

# When a wh-word refuses to stay in-situ

Arthur Stepanov and Ali Al Moussaoui

University of Nova Gorica

## 1. Introduction

Richards (2010, 2016) suggests that a language's choice with respect to choosing the wh-movement option or 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 intervening 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 non-trivially correspond to syntactic constituents. (Nespor and Vogel 1986, Selkirk 1986, 2011, among others). Richards proposes the following algorithm of constructing larger MiPs in wh-questions (see also Szendrői 2001, 2003):

- (1) 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.
- (2) Given a wh-phrase  $\alpha$  and a complementizer C where  $\alpha$  takes scope,  $\alpha$  and C must be separated by as few Minor Phrase boundaries as possible, for some level of Minor Phrasing.

[Richards 2010:151, ex. (13)]

Richards further claims that directionality of interrogative C and language-specific prosodic edge-marking must be contra-lateral 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 leftwards, as shown in (3):

- (3) a. C [DP ] [whP] [DP ]  
 b. (     ) (     ) (     )  
 c. (             ) (     ) [Richards 2010:154, ex. (17)]

Much of subsequent empirical work inspired by Richards' proposal has been devoted to validating it on the basis of various languages, while exploring its advantages as well as deficiencies (cf. Yasin 2012, Mathieu 2016, Kandybowicz and Torrence 2015). But there is one other aspect of (1) whose empirical consequences, to our knowledge, have not so far been explored. This aspect stems from the presupposition in (1a) that *a wh-phrase itself has a status of at least a prosodic word  $\omega$* , the smallest unit capable of introducing an MiP boundary (Selkirk 2011). Prosodically weak monosyllabic wh-phrases, sometimes referred to as *wh-clitics* in the literature, are not capable of introducing a MiP end boundary, largely by definition. Hence, a wh-domain cannot be established in these cases. We show that empirically, only the wh-movement option is available for wh-clitics, even in languages that can otherwise be classified as wh-in-situ languages. It seems, therefore, that insofar as in this case a prosodic wh-domain cannot be identified on the side of the wh-word, the choice of the wh-movement option cannot be made on the basis of (1) and (2) only. We support our argument with new evidence from Lebanese Arabic, as well as data from French and the North Italian dialects reported in the literature, and suggest a possible way to reconcile this evidence with the prosodic-based framework.

## 2. Lebanese Arabic: *fū*

Lebanese Arabic (LA) is generally an optional wh-in-situ language. Argument and adjunct wh-phrases are typically left in situ in matrix, embedded and long-distance wh-questions:

- (4) a.    *ʃef-t-o min be-ddekkān?*  
          saw.2.PL who in-the-shop  
          ‘Who(m) did you see in the shop?’
- b.    *Min ʃef-t-o be-ddekkān?*  
          who saw.2.PL in-the-shop  
          ‘Who(m) did you see in the shop?’
- (5) a.    *Ba-ʃrif ʃef-t-o min be-ddekkān*  
          1SG.know saw.2.PL who in-the-shop  
          ‘I know who(m) you saw in the shop’
- b.    *Ba-ʃrif min ʃef-t-o be-ddekkān*  
          1SG.know who saw.2.PL in-the-shop  
          ‘I know who(m) you saw in the shop’
- (6) a.    *Bte-ftekr-o kif fi-na n-rooḥ ʃa-l-maṭar?*  
          2.think.PL how can.1.PL 1PL.go to-the airport  
          ‘How do you think we can go to the airport?’
- b.    *Kif bte-ftekr-o fi-na n-rooḥ ʃa-l-maṭar?*  
          how 2.think.PL can.1PL 1PL.go to-the airport  
          ‘How do you think we can go to the airport?’

The only exception from this pattern concerns the wh-word *ʃu* ‘what’, whose syntactic behavior is restricted to wh-movement:

- (7) a.    *ʃu ʃtrii-t-o mne-l-maḥall?*  
          what bought.2.PL from-the store  
          ‘What did you buy from the store?’
- b.    *\*ʃtrii-t-o ʃu mne-l-maḥall?*  
          bought.2.PL what from-the store  
          ‘What did you buy from the store?’

- (8) a. Ba-ʕrif    **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-ʕrif    ʃtrii-t-o    **ʃu**    mne-l-maħall  
 1SG.know bought.2.PL what from-the-store  
 ‘I know what you bought from the store’
- (9) a. **ʃu**    byi-ftikr-o    ʔanno ʃtrii-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    ʔanno ʃtrii-t-o    **ʃu**    mne-l-maħall?  
 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 d-linking in the sense of Pesetsky (1987): wh-phrases in-situ in LA are d-linked by default, whereas *ʃu* is not; as a result, it must move. Razaq (2011) demonstrates, however, that *ʃu* as well as other wh-phrases can be used in d-linked as well as 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 *ʃu* (roughly meaning “which thing is it”) which enforces a pseudocleft-like structure of the corresponding wh-question. Under this view, *ʃu* is regarded categorially as a C(omplementizer) P(hrase), and has to be wh-fronted for reasons related to interpretation. This analysis is also not unproblematic. It predicts that *ʃu* is possible in situ in syntactic positions in which CP is selected / subcategorized for, e.g. complement of propositional attitude verbs like *know* or *believe*. While Razaq reports respective examples as in (10) as acceptable, the native LA speakers we consulted generally agree that such examples are

rather deviant, or at best acceptable with irrelevant interpretations (as echo-questions, exclamative-like or rhetorical devices requiring a continuation of the discourse). Another concern for this type of proposal emerges given that *fu* can be modified by (selected) prepositions, which is not typical for CPs in LA, cf. below:

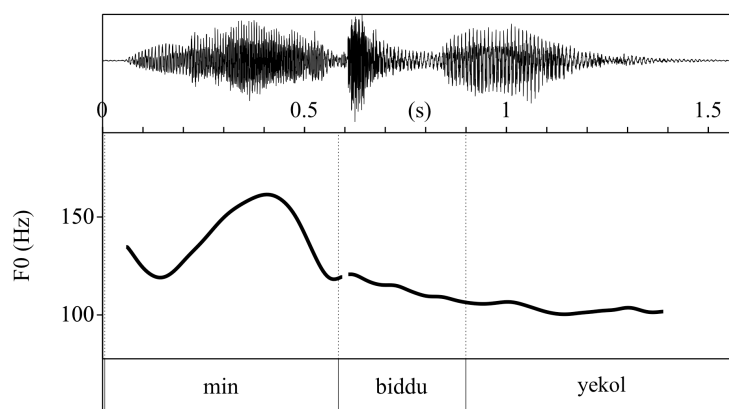
- (10) \*bta-ʕrf-o    **fu**?  
 2.know.PL what  
 ‘You know what?’
- (11) ʕan    **fu**    ʕam    te-ħke?  
 about what PROG. 2SG.talking  
 ‘What are you talking about?’
- (12) a. Ĥakye-t-na            (\*ʕan) ʔenn-a            ken-et            mabsuta.  
 talked.3FEM.SG -us about that.3FEM. SG. was.3FEM.SG happy.3FEM.SG  
 ‘She told us that she was happy.’
- b. Ĥakye-t-na            (\*ʕan) fu    ʕtar-it            mne-l-maħall  
 talked.3FEM.SG -us about what bought.3FEM.SG from-the-store  
 ‘She told us what she bought from the store.’ (cf. 8a)

Consider now the prosodic perspective. Chahal and Hellmuth (2014) (see also Chahal 2001) discuss a number of prosodic properties of LA, including i) the presence of special phrase accents delimiting the right edge of the phrase, ii) domain span phenomena of pitch accent distribution and relative prominence relations, as well as iii) boundary strength effects. Concerning i), 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 et al 2000). Crucially, this marking occurs at the right edges of MiPs. With respect to ii), 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 so accented word serves as a nuclear head of the phrase). In addition, phrase-final lengthening effects were observed for 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 *fu*, LA seems to be prosodically similar to Egyptian Arabic, another Arabic wh-in-situ dialect 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, cf. also Hellmuth 2006, 2007).

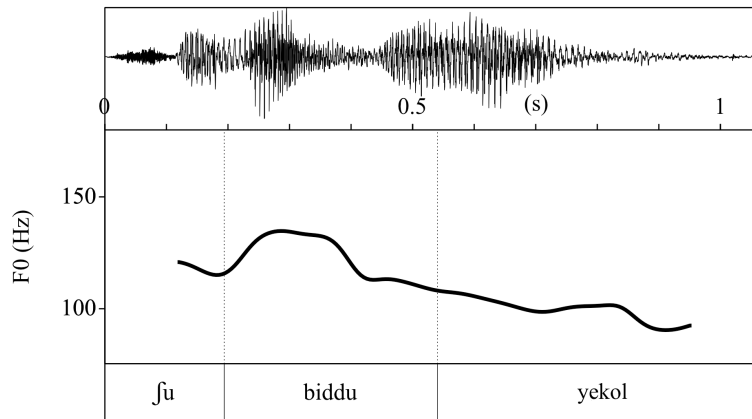
A notable property of *fu* that (to our knowledge) has not been in the focus in the syntactic literature on LA so far, but, we believe, provides an important clue with respect to the contrasts in (7)-(9) is that it is a prosodically weak element. As such, it demonstrates two main prosodic properties 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.      fu      bidd-u            ye-kol?  
           what    want-3MASC.SG 3MASC.SG.eat

‘What does he want to eat?’



Clause-initial *fu* tends to form a single prosodic unit with the right-adjacent item. In colloquial speech, vowel reduction may take place, often approaching simply *f*- depending on a particular phonetic context (e.g. the initial CV syllable as in (13)). A CCV onset of the adjacent item (as in, e.g., *bta-ʕref* ‘2SG.know’) triggers phonetic cross-boundary effects such as resyllabification of the kind CV.CCV → CVC.CV.

The syntactic behavior of *fu* confirms its prosodically reduced status. For instance, it cannot be coordinated with other wh-phrases.

(14) a. \**fu w min bta-ʕref b-hal-balad?*

what and who 2SG.know in-this-country

‘What and who do you know in this country?’

cf. b. *Amta w kif ʕam t-rooħ-o ʕa-l-masbaħ?*

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 the French *que* which is a verbal clitic, cf. Section 3):

(15) *fu* bi-raʔy-ak raḥ ysʕir?

what in-opinion-your will happen?

‘What, in your opinion, will happen?’

Nevertheless, *fu* cannot quite be put 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 *fu* rendering the complex a full-fledged phonological word with the stress now falling on *fu*, rather than on the preposition:

(16) Bi-*fu* w bi-min kəne-t ʕam t-fakker?

in.what and in.who was.3FEM.SG PROG 3FEM.SG.thinking?

‘What and who 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-*fu*? b. (?)stafsar-t-o men baba ʕan *fu*?

thought.2FEM.SG in.what

asked.2.PL from dad about what

‘What did you think about?’

‘What did you ask Dad about?’

The properties mentioned above illustrate the deficient prosodic status of *fu*, 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 respective MiP, in Richards’ sense. Therefore, in sentences such as (7)-(9), the algorithm in (1) extending a wh-domain to include the complementizer will fail to apply, because this end boundary is undefined. 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 reaches *fu*). 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’ or similar prosodic domain-based theories making use of end boundaries, this is the desired result.



### 3. French *que*

It is well known that 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 LA, *wh*-phrases may occur in situ, or move, with the exception of *que* which only occurs in the moved position (the *wh*-in-situ option is realized with the phonetically heavier, “strong form” counterpart *quoi*):

- (18) a. **Qui** vois-tu?                      b. cf. Tu vois **qui**?  
          who saw you                              you saw who  
          ‘Who do you see?’
- (19) a. **Que** fais-tu?                      b. cf. \*Tu fais **que**?                      c. Tu fais **quoi**?  
          what do you                              You do what                      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. Baunaz and Patin 2009, Cheng and Rooryck 2000, Hamlaoui 2008, Reglero 2004, and the references there).<sup>1</sup> French prosodic phrase boundaries can be marked with final (pre-boundary) lengthening, manipulation of pitch range, pauses as well as 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 & Keating 1997, Stepanov et al 2018). This state of affairs a priori appears consistent with the observed syntactic optionality of *wh*-movement, although we leave a comprehensive assessment of French *wh*-questions with respect to the directionality of their prosodic edge marking for future work.

A growing body of literature suggests that *que* is a verbal clitic sharing most or all of

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

- [Adapted from Polletto and Pollock 2004:245, ex. (7)]

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, e.g. Wurmbrand 2002). Following the above authors, 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 A’-elements, and so are forced to travel through various A’-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*-doubling whereby a full *wh*-phrase (excluding the *che* ‘what’ +NP type and *parche* ‘why’) appears in-situ together with their own prosodically weak version in the fronted position, but not vice versa:

- (21) a. S’a-lo fat che?                      b. Ndo e-lo ndat endoe?<sup>4</sup>  
           what has-he done what                      where is-he gone where  
           ‘What has he done?’                      ‘Where has he gone?’

[Illasi, Poletto and Pollock (2004: 242), ex.(1a), (1b)]

According to the authors, 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 (21). This also implies that the *wh*-in-situ 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 Italian dialects can also be seen as optional *wh*-movement languages, with an additional option of *wh*-doubling.

- (22) a. \*Che a-lo fato?                      b. S’ a-lo fato?  
           what has-he done                      what has-he done

‘What has he done?’

[*ibid*, ex.(5a), (5b)]

Poletto and Pollock propose an analysis of wh-doubling in which both full and reduced versions of the wh-item are merged together in what they refer to as Clitic Phrase (ClP; cf. Kayne 1991, Uriagereka 1996):

- (23)    a.     [CIP Che s' ]                      b.     [CIP Endoe ndo ]<sup>5</sup>

Although additional data are needed in order to determine the interaction of both C-wh interaction options with respect to directionality of marking MiP boundaries in these dialects, the analysis in (23) can be restated in broader prosodic terms. CIP constitutes a coherent intonational unit equal or larger than phonological word; subsequent 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 is 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 when 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, whereas the weak form will not.<sup>6</sup>

## 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 prosodic-based system like Richards', prosodically connecting the *wh*-word with the respective complementizer via *wh*-movement may be seen as the need to satisfy 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 the 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), but 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 in which syntactic operations corroborate prosodic processes by virtue of filtering out syntactic outputs that do not conform to prosodic requirements). 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 verb (with which the wh-clitic does not share the relevant features). To the extent this regulator itself has a prosodic nature (see, e.g. Halpern 1995, Bošković 2001), we believe it can be readily incorporated in 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 the syntactic phenomenon of *agreement*. An agreeing element can be prosodically autonomous (e.g. ‘be.present’ realized as *is* in *John is tall*), or it can be affixal (as, e.g. the ‘be.past’ feature on Infl realised as the verbal ending *–ed*, in many transformational analyses of English verbal morphology; cf., e.g. Lasnik et al 2000 for review). In the first case, syntactic agreement can be structurally local (cf. ‘spec-head’ or ‘head-head’ agreement), or 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 prosodic-based framework, also suggesting that an algorithm

such as (1) and (2) may be relevant, or even underlying, at some level, what is known as 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 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 the affixal properties we argued by many to be triggered 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).<sup>7</sup>

To summarize, the intra-language variability in the choice of the wh-movement or the wh-in-situ option, which may, at first sight, appear problematic for the prosodic approach in Richards (2010, 2016), on closer look can be reconciled with the latter. It also underscores the non-trivial nature of the determination of the prosodic end boundaries, suggesting that this approach must be made sensitive to the prosodic constituent properties of not only the intervening MiPs, as originally proposed, but also 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.

## References

- Abels, Klaus. (2003). \*[P clitic]! – Why? In Kosta, Peter, Blaszcak, Joanna, Frasek, Jens, Geist, Ljudmila and Zygis, Marzena (eds.), *Proceedings of the Fourth European Conference on Formal Description of Slavic Languages*, 443-460. Frankfurt: Peter Lang.
- Aoun, Joseph and Lina Choueiri. (1999). Modes of Interrogation. In Elabbas Benmamoun (ed.), *Perspectives on Arabic Linguistics XII*, 7-26. Amsterdam: John Benjamins.
- Aoun, Joseph, Elabbas Benmamoun and Lina Choueiri. (2010). *The Syntax of Arabic*.

Cambridge University Press.

Baunaz, L. & Patin, C. (2009). Prosody refers to semantic factors: evidence from French *wh*-words. *Proceedings of Interface Discours & Prosodie 2009*,

[http://makino.linguist.jussieu.fr/idp09/actes\\_fr.html](http://makino.linguist.jussieu.fr/idp09/actes_fr.html)

Bobaljik, Jonathan David. 1995. Morphosyntax: the syntax of verbal inflection. Ph.D. dissertation, Massachusetts Institute of Technology.

Bocci, Giuliano. (2013). *The Syntax-Prosody Interface: a Cartographic Perspective with Evidence from Italian*. Amsterdam: John Benjamins.

Bošković, Željko. (2000). Sometimes in SpecCP, sometimes in-situ. In Roger Martin, David Michaels & Juan Uriagereka (eds.), *Step by step: Essays on minimalism in honor of Howard Lasnik*, 53–87. Cambridge, Mass.: MIT Press.

Bošković, Željko. 2001. *On the nature of syntax-phonology interface: Cliticization in Slavic*. Elsevier.

Bouchard Denis and Paul Hirschbühler. (1987). French "Quoi" and its clitic allomorph "que", in C. Neidle and R.A. Nuñez (eds.), *Studies in the Romance Languages*. Dordrecht, Foris: 39-60.

Chahal, Dana. (2001). *Modeling the intonation of Lebanese Arabic using the autosegmental-metrical framework: a comparison with English*. Unpublished PhD thesis, University of Melbourne.

Chahal, Dana & Sam Hellmuth (2014). The intonation of Lebanese and Egyptian Arabic. In Sun-Ah Jun (ed.) *Prosodic typology II: the phonology of intonation and phrasing*. Oxford: Oxford University Press. 365–404.

Cheng, Lisa Lai-Shen & Johan Rooryck. (2000). Licensing *wh*-in situ. *Syntax* 3. 1–19.

Chomsky, Noam. (1995). *The Minimalist program*. Cambridge, Mass.: MIT press.

- Chomsky, Noam. (2008). On phases. In Robert Freidin, Carlos P. Otero & Maria Luisa Zubizarretta (eds.), *Foundational issues in linguistic theory: Essays in honor of Jean-Roger Vergnaud*, 133–166. Cambridge, MA: MIT Press.
- Delais-Roussarie, Elisabeth, Post, Brechtje, Avanzi, Mathieu, Buthke, Carolin, Di Cristo, Albert, Feldhausen, Ingo, Jun, Sun-Ah, Martin, Philippe, Meisenburg, Trudel, Rialland, Annie, Sichel-Bazin, Rafeu and Hiyon Yoo. (2015). Intonational phonology of French: Developing a ToBI system for French. In Frota, Sonia and Pilar Prieto (eds.), *Intonation in Romance*, 63-100. Oxford: Oxford University Press.
- Fougeron, Cécile, and Patricia A. Keating. (1997). Articulatory strengthening at edges of prosodic domains, *Journal of the Acoustical Society of America* 101, 3728–3740.
- Friedemann, Marc-Ariel (1990). Le pronom interrogatif que et la montée du verbe en C°. *Rivista di Grammatica Generativa* 15: 123–139.
- Frota, Sonia and Pilar Prieto (eds.). 2015. *Intonation in Romance*. Oxford: Oxford University Press.
- Halpern, Aaron Lars. 1995. *On the placement and morphology of clitics*. Stanford, Calif.: CSLI.
- Hayes, Bruce P. (1995). *Metrical Stress Theory: Principles And Case Studies*. University of Chicago Press.
- Hamlaoui, Fatima. 2008. *On the role of discourse and phonology in French wh-questions*. Ms., University of Ottawa.
- Hellmuth, S. (2006). *Intonational pitch accent distribution in Egyptian Arabic*. Doctoral dissertation, SOAS.
- Hellmuth, Sam. (2007). ‘The Relationship between Prosodic Structure and Pitch Accent Distribution: Evidence from Egyptian Arabic.’ *Linguistic Review* 24: 291–316.
- Ishihara, Shinichiro (2003). *Intonation and interface conditions*. Doctoral dissertation, MIT.



- Ishihara, Shinichiro. (2007). Major Phrase, Focus Intonation, Multiple Spell-Out (MaP, FI, MSO). *The Linguistic Review* 24(2–3).
- Jun, Sun-Ah, and Cécile Fougeron. (2002). *Realizations of accentual phrase in French intonation*, *Probus* 14(1), 147–172.
- Kandybowicz, Jason and Harold Torrence. (2015). The Prosodic Licensing of Wh-In Situ: Evidence from Krachi and Wasa. In Ruth Kramer et al, *Selected Proceedings of the 44th Annual Conference on African Linguistics*, 146-157. Somerville, MA: Cascadilla Proceedings Project.
- Kayne, Richard. (1991). Romance clitics, verb movement, and PRO. *Linguistic Inquiry* 22: 647–686.
- Lasnik, Howard, Marcela A. Depiante & Arthur Stepanov. 2000. *Syntactic structures revisited : contemporary lectures on classic transformational theory*. (Current Studies in Linguistics 33). Cambridge, Mass.: MIT Press.
- Mathieu, Éric. 2016. The wh parameter and radical externalization. In Luis Eguren, Olga Fernandez-Soriano & Amaya Mendikoetxea (eds.), *Rethinking Parameters*, 252–290. Oxford University Press.
- McFadden, Thomas & Sandhya Sundaresan. 2015. Towards resolving the countercyclicity of the EPP. Ms., available at <http://ling.auf.net/lingbuzz/002698>.
- Nespor, Marina and Irene Vogel. (1986). *Prosodic phonology*. Dordrecht: Foris.
- Pak, Marjorie. (2008) *The Postsyntactic Derivation and its Phonological Reflexes*. Doctoral dissertation, University of Pennsylvania.
- Pesetsky, David. (1987). Wh-in-situ: Movement and unselective binding. In *The representation of (in)definiteness*, ed. by Eric J. Reuland and Alice ter Meulen, 98-129. Cambridge, Mass.: MIT press.
- Razaq, Issa M. M. Abdel. (2011). *Who is What and What is Who: The Morpho-syntax of Arabic WH*. Doctoral dissertation, Queen Mary University of London.

- Reglero, Lara. (2005). Wh-in-situ constructions: Syntax and/or phonology? In John Alderete, Chung-Hye Han' and Alexei Kochetov', eds., *Proceedings of WCCFL 24*, 334–342. Somerville, MA: Cascadilla Press.
- Richards, Norvin. (2016). *Contiguity theory*. Cambridge, Mass.: The MIT Press.
- Samuels, Bridget D. (2009) *The Structure of Phonological Theory*. Doctoral dissertation, Harvard University.
- Selkirk, Elisabeth. (1974). French Liaison and The X Notation. *Linguistic Inquiry* 5, 573-590.
- Selkirk, Elisabeth. (1986) On derived domains in sentence phonology. *Phonology Yearbook* 3, 371 – 405.
- Selkirk, Elisabeth. (2011). The syntax-phonology interface. In John Goldsmith, Jason Riggle and Alan C. L. Yu (eds.), *The handbook of phonological theory, Second edition*, 435–484. Cambridge: Blackwell.
- Stepanov, Arthur, Matic Pavlič, Penka Stateva & Anne Reboul. 2018. Children's early bilingualism and musical training influence prosodic discrimination of sentences in an unknown language. *Journal of the Acoustical Society of America* 143(1). EL1-EL7.
- Szendrői, K. (2001). Focus and the syntax-phonology interface. PhD thesis, University College of London.
- Szendrői, K. (2003). A stress-based approach to the syntax of Hungarian focus. *The Linguistic Review*, 20:37-78.
- Uriagereka, Juan (1996). Aspects of the syntax of clitic placement in Western Romance. *Linguistic Inquiry* 26: 79–123.
- Vaissiere, J. (1983). Language-Independent Prosodic Features. In A. Cutler and D. R. Ladd (Eds.). *Prosody: Models and Measurements*. Berlin: Springer, 53-66.
- Wagner, Michael. (2005) *Prosody and Recursion*. MIT dissertation.
- Yasin, Ayman Rashad. (2012). *Syntax-prosody interface: evidence from wh-movement in Jordanian Arabic and Egyptian Arabic*. PhD dissertation, Purdue University.

Zubizarretta, Maria-Luisa. (1998). *Prosody, focus and word order*. Cambridge, MA: MIT press.

## Notes

\* We thank Josef Bayer, the audience at the joint University of Nova Gorica/University of Verona workshop (January 2018) and two *LI* reviewers for helpful comments and suggestions. Arthur Stepanov's research was supported by the Slovenian Research Agency (research core funding No. P6-0382). Ali Al Moussaoui acknowledges the financial support from the Slovenian Ministry of Education, Science and Sport under contract agreement No. C3330-16-500185.

<sup>1</sup> 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 a prosodic structure of the question, similarly to the *wh*-in-situ option. See also Yasin (2012).

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

<sup>3</sup> 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 possibilities of French to form phonological clusters in the absence of the option to assign lexical stress to these clusters.

<sup>4</sup> 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 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 their work). This raises an interesting issue as whether there

exists some sort of an implicational hierarchy here (e.g. 'if a language has a wh-clitic for *who*, it has one for *what* but not vice versa'), which should be explored in further work. We thank the Editors for drawing our attention to this aspect.

<sup>5</sup> 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 make-up of this wh-CIP is not quite obvious, but also not particularly relevant at this point.

<sup>6</sup> As an *LI* reviewer correctly points out, the logic of our present proposal suggests the possibility that a language could have the prosodic properties that ought to allow wh-in-situ, but 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: Chapter 6) mentions (standard) Italian as a language that ought to allow wh-in-situ on prosodic grounds but which, nevertheless, does not.

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