

# On the morphosyntax of *wh*-movement

Marcel den Dikken — The Graduate Center of The City University of New York

---

The central aim of this paper is to develop a general theory of *wh*-constructions which (i) allows us to accurately distinguish between *wh*-phrases as question-word phrases, echo-question phrases and indefinites in terms of a feature matrix involving the features [ $\pm wh$ ] and [ $\pm focus$ ], (ii) makes it understandable why *wh*-fronting targets SpecCP, SpecTopP or SpecFocP depending on context, (iii) accounts for root/non-root asymmetries with respect to the landing-site of *wh*-fronting, and (iv) explains the differences and similarities between [+*wh*] foci and [-*wh*] foci.<sup>1</sup> English, Dutch and Hungarian will serve as the key languages of reference, with English being identified as a language in which *wh*-fronting targets SpecCP in embedded clauses but SpecFocP in root *wh*-questions, driven throughout by a strong [+*wh*] feature in Comp which, in agreement with an overarching hypothesis about the nature of strong features (due to Chomsky 1995: Chapter 4), is checked via overt-syntactic category movement unless [+*wh*] is a feature of the root node.

*Keywords:* [+*wh*] feature, *wh*-indefinite, echo question, *wh*-in-situ, focus, relatives, intervention, feature movement

## 1 Five questions about *wh*-constituents, their features and their movement

### 1.1 *Wh*-fronting and the question/relative clause dichotomy

Let me start by making some preliminary observations about *wh*-fronting in Hungarian (cf. also Benincà 2001 for discussion of Italian, and Bošković 2002 for Slavic). Hungarian fronts its *wh*-phrases to the focus position in all questions (whether root or embedded; cf. Brody 1995 and references cited there). The focus position is relatively low in the structure, below topics and the complementizer *hogy*, as shown in (1). That *wh*-phrases front to SpecFocP in Hungarian is evident not just from their placement *vis-à-vis* topics and complementizers, but also from their complementarity with fronted non-*wh* foci in the same simple clause: (2a,b) are both ungrammatical; in general, tautoclausal multiple focus movement is impossible (cf. É. Kiss 1987).

- (1) a. [<sub>TopP</sub> *Marinak* [<sub>FocP</sub> *mit* *adott* [<sub>TP</sub> *János ...*]]]?  
Mari-DAT what-ACC gave János  
'What did János give to Mari?'
- b. *Kíváncsi vagyok* [<sub>CP</sub> *hogy* [<sub>TopP</sub> *Marinak* [<sub>FocP</sub> *mit* *adott* [<sub>TP</sub> *János ...*]]]]  
I wonder that Mari-DAT what-ACC gave János  
'I wonder what János gave to Mari.'
- (2) a. \**Mit* *MARINAK* *adott* *János?*  
what-ACC Mari-DAT(FOC) gave János
- b. \**MARINAK* *mit* *adott* *János?*  
Mari-DAT(FOC) what-ACC gave János

But a focus inside a relative clause is perfectly legitimate, as shown in (3) (adapted from Lipták 2001:97).

- (3) *Bejöhet* [<sub>DP</sub> *az* [<sub>CP</sub> *aki* [<sub>FocP</sub> *PÉTERT* *hívta meg*]]]  
may-come-in that who Péter-ACC invited PREVERB  
'Those who invited Peter (as opposed to someone else) may come in.'

So *wh*-relative pronouns, unlike *wh*-question words, do not front to SpecFocP — not surprisingly, given their information-structural profile. But what *wh*-relative pronouns and *wh*-question words have in common is their possession of the morphological feature [+wh]. It is this [+wh] feature that is apparently the driving force for *wh*-fronting in relative clauses in Hungarian. But this [+wh] feature ostensibly does not attract *wh*-constituents up to the C-domain in Hungarian questions. This raises our first question about *wh*-fronting:

(Q1) What distinguishes relatives from questions such that *wh* is attracted to SpecCP overtly?

## 1.2 Wh-types and the distribution of the morphological feature [+wh]

Further questions quickly arise as we contemplate the notion that it is the morphological feature [+wh] that drives *wh*-fronting. The morphological feature [+wh] is common to the entire class of *wh*-constituents, simply as a reflex of their *wh*-morphology. This class also includes *wh*-constituents used as indefinites, and *wh*-phrases in echo questions. Dutch provides a particularly good illustration of all these types:

- (4)
- |    |   |       |            |                  |          |              |
|----|---|-------|------------|------------------|----------|--------------|
| a. | <u>Wat</u>  | is    | er         | gebeurd?         |          |              |
|    | what  | is    | there      | happened         |          |              |
|    | ‘What happened?’  |       |            |                  |          |              |
| b. | Er  | is    | <u>wat</u> | gebeurd          |          |              |
|    | there   | is    | what       | happened         |          |              |
|    | ‘Something happened.’   |       |            |                  |          |              |
| c. | Is  | er    | <u>wat</u> | gebeurd?         |          |              |
|    | is  | there | what       | happened         |          |              |
|    | ‘Did something happen?’   |       |            |                  |          |              |
| d. | Er  | is    | <u>WAT</u> | gebeurd?!        |          |              |
|    | there   | is    | what       | happened         |          |              |
|    | ‘WHAT happened?!’   |       |            |                  |          |              |
| e. | <u>Wat</u>  | er    | is         | gebeurd,         | is       | onduidelijk. |
|    | what  | there | is         | happened         | is       | unclear      |
|    | ‘What happened is unclear.’                                       |       |            |                  |          |              |
| f. | Wanneer   | is    | er         | <u>wat/WAT</u>   | gebeurd? |              |
|    | when  | is    | there      | what             | happened |              |
|    | ‘When did something/WHAT happen?’, but not *‘What happened when?’ |       |            |                  |          |              |
| g. | Gisteren  | is    | er         | * <u>wat/WAT</u> | gebeurd? |              |
|    | yesterday   | is    | there      | what             | happened |              |
|    | ‘Yesterday, WHAT happened?’                                       |       |            |                  |          |              |

All of these examples feature the word *wat*, the Dutch cognate of English *what*. In Dutch (as in German, but unlike in English), this *wh*-word doubles as an indefinite pronoun, meaning something like ‘something’ (cf. e.g. Postma 1994 and Bennis 1995 for discussion). But regardless of whether it is semantically interpreted as a question word or as an indefinite pronoun, its morphological composition is invariant. Put differently, if (as is standardly assumed — plausibly, in the light of its morphological composition) *wat* qua question word has the morphological feature [+wh], then *wat* qua indefinite pronoun has this feature as well. And since it is specifically the *morphological* features of linguistic elements (and only those features) which are the driving force for movement (cf. Chomsky 1995: 197: “all morphological features must be checked somewhere, for convergence”), we now face the following question:

(Q2) Why do *wh*-indefinites and echo-*wh*’s fail to undergo *wh*-movement?

The paradigm in (4) tells us that it is not the case that morphologically [+wh]-marked constituents must *wh*-front — not even in simple questions (cf. (4c)–(4d)). Nor is it the case that *wh*-fronting, whenever it does take place, categorically affects the closest morphologically [+wh]-marked constituent — (4f), while (predictably) impossible on a multiple question interpretation (‘What happened when?’), is perfect on a reading in which *wat* is interpreted as an indefinite or an echo-question word. This leads us to a third question:

(Q3) What counts as the closest possessor of [+wh] when it comes to *wh*-fronting?

Skeptics of a [+wh]-based approach to *wh*-movement might conclude at this point that this is sufficient evidence to give up on that kind of analysis altogether, and instead blame *wh*-fronting on a ‘question feature’ in C. But apart from the fact that such a feature would not in any obvious sense qualify as a morphological feature, an analysis of *wh*-movement along these lines would fail to countenance the fact that *wh*-fronting does not just take place in questions — relative clauses feature it, too (cf. (3) and (4e)). Moreover, the position to the left of the finite verb in a question is strictly reserved for constituents that are morphologically [+wh]-marked (cf. (4g) *vs* (4f)). So there is good evidence that the [+wh] feature plays a key role in *wh*-movement, but a sweeping statement to the effect that C attracts the closest [+wh]-marked constituent to its specifier would be much too crude.

### 1.3 Structural complexity and inertia

What we need to find is an intelligent way of *preventing* [+wh] indefinite pronouns and echo-question words from being attracted by the [+wh] feature of the probe. To say, as does Lipták (2001), that the [+wh] feature is not a feature of the *wh*-word itself but is introduced by a Q–marker added onto *wh*-words used as question words, seems to me to be getting things backwards: plainly, the [+wh]-morphology is a part of the *wh*-word itself, not of the Q–marker (which has no observable morphology at all); moreover, it is unclear how such an approach would make the desired distinction between ‘true’ question words and echo-*wh*’s.

A more plausible approach would be to say that the syntactic structure of indefinite ‘what’ and echo-‘what’ is complex, such that the [+wh] feature of the *wh*-word is too deeply embedded in them to be visible by an outside head. More technically, that feature would be embedded inside the DP phase, not visible ‘on the edge.’ For indefinite ‘what’ such is altogether reasonable, in the light of the overt complexity of German (5a) and Hungarian (5b) (cf. Rudin 1988 on Bulgarian, Citko 1997 on Polish, and Scott 2002 on Russian; Scott notes that the non-*wh* part of indefinitely used *wh*-pronouns is optionally omitted in spoken Russian):

- |     |    |   |             |
|-----|----|---|-------------|
| (5) | a. | [ <sub>DP</sub> { <i>et-/irgend-</i> } [ <i>was</i> ]]<br>ET-/some- what<br>‘something’ | (German)    |
|     | b. | [ <sub>DP</sub> <i>vala-</i> [ <i>mi</i> ]]<br>VALA- what<br>‘something’                | (Hungarian) |

If for echo-‘what’ we can likewise uphold a syntactically complex representation in which ‘what’ is embedded (which I will show in the next section is indeed the case; cf. the [<sub>DP</sub> Q [*who*]] substructure in (7c), below), we get the desired result that the [+wh] feature of the probe is perfectly capable of attracting a [+wh] question word *across* a [+wh]-marked indefinite pronoun or echo-‘what’: though *wat* in (4f) is closer to the probe than *wanneer* ‘when’, and *wat* possesses a [+wh] feature, it nonetheless fails to interfere with the attraction of *wanneer* by the probe, simply because of the fact that *wat*’s [+wh] feature is too deeply buried inside the complex noun phrase of which it is a part for the probe to be able to see it.

This, in essence, is the answer to question (Q2). And the answer to (Q3) is obviously related to it: the closest attractee is the closest *wh*-phrase that has a [+wh] feature which C can ‘see’.

#### 1.4 Echoes and multiple questions

In Den Dikken and Giannakidou (2002), a syntactically complex analysis of echo-*wh*'s is defended on the basis of the fact that multiple *wh*-questions which normally receive a regular pair-list interpretation can only get a single-pair echoic reading when the fronted *wh*-constituent is a *wh-the-hell* expression:

- (6) a. Who is in love with who? [pair-list OR single-pair echo interpretation]  
 b. ?Who the hell is in love with who? [single-pair echo interpretation ONLY (marginal)]

The essence of the account of (6b) outlined in Den Dikken and Giannakidou (2002) is this. *Who the hell* is a polarity item, which in (6b) needs to be licensed under *c*-command by the *Q*-operator in the matrix *C*. Such will succeed only if *who the hell* raises to a position lower than SpecCP — in the light of Hungarian (1), SpecFocP would be an obvious choice. But (2) tells us that *wh*-fronting to SpecFocP is incompatible with focus on some other constituent in the same clause. Now, *in situ wh*-constituents are always focused, hence need to be licensed in SpecFocP. So no matter what we do in (6b) to try to get the pair-list reading, things will go awry: if we take the *in situ wh* to SpecFocP, we have no choice but to take *who the hell* to SpecCP, where it will not be able to be licensed by *Q* in *C* (cf. (7a)<sup>2</sup>); but if we take *who the hell* to SpecFocP and accomplish its licensing as a PI, we will not be able to license the focus feature of the *in situ wh*-constituent (cf. (7b)). This is why (6b) lacks a garden-variety pair-list interpretation.

- (7) a. \*<sub>[CP [who the hell]<sub>i</sub> [C<sub>Q</sub> (...)] [<sub>FocP</sub> [with who]<sub>j</sub> [Foc [<sub>TP</sub> *t*<sub>i</sub> is in love *t*<sub>j</sub>]]]]]</sub>  
 → *wh-the-hell* is not *c*-commanded by *C<sub>Q</sub>*, hence not licensable *qua* polarity item  
 b. \*<sub>[CP C<sub>Q</sub> (...)] [<sub>FocP</sub> [who the hell]<sub>i</sub> [Foc [<sub>TP</sub> *t*<sub>i</sub> is in love with who]]]]]</sub>  
 → *in situ who* is not licensable as a focus  
 c. [<sub>CP</sub> C<sub>Q</sub> (...)] [<sub>FocP</sub> [[who the hell]<sub>i</sub> [with [<sub>DP</sub> *Q* [who]]]<sub>j</sub>] [Foc [<sub>TP</sub> *t*<sub>i</sub> is in love *t*<sub>j</sub>]]]]]  
 → single-pair echo reading

An *echoic single-pair* reading is nonetheless available for (6b), and here is how it is obtained. The idea is that echo-*wh*'s have a syntactically complex representation featuring a *Q*-morpheme and a *wh*-phrase. It is the *Q*-morpheme which is solely responsible for the fact that simple echo questions like *John said WHAT?* receive a question interpretation: in simple echo questions such as this, there is no *Q*-operator up in *C* (cf. the ban on PI licensing in simple echo questions: \**John said WHAT to anyone?*)<sup>3</sup>, so the entire burden of procuring an interrogative interpretation rests on the shoulders of the echo-*wh* itself. Now, the idea developed in Den Dikken and Giannakidou (2002) is that a *wh*-phrase equipped with this *Q*-morpheme can team up with another *wh*-phrase in SpecFocP and form a single pair of *wh*-expressions together with it (cf. (7c)) — the result being a single-pair echo question, precisely the kind of creature that (6b) instantiates.

In questions of the type in (6b), then, *both wh*-phrases are in SpecFocP — neither is fronted to SpecCP. On the non-echoic pair-list interpretation of (6a), on the other hand, the *in situ wh* is uniquely associated with focus, the superior *wh*-phrase raising higher. So here we have yet another question:

- (Q4) Why do question-*wh*'s front to SpecFocP in some contexts and to a higher position in others, within the same language and within the same type of clause?

#### 1.5 A root/non-root asymmetry

We can compound the conundrum by drawing attention to root/non-root asymmetries that asserts themselves in the domain of *wh*-fronting in English. Thus, Den Dikken and Giannakidou (2002) note that, while (6b) permits only a single-pair echoic reading, embedded (8b) is perfectly susceptible of a pair-list interpretation.

- (8) a. I {am wondering/would like to know} who is in love with who.  
 b. I {am wondering/would like to know} who the hell is in love with who.

Of the two structures in (7a) and (7b), the latter will be ungrammatical in any context due to the fact that the *in situ wh* cannot be associated to focus, as it should; but apparently, (7a), while bad in root contexts, converges in embedded ones. Den Dikken and Giannakidou's (2002) account of this is that, in (8b), *wh-the-hell* is not dependent on the Q-operator in the embedded C-head at all: it can be licensed as a polarity item by a non-veridical licenser in the matrix clause (see the original paper for details). The fact, then, that *wh-the-hell* can raise to SpecCP only in embedded contexts falls out from its status as a polarity item.

A second root/non-root contrast in the realm of *wh*-questions, unrelated to polarity properties, concerns the placement of fronted *wh*-constituents *vis-à-vis* fronted topics. As Pesetsky (1989) notes, topics (whose position is relatively constant cross-linguistically<sup>4</sup>) precede *wh*-fronted constituents in root questions but follow them in embedded ones:<sup>5</sup>

- (9) a. <sup>?</sup>To Mary, what should we give?  
 b. <sup>?</sup>I don't know what to Mary, we should give.

If we do indeed assume that *to Mary* is in the same position in (9a,b), then these examples tell us that the landing-site of *wh*-movement in English is different in root and embedded clauses, which leads us to formulate the following question:

- (Q5) Why do question-*wh*'s front to SpecCP in embedded *wh*-questions but to SpecFocP (*modulo* pair-list *wh*-questions like (6a)) in root *wh*-questions, in some languages?

Question (Q5) completes the checklist of fundamental questions about *wh*-constructions that I will address in this paper.

### 1.6 The feature composition of *wh*-constituents

One thing we have established in the discussion so far is that a syntax of *wh*-movement which puts the blame on the morphological feature [+wh] can be made to 'overlook' indefinite and echoic bearers of the feature such that it successfully picks out precisely the desired victims, while a syntax of *wh*-movement phrased in terms of a C-head with a 'question feature' in it will not only fail to be consistent with the minimalist dictum that only *morphological* features drive movement but will also leave relative clauses by the wayside.

For the feature composition of *wh*-constituents, this discussion leads to the following typology:

- (10) a. regular question words (single questions) [+wh, ±focus]  
 b. echo-question words [+wh, +focus] [+wh] not attractable  
 c. indefinite *wh*-words [+wh, -focus] [+wh] not attractable  
 d. relative *wh*-words [+wh, -focus]

Of these four *wh*-word types, only (10a,b) are attractable to the focus position,<sup>6</sup> and only (10a,d) are attractable by a [+wh] feature in C. This already tells us why echo-*wh*'s and indefinite *wh*'s will not undergo *wh*-fronting (in the strict sense of that term), and why they will not 'count' as closer potential attractees/goals for attraction to [+wh] C when they intervene between it and a question-*wh* lower down. But it does not tell us yet why *wh*-fronting of relative *wh*'s always targets SpecCP, cross-linguistically; and it also does not have anything to say so far about the questions raised with respect to language-particular and clause-particular peculiarities of movement operations affecting regular question words.

## 1.7 Road map

In what follows, the first thing I will do is argue that in all (non-echo) questions in all languages, there is a [+wh] feature up in C. This is the topic of section 2. In section 3, I will subsequently address the root/non-root asymmetry seen in section 1.5, from the perspective of the question of the strength of the [+wh] feature in C and what its strength means when it comes to overt feature-checking movement. Section 4 then addresses the question of why there is no language variation when it comes to the movement of *wh*-constituents in relative clauses. And in section 5 I finally turn to the question of whether the *wh*-phrase of an embedded single *wh*-question travels through SpecFocP or instead goes straight to SpecCP, advancing a (somewhat tentative) argument in favour of the latter hypothesis.

## 2 Attraction to Focus and [+wh] Comp

The C-head of a ‘true’ (i.e., non-echoic) *wh*-question has a [+wh] feature. That [+wh] feature does not end up attracting the *wh*-constituent up to its specifier position in English root single *wh*-questions (cf. (9a)), though it does in embedded *wh*-questions as well as in pair-list multiple *wh*-questions (cf. section 3); similarly, in Hungarian *wh*-questions in general the [+wh] feature in C fails to attract *wh*-constituents (cf. (1)–(2)). But there is evidence nonetheless that there *is* indeed a [+wh] feature up in C in such questions, and that that feature does indeed get checked against the [+wh] feature of the question word, via feature movement at LF. The evidence in question comes from an interesting intervention effect in Hungarian *wh*-questions, recently discussed in Lipták (2001), from which source all the Hungarian data in section 2.1 are taken. After going through Lipták’s argument based on Hungarian, I will then proceed, in sections 2.2 to 2.5, to discussing English attraction to focus against the background of the results of section 2.1.

### 2.1 Covert feature movement to [+wh] Comp — An intervention effect

There is little doubt that *wh*-phrases front to SpecFocP in Hungarian *wh*-questions. They end up in precisely the same position which non-*wh* foci occupy, and they are in complementary distribution with non-*wh* foci (cf. (2)), in keeping with the general fact that multiple focus movement is impossible (cf. É. Kiss 1987). However, there is one peculiar way in which *wh*-foci behave differently from non-*wh* foci: while the latter are perfectly happy with a quantificational adverb to their left (as in (11a), where the adverb scopes over the focus), *wh*-foci cannot be preceded by such adverbs (cf. (12a)).

- (11) a. *Mindig PÉTERT hívtam meg.* (Hungarian)  
always Péter-ACC invited PV  
‘At all times, I invited PÉTER’.
- b. *PÉTERT hívtam meg mindig.*  
Péter-ACC invited PV always  
‘Péter was the only one I invited all the time.’
- (12) a. \**Mindig kit hívtál meg?*  
always who-ACC invited PV
- b. *Kit hívtál meg mindig?*  
who-ACC invited PV always  
‘Who did you invite all the time?’

To account for the deviance of (12a), Lipták (2001: 81) offers the interesting proposal that the construction instantiates an *intervention effect* of the type discussed by Beck (1996), and more recently — and, crucially, with reference to LF feature movement — by Pesetsky (2000) as well. In particular, Lipták postulates a structure of the type in (13) for (12a).

- (13) \* $[_{CP} C_{[+wh]} [_{DistP} \text{mindig} [Dist [_{FocP} \text{kit}_{[+wh,+foc]} [Foc_{[+foc]} \text{hívtál} [_{TP} \text{pro} \dots \text{meg} \dots]]]]]]]$

Here *mindig* is sitting in the specifier position of a Distributive Phrase (for distributive quantifiers; cf. Beghelli and Stowell 1997), harmfully intervening between the [+wh] feature in the probe, C, and its target, the [+wh] feature of the *wh*-phrase in SpecFocP.

We know from the literature that intervention effects are specific to movement dependencies: the Agree relationship between  $C_{[+wh]}$  and  $\text{kit}_{[+wh]}$  is not obstructed, either by a phase boundary or by a closer match. So we conclude that [+wh] C actually attracts the *wh*-constituent in SpecFocP. It does not seem to attract the *wh*-constituent in overt syntax, however: there is no category movement of the *wh*-phrase beyond SpecFocP. We are dealing, therefore, with a case of covert *feature movement*, instigated by C's desire to get its uninterpretable [+wh] feature checked. Feature movement will succeed if and only if there are no harmful interveners on the trajectory between the probe and the goal; since the quantificational adverb *mindig* is such a harmful intervener, however, feature movement fails, the uninterpretable [+wh] feature of C cannot be checked, and the derivation crashes, as desired.

The ungrammaticality of (12a), so construed, thus presents evidence for the presence of a [+wh] feature in C in 'true' *wh*-questions — a feature which must be able to attract the [+wh] feature of the closest *wh*-constituent. In (13) this fails, which is why (12a) is ungrammatical.

## 2.2 Attraction to focus in English

We can exploit Lipták's account of the ungrammaticality of (12a) to account for the word order facts of English constructions featuring attraction to focus. Recall from the above (also cf. Den Dikken and Giannakidou 2002) that there is evidence that English *wh*-phrases front to SpecFocP in root single *wh*-questions like (9a). Attraction to focus is evidently overt here: the *wh*-constituent ends up in the left periphery of the clause.

For English non-*wh* foci, Kayne (1998) has argued recently that displacement to SpecFocP is overt as well. Yet, non-*wh* foci do not, as a rule, end up in a left-peripheral position in the sentence — in (14a), it looks like the focused noun phrase is *in situ*. On the basis of such contrasts as the one between (14a) and (14b), however, Kayne argues that the focused constituent has indeed moved in overt syntax, the fact that it does not surface at the left edge of the sentence being due, according to Kayne, to overt remnant movement of the TP across the landing-site of the focused constituent, to the specifier position of what he calls 'WP'. Kayne's derivation of (14a) is illustrated in (15).

- (14) a. I spoke only to JOHN.  
 b. \*I spoke to only JOHN.
- (15) a.  $[_{FocP} [_{PP} \text{to JOHN}]_i [_{Foc} \text{only} [_{TP} \text{I spoke } t_i]]] \rightarrow \text{remnant TP fronting+raising of } \textit{only} \rightarrow$   
 b.  $[_{WP} [_{TP} \text{I spoke } t_i]_j [_{W'} \text{only}_k [_{FocP} [_{PP} \text{to JOHN}]_i [_{Foc} t_k [_{TP} t_j]]]]]$

The contrast between (14a) and (14b) will now follow on the assumption that movement to SpecFocP cannot strand a preposition — (14b) could only be obtained by raising the focused noun phrase to SpecFocP on its own, leaving the preposition *to* behind, which would then be taken along to a position to the left of the constituent in SpecFocP as a result of remnant movement of the TP (*I spoke to*).

Kayne shows that a variety of restrictions on the placement of focus particles like *only* can be accounted for on the assumption that focus movement happens in the overt syntax, its word order effects largely being undone by fronting of the remnant TP to a position to the left of the focus position. So let us take Kayne's analysis of English focus to support the idea that focus movement is overt in this language. Then the hypothesis that *wh*-phrases undergo overt-syntactic focus movement to SpecFocP in English root questions becomes a subpart of a general approach to focus in terms of overt displacement.

### 2.3 No remnant TP fronting in ‘true’ *wh*-questions — Another intervention effect

But of course there is a difference between (14a) and a *wh*-question like *who did John kiss?* — the focus in (14a), despite the fact that it is overtly fronted to SpecFocP, still ends up in clause-final position, due to the fact that both IP and *only* (Foc<sup>0</sup>) raise across it. Applying the same operations in a situation in which our focus is a *wh*-phrase will not deliver a regular *wh*-question but an echo question like *John kissed WHO?* instead. In a ‘true’ *wh*-question, remnant TP–fronting to SpecWP is apparently impossible.

Taking the discussion in section 2.1 as my cue, I would like to argue that this is so because attraction of the [+wh] feature of the *wh*-constituent in SpecFocP by [+wh] in C would fail in a situation in which the remnant TP fronts to SpecWP, across the landing-site of the focused *wh*-phrase:

$$(16) \quad *[_{CP} C_{[+wh]} [_{WP} TP_j [W [_{FocP} wh\text{-phrase}_{[+wh,+foc]} [Foc_{[+foc]} [_{TP} t_j]]]]]]]$$

The configuration in (16) is exactly like the one in (13): once again, something intervenes between the probe and the goal; and that something (i.e., TP) is once again quantificational (on the assumption that tense is quantificational), hence counts as a harmful intervener. Thus, (16) poses the same kind of intervention problem that we found in (13).<sup>7</sup>

We now have an account of the fact that, even though the remnant TP usually raises across a fronted focus in English, it cannot do so when the focus is a *wh*-phrase in a ‘true’ question. In echo questions (*John kissed WHO?*), by contrast, the TP *can* raise across the echo-*wh* in SpecFocP — no intervention effect interfering with the checking of C’s [+wh] feature presents itself because in echo questions, C does not possess a [+wh] feature. The [+wh] feature of C is the prerogative of ‘true’ questions. This follows on the assumption that the possession of a [+wh] feature is actually a property of the Q–operator on C: there is no Q–operator on C in echo questions (cf. section 1.4, above).

### 2.4 No ban on remnant TP fronting in echo and multiple questions

In multiple *wh*-questions, we also see no ban on remnant TP fronting to SpecWP: the *in situ wh*-phrase in (6a) (repeated here) is the focus of the construction, but it does not show up at the left periphery of the sentence; it behaves just like a non-*wh* ‘*in situ*’ focus such as the one seen in (14a). A partial derivation of (6a) thus reads as in (17), which is parallel to (15).<sup>8</sup>

$$(6a) \quad \text{Who is in love with who?}$$

$$(17) \quad \begin{array}{l} \text{a.} \quad [_{FocP} [\text{with who}]_i [_{Foc'} \emptyset [_{IP} \text{who is in love } t_i]]] \rightarrow \text{remnant TP fronting} + \text{Foc-raising} \rightarrow \\ \text{b.} \quad [_{WP} [_{TP} \text{who is in love } t_i]_j [_{W'} \emptyset_k [_{FocP} [\text{with who}]_i [_{Foc'} t_k [_{IP} t_j]]]]]] \end{array}$$

There would be an ‘intervention effect’ for the checking of the [+wh] feature of C (which is introduced outside WP) here, as in (16), if the ‘*in situ wh*’-phrase (i.e., the one in SpecFocP) were the only thing that could check this [+wh] feature. But of course, in a multiple *wh*-question there will always be at least one *wh*-phrase *in addition* to the one in SpecFocP which possesses a [+wh] feature, *and* which is structurally closer to the *wh*-phrase raised to SpecFocP: in (6a)/(17), the pertinent *wh*-phrase is the subject-*wh*, sitting in SpecTP in (17). It is this *wh*-phrase which will eventually take care of the checking of C’s [+wh] feature. The *wh*-phrase in SpecFocP (which, alongside its focus feature, does of course possess the morphological feature [+wh] as well) does not get its [+wh] feature checked against the [+wh] feature of C at all — it couldn’t, for exactly the same reason that checking the [+wh] features of C and the focused *wh*-phrase fails in (14). One thing that the discussion up to this point allows us to establish, then, is that it is not the [+wh] features of individual *wh*-phrases that are in need of checking; on the contrary, it is the features of functional heads that drive checking. This is precisely what the ‘suicidal Greed’ approach of Chomsky (2000) leads us to expect. What we have here, then, is an indication that ‘Greed’ is false, and ‘suicidal Greed’ (or ‘attract’) is correct.

## 2.5 Overt attraction to Comp

The derivation in (17), for the sentence in (6a), is only partial; beyond this point, the ‘superior’ *wh*-phrase will still need to get the [+wh] feature of Comp checked. No harmful intervener finds itself between the two, however, so the checking of the [+wh] feature of Comp will proceed unobstructed by an intervention effect. But note that the possessor of the [+wh] feature which will be checked against that of C finds itself in the head of the specifier of the specifier of WP. Feature movement from that position is arguably illegitimate — while there are reported cases in the literature of subextraction from a specifier via phrasal movement (cf. e.g. Torrego’s 1985 Spanish examples, quoted in Chomsky 1986: 45; or *Who did you put [[a picture of t] in the drawer]?*), established specimens of head movement like noun incorporation never raise the head of the specifier of another specifier into a higher head. Though actually presenting a theory that explains this contrast between phrasal and head movement is by no means a trivial exercise, the empirical facts lead us to conclude that in contexts of the type in (17b), only the *wh*-phrase in SpecTP *as a whole* will be attractable by [+wh] in C; attraction of just the feature fails as a result of the fact that the feature is too deeply embedded, not attractable to the probe.

This in turn implies that, regardless of the ‘strength’ properties of the [+wh] feature up in C, the ‘superior’ *wh*-phrase in a pair-list multiple *wh*-question must undergo *phrasal* movement to a position outside WP. Two options now remain, in principle: (i) the *wh*-phrase can raise directly to SpecCP and check C’s [+wh] feature under Spec–Head agreement, or (ii) the *wh*-phrase can raise to the specifier position of a Quantifier Phrase (‘QP’) between C and WP, with *wh*’s [+wh] subsequently being attracted up to C under covert feature movement. The discussion in É. Kiss (1993) favours (ii), with the focused *wh*-phrase raising to SpecFocP and the other *wh*(’s) raising to (iterative) SpecQP (cf. Hungarian (18)). É. Kiss argues that, since they scope over another operator (the *wh* in SpecFocP) and bind a variable in the latter’s scope, the *wh*’s in SpecQP must have specific reference and be D–linked. It is this which explains why, in Hungarian multiple *wh*-questions, aggressively non-D–linked and robustly non-specific *wh-the-hell* is necessarily the *last* one in the sequence of *wh*-constituents (cf. Den Dikken and Giannakidou 2002: 53): it cannot move to SpecQP.

- (18) *Kiváncsi vagyok* [<sub>CP</sub> *hogy*            [<sub>QP</sub> *ki* [<sub>FocP</sub> *mit*            [<sub>IP</sub> ... *vett* ...]]]]  
 I wonder            that                    who        what-ACC            bought  
 ‘I wonder who bought what.’

For an English root multiple *wh*-question such as (6a), it looks like the ‘superior’ *wh* likewise fronts to SpecQP rather than all the way to SpecCP. We can take the placement of the ‘superior’ *wh vis-à-vis* topics as our cue here: as Pesetsky (1989) points out, in a root single *wh*-question, the *wh*-phrase follows the topic (cf. (9a)); likewise, in a root *multiple wh*-question the topic precedes the ‘superior’ *wh*-phrase:

- (19) a.        ?<sub>[TopP</sub> To Mary, [<sub>QP</sub> who should give what]]?  
 b.        \*<sub>[CP</sub> Who <sub>[TopP</sub> to Mary, should give what]]?

The result in (19a) is strained, but it is still markedly better than (19b), which would result if the ‘superior’ *wh* fronted overtly to SpecCP in a root multiple *wh*-question in English. We conclude, therefore, that option (ii) is correct, for Hungarian as well as English.

For (6b), which features a *wh-the-hell* ‘superior’ *wh*-phrase, option (ii) is ruled out on account of the fact that *wh-the-hell*, due to its quantificational properties, does not qualify as a candidate for raising to SpecQP. So only option (i) would remain; but of course, a derivation along these lines will crash as well, since raising *wh-the-hell* to the SpecCP position of the root clause will take it outside the c-command domain of its licenser, the Q–operator in C. *Tertium non datur* — in particular, it is impossible to leave the *wh*-phrase *in situ* in SpecTP and to have its [+wh] attracted by [+wh] C at LF. If such were legitimate, we would fail to explain the unavailability of a pair-list interpretation for (6b); but as we have just seen, there are in fact good empirical reasons to believe that such is *not* legitimate.

The account thus ensures that in English root multiple *wh*-questions there will always be overt fronting of the ‘superior’ *wh*-phrase to a position outside WP (the landing-site of the fronted remnant TP). We have derived this result from a theory centred around the checking of the [+*wh*] feature of Comp — a theory which answers (Q4), accommodates the unavailability of a pair-list answer for (6b), explains why remnant IP fronting to Kayne’s SpecWP is possible in echo and multiple questions but not in single ‘true’ *wh*-questions featuring *wh*-fronting to SpecFocP, and derives the ungrammaticality of Hungarian (12a).

### 3 The root/non-root asymmetry revisited

We have found that there is good evidence that there is a [+*wh*] feature on C that checks a matching feature against a *wh*-question word. We have also found that *wh*-question words systematically check that feature *covertly* in English root single questions. So far, then, all the evidence suggests that, just as in Hungarian, the [+*wh*] feature of English C is weak. But in English *embedded* clauses, *wh*-fronting proceeds all the way up to SpecCP — the word order contrast in (9a,b) is a particularly clear indicator to that effect.

So now we made our way back to question (Q5): Why is there this asymmetry between root and embedded questions when it comes to the point in the derivation (pre- or post-Spell-Out) at which the [+*wh*] feature of interrogative C is checked? More specifically, why does the [+*wh*] feature of C drive overt-syntactic *wh*-movement to SpecCP in English only in non-root contexts, not when it is a feature of the root node?

The answer to this question is actually quite simple if we base ourselves on Chomsky’s (1995: 234) characterization of the nature of *strong features*. For Chomsky, the hallmark of a strong feature is the following (where ‘D’ is ‘derivation’, and ‘ $\alpha$ ’ is a category with a strong feature):<sup>9</sup>

(20) “D is canceled if  $\alpha$  is in a category not headed by  $\alpha$ .”

A violation of (20) can never arise in cases in which the strong feature is on the *root* node itself: there will never be any category *not* headed by  $\alpha$  in such cases. The idea is that the strong features of a head H must be checked prior to the point in the derivation at which H gets included in a larger structure of which H is no longer the head; but of course, if H is the head of the root node, its projection will never be dominated by any larger superstructure, and nothing will ever force even the strong features of H to be checked in the overt syntax. Thus, the features of the root node are not active at all in the overt syntax — equivalently, therefore, the account can be phrased, if one should so prefer, in terms of covert Merge of the root CP (cf. Bošković 2002: 362 for an analysis along these lines). Since overt displacement is never permissible unless forced (‘least effort’), Chomsky’s outlook on strong features (or its recasting in terms of LF–Merge at the root) guarantees straightforwardly that no feature of the root C will ever be checked via overt displacement.

For English, then, what we can say is that the [+*wh*] feature of C is *strong* (throughout), which results in overt-syntactic *wh*-movement in all contexts *except* the root CP:

- (21) a. The [+*wh*] feature of English interrogative C is strong.  
 b. Overt category movement to SpecCP is forced by (20) in all English interrogative CPs, *except* in root CPs, where (20) is inoperative.

For Hungarian (and Chinese etc.), the situation is different: the [+*wh*] feature on C there is weak, hence we get no *wh*-displacement in overt syntax in any *wh*-question.

All of this is precisely the desired result. Empirically, it gives us all the facts (including the otherwise elusive distribution of *wh-the-hell* in English, as discussed in detail in Den Dikken and Giannakidou 2002), and theoretically, it confirms the approach to strong features built on (20).

## 4 Why *wh*-fronting is always overt in relative clauses

While English is different from Hungarian, and Hungarian in turn is different from Chinese (and Japanese, Korean), when it comes to the displacement of *wh*-constituents in *wh*-questions, it looks like all languages that have *wh*-operators in relative clauses *must* displace them to SpecCP in the overt syntax (cf. Huang 1982 for Chinese, Watanabe 1991, Ishii 1991 for Japanese, Lipták 2001 for Hungarian) — regardless of the strength or weakness of the [+*wh*] feature in C. This leads us back to our very first question, (Q1).

Chomsky and Lasnik (1993; see Chomsky 1995: 71) suggest that the root of this contrast between questions and relative clauses may be the fact that relative clauses are predicates of the noun phrases they are construed with. That, combined with Williams' (1980) conclusion that predication has to be established at S-structure, will then give us the desired result that, even in languages whose [+*wh*] feature in C is weak, we still get *wh*-fronting in relative clauses. But of course we are still begging the question of why predication should need to be established 'at S-structure'.

Elaborating on Chomsky and Lasnik's suggestion, I follow the line of thought emanating from Browning (1987) and Mulder and Den Dikken (1992), *i.a.*, and say that the minimal maximal projection including the landing-site and trace of an unbound operator qualifies as a predicate. In order for the relative clause (CP) to be able to function as a predicate, therefore, it must feature operator movement to SpecCP in the overt syntax — LF feature movement could not accomplish this, since feature movement, by its very nature, is never operator movement. As a result, even in languages in which the [+*wh*] feature of Comp is weak (Chinese, Japanese, Hungarian), the movement operation that checks this feature still targets SpecCP in overt syntax in relative clauses, driven by the need to establish a predicate.

The need to establish a predicate is responsible for the *overt*ness of *wh*-movement in relative clauses. But the movement *per se* is still to be blamed on the morphological [+*wh*] feature of C — after all, all movement must be feature-driven; the locus of movement may be determined by a variety of factors (strength, legibility conditions), but the trigger for movement is systematically a morphological feature. So relative clauses are well-behaved: the only surprise is the overtness of *wh*-movement, which turns out to be for reasons having nothing to do with feature strength.

## 5 Embedded *wh*-questions and focus movement

While this takes care of the core of *wh*-movement, there is a little bit more to be said about English embedded *wh*-questions. I will address these points briefly here, for the sake of completeness. While the discussion in this section is rather more tentative than the foregoing, nothing of what is said here in any way threatens the results of the preceding discussion.

We have argued that in English root *wh*-questions, *wh*-movement targets SpecFocP and goes no further. In embedded questions, on the other hand, the *wh*-phrase raises to SpecCP — as forced by the strength of the [+*wh*] feature in C, in tandem with (20). Now, does that *wh*-phrase travel through SpecFocP, or does it go straight to SpecCP? Here we address some facts which bear on that question.

Let us start out by assuming that Negative Inversion, as illustrated in (22), is movement to SpecFocP. Just like *wh*-fronting to SpecFocP in root clauses, it triggers subject-auxiliary inversion. But Negative Inversion is much more radical in that respect than *wh*-fronting: it *systematically* gives rise to subject–aux inversion, no matter whether it takes place in root or embedded contexts. *Wh*-fronting, on the other hand, leads to inversion of subject and finite auxiliary only in root questions: (23b) contrasts sharply with (22b).

- (22) a. Under no circumstances {would he/\*he would} do that.  
b. John said that under no circumstances {would he/\*he would} do that.
- (23) a. What {would he/\*he would} do?  
b. I wonder what {\*would he/he would} do.

This suggests that *wh*-fronting in embedded clauses does not proceed through SpecFocP. On the other hand, the incompatibility of *wh*-fronting and negative inversion in the same clause, in root and embedded contexts alike (and regardless of the relative order of the *wh*- and negative constituents), suggests that *wh*-fronting in embedded clauses does proceed through SpecFocP:<sup>10</sup>

- (24) a. \*{What, Under no circumstances} should he do?  
b. \*John wondered {what, under no circumstances} should he do.

These facts generate the following questions:

- (25) a. How do we prevent subject–aux inversion in embedded *wh*-questions, if the *wh*-phrase travels through SpecFocP?  
b. If we deny that the *wh*-phrase travels through SpecFocP, how do we capture (24b)?

The (tentative) answer that I propose here runs as follows. The key hypothesis is that English interrogative C has a strong head-attracting feature that (in embedded clauses) attracts the Foc–head overtly, *prior* to Foc doing anything itself. C’s attracting Foc takes Foc’s strong head-attracting feature up to C. Foc’s own (strong) head-attracting feature can be checked there against C’s head-attracting feature, as a result of which Foc’s head-attracting feature is effectively satisfied. Consequently, once Foc has raised to C, it will no longer attract an auxiliary up to it. This accounts for the non-occurrence of subject–aux inversion (cf. (23b)). C’s attracting Foc also takes Foc’s strong [+foc] feature (demanding an overt [+foc] bearing specifier) up to C. Upon Foc–to–C movement, then, the complex C+Foc–head will demand an overt specifier (specifically, a [+wh,+foc] phrase), which raises to SpecCP *directly*, without a stopover in SpecFocP. In fact, due to Foc’s raising to C, SpecFocP is not projected at all; as a consequence, Negative Inversion will be impossible in embedded *wh*-questions, and (24b) is accounted for.

The reader will notice a direct parallel here between the discussion here and Chomsky’s (1995: Chapter 3) and Bobaljik and Jonas’ (1996) account of nominative-checking by the subject in English: T raises overtly to AgrS, and as a result, all of T’s features are checked in the checking domain of AgrS; no SpecTP is ever projected, and constructions which depend on the presence of SpecTP (transitive expletive constructions, in particular) cannot arise. For me, the non-projection of SpecFocP in embedded clauses takes care of the incompatibility of *wh*-fronting and Negative Inversion in these contexts; of course, the fact that negative inversion and *wh*-fronting cannot be combined in root questions either is straightforward as well: the two target the same position, SpecFocP, which is non-recursive.

If this (tentative) answer to (25) stands up to scrutiny, we have a comprehensive account of the key facts of English *wh*-movement. As far as I can see, there are two main questions left to be addressed by the account sketched in the previous paragraph — a theoretical one and an empirical one. The latter concerns Kayne’s analysis of constructions like (14), in terms of overt movement to SpecFocP: *wh*-fronting and *only/even*-focus are not mutually exclusive in English, unlike in Hungarian. The former concerns the key hypothesis that C can attract Foc up to it *prior* to Foc becoming active itself. This is clearly countercyclic, in precisely the same way that Chomsky’s (1995: Chapter 3) and Bobaljik and Jonas’ (1996) account of nominative-checking in English was countercyclic. I will not speculate here on the proper perspective on the cycle, leaving this for future research.

## Notes

1. The ideas reported in what follows arose out of my joint work with Anastasia Giannakidou on the syntax and semantics of ‘aggressively non-D–linked’ *wh*-phrases (such as *what the hell*); cf. Den Dikken and Giannakidou (2002). While she disagrees with many of the ingredients of the specific proposals put forward in this paper, her feedback on this material is gratefully acknowledged. My indebtedness to Anikó Lipták’s (2001) work on *wh*-constructions is also very evident to the eye.
2. The structure in (7a) is an interim representation; it will be developed further in sections 2.4 and 2.5, below. For our present purposes it will suffice.
3. Also note the well-known fact that echo questions do not outwardly behave like questions at all; thus, they cannot satisfy a matrix predicate’s selectional requirement for an interrogative complement (*\*I wonder John kissed WHO?*).
4. There might well be multiple topic positions in the left periphery (cf. Rizzi 1997 and subsequent work); but my assumption is that whatever position a language exploits for its topics, it will be the same position in root and embedded clauses alike.
5. Neither sentence in (9) is impeccable; Emonds (1976) originally starred any combination of topicalisation and *wh*-fronting in root clauses (cf. also Baltin 1985: 155). But for speakers who accept tautoclausal topicalisation and *wh*-fronting, the sentences in (9) are clearly superior to their counterparts with the reverse relative order of the topic and the *wh*-constituent.
6. Regular question words do not have to be attracted to Focus: though they *can* be specified as [+focus], they do not *have to* be so specified. See the discussion below of multiple *wh*-questions below.
7. The echo question *John kissed WHO?* is grammatical because in echo questions C presumably does not possess a [+wh] feature to begin with. This will follow on the assumption that the possession of a [+wh] feature is actually a property of the Q–operator on C: there is no Q–operator on C in echo questions (cf. section 1.4, above).
8. Two questions arise at this point which need to be briefly addressed. (Thanks to Youngmi Jeong for bringing them up.) One concerns the movement of *what* to SpecFocP, crossing *who* — why is this not a case of harmful intervention? The assumption here is that movement to an operator position (SpecFocP) is obstructed only by intervening operators; *who*, which is still *in situ* at the time *what* raises to SpecFocP, is not an operator (operators are in A’–positions), hence does not count as a harmful intervener. Nor is *who* a closer potential attractee: it lacks the feature [+focus], so the closest match for the [+focus] feature in Foc is indeed *what*, as desired. The second question that arises is why movement of the remnant TP to SpecWP, across the focused *wh*-constituent in SpecFocP, is not blocked by an intervention effect. This time we cannot say that *what* in SpecFocP is not an operator: it plainly is. But apparently, movement to SpecWP is altogether oblivious to intervening quantificational elements. One way of understanding this is to make the assumption that movement to SpecWP is of a different nature than movement to, for instance, SpecFocP or SpecCP: it is not operator movement but something else. (Precisely what it is will remain unclear absent a better understanding of the nature of ‘W’; but that movement to the Kaynean SpecWP is not operator movement is clear enough: all sorts of things may raise to Kayne’s SpecWP, regardless of whether they are operators or not.) The fact that the presence of a tensed TP in SpecWP leads to harmful intervention in (16), above, does not contradict what I just said: the raised TP is not itself an operator but it does *contain* a quantificational component (a tense operator), and it is this quantificational component inside TP, not TP itself, that is the harmful intervener in (16).

9. For those readers who prefer the use of ‘EPP features’ to that of ‘strong features’, the ensuing discussion is straightforwardly ‘recodable’ by interpreting  $\alpha$  as a category with an ‘EPP feature’.

10. Culicover (1993) has pointed out that *wh*-extraction from a clause featuring negative inversion is grammatical (and actually lifts the *that*-trace effect):

- (i) a. Leslie is the person who I said that under no circumstances would run for president.
- b. Who did John say that under no circumstances would run for president?

Since (ia) (Culicover’s own example) is a case of relativization, the *wh*-phrase here is not a focus (cf. (10d), above), so this is not a particularly interesting case. More interesting is (ib) (our variation on Culicover’s theme): equally grammatical, and much better than (24b). The key to understanding this contrast is the fact that there is no successive-cyclic focus movement — a constituent X is always the focus of at most one single clause, never of several clauses at the same time (Hungarian is a perfect exemplification of this; see Lipták 2001 for discussion). So the FocP where *who* checks its [+foc]-feature is in the matrix clause, and we get no competition for the SpecFocP position in the embedded clause in (ib) (unlike in (24b)).

## References

- Baltin, M. 1985. *Toward a Theory of Movement Rules*. New York: Garland.
- Beck, S. 1996. “Quantified structures as barriers for LF-movement”. *Natural Language Semantics* 4: 1–56.
- Beghelli, F. and T. Stowell. 1997. “Distributivity and negation: The syntax of *each* and *every*”. In *Ways of Scope Taking*, A. Szabolcsi (ed.), 71–107. Dordrecht: Kluwer.
- Benincà, P. 2001. “The position of Topic and Focus in the left periphery”. In *Current Studies in Italian Syntax: Essays Offered to Lorenzo Renzi*, G. Cinque and G. Salvi (eds), 39–66. Amsterdam: Elsevier.
- Bennis, H. 1995. “The meaning of structure: The *wat voor* construction revisited”. In *Linguistics in the Netherlands 1995*, M. den Dikken and K. Hengeveld (eds). Amsterdam: John Benjamins.
- Bobaljik, J. and D. Jonas. 1996. “Subject positions and the roles of TP”. *Linguistic Inquiry* 27: 195–236.
- Bošković, Ž. 2002. “On multiple *wh*-fronting”. *Linguistic Inquiry* 33: 351–383.
- Brody, M. 1995. “Focus and checking theory”. In *Approaches to Hungarian V*, I. Kenesei (ed.). Szeged: JATE Press.
- Browning, M. 1987. *Null operator constructions*. Ph.D. Dissertation, MIT; New York: Garland (1991).
- Chomsky, N. 1986. *Barriers*. Cambridge, MA: MIT Press.
- Chomsky, N. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- Chomsky, N. and H. Lasnik. 1993. “The theory of principles and parameters”. In *Syntax: An International Handbook of Contemporary Research*, J. Jacobs, A. von Stechow, W. Sternefeld and T. Vennemann (eds). Berlin: de Gruyter.
- Chomsky, N. 2000. “Minimalist inquiries”. In *Step by Step: Essays in Minimalist Syntax in Honor of Howard Lasnik*, R. Martin et al. (eds), 89–155. Cambridge, MA: MIT Press.
- Citko, B. 1997. “On multiple *wh*-movement in Slavic”. In *Proceedings of Formal Approaches to Slavic Linguistics VI*, Ž. Bošković, S. Franks and W. Snyder (eds), 97–113. Ann Arbor (MI): Michigan Slavic Publications.
- Culicover, P. 1993. “Evidence against ECP accounts of the *that-t* effect”. *Linguistic Inquiry* 24: 557–561.
- Dikken, M. den and A. Giannakidou. 2002. “From *hell* to polarity: ‘Aggressively non-D-linked’ *wh*-phrases as polarity items”. *Linguistic Inquiry* 33: 31–61.
- Emonds, J. 1976. *A Transformational Approach to English Syntax*. New York: Academic Press.
- Huang, C.-T. J. 1982. *Logical Relations in Chinese and the Theory of Grammar*. Ph.D. Dissertation, MIT.
- Ishii, Y. 1991. *Operators and Empty Categories in Japanese*. Ph.D. Dissertation, University of Connecticut at Storrs.
- Kayne, R. 1998. “Overt vs. covert movement”. *Syntax* 1: 128–191.
- Kiss, K.É. 1987. *Configurationality in Hungarian*. Budapest: Akadémiai Kiadó/Dordrecht: Reidel.
- Kiss, K.É. 1993. *Wh*-movement and specificity. *Natural Language and Linguistic Theory* 11: 83–120.
- Lipták, A. 2001. *On the Syntax of Wh-items in Hungarian*. Ph.D. Dissertation, University of Leiden.
- Mulder, R. and M. den Dikken. 1992. “Tough parasitic gaps”. *Proceedings of NELS 22*. Amherst: GLSA.
- Pesetsky, D. 1989. “Language-particular processes and the Earliness Principle”. Paper presented at GLOW 12, Utrecht, 5 April 1989.
- Pesetsky, D. 2000. *Phrasal Movement and Its Kin*. Cambridge, MA: MIT Press.
- Postma, G. 1994. “The indefinite reading of WH”. In *Linguistics in the Netherlands 1994*, R. Bok-Bennema and C. Cremers (eds), 187–198. Amsterdam: John Benjamins.
- Rizzi, L. 1997. “The fine structure of the left periphery”. In *Elements of Grammar*, L. Haegeman (ed.), 281–337. Dordrecht: Kluwer.
- Rudin, C. 1988. “On multiple questions and multiple *wh*-fronting”. *Natural Language and Linguistic Theory* 6: 445–501.
- Scott, Tatiana. 2002. “CP–Topic parameter and Russian WH”. Ms., SUNY at Stony Brook.
- Torrego, E. 1985. “On empty categories in nominals”. Ms., UMass Boston.
- Watanabe, A. 1991. “*Wh*-in-situ, Subjacency, and chain formation”. Ms., MIT.
- Williams, E. 1980. “Predication”. *Linguistic Inquiry* 11: 203–238.