

# On the role of discourse and phonology in French wh-questions

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## Abstract

In this paper, we argue that the difference between French fronted wh-questions and wh-in-situ questions lies in the discourse status of the non-wh portion of the interrogative. We claim that the wh-phrase is always part of the focus of a wh-question, while the non-wh part may or may not be comprised in it depending on the form that the question takes: in-situ versus movement. In our view, French wh-in-situ questions are cases of narrow focus and fronted wh-questions are cases of broad focus (Ladd, 1980; Marandin, 2006). Our analysis is based on the idea that the principles related to information structure, such as the Stress-focus correspondence principle (Reinhart, 1995, 2006; Szendrői, 2001, 2003) not only apply to declaratives, but also to wh-questions. This is particularly visible in the syntax of French, compared to other languages such as English, because of the way French prosody works.

## 1 Introduction

The aim of this paper is to consider the alternative according to which prosodic properties are responsible for the particular licensing of wh-in-situ but also for wh-movement (*contra* Zubizarreta (1998)) in French wh-questions<sup>1</sup>. By concentrating on wh-in-situ and wh-movement at the syntax-phonology interface, the present paper is in the tradition of much recent linguistic work, since the relevance of prosodic attributes in relation to wh-in-situ and wh-movement has become prominent in the recent literature on French interrogatives (Cheng and Rooryck, 2000; Adli, 2004; Reglero, 2004; Richards, 2006). The original aspect of our proposal lies in the fact that we look at the information structure in questions and the way it interacts with prosody on the one hand, and syntax on the other. Although ‘linguists who study information structure often use questions as a way of setting the context so that it elicits a particular focus-ground

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<sup>1</sup>This paper began its life as a joint project with Eric Mathieu and I would like to thank him for his help and guidance.

partitioning in the answer few researchers have looked in the way the questions themselves are structured' (Engdahl, 2006, 93). What we are claiming in this paper is thus along the lines of what Engdahl proposes in her recent article, namely that 'the information packaging of questions, just like any utterances, reflects the information state of the speaker. (...) Different contexts require different realizations of questions. By shifting the main accent or the position of the wh-phrase, the speaker puts different questions up for discussion' (Engdahl, 2006, 109).

The details of our analysis are as follows. We argue that questions are part of the discourse and the discourse decides which elements need to be in the position that receives main stress. This process is thus not different from the cases of declarative sentences, which means that the stress-focus correspondence principle (Reinhart, 1995; Neeleman and Reinhart, 1998; Szendrői, 2001, 2003) holds in both types of questions under review: fronted wh-questions *and* wh-in-situ questions. The only difference between the two constructions is that in the former the wh-phrase is only a **part** of the constituent that bears the main stress (and consequently of the focus of the sentence) while in the latter the wh-phrase, and only the wh-phrase, is assigned the main stress. In wh-in-situ questions, the wh-phrase in-situ (and only it) is the focus of the sentence. We claim that this follows from the way the discourse is set up. A wh-in-situ question is therefore felicitous in a context where all the material that precedes the wh-phrase in-situ is contextually bound. The difference between the two types of wh-questions lies in the non-wh part of the sentence.

Our account makes the following prediction. If the wh-in-situ element receives main stress while the preceding material is necessarily destressed, any additional material that independently needs to be in a prosodically prominent position (focused elements) will not be able to surface in a wh-in-situ interrogative in French. We show that this prediction is borne out and we thus derive so-called intervention effects in French wh-questions (Mathieu, 1999; Boeckx, 2000; Pesetsky, 2000). On the assumption that all interveners are focused elements (Beck, 2006), these will not be assigned main stress if the position where main stress is assigned is occupied by a wh-phrase in-situ (more on this in Hamlaoui(in prep.)).

Section 2 gives the necessary background about prosody and focus in Hungarian and English following the work of Reinhart (1995, 2006) and Szendrői (2001, 2003). This section also introduces the mechanics behind focus and prosody in French declarative sentences, especially in answers to subject wh-questions, since this will give an insight on how the stress-focus correspondence principle applies to French more generally. Section 3 first gives background about French wh-in-situ and then provides an analysis of French wh-in situ and French wh-movement in terms of focus and prosody. Section 4 derives the well-known intervention effects exhibited in French wh- in situ constructions. Section 5 concludes the paper.

## 2 Focus and prosody

### 2.1 Stress-focus correspondence principle: Hungarian and English

It has been noticed many times in the literature that a focused constituent in a given sentence receives the most prominent stress (Chomsky, 1971; Selkirk, 1984). To illustrate, consider the Italian example in (1), the English example in (2) and the Hungarian example in (3): *Gianni*, *John* and *Tolsztoj* are focused and receive the main stress of the utterance.

- (1) a. Chi è partito / ha parlato?  
who is left / has spoken  
'**Gianni** has left/has spoken.'  
b. E partito / ha parlato **Gianni**.  
is left / has spoken Gianni  
'**Gianni** has left/ has spoken.' (Belletti, 2005)
- (2) a. Who ate the cookie?  
b. **John** ate the cookie.  
c. **John** did. (Belletti, 2005)
- (3) a. Ki írta a Háború és békét?  
who wrote Det War and Peace  
'Who wrote War and Peace?'  
b. A Háború és békét **Tolsztoj** írta.  
Det War and Peace Tolstoi wrote  
'**Tolstoi** wrote War and Peace.' (É. Kiss, 1998)

Building on work by Cinque (1993) and Reinhart (1995), Szendrői (2001, 2003) accounts for this descriptive generalization with the principle in (4).

- (4) Stress-focus correspondence principle  
The focus of a clause is a(ny) constituent containing the main stress of the intonation phrase, as determined by the stress rule. (Szendrői, 2003, 47)

More generally, Szendrői follows Selkirk (1978, 1986) and Nespor and Vogel (1986) in positing a prosodic structure inside of which linear strings are grouped into prosodic words ( $\omega$ ), phonological phrases ( $\varphi$ ) and intonation phrases (IntP). The prosodic structure is related to the syntactic structure via the following mapping rules (Szendrői, 2001, 2003).

- (5) Syntax-prosody mapping of phrases  
Align the left-edge of a syntactic phrase with the left-edge of a phonological phrase.
- (6) Syntax-prosody mapping of clauses  
a. Align all the left-edges of the largest extended projection of the verb

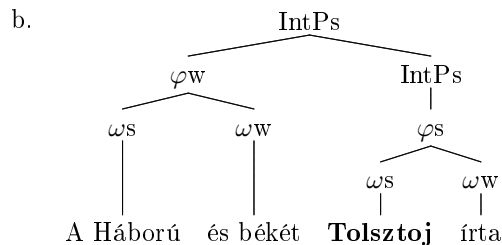
- with the left-edge of an intonation phrase.
- b. Align all the left-edges of the intonation phrase with the left-edges of the largest extended projection of the verb.
- c. Align all the right-edges of the intonation phrase with the right-edges of the largest extended projection of the verb.
- d. Align all the right-edges of the intonation phrase with the right-edges of the largest extended projection of the verb.

In Szendrői’s approach, the assignment of the main stress is located in the prosodic structure (*contra* Cinque 1993). On her view, the stress rule is formulated in a Metrical tree notation (Lieberman, 1979). Nodes are assigned Weak (W) and Strong (S) labels. The node that is only dominated by Strong labels is the one that bears the main stress. This is illustrated in the following Hungarian stress rule in (7) (Szendrői, 2003, 44).

- (7) Hungarian stress rule
- a. Assign a strong label to the leftmost prosodic word in the phonological phrase. Assign Weak to the other phonological words.
  - b. Assign a strong label to the leftmost phonological phrase in the intonation phrase. Assign Weak to the other phonological phrases.
  - c. Assign a Strong label to the Intonation phrase.

In the Hungarian ‘neutral’ utterance the verb is the constituent that occupies the left periphery of the sentence and usually receives the main stress. When a constituent is focused, it moves to the left periphery – more specifically to the left of the verb– and is assigned the main stress. In particular, this is the case for *Tolsztoj* in the example (3b) whose syntactic structure can be found in (8a) and prosodic structure in (8b).

- (8) a. [VP [DP A Háború és békét] [VP [DP **Tolsztoj**] írta]]  
 ‘**Tolstoi** wrote War and Peace.’



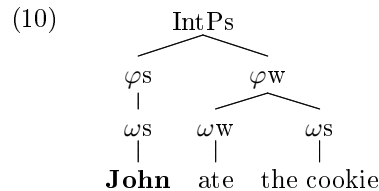
Szendrői’s main thesis is that phonology can influence syntax. Her contention is that the stress-focus correspondence principle triggers the movement of the focused constituent, here *Tolsztoj*, to the left-periphery of the sentence, and more specifically to the position where the main stress is assigned. As for the object *A Haboru és békét*, which is admitted to be the topic, it is analysed as a phonological phrase adjoined at the intonation phrase level. As a consequence,

this constituent is skipped by the main stress rule and is therefore extrametrical on the level of the intonation phrase.

Although Hungarian uses the movement strategy to satisfy the stress-focus correspondence principle, other languages have different means to satisfy it (Reinhart, 1995; Neeleman and Reinhart, 1998; Szendrői, 2001, 2003). English, for example, uses another strategy, which does not involve movement of the focused constituent to the position where the main stress is assigned. Instead, in English it is the main stress that moves to the position where the focused constituent surfaces. Neeleman and Reinhart (1998) account for this fact with the following strengthening rule, reformulated by Reinhart (2006, 151) in Szendrői’s terms:

- (9) Main-stress shift (metrical tree version)  
Assign S to a node  $\alpha$  and every node dominating  $\alpha$ .

English is described as a rightward oriented language with respect to the main stress. As illustrated in the following metrical tree in (10), in English the utterance containing a focused constituent, here *John*, is syntactically identical to the neutral utterance.



However, (10) is distinct from the neutral utterance in that the main stress is shifted from the right-edge of the sentence, *the cookie*, to the left-edge of the sentence, i.e. *John*.

## 2.2 French subject focusing

Let us now turn to French, a language not discussed by Reinhart (1995), Neeleman and Reinhart (1998) or Szendrői (2001, 2003). The reason why we introduce French subject focusing in this section is because it illustrates the way the Stress-focus correspondence principle extends to French.

As noted by Belletti (2005, 2006), the most natural way to focus the subject in French is by means of a cleft sentence.

- (11) a. Qui est-ce qui mange un biscuit?  
Who is-it that eats a cookie  
'Who is eating a cookie?'
- b. C'est **Ella** (qui mange un biscuit).  
It-is Ella that eats a cookie.  
'It is **Ella** (that is eating a cookie).'

When it is used as the answer to a wh-question, the cleft sentence can either

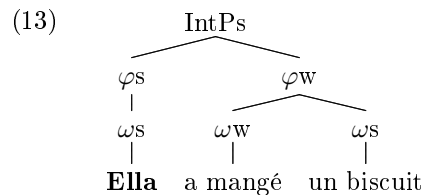
appear in a full form (matrix clause *C'est* XP + relative clause *que/ qui* YP) or in a reduced one (matrix clause *C'est* XP).

Hamlaoui (2007) assumes Clech-Darbon et al. (1999)'s syntactic account of French cleft sentences and maintains that the use of cleft sentences in French follows from the stress-focus correspondence principle. French is similar to English in that main stress is assigned to the right-edge of the sentence. However, these languages are distinct in that where English uses stress-shifting as a repair strategy (Reinhart, 2006, 155) to focus the subject of a clause, French uses a cleft sentence.

The following stress rule, based on Szendrői's stress rule for English and Italian, applies to French.

- (12) French stress rule
- a. Assign a strong label to the rightmost prosodic word in the phonological phrase. Assign Weak to the other phonological words.
  - b. Assign a strong label to the rightmost phonological phrase in the intonation phrase. Assign Weak to the other phonological phrases.
  - c. Assign a Strong label to the intonation phrase.

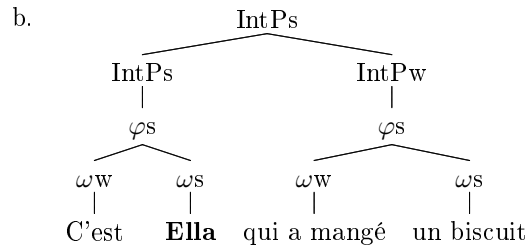
As in English, the right-edge of a syntactic phrase in French is aligned with the right-edge of a phonological phrase. French is nevertheless distinct from English in that the main-stress shift rule in (9) derives a marked structure (Reinhart, 1995) when applied to French. The structure represented in the metrical tree in (13) is not the preferred way to reach the interface needs related to stress and focus.



The odd status of (13) as an answer to a question such as *Qui est-ce qui a mangé un biscuit?* ('Who ate ate a cookie?') or *C'est qui qui a mangé un biscuit?* ('Who is it that ate a cookie?') indicates that relocating the stress on the subject is a costly operation in French. From that point of view, French is thus similar to Hungarian. In both languages, the stress-focus correspondence principle has a visible effect in the syntax. In the case of French, however, the focused constituent is directly merged in the position where main stress is assigned. At the syntactic level (Clech-Darbon et al., 1999), the focus is the complement of the identificational TP *C'est*. As for the relative clause, it is adjoined to the identificational TP. This is illustrated in (14) below. The prosodic structure in (14b), from Hamlaoui (2007, 5), maps the most extended projection of each verb, here TPs, into intonation phrases (see also Doetjes et al. 2005). The main stress rule normally applies in each of these intonation

phrases. The post-focal part of the sentence, the relative clause *qui a mangé un biscuit* adjoins to the intonation phrase *C'est Ella* and is therefore extrametrical on the level of the highest intonation phrase. The main stress of the sentence consequently falls on the right-edge of the matrix clause. The right-edge of the relative clause bears a secondary stress. This treatment of the relative clause is in the same line as the treatment of topics advocated by Truckenbrodt (1999) and Szendrői (2003).

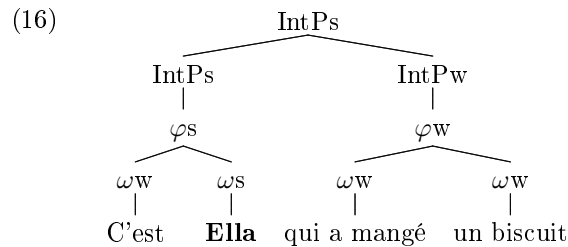
- (14) a. [TP [TP [DP C' [T est [VP <être> [DP **Ella**]]]]] [CP Op [C qui [TP <Op> [T a [VP [v mangé [DP un biscuit]]]]]]]]  
 'It is **Ella** that ate a cookie.'



As mentioned above, when a cleft sentence is used as an answer to a wh-question, the relative clause is optional. This is a consequence of its status at the level of discourse. The relative is contextually bound, as the material appearing in it is a part of the wh-question. It does not need to be pronounced for the answer to be felicitous. When it is pronounced, its intonation is usually described as 'flat'. This is an effect of the application of the following rule on the relative clause.

- (15) Destressing (Reinhart, 2006, 153)  
 Apply W to an anaphoric node.

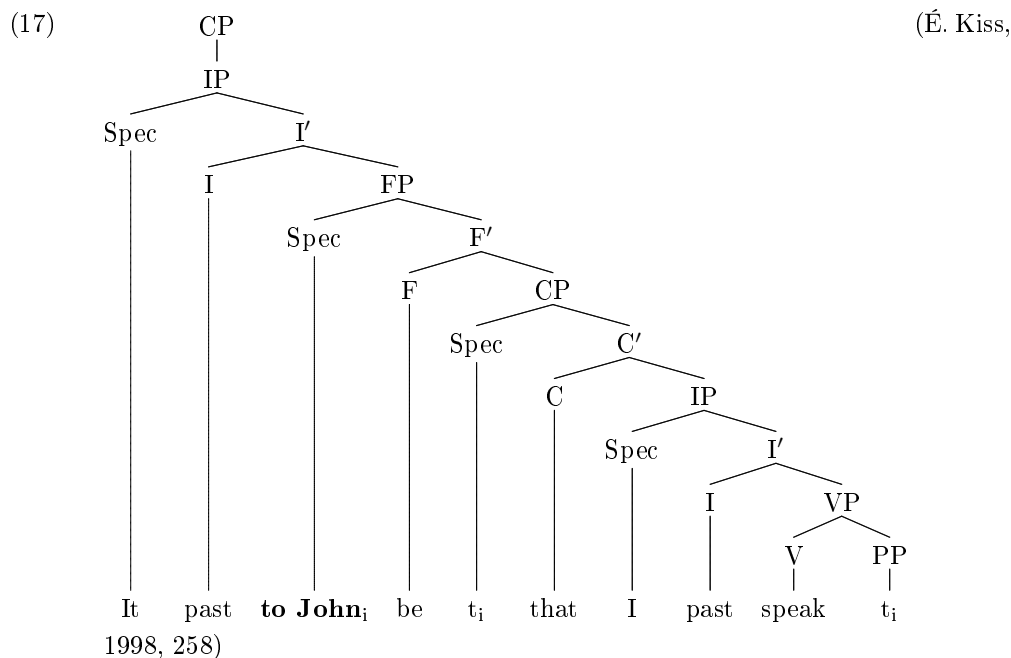
The rule in (15) yields the following structure (16), corresponding to the example (11b).



The advantage of the present proposal is that it is consistent with Reinhart's claim that the computational system always assigns the stress in a consistent manner. To quote Reinhart (2006, 161): 'The analysis is based on the assumption that the computational system always assigns main stress in the same way.'

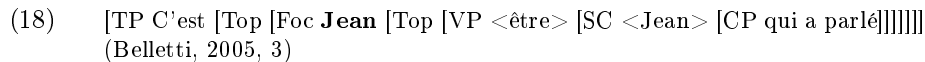
The stress is referred to as ‘neutral’ or ‘default’ stress’. There is thus no motivation for so-called cartographic approaches (following Rizzi 1997) according to which the constituent needs to move to a dedicated syntactic focus position in order for the focused element to receive main stress. Syntactic theories of focus that are purely syntactic are thus misguided.

An example where syntax is solely responsible for the licensing of cleft sentences comes from the work of É. Kiss (1998). She proposes a structure such as (17) to account for cleft sentences in relation to English.



This analysis, when extended to French, predicts that the element that receives main stress in (11b) is *Ella* because it occupies the Spec-FP position. However, the prosodic structure assigns main stress to the rightmost constituent which, in this structure, would correspond to the constituent *un biscuit* in (11b). Unless we postulate a special rule that does not assign the stress to the most-embedded constituent of the structure, there is a mismatch between the way French grammar assigns main stress and the type of syntactic structure in (17).

If we now follow Belletti (2005, 3)’s account for French, the syntactic structure of a cleft is the one in (18) where the most embedded constituent is the verb of the relative clause.



On this view, the rule in (12) predicts that in our example (11b), the main stress falls on the object and not on the position occupied by the focused constituent *Ella*. Although it is possible on such a view for *Ella* to receive main stress, it is



at a cost. This is because a specific phonological rule needs to be postulated for each syntactic construction: one for the declarative non-cleft sentence and one for its cleft counterpart. It is, however, more economical to have a system such as the one proposed in this paper, since on our account no additional phonological rule need be postulated. Belletti’s account for French cleft sentence relies on the idea that this construction is the counterpart of the VS order in Italian.

- (19) E partito / ha parlato Gianni  
 Is gone / has spoken Gianni  
 ‘C’est **Gianni** qui est parti/a parlé.’ (Belletti, 2005, 1)

Although we think that this idea is a welcome insight, we claim that the only thing that the French cleft and the VS construction in Italian have in common is the fact that they both aim at satisfying the stress-focus correspondence principle by locating the focused constituent in the position where main stress falls. It is not necessary to postulate a common syntactic structure for the cleft construction in French and VS order in Italian. Stress assignment is derived independently from the syntactic structure.

### 3 French wh-questions

In this section, we turn to the core hypothesis presented in this paper, namely that the structure of wh-questions in French follows directly from the prosodic properties of this language. Section 3.1. introduces the background needed while section 3.2. introduces the analysis proper. Section 3.3. focuses on the fact that the two types of wh-questions are non-ambiguous with respect to discourse: one is only associated with a broad focus interpretation (fronted wh-question) and the other (wh-in-situ question) with a narrow focus on the wh-phrase.

#### 3.1 Optionality of movement and related issues

As is well-known, when it comes to wh-questions, French allows both wh-movement (20a) and wh-in-situ (20b).

- (20) a. Qu’est-ce qu’il a bu?  
 what-is-this that-he has drunk  
 ‘What did it drink?’  
 b. Il a bu quoi?  
 he has drunk what  
 ‘What did it drink?’

Aoun et al. (1981) and Lasnik and Saito (1992) account for the apparent optionality of French wh-movement by suggesting that French has a ‘mixed’ system with regard to the formation of wh-interrogatives. On the one hand, it is like English in that wh-phrases raise to the left periphery of the clause. On the other, it is like Chinese in that wh-phrases remain in-situ.

Building upon the analysis of Chang (1997), several accounts have been developed over the years concluding that the two versions of the *wh*-questions are not in fact equivalent from a semantic perspective, i.e. they are not associated with the same presuppositions. On this view, French *wh*-movement is not optional: it is conditioned by semantic considerations.

Following Mathieu (2004), we claim that there is in fact no difference in presuppositional force between (20a) and (20b). Either question can receive a negative answer (*rien* = ‘nothing’). Therefore, it must be the case that movement is not triggered by semantico-pragmatic factors related to anti-presuppositions. In order to receive a presuppositional interpretation a *wh*-phrase needs to be part of a cleft. This is because cleft sentences in general are associated with presuppositions. For example, if a *wh*-word is embedded in a cleft as in (21a) and (21b), a presupposition is entailed. It is presupposed that the person discussed ‘drank something’ in (21a) and that ‘someone came’ in (21b). We ask these types of questions because we want to know ‘what it is that he drank?’ for (21a) and ‘who it is that came’ for (21b).

- (21) a. C’est quoi qu’il a bu?  
 it-is what that-he has drunk  
 ‘What is it that he drank?’  
 b. C’est qui qui est venu?  
 it-is who that is come  
 ‘Who is it that came?’

Since a presupposition is associated with these constructions, it is therefore impossible to answer (21a) with *rien* ‘nothing’ or answer (21b) with *personne* ‘nobody’. These facts show that *wh*-questions of the kind found in (20b) and those found in (21) are rather different and that French *wh*-in-situ questions are not disguised clefts (*contra* Boeckx 1999). This is because a negative answer to a question such as (20b) *rien* ‘nothing’ is perfectly acceptable for most, if not all, speakers of French.

A well-known test (Zubizarreta, 2003) that can be used to show the different exhaustivity status of a cleft sentence and a *wh*-in-situ question comes from examples involving *par exemple* ‘for example’. Only cleft questions resist markers of nonexhaustivity such as *par exemple* as the following data show.

- (22) a. Qui est-ce que Claude a appelé, par exemple?  
 who is-this that Claude has called for example  
 ‘Who did Claude call, for example?’  
 b. Et Claude, elle a appelé qui, par exemple?  
 and Claude, she has called who for example  
 ‘And Claude who did she call, for example?’  
 c. #C’est qui que Claude a appelé, par exemple?  
 it-is who that Claude has called for example  
 ‘Who is it that Claude called, for example?’

One possible explanation for the fact that exhaustivity is associated with the question in (22c), but not with the one in (22b) is related to the semantics of the identificational *c'est* ‘that is’ in this cleft type of construction and not to the wh-word itself or to the position it occupies.

Despite the fact that they do not share presuppositions, the constructions in (20b) and (21) nevertheless have something important in common: the fact that the wh-phrase is merged in the position where the main stress of the sentence is assigned. In wh-in situ questions as well as in wh-cleft interrogatives, a large part of the sentence does not belong to the constituent that receives the main stress of the sentence. We return to these important considerations below.

Cheng and Rooryck (2000), who also take it that wh-in-situ questions are associated with a presupposition, assert that French wh-in-situ questions exhibit a special (rising) intonation, similar to the intonation of yes/no questions in the same language. In particular, these authors argue that French wh-in-situ is licensed by an intonation morpheme (see also Boeckx 1999 and Starke 2001). They claim that if the intonation of the wh-in-situ question is changed for the one of the fronted wh-question, the wh-in-situ question becomes ungrammatical. However, several works related to French prosody (Adli, 2004; Beyssade et al., 2007) show that there is no obligatory rising intonation associated with the wh-phrase in-situ illustrated in (20b). There is thus no serious empirical reason to posit the existence of an intonation morpheme in this structure.

### 3.2 French wh-questions and the syntax-phonology interface

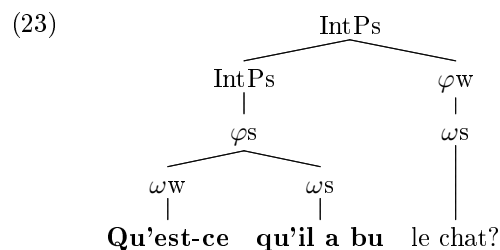
We defend the thesis according to which the principles related to information structure and prosody that apply to declarative sentences apply to wh-questions as well. The analysis we propose is based on the idea that the stress-focus correspondence principle (Reinhart, 1995; Szendrői, 2003), which states that the focus of a clause is the constituent bearing the main stress of the intonation phrase, applies across the board, i.e. not only in declaratives, but also in questions. We maintain that wh-words belong to a class of elements that are inherently focused: if they do not receive the main stress of the sentence, they at least have to be contained in the constituent that receives it. Questions belong to the discourse as much as the answers they elicit and the position of the wh-phrase in French questions is only a syntactic reflex of that fact.

It has been claimed many times in the literature on focus that wh-words are like focused elements in that they constitute the nonpresupposed part of the sentence (Zubizarreta, 1998) or that they (semantically) introduce a set of alternatives (Rooth, 1992; Beck, 2006). In relation to this claim, wh-words and focused constituents have often been argued to occupy the same syntactic focus position (Ortiz de Urbina 1989 for Basque, Jayaseelan 2001 for Malayalam among others). While an important part of the literature concentrates on the properties of the wh-word itself (Mathieu, 2004), we depart from this view by concentrating on the discursive status of the remaining part of a wh-question, i.e.

the non-wh part of the sentence, and its need or impossibility to be prosodically prominent.

In our analysis, there is no morphological difference between wh-in-situ and fronted wh-questions. The only difference between the two constructions is that in the fronted wh-question, the wh-phrase is part of the constituent that bears the main stress while in the wh-in-situ, the wh-phrase, and only the wh-phrase, is assigned the main stress. In other words, the difference between the two types of questions is not tied to the wh-word itself, which is always (part of) the focus of the sentence, but to the status of the remaining of the sentence with respect to the discourse the question appears in.

Fronted wh-questions are cases of broad focus (Ladd, 1980; Marandin, 2006). To use Halliday (1967)'s words, we contend that in a fronted-wh question, the non-wh part of the sentence is '(...) new information; not in the sense that it cannot have been mentioned previously, although it is often the case that it has not been, but in the sense that the speaker presents it as not being recoverable from the preceding discourse'. The whole content of the fronted-wh question is 'represented by the speaker as being new, textually (and situationally) non-derivable information'.



In the fronted wh-question (23), the right-edge of the VP is aligned with an intonation phrase. The verb being at the right edge of this phrase, it is merged in a prosodically prominent position. It gets the main stress of the utterance and projects it in order for the wh-phrase to satisfy the stress-focus correspondence principle (Selkirk 1984; Kenesei 1998 on projection of focus). The IntP to which the stress rule applies maps to the CP *Qu'est-ce qu'il a bu*. We follow Vicente 2005's definition of IntP, i.e. the intonation phrase that is constituted by the material contained within the projection of the highest phonologically realised head of any given CP.

Both wh-in-situ and clefted wh-questions have in common the property of being cases of narrow focus on the wh-phrase. The difference between them is that while wh-cleft sentences contain genuine presupposed information (in the relative clause), wh-in-situ questions contain information that is recoverable from the context, as shown by the following dialogue from Chang (1997):

- (24) A: C'est l'anniversaire de Pierre la semaine prochaine.  
 It-is the-birthday of Pierre the week next  
 'It is Pierre's birthday next week.'

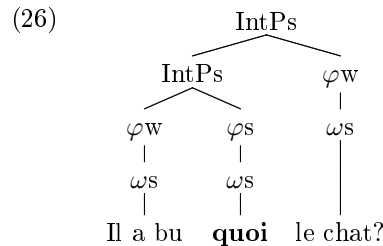
B: Et tu vas lui acheter quoi?  
 And you will for-him buy what  
 ‘And what will you buy for him?’

The sentence uttered by A concerning ‘Pierre’s birthday’ does not semantically presuppose the ‘buying of a gift’. Simply, B’s knowledge of the world is such that when it is someone’s birthday, people usually buy a gift. *Acheter* is thus already part of the context. It does not need to be focused and occupy a position that would be assigned main stress, such as in a fronted wh-question.

The characteristic property of the non-wh part of wh-in-situ questions is that it is not prosodically prominent. Several phonological and syntactic processes may enter into play to ensure this result. The absence of movement of the wh-phrase is only one of them.

- (25) a. Jean a fait quoi?  
 Jean has done what  
 ‘What did Jean do?’  
 b. Il a fait quoi, Jean?  
 he has done what Jean  
 ‘What did Jean do?’

At the syntactic level, dislocating full DPs toward the right-periphery and using intrinsincally destressed material such as anaphoric pronouns contributes to the lack of prosodic prominence of the non-wh part of this type of wh-questions. This is illustrated in the following metrical tree in (26). Plunkett (p.c.), observed that in her data only 0,25% of in-situ questions had lexical subjects (only 4/1572 non-subject questions). This is consistent with our account of wh-in situ questions and our view that (25a) is a marked wh-in-situ question and that (25b) is more natural.



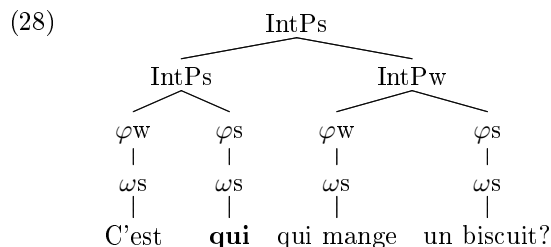
In the metrical tree (26), only one prosodic word precedes the wh-phrase and it is directly merged in a Weak position: it gets a Weak label by the stress assignment rule (12). The right-dislocated element is not targeting a dedicated syntactic position in the syntactic tree (as in the cartographic framework, cf. Cechetto 1999). Rather, the right-dislocated element is an adjunct: therefore, it is extrametrical.

At the phonological level, it may be the case that the destressing rule in (15), repeated below for convenience, applies to elements larger than DPs, as

not only DPs can be anaphoric (in the sense of discourse-linked or contextually bound). We pursue the idea that this is particularly the case in long-distance wh-in-situ questions and questions containing material that independently needs to be prosodically prominent (see section 4).

- (27) Destressing  
Apply W to an anaphoric node. (Reinhart, 2006, 153)

In the case of wh-cleft questions, the wh-phrase appears at the right edge of the intonation phrase taken into account for the application of the main stress rule, i.e. [IntP C'est qui]. The part of the sentence expressing the presupposed information is contained in an IntP which is adjoined to [IntP C'est qui], resulting in its extrametrical status on the level of the highest IntP.



Wh-cleft questions have the same prosodic structure as the cleft sentence in (14b): the main stress rule independently applies in each intonation phrase, marking the rightmost constituent of each of them with the main stress of the clause. However, at the level of the highest intonation phrase, the relative clause is skipped by the main stress rule and the main stress of the sentence falls on the interrogative *qui*. Although stressed, the presupposed information appearing in the relative clause is not part of the constituent that gets the main stress of the sentence.

The distinction found in French between wh-in-situ questions and fronted wh-questions also exists in English but it is less visible to purely syntactic accounts since it is expressed in the phonological structure by the position of the main stress (in another framework, see Lambrecht and Michaelis 1998). We saw that in a declarative sentence, English is able to relocate the main stress of the utterance. This is the case when the subject is focused (cf. (2b)). Considering previous (purely syntactic) accounts of wh-questions, it seemed unnatural that some languages like French have two variants while others, like English, only have one type of wh-questions, where the wh-phrase is systematically fronted.

Engdahl (2006, 101) mentions that initial wh-phrases in English are normally not accented but that, in certain uses, it is possible to accent them. She claims that ‘speakers may modify questions in subtle ways to make them fit in with the current stage of the conversation’.

As a way of illustration, consider the dialogue in (29) from Engdahl (2006, 101).

*A, B and C have been discussing a possible trip to Edinburgh. B and C are*

*side tracked.*

- (29) A: So WHEN are we going to Edinburgh?  
A1: #So, when are we going to EDINBURGH?

When A stresses the initial *when*, she conveys that the issue she is introducing is one that has already been raised in the conversation.

### 3.3 Economy

An important observation about the French wh-in-situ construction is that the main stress cannot project to the whole IntP to which the wh-phrase belongs. This may appear, at first, quite unusual since it is often claimed in the literature that the main stress in its neutral position can always project and that only shifted stress is unable to do it (Reinhart, 2006). For example, the projection of focus is perfectly acceptable in the case of declarative sentences, as illustrated in (30).

- (30) Il a bu du lait.  
He has drunk PART milk  
'He drank some milk'

The sentence in (30), with the main accent on *lait* 'milk' is a perfect answer to either (31a) or (31b).

- (31) a. Qu'est-ce qu'il a fait?  
what-is-this that-he has done  
'What did he do?'  
b. Qu'est-ce qu'il a bu?  
what-is-this that-he has drunk  
'What did he drink?'

This shows that the same form can be associated with two different meanings at the level of discourse: narrow or broad focus.

Wh-in-situ questions and fronted wh-questions have the same semantics, but they differ at the level of discourse: one has a broad focus (fronted wh-question) while the other has a narrow focus (wh-in-situ question). The existence of the fronted-wh version blocks the existence of a wh-in-situ one associated with broad focus (viae focus projection). There are two forms and only one meaning associated to each of them, while in the case of (30) there is only one ambiguous form.

This closes section 3. In this section, we showed that French wh-in-situ corresponds to a particular discourse setting while the wh-movement variant corresponds to another. These different discourse settings each correspond to a particular prosodic configuration, which is due to the general way prosody works in French. In the next section, we show that the well-known intervention effects exhibited in French wh-in-situ constructions can be derived from the analysis we just set up in section 3.

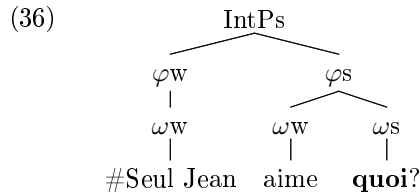
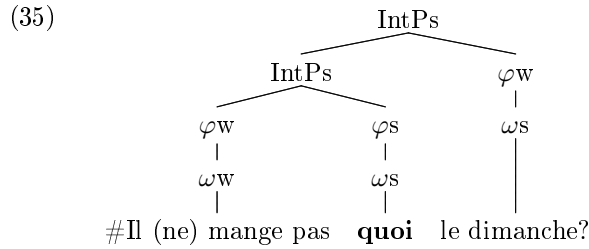
## 4 Intervention effects revisited

In the remaining section of this article, we would like to show that our account makes the following prediction. If the wh-in-situ element receives main stress while the preceding material is necessarily destressed, any material that independently needs to be in a prosodically prominent position will not be able to surface in a French wh-in-situ interrogative. Take the following examples as illustration. In (32a), *quoi* receives main stress, and the material preceding the wh-word, i.e. *seul Jean aime* appears in a position that is prosodically non prominent. This explains why the question is ungrammatical: *seul Jean* ‘only Jean’ is not contained in the scope of the projected main stress. Recall that a wh-in-situ element does not allow for projection of focus. We assume that *pas* ‘not’ in (33a) and *souvent* ‘often’ in (34a) are focused elements. Like the case of *seul* ‘only’, they need to be part of the domain in the question where main stress is assigned.

- (32) a. #Seul Jean aime quoi?  
only Jean likes what  
‘What does only Jean like?’  
b. Qu’est-ce que seul Jean aime?  
what-is-this that only Jean likes  
‘What does only Jean like?’
- (33) a. #Il ne mange pas quoi?  
he NE eats not what  
‘What doesn’t he eat?’  
b. Qu’est-ce qu’il ne mange pas?  
what-is-this that-he NE eats not  
‘What doesn’t he eat?’
- (34) a. #Il fait souvent quoi le dimanche?  
he makes often what the Sunday  
‘What does he often do on Sundays?’  
b. Qu’est-ce qu’il fait souvent le dimanche?  
what-this-is that-he makes often the Sunday  
‘What does he often do on Sundays?’

We thus derive the famous intervention effects data in French (a.o. Boeckx (2000); Zubizarreta (2003); Zubizarreta and Vergnaud (2005)). The destressing rule systematically applies to the material preceding the wh-in-situ, changing all the S labels into W. This is illustrated in (35) and (36).





The idea that interveners are focused elements is not new (Kim, 2002; Zubizarreta, 2003; Beck, 2006). However, on many accounts, the intervention effects are derived either in the syntax (via incompatibility of features) or in the semantics (Beck 2006, 1, ‘an intervention effect occurs whenever a focus sensitive operator other than the question operator tries to evaluate a constituent other than the wh-phrase’). Beck (2006, 3) gives the following list of focusing and quantificational elements that give rise to intervention effects across languages. Many of these elements have been shown to be associated with focus (Rooth, 1992; Krifka, 1995).

- (37) Interveners  
 Only, even, also, not, (almost) every, no, most, few (and other nominal quantifiers), always, often, never (and other adverbial quantifiers).

We propose to derive the effects from independently known principles belonging to the prosodic structure. Considering that the wh-in-situ does not project focus, fronting the wh-phrase is the most economical way to ensure that the wh-phrase together as well as the intervener are part of the constituent that gets main stress. The availability of the fronted-wh question in the grammar blocks (32a), (33a) and (34a).

From the perspective of Reinhart’s approach, the marked candidate in French wh-questions seems to be the wh-in-situ version of the question. Although there is no shifting of the main stress, the focus does not project in this type of wh-question. In this approach, the data in (32a), (33a), (34a) are not the best candidates to satisfy the interface need related to stress and focus. In order to satisfy the stress-focus correspondence principle, they would involve an extra operation of stressing which is more costly than moving the wh-phrase.

## 5 Conclusion

This paper has shown that wh-in-situ and wh-movement questions in French are distinct with respect to their prosodic structure and are used in different discourse contexts. The difference between these two types of questions crucially lies in the non wh-part of the sentence and its status at the level of discourse. Wh-movement questions are cases of broad focus: the wh-phrase as well as the non-wh part of the question are prosodically prominent, whereas the wh-in-situ questions are cases of narrow focus on the wh-phrase.

We argued that the Stress-Focus Correspondence Principle applies not only to declaratives, but also to questions. In French, the main stress is assigned at the right edge of the clause. In the case of the wh-in-situ, the wh-phrase occupies this position and the focus projection to the non-wh part of the sentence is blocked.

We showed that what is visible in French at the level of syntax is what is visible at the level of prosody in English. In English, the wh-phrase always occupies a syntactic position in the left-periphery of the sentence and it is the main stress that surfaces in distinct positions.

We derived the well-known intervention effects exhibited in French wh-questions from the theory we put forward for French wh-questions. Although there are undoubtedly many issues to be resolved, we believe that the approach to French wh-questions introduced in this paper explains many mysterious properties associated with these constructions. The discourse approach to questions is only in its infancy, but we hope to have provided a step forward in the direction of a fully blown and comprehensive theory of discourse functions in the interrogative domain, one that will hopefully apply not only to French, but to many other languages.

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