

In the last section, we showed that in-situ wh-hell is possible in Hungarian due to the fact that wh-movement is driven by [focus], and any wh-phrase may carry it. We now move on to the famous ban on in-situ wh-hell in English (1b). In what follows, we argue that the difference between English and Hungarian in-situ wh-hell comes down to a difference in what drives wh-movement on the one hand, and the syntax of *the hell* on the other.

To begin, we assume that all English wh-phrases carry the features [wh] and [Q]. Movement to Spec,CP is driven by [Q], and due to locality constraints (Rizzi 1990, Chomsky 1993, Richards 1997), it is always the highest wh-phrase that moves there. Violating locality produces superiority effects, which crucially are absent in Hungarian (fn. 3):

- (5) a. Who<sub>i</sub> *t<sub>i</sub>* loves who?  
 b. \*Who<sub>i</sub> does who love *t<sub>i</sub>*?

The [wh] feature, on the other hand, plays a special role in wh-hell questions, which we assume to include an IP-internal Attitude Phrase (AttP) (Huang and Ochi 2004).<sup>4</sup> In their paper, Huang and Ochi discuss two AttP-based ways for deriving single wh-hell questions in English. In Option 1, *the hell* is base-generated in Spec,AttP. It carries [wh], and attracts the closest [wh]-carrying wh-phrase to join it in Spec,AttP. The resulting wh-hell phrase then moves to Spec,CP to check [Q]. In contrast, in Option 2, *the hell* base-adjoins to a wh, and together they move to Spec,AttP (attracted by [wh] on Att<sup>0</sup>), and then to Spec,CP.

Data from English multiple wh-questions (which are not discussed by Huang and Ochi) can help decide between these two options. Specifically, in multiple wh-questions, Option 2 leads to an incorrect prediction: nothing stops *the hell* from attaching to the lower wh. In that case, we expect the higher wh to raise to AttP and CP<sup>5</sup>, and the result is in-situ wh-hell (6), which we want to rule out.

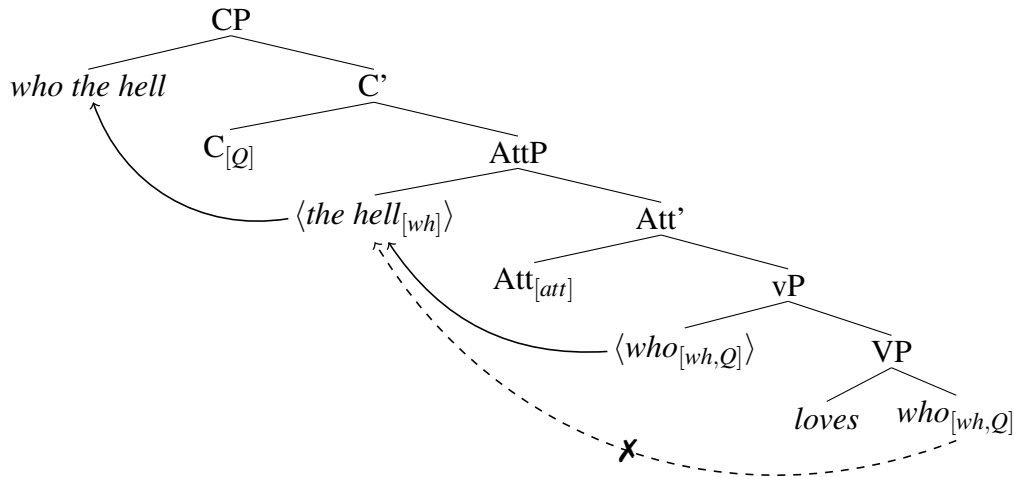
<sup>4</sup>The label ‘Attitude Phrase’ refers to the fact that wh-hell questions are asked ‘with an attitude’ (Huang and Ochi 2004).

<sup>5</sup>Indeed, nothing stops the higher wh from raising to AttP instead of the lower wh in this case, since all that is required is that AttP attracts a phrase that checks its [wh] feature – which all English wh-phrases have.

(6) \* $[\text{CP Who}_i [\text{AttP } t_i [\text{vP } t_i \text{ loves who the hell?}]]]$

In contrast, Option 1 generates only the available derivation for English. Assuming that movement is subject to locality constraints, it is always the highest wh with [wh] that moves to AttP to form the *wh-hell* phrase, which then moves to Spec,CP, as illustrated in (7) for *Who the hell loves who?*.

(7)



In other words, the pick over which wh moves to Spec,CP and Spec,AttP is determined by syntactic position in English: it is always the highest wh-phrase with [wh,Q]. In this context, the assumption that *the hell* is base-generated in Spec,AttP explains why English wh-hell phrases are always ex-situ.<sup>6</sup>

At this point, it is an open question whether Hungarian wh-hell questions also involve AttP. If they do, the possibility of in-situ wh-hell means that *the hell* base-adjoins to the wh-phrase, and movement to AttP is covert, as per Option 2 (Huang and Ochi 2004). While the Hungarian data raise interesting questions about the typology of wh-hell and AttP<sup>7</sup>, further research into the issue is outside the scope of this paper, and we leave it for future work.

### 2.3 den Dikken and Giannakidou (2002)

Before we move on to discuss the semantics of wh-hell questions, we will briefly address den Dikken and Giannakidou's (2002) explanation of the ban on in-situ wh-hell phrases

<sup>6</sup>Moreover, it explains why multiple wh-hell questions show superiority effects in English: due to locality, a lower wh-phrase can never be attracted to Spec,AttP over a higher wh-phrase, as shown below.

(i) \*What the hell does who love *t*?

<sup>7</sup> Huang and Ochi (2004) and our current discussion suggest that English wh-hell questions are derived through overt movement to AttP. In contrast, Huang and Ochi propose that Mandarin wh-hell questions are derived through covert movement to AttP. The data from Hungarian suggest a third configuration: *the hell* base-adjoins to the wh-phrase, and the wh-hell phrase moves covertly to AttP (if it has to move at all).

in English. For den Dikken and Giannakidou, wh-hell phrases are Negative Polarity Items (NPIs), and as such, they must be licensed in an appropriate configuration. In wh-questions, the relevant licenser is a CP-level *Q*(uestion)-particle. Crucially, den Dikken and Giannakidou propose that while English questions with in-situ wh-hell (like (1b)) involve *Q*, they also involve an intervention configuration: the lower wh-hell cannot be licensed by *Q*, as the fronted wh-phrase intervenes between them, as shown in (8).

(8) \**Q* ... wh ... wh-hell

This analysis is problematic for both English and Hungarian. First, in English, NPIs are not generally banned in configurations like (8). As shown in (9), the NPI *anything* can be licensed by (the unshown) *Q* despite the presence of the intervening wh-phrase *who*.

(9) *Who* has given *anything* to Bill?

Second, den Dikken and Giannakidou's (2002) proposal immediately runs into problems with Hungarian, which allows in-situ wh-hell. At this point, we could try to rescue the intervention analysis by assuming that such structures in fact involve two *Q*s: one licensing the fronted wh, and another licensing the wh-hell, as in the structure shown in (10).

(10) *Q* ... wh ... *Q* ... wh-hell

In Section 3, we adopt a *Q*-based semantics of (multiple) wh-questions under which the 'sandwiched' configuration in (10) results in a PL reading for the question (Kotek 2014), while the structure corresponding to (8) only has an SP reading. Thus, if Hungarian wh-hell items were truly NPIs, as den Dikken and Giannakidou (2002) assume, we would expect only the PL reading to be available when wh-hell is in-situ. This, however, is not the case: both PL and SP readings are available with such questions (2b).

In summary, the NPI-based account of wh-hell makes incorrect predictions for the licensing of other NPIs, and possibly for the interpretation of multiple wh-hell questions. Our analysis of the ban on in-situ wh-hell instead relies on independently justified contrasting properties of wh-syntax (and the syntax of AttP) in Hungarian and English.

### 3. The semantics of wh-hell questions

The second part of the puzzle we set out to solve concerns the availability of single-pair (SP) and pair-list (PL) answers to multiple wh-hell questions. In particular, we want to explain why English and Hungarian differ in whether multiple wh-hell questions can have both a SP and a PL reading. To do so, we propose that Hungarian wh-hell is truly 'aggressively non-D-linked', while English wh-hell is not (*contra* Pesetsky 1987).

To better understand the connection between D-linking and multiple wh-questions, we begin this section by spelling out a *Q*-particle based semantics of multiple wh-questions (Hagstrom 1998, Cable 2010, Kotek 2014). Under this analysis, the notion of D-linkedness can be equated with 'being the sorting key' (in a sense to be explained below) (Comorovski

1996). We then show that English wh-hell phrases are acceptable as sorting keys, while Hungarian wh-hell phrases are not: in other words, only Hungarian wh-hell is strictly non-D-linked. Thus, the interpretive contrast between Hungarian and English follows from the fact that Hungarian multiple wh-hell questions never allow PL readings when the wh-hell phrase is the (D-linked) sorting key, while no such constraint exists for English. At the end of this section, we also show how the non-D-linkedness constraint accounts for the ill-formedness of certain multiple-fronting multiple wh-hell questions in Hungarian.

### 3.1 The $Q$ -particle approach to multiple wh-questions

The specific  $Q$ -particle approach we adopt for modeling the semantics of (multiple) *wh(-hell)*-questions is that of Kotek (2014). Kotek's analysis is couched within two-dimensional Alternative Semantics (Rooth 1985, 1992), which means that semantic interpretation involves both ordinary semantic values ( $o$ ) and focus semantic values ( $f$ ). Under this analysis, wh-phrases do not have a well-defined ordinary semantic value (Beck and Kim 2006, Beck 2006), while their focus semantic values denote sets of entities:

- (11) a.  $\llbracket who \rrbracket^o = \text{undefined}$   
 b.  $\llbracket who \rrbracket^f = \{x \mid human(x)\}$

Wh-phrases compose with the rest of the structure via pointwise functional application, which eventually produces a set of propositions as the focus semantic value of the structure. In contrast, the ordinary semantic value of the structure remains undefined until a  $Q$ -particle enters the derivation.  $Q$  ensures that the wh-question has a well-formed semantic value at the end of the derivation by setting the focus semantic value of its sister node  $\alpha$  as the ordinary semantic value of the resulting node, as shown in (12a). Crucially, it also sets the focus semantic value of the resulting node to correspond to the singleton set of the ordinary semantic value of the new node, as shown in (12b).

- (12) a.  $\llbracket Q(\alpha) \rrbracket^o = \llbracket \alpha \rrbracket^f$   
 b.  $\llbracket Q(\alpha) \rrbracket^f = \{\llbracket Q(\alpha) \rrbracket^o\} = \{\llbracket \alpha \rrbracket^f\}$

Under the  $Q$ -approach, SP readings arise when two wh-phrases introduce alternatives without a  $Q$  intervening between them: the result is a set of propositions, and the true complete answer to the question is one of the members of this set.

- (13) Who loves what? [SP]  
 a.  $Q \dots who \dots what$   
 b.  $\{\lambda w . loves(y)(x)(w) : x \in human, y \in non.human\}$

PL readings arise when two  $Q$ s are involved, and one of them is 'sandwiched' between the wh-phrases. This leads to the whole question denoting a set of sets of propositions:<sup>8</sup>

<sup>8</sup>For reasons of space, we omit full derivations for (14) or (13): for that, see Kotek (2014, p. 80-84).

- (14) Who loves what? [PL]
- a.  $Q \dots who \dots Q \dots what$
- b.  $\{\{\lambda w . loves(y)(x)(w) : y \in non.human\} : x \in human\}$

It is the semantics of  $Q$  that gives the higher wh-phrase the special status of a sorting key in multiple wh-questions with a PL reading. In particular, the denotation of the higher wh-phrase determines exactly which sets of propositions (i.e. questions) are part of the question denotation: one set for each member of the higher wh-phrase. Crucially, the possible values of the sorting key are usually considered to be contextually given, which in turn can be interpreted as meaning that they are D(iscourse)-linked. Therefore, we expect that ‘aggressively non-D-linked’ wh-phrases – such as wh-hell phrases – cannot act as sorting keys, and thus they cannot be the higher wh-phrase when a PL-reading is available. In the next two sections, we show that Hungarian and English wh-hell in fact differ in whether they allow for their wh-hell phrases to be D-linked, and that this difference determines the possible interpretations of multiple wh-hell questions in the two languages.

### 3.2 The non-D-linkedness constraint in English and Hungarian

We begin by showing that contrary to popular assumptions (Pesetsky 1987, a.o.), English wh-hell is not strictly non-D-linked, while Hungarian wh-hell is. This can be illustrated with an example such as (15) from Bruening (2013), who uses it to argue that multiple wh-hell-questions can have a PL reading (*contra* den Dikken and Giannakidou 2002).<sup>9</sup> For our purposes, what matters is that the higher wh-hell is D-linked in (15).<sup>10</sup>

- (15) In an Agatha Christie-type murder mystery, two detectives are called to investigate a murder at a country manor. They discover numerous love affairs, love triangles, unrequited loves, and jealousy. After interviewing multiple **house guests** and **family members**, one detective turns to the other in exasperation and says,
- “**Who the hell** is in love with **who**? I can’t keep track, have you been making a list?”  
(Bruening 2013)

Interestingly, Hungarian wh-hell phrases are strictly non-D-linked. To avoid the possibility of a confound due to the multiple wh-phrases of (15) (see e.g. (2a)), we show this with a single wh-question below. As expected based on (15), the English question is acceptable in the given context. However, the Hungarian version is infelicitous, which shows that Hungarian wh-hell phrases must be non-D-linked.

<sup>9</sup>Bruening also presents a number of Google-collected multiple wh-hell questions that have a PL reading.

<sup>10</sup>The Hungarian version of this question is infelicitous, as the context requires PL, and PL is not possible when wh-hell is ex-situ (as was shown in (2a)).

- (i) #Ki a fene szerelmes kibe? Nem tudom már követni, te jegyzeteltél?  
who the hell in.love who.ILL not can.SUBJ already follow.INF, you take.note.SUBJ  
‘Who the hell is in love with who? I can’t follow anymore, did you take notes?’

- (16) Mekkora könyv kupac! #Mi a fenét olvassak először?!  
 how.big book heap what the hell will read.SUBJ first  
 ‘What a big heap of books! What the hell should I read first?’
- (17) What a big heap of books! What the hell should I read first?!

We will now show how variation in the non-D-linkedness requirement of wh-hell phrases affects the availability of PL in English and Hungarian multiple wh-hell-questions.

### 3.3 PL readings in English and Hungarian multiple wh-hell questions

Armed with the distinction that we established between Hungarian and English wh-hell phrases in the previous section, we are now ready to answer Question 2 (concerning the availability of PL readings in English and Hungarian multiple wh-hell questions).

For English multiple wh-hell questions such as (1a), the availability of both SP and PL follows from the fact that wh-hell phrases can be D-linked. Thus, in the structure shown in (18b) (see Section 3.1), the ex-situ wh-hell-phrase can be the (D-linked) sorting key (*sk*).

- (18) English
- a. *Q* ... wh-hell ... wh [SP]  
 b. *Q* ... wh-hell<sub>*sk*</sub> ... *Q* ... wh [PL]

In contrast, as Hungarian wh-hell phrases reject D-linking and thus cannot serve as a sorting key, partial-fronting multiple wh-hell questions such as (2a) cannot have a PL reading, as shown in (19b). In other words, the non-D-linkedness requirement is behind the interpretive contrast between English (1a) and Hungarian (2a) multiple wh-hell questions.

- (19) Hungarian: Partial-fronting
- a. *Q* ... wh-hell ... wh [SP]  
 b. *Q* ... wh-hell<sub>*\*sk*</sub> ... *Q* ... wh [\*PL]

Now, recall from Section 2.1 and example (4) that there are two types of multiple wh-questions in Hungarian: partial-fronting and multiple-fronting. In contrast to partial-fronting questions, which may have both SP and PL readings, all well-formed multiple-fronting wh-hell questions only allow PL readings (Surányi 2006). However, just like in the partial-fronting type, the position of *the hell* affects the availability of PL in the multiple-fronting type: specifically, the highest wh cannot be a wh-hell phrase, or else the question becomes ill-formed, as shown in (20).

- (20) Hungarian: Multiple-fronting
- a. Ki ki a fenébe szerelmes?  
 who who the hell-ILL in.love  
 ‘Who loves who the hell?’ [ \*SP, PL]



- b. \***Ki a fene** kibe szerelmes?  
 who the hell who-ILL in.love  
 ‘Who the hell is in love with who?’ [ \*SP, \*PL ]

Under our analysis, PL is unavailable in (20b) for the same reason that PL is not available in (2a): the highest *wh* must be the sorting key, but at the same time, it must be strictly non-D-linked due to the *the hell*. This clash leads to the impossibility of PL and the ill-formedness of the whole question. The lower *wh*, however, may well be a *wh-hell* phrase in the multiple-fronting type (20a). The relevant structures are shown in (21).

- (21) Hungarian: Multiple-fronting
- a. *Q* ... *wh*<sub>sk</sub> ... *Q* ... *wh-hell* [PL]
- b. *Q* ... *wh-hell*<sub>\*sk</sub> ... *Q* ... *wh* [ \*PL ]

In previous work, it has been argued that the unacceptability of (20b) follows from the highest *wh*-phrase being a topic (den Dikken and Giannakidou 2002). Under this account, as topics must be referential, and being aggressively non-D-linked precludes that, questions with topical *wh-hell* phrases are predicted to be ill-formed. While we agree with den Dikken and Giannakidou on the general idea that the problem is D-linking, we do not believe that TopP plays a role, given that Hungarian *wh*-syntax has been argued to not involve TopP even in multiple-fronting multiple-*wh* questions (Surányi 2006). The advantage of our proposal is that as long as the ‘sandwiched’ configuration is in place, no additional assumptions about the exact landing site of fronted *wh*-phrases are needed.

In sum, variation in the strictness of the non-D-linkedness restriction explains not only the contrast between the availability of PL readings in (partial-fronting) Hungarian and English multiple *wh-hell* questions, but also the unacceptability of multiple-fronting *wh-hell* questions of the kind shown in (20b).

#### 4. Conclusion

To conclude, this paper accounts for two points of contrast between multiple *wh-hell* questions in English and Hungarian: (i) the availability of in-situ *wh-hell* in Hungarian, but not in English, and (ii) the availability of PL readings with ex-situ *wh-hell* in English, but not in Hungarian (in the partial-fronting type). In doing so, we challenge the widely held assumption that *wh-hell* phrases are universally ‘aggressively non-D-linked’ (Pesetsky 1987), and propose that this property is instead subject to cross-linguistic variation. Specifically, we show that English *wh-hell* phrases can be D-linked, while Hungarian *wh-hell* phrases cannot. Moreover, we show that theories of *wh-hell* must take into account the independent properties of *wh*-syntax and *wh*-movement in the language under discussion. In the case of Hungarian and English, for example, the combination of the differences in *wh*-syntax and the involvement and syntax of AttP (Huang and Ochi 2004) is sufficient to explain why English does not allow in-situ *wh-hell*, but Hungarian does.

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