WHEN A WH-WORD REFUSES TO STAY IN SITU Arthur Stepanov University of Nova Gorica

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1 Introduction

Richards (2010, 2016) suggests that a language's choice between the wh-movement option and the wh-in-situ option is made on the basis of language-specific prosodic properties that determine whether or not a prosodic wh-domain containing both the interrogative C and the wh-phrase can be established. A wh-domain in this sense roughly corresponds to a piece of prosodic structure in which these two key elements are separated by as few prosodic boundaries as possible, ideally zero. Prosodic boundaries demarcate structural units of the sentence, known as Minor or Intermediate Phrases (henceforth MiPs) that may trivially or nontrivially correspond to syntactic constituents (cf. Nespor and Vogel 1986, Selkirk 1986, 2011, Truckenbrodt 1995, Wagner 2005, among others). Richards proposes the following algorithm for constructing larger MiPs in wh-questions (see also Szendrői 2001, 2003):

- a. For one end of the larger Minor Phrase, use a Minor Phrase boundary that was introduced by a wh-phrase.
 - b. For the other end of the larger Minor Phrase, use any existing Minor Phrase boundary. (Richards 2010:150, (10))
- (2) Given a wh-phrase α and a complementizer C where α takes scope, α and C must be separated by as few Minor Phrase boundaries as possible, for some level of Minor Phrasing. (Richards 2010:151, (13))

Richards further claims that directionality of interrogative C and language-specific prosodic edge-marking must be contralateral in a language, in order for a congruous *wh*-domain to be formed. For instance, if C is on the left, and MiPs including the *wh*-phrase are prosodically marked at right edges, the algorithm in (1) allows for (recursively) extending the *wh*-domain beginning at the right edge of the *wh*-word and working leftward, as shown in (3).

Much of the empirical work inspired by Richards's proposal has been devoted to validating it on the basis of various languages, while exploring its advantages and deficiencies (see Yasin 2012, Kandybowicz and Torrence 2015, Mathieu 2016). But there is another aspect of (1) whose empirical consequences have not, to our knowledge, been

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2 Lebanese Arabic: fu

Lebanese Arabic (LA) is generally an optional *wh*-movement language. Argument and adjunct *wh*-phrases can be left in situ or move in matrix, embedded, and long-distance *wh*-questions.

- (4) a. fef-t-o **min** be-ddekkan? saw-2-PL who in-the.shop 'Who(m) did you see in the shop?'
 - b. Min fef-t-o be-ddekkan?who saw-2-PL in-the.shop'Who(m) did you see in the shop?'
- (5) a. Ba-frif fef-t-o **min** be-ddekkan. 1sg-know saw-2-pl who in-the.shop 'I know who(m) you saw in the shop.'
 - b. Ba-Srif **min** Sef-t-o be-ddekkan. 1sg-know who saw-2-pL in-the.shop 'I know who(m) you saw in the shop.'
- (6) a. Bte-ftektr-o kif fi-na n-rooħ γa-l-maţar? 2-think-PL how can-lPL lPL-go to-the-airport 'How do you think we can go to the airport?'
 - b. **Kif** bte-ftektr-o fi-na n-rooħ <code>?a-l-maṭar?</code> how 2-think-PL can-lPL lPL-go to-the-airport 'How do you think we can go to the airport?'

A notable exception to this pattern concerns the wh-word fu 'what', whose syntactic behavior is restricted to wh-movement.

- (7) a. **Ju** Jtrii-t-o mne-l-maħall? what bought-2-PL from-the-store 'What did you buy from the store?'
 - b. *ftrii-t-o **fu** mne-l-maħall? bought-2-PL what from-the-store 'What did you buy from the store?'

- (8) a. Ba-ſrif **ʃu** ʃtrii-t-o mne-l-maħall. 1sg-know what bought-2-pL from-the-store 'I know what you bought from the store.'
 - b. *Ba-Srif Strii-t-o **Su** mne-l-mahall. 1sg-know bought-2-pl what from-the-store 'I know what you bought from the store.'
- (9) a. **∫u** byi-ftikr-o ?ənno ∫trii-t-o mne-l-maħall? what 3-think-PL that bought-2-PL from-the-store 'What do they think that you bought from the store?'
 - b. *Byi-ftikr-o ?ənno ʃtrii-t-o ʃu mne-l-mahall?

 3-think-PL that bought-2-PL what from-the-store
 'What do they think that you bought from the store?'

Aoun and Choueiri (1999) and Aoun, Benmamoun, and Choueiri (2010) suggest that the source of the asymmetry has to do with dlinking in Pesetsky's (1987) sense: in-situ wh-phrases in LA are dlinked by default, whereas $\int u$ is not; as a result, it must move. Razaq (2011) demonstrates, however, that $\int u$ as well as other wh-phrases can be used in both d-linked and non-d-linked contexts, rendering d-linking largely irrelevant to the option of wh-movement in LA. Razaq (2011) himself attributes the anomaly to a composite, clausal source of $\int u$ (roughly meaning 'which thing is it'), which enforces a pseudocleftlike structure of the corresponding wh-question. Under this view, fu is regarded categorically as a C(omplementizer) P(hrase) and must be wh-fronted for interpretive reasons. This analysis is also not unproblematic. It predicts that $\int u$ is possible in situ in syntactic positions in which CP is selected/subcategorized for, such as the complement of propositional attitude verbs like 'know' or 'believe'. However, the native LA speakers we consulted generally agree that examples like (10) sound rather deviant when intended as regular wh-questions (i.e., not as echo questions, exclamative-like, or rhetorical devices requiring a continuation of the discourse). Another concern for this type of proposal is that $\int u$ can be modified by (selected) prepositions, which is not typical for CPs in LA; see (11) and (12).

- (10) *Bta-?rf-o **fu**? 2-know-pL what 'You know what?' (Razaq 2011:185)
- (11) San **Su** Sam te-ħke? about what PROG 2sG-talking 'What are you talking about?'
- (12) a. Hakye-t-na (*\frac{\pi}{an}) ?enn-a ken-et talked-3fem.sg-us about that-3fem.sg was-3fem.sg mabsuta.

 happy.3fem.sg
 'She told us that she was happy.'

 b. Hakye-t-na (*\frac{\pi}{an}) \(\pi \) \(\frac{\pi}{ata}-it \)
 - b. Hakye-t-na (*\Gamma\) fu ftar-it talked-3fem.sg-us about what bought-3fem.sg

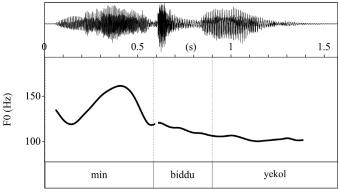
mne-l-maħall.
from-the-store
'She told us what she bought from the store.'

(cf. (8a))

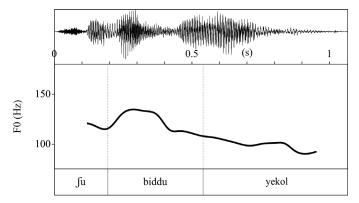
Now consider the prosodic perspective. Chahal and Hellmuth (2014) (see also Chahal 2001) discuss a number of prosodic properties of LA, including (a) the presence of special phrase accents delimiting the right edge of the phrase, (b) domain span phenomena of pitch accent distribution and relative prominence relations, and (c) boundary strength effects. Concerning (a), MiPs (or, for these authors, "intermediate phrases") are tonally marked in LA with one of three possible accent types: L-, H-, or !H- (similarly to Hungarian, Greek, and other languages; cf. Grice, Ladd, and Arvaniti 2000). Crucially, this marking occurs at the right edges of MiPs. With respect to (b), if more than one pitch accent occurs within a MiP, they display relative prominence relations such that the rightmost pitch accent is the most prominent (the word accented in this way serves as the nuclear head of the phrase). In addition, Chahal and Hellmuth observed phrase-final lengthening effects in LA such that a boundary-final accented syllable had a longer duration than its non-boundary-final counterpart (see Chahal and Hellmuth 2014 for details). It thus appears that LA generally conforms to the pattern of consistent right-edge marking of MiPs predicted by Richards to be typical for wh-in-situ languages. In fact, with the exception of $\int u$, LA seems to be prosodically similar to Egyptian Arabic, another Arabic wh-in-situ language in which MiPs are phonologically marked at the right edge, but different from Jordanian Arabic, which is a wh-movement language with a strong tendency to mark its MiPs at the left edge (Yasin 2012; also see Hellmuth 2006, 2007).

A notable property of fu that (to our knowledge) the syntactic literature on LA has not focused on, but that (we believe) provides an important clue with respect to the contrasts in (7)–(9), is that it is a prosodically weak element. As such, it demonstrates two main prosodic properties typical for clitics. First, clause-initial fu does not receive lexical stress, in contrast to the other wh-words in LA (in which, otherwise, words generally bear a lexical stress). Rather, stress falls on the next adjacent prosodic element. This contrast between fu and other wh-words, in turn, determines intonational differences between the corresponding questions, as (13) demonstrates.

(13) a. Min bidd-u ye-kol? who want-3MASC.SG 3MASC.SG-eat 'Who wants to eat?'



b. ∫u bidd-u ye-kol? what want-3MASC.SG 3MASC.SG-eat 'What does he want to eat?'



Clause-initial \mathfrak{fu} tends to form a single prosodic unit with the right-adjacent item. In colloquial speech, vowel reduction may take place, often approaching simply \mathfrak{f} - depending on a particular phonetic context (e.g., the initial CV syllable as in (13b)). An adjacent item's CCV onset (as in bta- \mathfrak{fref} '2sG-know') triggers phonetic cross-boundary effects such as resyllabification of the type CV.CCV \rightarrow CVC.CV.

The syntactic behavior of $\int u$ confirms its prosodically reduced status. For instance, it cannot be coordinated with other wh-phrases; compare (14a) and (14b).

(14) a. *ʃu w min bta-ʕref b-hal-balad? what and who 2sg-know in-this-country 'What and who(m) do you know in this country?' b. Amta w kif 'sam t-rooh-o 'sa-l-masbah? when and how PROG 2-going-PL to-the-swimming.pool 'When and how are you going to the swimming pool?'

Elements adjacent to fu can be of any syntactic category, similarly to Wackernagel or second-position clitics (and in contrast with French que, which is a verbal clitic; see section 3).

(15) ∫u bi-ra?y-ak raħ ys^çir? what in-opinion-your will happen 'What, in your opinion, will happen?'

Nevertheless, $\int u$ is not quite on a par with full-fledged clitics. In particular, as (11) shows, it can itself be modified by a preposition (cf. Abels 2003). In this case, the preposition supplies a prosodic "host" to $\int u$, rendering the complex a full-fledged phonological word with the stress now falling on $\int u$, rather than on the preposition.

(16) Bi-∫u w bi-min kæne-t ʕam t-fakker? in-what and in-who was-3FEM.SG PROG 3FEM.SG-thinking 'What and who(m) was she thinking about?'

Interestingly, with the fu + preposition complex, the acceptability of corresponding wh-in-situ questions improves substantially, in contrast with (10) and the (b) examples in (7)–(9).

- (17) a. (?)Fakkar-te bi-∫u? thought-2fem.sg in-what 'What did you think about?'
 - b. (?)Stafsar-t-o men baba ʕan ʃu? asked-2-pL from Dad about what 'What did you ask Dad about?'

The properties mentioned above illustrate the deficient prosodic status of $\int u$ —in particular, that it is not an independent prosodic unit such as a phonological word. Consequently, it is by itself unable to supply one of the end boundaries of the MiP in which it appears. Because this end boundary is undefined, the algorithm in (1) extending a wh-domain to include the complementizer will fail to apply in sentences such as (7b), (8b), and (9b). This is the case either from the point of view of the wh-phrase (the initial MiP is undefined) or from the point of view of the complementizer (the expansion stops when it reaches $\int u$). Either way, a congruous wh-domain containing both the complementizer and the wh-phrase cannot be established, the result being the unavailability of the wh-in-situ option. In Richards's theory or similar prosody-based theories making use of end boundaries, this is the desired result.

3 French que

French is an optional wh-movement language as far as matrix questions are concerned (see, e.g., Bošković 2000 for syntactic restrictions on other question types). Similarly to what happens in LA, wh-phrases

may occur in situ or move, an exception being *que*, which occurs only in the moved position (the *wh*-in-situ option is realized with the phonetically heavier, "strong form" counterpart *quoi*).

- (18) a. **Qui** vois-tu?
 who see-you
 'Whom do you see?'
 b. Tu vois **qui**?
 you see who
 'Whom do you see?'
- (19) a. **Que** fais-tu? what do-you 'What are you doing?' b. *Tu fais **que**?
 - you do what
 c. Tu fais quoi?
 you do what
 'What are you doing?'

The relevance of prosodic attributes in relation to *wh*-in-situ and *wh*-movement has become prominent in the literature on French interrogatives (see, e.g., Cheng and Rooryck 2000, Reglero 2005, Hamlaoui 2008, Baunaz and Patin 2009, and the references there). French prosodic phrase boundaries can be marked with final (preboundary) lengthening, manipulation of pitch range, pauses, and liaison (Selkirk 1974, Jun and Fougeron 2002, Stepanov et al. 2018), typical markers of right-edge boundaries (e.g., Vaissière 1983, Hayes 1995). But French also manifests phenomena such as articulatory strengthening at the onsets of MiPs, which could reasonably be seen as their left-edge marking (Fougeron and Keating 1997, Stepanov et al. 2018). A priori, this state of affairs appears consistent with the observed syntactic optionality of *wh*-movement, although we leave a comprehensive assessment of the directionality of French *wh*-questions' prosodic edge marking for future work.

A growing body of literature suggests that *que* shares its distributional properties with pronominal clitics (Bouchard and Hirschbühler 1987, Friedemann 1990, Poletto and Pollock 2004). Poletto and Pollock (2004) coin the term *wh-clitic* for this type of *wh-*item. In particular, unlike other *wh-*phrases, *que* cannot be separated from the verb, coordinated, or modified by a preposition.

(20) a. *Que, d'après toi, a vu Jean? what according you has seen Jean 'What, according to you, has Jean seen?'

¹ Richards (2010:156) briefly discusses French and Egyptian Arabic, pointing out that his prosodic proposal does not exclude such optionality, as long as movement improves the prosodic structure of the question, similarly to the *wh*-in-situ option. See also Yasin 2012.

- b. *Que et qui a-t-elle vu? what and who has-she seen 'What and who(m) has she seen?'
- 'What and who(m) has she seen?'

 c. *À que elle pense?

 to what she thinks
 'What is she thinking of?'

 (adapted from Poletto and Pollock 2004:245, (7))

Bouchard and Hirschbühler (1987) further observe that the complementary distribution of *que* and *quoi* in *wh*-movement and *wh*-in-situ contexts in (19) parallels that observed with pronominal clitics, along the dimension of prosodic strength vs. weakness (e.g., *me/moi*, *te/toi*).² To that, we may add the relative ease with which *que* forms phonological clusters with other prosodically weak elements (e.g., auxiliary *a* 'have.PAST' (*qu'a*) or *est* 'be.PRES' (*qu'est*)), which is reminiscent of the LA case discussed in section 1 and is generally typical for clitics.³ These considerations suggest a straightforward interpretation of the contrast in (18) in terms of prosodically based *wh*-domains. While strong forms can arguably be considered phonological words, thus capable of introducing a terminal MiP boundary, weak forms cannot. Consequently, *quoi* can form a coherent *wh*-domain with the complementizer; *que* cannot. This, again, is the pattern predicted by the condition in (2).

Of course, the distribution of wh-clitics and pronominal clitics is not, strictly speaking, identical. Que, in particular, can undergo long-distance wh-movement of potentially unbounded length, across any number of finite or infinitival clauses, while pronominal clitics can do so at best in infinitival contexts only, in the context of clitic climbing and verbal restructuring (on the latter, see for example Wurmbrand 2001). Following Poletto and Pollock (2004), we attribute this discrepancy between the two types of clitics to the inherent differences in their configurational properties: while pronominal clitics are elements in the A-domain, their mobility is restricted within the argumental system; in contrast, wh-clitics are Ā-elements and so are forced to travel through various Ā-slots such as (intermediate) specifier(s) of CP.

4 North Eastern Italian Dialects

Poletto and Pollock (2004) extend the notion of *wh*-clitics to certain local varieties of Italian, in particular Illasi (Verona) and Monno (Brescia). *Wh*-questions formed in these dialects exhibit so-called *wh*-dou-

² No intonational differences between *que* and *qui* of the type discussed in section 1 can be observed in (18a) vs. (19b), since, unlike LA, French does not have lexical stress (e.g., Delais-Roussarie et al. 2015).

³ However, (20c) contrasts with (16) in LA in that *que* is unable to combine with the preposition. We attribute this inability, again, to the highly restricted ability of French to form phonological clusters in the absence of the option to assign lexical stress to these clusters.

bling whereby a full wh-phrase (excluding the che 'what'+NP type and parche 'why') appears in situ and its own prosodically weak version appears in the fronted position, but not vice versa.

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(21) a. S'a-lo fat che?
what has-he done what
'What has he done?'
b. Ndo e-lo ndat endoe?<sup>4</sup>
where is-he gone where
'Where has he gone?'
(Illasi; Poletto and Pollock 2004:242, (1a-b))
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According to Poletto and Pollock, when only one of these forms is lexically realized, it must be in the same position as in the doubling structures. Thus, the full *wh*-phrase cannot be fronted; the reduced version must be, as shown in (22). This also implies that the *wh*-insitu version of (22a) is acceptable, while that of (22b) is not (we take this for granted, although the authors do not provide relevant examples). Thus, the North Eastern Italian dialects can also be seen as optional *wh*-movement languages, with the additional option of *wh*-doubling.

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(22) a. *Che a-lo fato?
what has he done?'
b. S' a-lo fato?
what has he done
'What has he done
'What has he done?'
(Poletto and Pollock 2004:243, (5a-b))
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Poletto and Pollock propose an analysis of *wh*-doubling in which both full and reduced versions of the *wh*-item are merged in what they refer to as Clitic Phrase (CIP; cf. Kayne 1991, Uriagereka 1995).

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(23) a. [CIP che s']
b. [CIP endoe ndol<sup>5</sup>
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Although additional data are needed in order to determine the directionality of marking MiP boundaries in these dialects, the analysis in

⁴ The LA and French facts discussed above appear to suggest that the prosodically deficient *wh*-element is always one meaning 'what'. However, the Italian dialect data discussed by Poletto and Pollock (2004) suggest that the relevant inventory may also include *wh*-clitics meaning 'where' (*ndo* in Illasi, *ngo* in Monno; full versions are *endoe* and *ngont*, respectively), as well as 'who' (*ci* in Illasi; cf. (17) in Poletto and Pollock 2004). This raises an interesting issue, namely, whether some sort of an implicational hierarchy exists here (e.g., "If a language has a *wh*-clitic for 'who', it has one for 'what' but not vice versa"); this should be explored in further work. We thank the Squibs and Discussion editors for drawing our attention to this point.

⁵ Given that clitics are often considered to have a dual—head and phrasal—status in the Minimalist framework (e.g., Chomsky 1995), the precise structural makeup of this *wh*-ClP is not quite obvious, but also not particularly relevant at this point.

(23) can be restated in broader prosodic terms. CIP constitutes a coherent intonational unit equal to or larger than the phonological word; movement of the weak *wh*-item, while leaving the strong *wh*-item in situ, leaves this prosodic status of CIP intact. CIP can then project a terminal MiP boundary, thus enacting the *wh*-in-situ scenario with respect to the strong *wh*-form. Conversely, if the strong *wh*-form were to undergo *wh*-movement, what would remain of the CIP would be the weak *wh*-item, which cannot instantiate a terminal MiP boundary, similarly to the cases considered in sections 2 and 3. This accounts for the pattern in (21). As for (22), assuming, together with Poletto and Pollock, that in cases where no *wh*-doubling is present one of the items in (23) is phonetically (and prosodically) zero, we predict, correctly, that only the strong form (capable of instantiating a MiP boundary) will be able to remain in situ; the weak form will not.⁶

5 Discussion and Conclusions

The CIP analysis mentioned in the previous section suggests a way to make use of the clitic status of the wh-phrase and view the relationship between the latter and the interrogative complementizer, but in a slightly different way than depicted in (23). Rather, in a prosody-based system like Richards's (2010), prosodically connecting the wh-word with the interrogative complementizer via wh-movement may be seen as satisfying the basic syntactic as well as prosodic requirement of clitics: that of attaching to a suitable available host, in this case an interrogative C with which a wh-clitic shares formal features such as [+Q, +wh]. In this sense, wh-clitics can be viewed informally as "interrogative C clitics," alongside other clitic types determined by the kind of host they attach to, such as verbal clitics or second-position clitics. This need not be stated as an additional proviso to (1) and (2); rather, it must be recognized as an independent regulator of the wh-movement option, over and above the algorithm operating on prosodic wh-domains.

This view emphasizes the important role of prosody in restricting syntactic choices at the interface (see Bošković 2001 for a similar view of the syntax-phonology interface). The feature-based-triggering perspective also restricts the target of cliticization to the left-peripheral C, but not, for instance, to the closest/adjacent prosodically strong element such as the verb (with which the *wh*-clitic does not share the relevant features). To the extent that this regulator itself is prosodic in nature (see, e.g, Halpern 1995, Bošković 2001), we believe it can

⁶ As an *LI* reviewer correctly points out, the logic of our proposal suggests that a language could have the prosodic properties that ought to allow *wh*-insitu, but could be forced to move its *wh*-phrases if all of its *wh*-words are clitic-like in the relevant sense. Whether such a language exists is an interesting question that should be further investigated. Relevant to this point, Richards (2016:chap. 6) mentions (standard) Italian as a language that ought to allow *wh*-in-situ on prosodic grounds but does not.

be readily incorporated into a prosodic framework based on *wh*-domains. One possible direction of such incorporation can be sketched as follows.

It might be hypothesized that at some (suprasegmental) level, the complementizer and the wh-word must enter a relation that we might provisionally view as a prosodic counterpart of syntactic agreement. An agreeing element can be prosodically autonomous (e.g., 'be.PRES' realized as is in John is tall) or affixal (e.g., the 'be.PAST' feature on Infl realized as the verbal ending -ed, in many transformational analyses of English verbal morphology; cf., e.g., Lasnik, Depiante, and Stepanov 2000 for a review). In the first case, syntactic agreement can be structurally local (cf. "specifier-head" or "head-head" agreement), or it can be long-distance, via local controllers across potentially unbounded domains (cf. Chomsky 2008). These two possibilities would be analogous to the wh-movement and wh-in-situ options, respectively, in the prosody-based framework. This, in turn, suggests that an algorithm such as (1) and (2) may be relevant to, or even underlying, the syntactic EPP requirement operating over a well-defined wh-domain and triggering overt wh-movement (see also McFadden and Sundaresan 2015 and Richards 2016 for discussion of prosodic aspects of the EPP). In the second case, agreement is necessarily realized via some sort of displacement, driven to satisfy the affixal properties. This can also sit well in the prosodic framework, as many researchers have argued the affixal properties to be regulated by the PF interface requirements (e.g., Bobaljik 1995). These suggested parallels bear on important aspects of the syntax-phonology interface that are currently being explored and made formally precise (see the references above).

To summarize, although intralanguage variability in the choice between the *wh*-movement and *wh*-in-situ options may at first sight appear problematic for the prosodic approach in Richards 2010, 2016, on closer look the two can be reconciled. It also underscores the nontrivial nature of determining prosodic end boundaries and *wh*-domains, while emphasizing the need to pay attention to prosodic properties not only of the intervening MiPs, as originally proposed in Richards's theory, but also of the *wh*-word itself. This conclusion further implies that the algorithm in (1) operates derivationally, rather than as a parametric choice fixed once and for all for a given language.

⁷ We believe this possibility is also reminiscent of Richards's (2016) Contiguity Theory approach to forming prosodic domains on the basis of syntactic constituents via interface operations such as Grouping and Contiguity-adjunction (see Richards 2016:chap. 3), as part of the general strategy for alignment or "match" between syntactic and phonological domains (see also, e.g., Selkirk 2011). Even though Richards's (2016) theory no longer directly relies on the idea of a prosodic boundary introduced by a *wh*-phrase, as in the Richards 2010 framework assumed here, it nevertheless maintains the important underlying insight concerning a tight relationship between syntactic and prosodic boundary/edge phenomena.

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