A prosodic study of wh-questions in French natural discourse

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Abstract

This paper concentrates on constituent questions in French, a language that exhibits both fronted and in situ wh-phrases. It reports the results of the study of a corpus of constituent questions produced by a female reporter who consistently uses the “non-standard” (and non-radiophonic) variety of this language during around 30 field interviews led between 2005 and 2009. The first part of the paper concentrates on the linguistic factors influencing the choice of wh-structure. The results tend to indicate that the End-Weight principle is not a strong factor favoring the choice of the wh-in situ structure, contrary to what was previously observed by Coveney (1995). They also tend to indicate that the End-Focus principle plays an important role in favoring wh-in situ structures. The second part of the paper presents the results of an acoustic investigation of a subset of the data in terms of absolute duration, articulation rate and pitch profile. The results tend to confirm that the wh-phrase can only be said to be prosodically prominent when it occurs in situ.

1 Introduction

When it comes to wh-questions in languages such as English, German or French, one long standing puzzle is the lack of systematic correspondence between the wh-phrase, which is usually considered to be the focus of the sentence, and sentence stress (Ladd 1996/2008, Hedberg & Sosa 2002). This fact has led researchers to more or less implicitly assume that wh-questions are not subject to the same (pragmatic) contextual appropriateness requirement as declaratives (among others Tomioka 2007). The path taken in recent prosodic studies of French wh-questions is that their prosody is a reflex of some semantic aspects of the question or the wh-phrase. Beyssade et al. (2007) argue that Standard French wh-questions’ intonation is consistent with their partition of the semantic content into a function and a restriction, and according to Baunaz & Patin (2009), the wh-phrase's intonation reflects its non-presuppositional, partitive or specific status.

Conversely, Hamlaoui (2009) concentrates on wh-questions' prosodic structure and argues that in Francilian French, the dialect spoken in the Paris metropolitan area, the constraints related to prosody and information structure that are effective in declaratives are also effective in wh-questions: the wh-phrase is treated as an 'information' focus in that it only carries sentence stress when the non-wh portion consists of items that are given and should consequently be destressed. One of the specificities of this language is that the strong requirement for sentence stress to be kept rightmost is responsible for the absence of wh-fronting when the wh-phrase is the only item that can carry sentence stress. The aim of the present study is to test this hypothesis using a homogenous corpus of spoken French.

The structure of this article is as follows: section 2 offers a presentation of the corpus, section 3 concentrates on the linguistic factors influencing the choice of wh-structure as well

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1 I am grateful to Annie Rialland for encouraging me to work on a corpus. I would like to thank Cédric Gendrot for helpful discussion, Sarah Grafton and Pascale Pascariello. Many thanks also go to three anonymous referees whose comments helped improving this paper. All errors are my own.
as on the acoustic characteristics of a subset of wh-questions in terms of duration (absolute duration and relative articulation rate) and pitch. Section 4 concludes the paper.

2 The Là-bas corpus

2.1 Natural discourse

The present study is based on a corpus of 222 constituent questions. These questions constitute all the genuine requests for information produced between 2005 and 2009 by one of the reporters of the France Inter radio show Là-bas si j'y suis, who consistently uses the variety of French called “spoken”, “informal”, “non-standard” or “demotic” French (Massot 2008, Zribi-Hertz 2006 and references therein). This dialect is the one learnt on “one's mother's lap”, on playgrounds and in sandboxes and is the one used in most French speakers' everyday life. It is usually spoken and written in non-monitored contexts. One of the trademarks of the radio show in question is that it aims to provide a different perspective on current social, political or economic events. Its atypical nature is likely partly responsible for the fact that the reporter, a woman in her late twenties/early thirties does not generally activate her Standard French grammar when interacting with her interviewees, contrary to a current practice among reporters on the French radio. Most importantly, all interviews consist of non-read and non-media spontaneous speech, the data are not influenced by the presence of an investigator and all wh-questions come with their context.

2.2 Basic quantitative facts

Table 1 displays the different types of wh-questions found in the Là-bas corpus.

<table>
<thead>
<tr>
<th>Position</th>
<th>Quoi what</th>
<th>Combien (de N) how much/many of N</th>
<th>Comment how</th>
<th>Quel(le(s)) which</th>
<th>Pourquoi why</th>
<th>Où where</th>
<th>Qui who</th>
<th>Quand when</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fronted (71)</td>
<td>19</td>
<td>5</td>
<td>20</td>
<td>3</td>
<td>22</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>In situ (105)</td>
<td>36</td>
<td>22</td>
<td>11</td>
<td>22</td>
<td>0</td>
<td>10</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Other (46)</td>
<td>20</td>
<td>16</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total (222)</td>
<td>75</td>
<td>43</td>
<td>31</td>
<td>32</td>
<td>22</td>
<td>10</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

The category “Other” groups together wh-questions that can neither be categorized as exhibiting an “In situ” nor a “Fronted” wh-phrase, namely cleft wh-questions such as the one in (1), specificalional wh-questions such as the one in (2) and combien-questions of the type in (3).

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2 Some of its grammatical properties may vary depending on the speaker's social and geographic background.
3 Although the interviews are (later) broadcasted on the radio, the interviewer does not use a “radiophonic speaking style”. On the specificities of this speaking style, see Goldman et al. (2007).
Mais alors c'est quoi qui est nouveau maintenant?
But then it is what that is new now
'But then what is it that is new now?'

C'était quoi cette odeur?
It was what this smell
'What was this smell?'

Ca fait combien de temps que vous êtes dans la police?
It makes how much of time that you are in the police
'How long have you been in the police?'

The category “Other” also contains wh-questions whose wh-phrase in situ could not be
fronted without causing the ungrammaticality of the resulting structure. The following
sentence illustrates this type of wh-questions:

Vous êtes prof de quoi?
You are professor of what
'What do you teach?'

It also contains fronted wh-questions which do not have an in situ counterpart, such as subject
wh-questions of the type illustrated below.

Qu'est-ce qui vous dérange?
What is it that you bothers
'What bothers you?'

In the Lâ-bas corpus, wh-questions with a wh-phrase left in situ are in the majority, as they
correspond to 47.3% of the data. Fronted wh-questions represent 32% of the data and only
22% when the 22 pourquoi-questions are excluded, as pourquoi (“why”) cannot occur in situ.

Although the Lâ-bas corpus is so far smaller than most of the corpora used in sociolinguistic studies of French wh-questions (see Coveney 1995 and references therein), it
contains almost as many in situ wh-questions as the corpus used in Coveney (1995) and I
believe that it does provides a valuable overview of the investigated dialect. When compared
with a corpus of similar size, it tends to confirm the idea that the use of in situ wh-questions is
on the increase, as Ashby's (1977) corpus only exhibits 38.8% (N = 85) of in situ wh-
questions.

3 Analysis

3.1 Distribution of fronted/in situ wh-questions according to various linguistic factors

In his study of French wh-questions, Coveney (1995) focuses on the possible factors affecting
the choice of interrogative structure. Among the four hypotheses that he proposes to test
based on a corpus of 845 wh-questions from the York Child Language Survey corpus
(henceforth YCLS corpus), I will only concentrate on the following two:

4 Subject cleft wh-questions can be considered to be the in situ counterpart of subject fronted wh-questions but
due to lack of space, this topic will not be discussed here (see Hamlaoui 2008 for a recent account of French
clefts).
- Hypothesis 1: “(...) in accordance with the principle of End-Weight, the longer the QU element [the interrogative pronoun], the greater will be the tendency to use SVQ [a question with an interrogative pronoun in the corresponding argument/adjunct position] rather than a QU-fronted structure.”

- Hypothesis 2: “(...) in accordance with the principle End-Focus, the less informative the SVC part of the interrogative [“the non-wh portion” of the question], the greater will be the tendency to use SVQ.”

Testing these two hypotheses will also permit to give a global overview of the data.

The following table displays the results regarding the choice of structure with respect to the length of the wh-phrase.

**Table 2: Relative frequency of fronted/in situ questions according to length of Wh-phrase**

<table>
<thead>
<tr>
<th>Length of wh-phrase (in syllables)</th>
<th>In situ wh-phrase (“SVQ”)</th>
<th>Fronted wh-phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>40</td>
<td>67.8</td>
</tr>
<tr>
<td>2</td>
<td>38</td>
<td>60.3</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
<td>90</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>50</td>
</tr>
<tr>
<td>All</td>
<td>105</td>
<td>47.3</td>
</tr>
</tbody>
</table>

Contrary to what is observed by Coveney in his data from the YCLS corpus, the present data do not allow to conclude that monosyllabic wh-phrases disfavor the use of the wh-in situ structure, as in 67.8% of the cases in which a wh-phrase is monosyllabic it appears in situ. The categories 3, 4 and 5 syllables contain few tokens and therefore do not allow strong conclusions. However, one can note that the longest wh-phrases (5 syllables) are equitably distributed over the two types of wh-questions. In the present corpus, the tendency to use SVQ is thus not greater for the longest wh-phrases. The 3 fronted wh-questions in which the wh-phrase is made of 5 syllables are given in (6).

(6) a. Dans quelles conditions on peut porter ces colliers?
   *In which conditions can one wear these necklaces?*

b. Combien de plans sociaux vous avez dû faire?
   *How many planned redundancy schemes have you had to manage?*

c. En cinq ans, vous, combien de plans sociaux vous avez fait?
   *In five years, how many planned redundancy schemes have you managed?*

In these 3 sentences, the SVC is either longer than the wh-phrase ((6a)), the same length as the wh-phrase ((6b)) or shorter than the wh-phrase ((6c)). Long wh-phrases can thus be fronted even when they are the same length as or longer than the SVC. This seems to also cast some doubt on the idea that the principle of End-Weight is a strong factor affecting the choice of interrogative structure.

The following table shows the results regarding the choice of wh-structure according to the length of the non-wh portion (“SVC”).
Table 3: Relative frequency of fronted/in situ questions according to length of SVC

<table>
<thead>
<tr>
<th>Length of SVC (in syllables)</th>
<th>In situ wh-phrase (“SVQ”)</th>
<th>Fronted wh-phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>1 ≤ n ≤ 3</td>
<td>66</td>
<td>85.7</td>
</tr>
<tr>
<td>4 ≤ n ≤ 6</td>
<td>29</td>
<td>61.7</td>
</tr>
<tr>
<td>7 ≤ n ≤ 9</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>10 ≤ n ≤ 12</td>
<td>2</td>
<td>28.6</td>
</tr>
<tr>
<td>13 ≤ n</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>All</td>
<td>105</td>
<td>47.3</td>
</tr>
</tbody>
</table>

In order to calculate the length of SVC, all the left and right dislocated items, as well as all the vocatives and the sentence initial conjunctions were excluded. The results indicate that in situ wh-phrases associate with a shorter non-wh portion (SVC) than fronted wh-phrases: 63% of the in situ wh-questions present an SVC of 1 to 3 syllables and the use of a wh-question with an SVC of 1 to 3 syllables corresponds to the use of an in situ wh-question in 85.7% of the cases. In situ wh-questions are also in the majority with respect to SVCs of 4 to 6 syllables (61.7%). Once again, some categories contain too few tokens in order to draw strong conclusions, but there is a tendency for fronted wh-phrases to associate with a longer SVC: fronted wh-questions represent two thirds of the wh-questions whose SVC contains seven syllables or more. Finally, the proportion of questions presenting a periphrastic verbal form is also larger in fronted wh-questions (36.7%) than in in situ wh-questions (20%). So far it can be concluded that the length of SVC seems to play a stronger role than the length of wh-phrase in influencing the choice of wh-structure.

Let us now turn to hypothesis 2. This hypothesis is consistent with the formal account of French wh-questions provided in Hamlaoui (2009), as in this approach in situ wh-questions are predicted to occur only when the non-wh portion is given. If the non-wh portion contains new or focused items, the fronted wh-phrase structure should be preferred. Among the criteria chosen by Coveney in order to test the informational value of the SVC, the relative informativeness of the subject is examined. Subjects are classified as either Noun Phrase or clitic pronoun. Among the 108 SVQ wh-questions taken into account by Coveney, 100 (92.6%) present a clitic pronoun and only 8 (7.4%) present a Noun Phrase, and among the 737 fronted wh-questions, 704 (95.5%) present a clitic pronoun and only 33 (4.5%) present a Noun Phrase. Wh-questions with a Noun Phrase in the subject position are thus marginal. As the proportion of such wh-question is larger among the in situ wh-questions, Coveney has to conclude that Noun Phrase subjects favor the use of SVQ structures. The author however emphasizes that in the eight in situ wh-questions, “the Noun Phrase is encoding a discoursally given, or at least identifiable, referent, as opposed to a 'brand-new' one. In other words, these NPs are not very informative” (p160). In the Là-bas corpus, wh-questions with an NP subject are also marginal, as there are only five occurrences of such wh-questions: four are of the in situ type and one is of the fronted type. The in situ wh-questions appear below:

(7) Context: The interviewee is a police officer. The interviewer's previous questions revolve around his professional background.

R: Vous vos parents faisaient quoi?
You your parents did what
"What was your parents' job?"
(8) Context: The interviewee is a construction worker. The interviewer's previous questions revolve around his employment contract.
   R: Et votre salaire est de de combien par mois?
   'How much do you earn monthly?'

(9) Context: The interviewee is a manager in mass redundancy. The interviewer's previous questions revolve around his exact function within the company Vxxxx.
   R: Et votre rémunération chez Vxxxx était de combien à peu près?
   'Approximately how much money did you earn at Vxxxx?'

(10) Context: The interviewee is a “concierge”, his job consists in running errands for wealthy people. He is in a jewelry shop, looking for a 500 000 euros gift for his employer's wife. He, the interviewer and the jeweler are discussing prices. The jeweler has just explained that he never suggests items that cost less money than what his clients intend to spend because he would not want to risk offending them.
   R: Et les sommes des ventes en moyenne atteignent quel prix?
   'How much money do people usually spend?'

The subject DP in example (10) can straightforwardly be said to be given (Tancredi 1992, Krifka 2007), as its denotation already appears in the immediate discourse context. The subject DPs in examples (8) and (9) can also be said to be given if one agrees that discussing one's job or one's employment contract renders the salary topic prominent. The subject DP in example (7) constitutes an exception as, as far as I know, the DP subject “vos parents” does not occur in the immediate discourse context.

The next criterion used for testing the informativeness of the SVC is the nature of the verb. In order to account for the data from the Là-bas corpus, two categories were distinguished: the first category groups together the wh-questions containing a “light” verb such as être (“be”), avoir (“have”, “get”) and faire (“do”) and the second category groups together all the remaining wh-questions. Table 4 displays the results. The use of a light verb, which is considered to be less informative than a lexical verb, favors the choice of the SVQ form. This tendency is similar to the one observed by Coveney in his data from the YCLS corpus.

<table>
<thead>
<tr>
<th>Verb</th>
<th>In situ wh-phrase (“SVQ”)</th>
<th>Fronted wh-phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Light verb</td>
<td>60</td>
<td>87</td>
</tr>
<tr>
<td>Lexical verb</td>
<td>45</td>
<td>53</td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>47.3</td>
</tr>
</tbody>
</table>

What about the 45 occurrences of a wh-in situ phrase with a lexical verb? Most of the verbs are given, either because they previously appear in the discourse context, such as in the discourse fragment in (11), because they are situationally given, as in (12) or because they are pragmatically inferred, as in (13).
(11) Context: Interviewee 1 (a woman in her sixties) and interviewee 2 (a man in his sixties) are discussing with the reporter about what they used to do on their way to primary school. Interviewee 1 (I1) speaks about interviewee 2.

I1: Moi ce que j'me souviens c'est que vous étiez toujours très bien habillés toujours des chemises blanches vous n'aviez pas grand-chose mais vous étiez toujours habillés de façon impeccable.

`What I remember is that you were always very well dressed, in white shirts. You didn't have much but you were always dressed impeccably.'

R (later): Et à cette époque-là vous vous étiez habillé comment Régine?

And at this time you were dressed how Régine

`What about you Régine, how were you dressed at that time?'

(12) Context: the interviewee is a man who has just been served by the Saint-Eustache soup kitchen in Paris.

R: William alors expliquez moi [766ms silent pause] là vous allez manger quoi?

William then explain me now you go eat what

`Tell me. What are you going to eat?'

(13) Context: the interviewee is one of the collaborators of a wealthy Francilian mayor who is used to making cash donations to some of his young citizens.

I: On lui avait demandé à diverses reprises d'arrêter ce système de dons fin de dons de dons plutot de sommes d'argent à des jeunes (...)

`We repeatedly asked him to stop this system of gifts or "donations" to some young citizens.'

R: Il vous a répondu quoi à maintes reprises quand vous lui disiez euh d'arrêter ce système?

`What was his reply when you repeatedly told him to stop this system?'

Finally, it is worth noting that 14.3% of the fronted wh-questions contain an adverb, whereas only 2.9% of the in situ wh-questions contain one. This tends to indicate that the presence of an adverb favors the use of the fronted wh-phrase structure. The data from the Là-bas corpus overall tend to confirm hypothesis 2, according to which in situ wh-phrases tend to occur with a less informative SVC than fronted wh-phrases. They consequently support the analysis of French wh-questions offered in Hamlaoui (2009). Let us now turn to some of the acoustic aspects of the wh-questions.

3.2 An acoustic investigation of how and what wh-questions

The last part of this paper concentrates on a subset of the Là-bas corpus. An acoustic analysis was performed on 24 of the qu'est-ce que/quoi-questions and 19 of the comment-questions. All the other questions in these two categories were not suitable for an acoustic analysis because of too much background noise and/or overlapping sounds, which are frequent phenomena in non-laboratory speech. Again, there are too few tokens in order to draw strong conclusions, but the results are consistent enough to indicate tendencies.

All the questions were extracted using PRAAT (Boersma & Weenink 2008) and each file thus created was semi-automatically aligned using the EasyAligner program (Goldman 2007) and was manually annotated within PRAAT. Using a script developed by C. Gendrot, F0 and duration of each phone were measured. We first concentrate on duration.
Following Wunderli's (1983) study of in situ wh-questions, in each wh-question, the mean duration of all the vowels preceding an in situ wh-phrase or following a fronted wh-phrase was compared to the duration of the wh-phrase's last vowel. The results are displayed in figure 1 for comment-questions and figure 2 for qu'est-ce que/quoi-questions. In both categories there is a tendency for the wh-phrase's final vowel to be longer than the mean duration of the SVC's vowels when the wh-phrase appears in situ and shorter when it is fronted. Only question 9 in the fronted comment-questions, question 14 in the in situ comment-questions, and questions 22 and 29 in the quoi-questions constitute exceptions to this pattern. In 10 fronted wh-questions out of 23 and in 12 in situ wh-questions out of 20, the difference between the two values is above the differential threshold (20% according to Fry 1966).

**Figure 1 : Length of wh-phrase final vowel compared to mean duration of SVC vowels for “how”-questions**

![Figure 1](image1.png)

**Figure 2 : Length of wh-phrase final vowel compared to mean duration of SVC vowels for “what”-questions**

![Figure 2](image2.png)

The wh-questions' articulation rate was also investigated, using an intra-corpus normalization procedure close to the one offered in Hakokari et al. (2007): each phone's duration was compared against the mean duration of all the instances of the same phone in the present subset of the corpus (a total of 1428 phones). For each wh-question, a factor (actual realization/prototypical realization) was given to the intonational phrase, the SVC and the wh-phrase based on their component phones. A factor superior to 1 is associated with an item whose actual realization is slower than its prototypical realization and a factor inferior to 1 is associated with an item whose actual realization is faster than its prototypical realization.
order to further normalize the results, the factor associated with each wh-phrase and to each non-wh portion was divided by the factor of the intonational phrase to which it belongs. The results are displayed in figures 3 and 4. In order to facilitate the representation of the results, I substracted 1 to each obtained factor. As a consequence, a faster relative articulation rate is associated with a negative value and a slower relative articulation rate to a positive value.

**Figure 3: Relative articulation rate for “how”-questions**

![Figure 3: Relative articulation rate for “how”-questions](image)

**Figure 4: Relative articulation rate for “what”-questions**

![Figure 4: Relative articulation rate for “what”-questions](image)

Compared to the immediately preceding items, the in situ wh-phrase is prominent from a durational perspective, as it tends to be associated with a slower relative articulation rate. The fronted wh-phrase tends to be associated with a faster articulation rate than the non-wh portion and is consequently not prominent from a durational perspective. The results represented in figures 1 to 4 tend to confirm that the fronting of the wh-phrase is not associated with an “inversion of the prosodic structure”, namely a lengthening of the leftmost focus (the wh-phrase) and a reduction of the following items.

Before closing this paper, let now briefly turn to the wh-questions' intonation. Only the three following questions will be addressed here:

- What is the intonation associated with the interrogative particle *est-ce que* in fronted wh-questions?
- Can the wh-phrase be said to be prominent?
- Do wh-in situ questions show a rising intonation?

Within the present subset of the *Là-bas* corpus, the tendency is for the maximum pitch within the intonation phrase containing the wh-phrase to be realized either on *est* (3/11) or on *que* (8/11). This tendency is consistent with what was observed by Wunderli (1983) and goes...
against Rooryck's (1994) claim that the interrogative particle est-ce que does not bear any intonation.

Following Goldman & Avanzi's (2007) study on the detection of prosodic prominence in spoken French, I take it that for a syllable to be considered to be prominent in its context it has to be at least 3 semi-tones higher than one of its neighboring syllables. Each wh-phrase's vowel was compared to the two preceding and the two following vowels (whenever possible). The investigated wh-questions show a great variety of patterns, to such a point that no clear pattern seems to emerge. In the qu'est-ce que-type of wh-questions, there are five cases in which no syllable can be considered to be prominent. There is only one out of four cases in which a wh-phrase's vowel can be considered to be prominent with respect to a preceding vowel and six cases out of eleven in which a wh-phrase's vowel can be considered to be prominent with respect to one of the two following vowels. Among the quoi-type of wh-questions (N=12), there are six cases in which no syllable can be considered prominent and only three cases in which the wh-phrase's vowel can be considered to be prominent with respect to a preceding vowel. In four cases out of five, the wh-phrase's vowel is prominent with respect to one of the following vowels. As for the comment-type of questions, there are three fronted-comment questions out of twelve in which no syllable can be considered to be prominent. There are seven cases in which a wh-phrase's vowel is prominent with respect to the following vowels and four cases out of six in which one of the wh-phrase's vowels is prominent with respect to the preceding vowels. Finally, among the in situ comment-questions (N=7), there are five questions with no prominent syllable and two questions in which a wh-phrase's vowel is prominent with respect to the following vowels. To sum-up, in 44% of the investigated wh-questions, no syllable could be said to be prominent, 56% of the fronted wh-questions were questions in which one of the wh-phrase's syllables could be considered to be prominent with respect to the following syllables and 15% of the in situ wh-questions were questions in which one of the wh-phrase's syllables could be said to be prominent with respect to the preceding syllables.

According to Cheng & Rooryck (2000) wh-in situ questions are necessarily associated with a rising intonation. Within the Là-bas corpus, in situ wh-questions are not necessarily associated with a rising intonation: only seven out of nineteen questions show this pattern.

4. Summary and concluding remarks

I have reported the results of the study of a corpus of spontaneously produced constituent questions. These questions were extracted from the interviews led between 2005 and 2009 by a female reporter who consistently uses (non-radiophonic) demotic French. The Là-bas corpus is distinct from the corpora investigated in previous studies in that it exhibits a majority of wh-in situ structures. Contrary to what was observed by Coveney (1995), the present corpus does not allow to conclude that the End-Weight principle is a strong factor in favoring the use of the wh-in situ structure, as the wh-phrases occurring in situ are frequently monosyllabic. In situ wh-phrases are however frequently associated with a short non-wh portion, characterized by its low informational value. This tends to confirm some of the observations made by Coveney based on data from the York Child Language Survey corpus as well as Hamlaoui's (2009) formal analysis of French wh-questions. The acoustic investigation of a subset of the data confirmed Wunderli's (1983) observation that the interrogative particle est-ce que tends to be associated with the maximum pitch within the intonation phrase containing the wh-phrase. No clear pattern however emerged in terms of pitch prominence. From a durational perspective, the results showed rather clear tendencies: whereas the fronted wh-phrase's last vowel tends to be shorter than the mean duration of the following vowels, the in situ wh-phrase's last vowel tends to be longer than the mean duration.
of the preceding vowels, and whereas the fronted wh-phrase's articulation rate tends to be faster than the non-wh portion's articulation rate, the in situ wh-phrase's articulation rate tends to be slower than the non-wh portion's articulation rate. In spite of its limited number of tokens, this study nonetheless provides us with interesting tendencies, which tend to invalidate some of the previous claims and tend to confirm some others.

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