THE ACQUISITION OF LONG DISTANCE *WH*-QUESTIONS IN L2 FRENCH[*]

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The acquisition of Long Distance (LD) *wh*-questions, direct *wh*-questions where the base position of the *wh*-word is in an embedded clause, is well studied across languages. A common characteristic is that some learners go through a stage in which they produce questions with a *wh*-word in a medial position, which are ungrammatical in the language they are acquiring. The studies on second language (L2) acquisition almost exclusively concern English. The goal of the present study is to study the acquisition of LD *wh*-questions in adult L2 French. In section 1, I draw an overview of previous research on the acquisition of LD questions, including both first language (L1) and L2 acquisition. Medial *wh* questions as well as other non-target structures are described here. In section 2, I present the various types of LD questions in French. The results of an elicited production task of LD *wh*-questions are presented in section 3. Section 4 includes the discussion and conclusion.

1.   The acquisition of Long Distance *wh*-questions

The pioneering work by Thornton on L1 English in the 90s showed that some children produced LD questions with an extra *wh*-word at the beginning of the embedded clause (cf. Thornton 1990 and subsequent work). Those were labeled medial *wh* questions by Thornton and they included two types of questions: *wh* copying and Partial Movement (PM) questions (see (1a) and (2a) respectively, the standard LD questions with *wh* fronting are given in the b examples).

(1)   a.   *Who* do you think *who* Grover wants to hug? (TI 4;09)
               (Crain and Thornton 1998: 187, ex. 1a)

        b.   *Who* do you think Grover wants to hug?

(2)   a.   *What* do you think *which boy* ate the cookie?
               (Crain and Thornton 1998: 192, ex. 14)

        b.   *Which boy* do you think ate the cookie?

In questions with *wh* copying, there is an overt spell out of the *wh*-copy in the embedded left periphery. In PM questions, the *wh*-word moves only one cycle, to the left periphery of the embedded clause. In (2) the left periphery of the matrix clause is filled with the dummy *wh*-word *what*. Crain and Thornton

(1998), based on Thornton (1990), elicited LD *wh*-questions in the context of a guessing game with 21 Anglophone children (mean age 4;03). Although target-consistent LD questions with *wh* fronting formed the majority of the responses, medial *wh* questions were produced by ten of the children (in 17% of the cases, mainly *wh* copying). The authors proposed that medial *wh* questions showed up because children have not yet acquired full competence of the grammar and thus resort to options which are innately available by UG. Various types of medial *wh*-questions are attested in a range of natural languages, including Afrikaans, Frisian, German, Hindi, Hungarian, Japanese, Passamaquoddy, Romani (see Dayal 1994, Du Plessis 1977, Fanselow 2006 and the references cited therein, Felser 2004, McDaniel 1989, Van Riemsdijk 1982 etc.).

A number of studies have been carried out on LD *wh*-questions in L1 French. Oiry (2011, and preceding work) and Strik (2007, and preceding work) showed that the majority of the questions produced by 3 to 6 year-old children involved *wh* fronting, but that a few *wh* in situ and PM questions were produced. Those PM questions were different from the ones in English, since they lacked an overt *wh*-element in the beginning of the matrix clause (see (3)).

(3)   Tommy, tu penses *quoi* que Laa Laa préfère? (Arno 4;11.18)
        Tommy you think what that Laa Laa prefers
        "Tommy what do you think Laa Laa prefers?"
        (Strik 2007 cited in Strik 2008: 208, ex. 34)

Strik (2008) and Jakubowicz and Strik (2008) employed an elicited production task with 3-, 4- and 6-year-old children and adult controls. The results replicated that *wh* fronting was the most frequent and that PM was rare but did exist. Contrary to earlier studies, PM with an overt *wh*-element in the matrix left periphery and *wh* copying questions were also attested (see (4) and (5) respectively).

(4)   *Qu' est-ce que* Billy a   dit *où*   le poisson nage? (Alice 6;05.0)
        what is   it   that Billy has said where the fish   swims
        "Where did Billy say the fish is swimming?"
        (Strik 2008: 273, ex. 66a)

(5)   *Où*   euh Lala a   dit *où*   Canard a   caché le cadeau?
                                                        (Albertine 4;05.29)
        where euh Lala has said where Duck   has hidden the present
        "Where did Lala say Duck hid the present?"
        (Strik 2008: 272, ex. 65a)

Jakubowicz (2011) reported on the same children and task but included children with Specific Language Impairment (SLI). She provided a detailed analysis of non target-consistent structures that were found mainly in the SLI and the 3 year-old typically developing children. In addition to medial *wh*-questions, these were non-LD structures, such as indirect *wh*-questions, root *wh*-questions with an adjoined clause (see (6)) and paratactic structures, two juxtaposed root *wh*-questions (see (7)).

(6)   Billy a dit *quoi* pour le lapin   boit? (SLI 11)
        Billy said what for   the rabbit drinks
        "What did Billy say the rabbit is drinking?"
        (Jakubowicz 2011: ex. 22)

(7)   C'est [t]i mange le plus grand gâteau Lala ? # elle a   dit quoi # Lala ?
                                                              (SLI 8)
        It's [wh]o eats   the biggest   cake   Lala   she has said what Lala
        "Who is eating the biggest cake Lala? What did she say, Lala?"
        (Jakubowicz 2011: ex. 24)

PM and *wh* copying were reported in the L1 acquisition of three other languages, Dutch, Spanish and Basque. Van Kampen (1997) studied LD questions in child Dutch. In the corpus of two girls (aged 4 to 8), LD questions were attested in diary notes and a simple elicited production task was carried out with one of the girls. The vast majority of the questions produced by the girls were *wh* copying questions. More data for Dutch were reported by Strik (2008) (see also Jakubowicz and Strik 2008 and Strik 2009), who used the Dutch counterpart of the French task described above. Participants included 3, 4 and 6 year-old children and an adult control group. More than half of the LD responses involved *wh* copying or PM, the former being more frequent than the latter. The other LD responses involved target-consistent *wh* fronting. Gutierrez (2005, 2006) presented elicited production data of Maider, a Spanish-speaking girl, recorded between age 4 and 6. Maider's corpus contains 160 LD questions. The child's first attempts at producing LD structures were what Gutierrez (2005) labeled yes/no questions: there was no *wh*-word at all in those questions. Later PM and *wh* copying questions emerged. The first adult-like questions were produced at age 5;05. Overall, 68/160 (43%) questions were PM questions and 14/160 (9%) were *wh* copying questions. As for Basque, Gutierrez (2006) reported on longitudinal data from Axel, a boy who was recorded between age 5 and 6. The same elicited production task as with Maider was used. In the first stages of the corpus, Axel only produced PM questions. Later, he also produced *wh* copying and adult-like *wh* fronting LD questions.

Most of the L2 studies of LD *wh*-questions were on L2 English. Wakabayashi and Okawara (2003) and Yamane (2003), using an elicitation technique adapted from Thornton (1990), reported that Japanese university students learning English as an L2 produced PM but no *wh* copying questions. PM was used in just over 20% of the responses. Furthermore, in a grammaticality judgement task, Yamane (2003) reported that Japanese learners of English also accepted PM questions (63%), and to a lesser extent *wh* copying (16%). Gutierrez (2005) administered an elicitation task to bilingual Basque-Spanish teenage learners of English (N=260). They mainly produced adult-like *wh* fronting LD questions (88%), but both PM and *wh* copying questions were also found and produced by 32 of the participants. Schulz (2006) investigated the presence of PM structures in the English interlanguage of Japanese and German learners. She reported that both the L1 Japanese and L1 German learners produced and accepted PM *wh*-questions. Slavkov (2009) investigated the development of L2 English LD *wh*-questions by Canadian French and Bulgarian learners by means of a production and a written grammaticality judgement task. The oral production showed that French lower-intermediate

learners of L2 English (N=26) produced questions with *wh* fronting in 66% of the cases and PM and *wh* copying only 4% of the time. For Bulgarian low-intermediate and intermediate learners (N=30), those numbers were 40% and 29% respectively. On the other hand, in the grammaticality judgement task Slavkov reported that some of the 130 French learners of L2 English accepted PM and *wh* copying (from around 16% in the high beginner group to 0%-3% in the advanced group). The L1 Bulgarian learners (N=31) also accepted medial *wh* questions but to a lower degree than the French learners (high beginners 9% and advanced learners 5%). Various types of embedded but non-LD responses were produced in the production task (14% in the L1 French group and 7% in the L1 Bulgarian group). For instance yes/no questions and root *wh*-questions followed by an adjoined clause (see (8) and (9) respectively).

(8) Do you think John is at the kitchen? (participant BG 11)
(Slavkov 2012: ex. 37b)

(9) What do you think about the place I put the newspaper?
(participant FR 2)
(Slavkov 2012: ex. 30b)

The remainder of the responses were mono-clausal structures, including yes/no and root *wh*-questions. Some of those root *wh*-questions were followed by "according to you" and were semantically equivalent to LD questions (see also Strik 2007, 2008 for those structure in adult L1 French):

(10) According to you, who is outdoor the house? (participant FR 5)
(Slavkov 2012: ex. 32b)

To my knowledge Liceras et al. (2011) is the only study targeting an L2 other than English. Those authors investigated whether PM and *wh* copying are present in the interlanguage of L1 French and English advanced learners of L2 Spanish and German, using a grammaticality judgement task. They also tested native speakers of Spanish and German. The results showed that L2 learners of Spanish accepted PM and *wh* copying questions although at a lower rate than target-like LD *wh*-questions. Surprisingly, native Spanish speakers also accepted PM and *wh* copying questions. The authors suggested this was a result of the grammaticality judgement task itself. L2 learners of German also accepted PM and *wh* copying questions. However, unlike the L2 learners of Spanish who accepted both PM and *wh* copying to the same degree, the L2 learners of German accepted PM to a higher rate than *wh* copying questions.

2. LD *wh*-questions in French

In French, substantive variation exists in *wh*-constructions. Both the *wh*-word and the conjugated verb can appear in various positions. In standard LD *wh*-questions, the *wh*-word is fronted:

(11) *Où* tu penses [(où) que j'habite (où) ?]
where you think (where) that I live (where)
"Where do you think (that) I live?"

The example shows the classic analysis of an LD question with *wh* fronting. According to the copy theory of movement (Chomsky 1995 etc.), the *wh*-word undergoes successive cyclic movement from its place of first merge in the embedded clause to the matrix left periphery, passing through the embedded left periphery and leaving a copy in that position. Other *wh* fronted structures include questions with *est-ce que* (*où est-ce que tu penses que…?*, "what is it that you think that…?"), clefted questions (*c'est où que tu penses que…?*, "it is what that you think that…?") and questions with subject-verb inversion (*où penses-tu que…?*, "where think you that…?"). In this paper, I do not examine the details of the various *wh* fronted structures.[1] The main point is that commonly, the *wh*-word is fronted in LD questions in French.

The *wh*-word can also be in situ, as in (12). This option is common in root *wh*-questions, but for LD questions judgments vary among authors. However, they were attested in adult data of previous studies (cf. Strik 2007, 2008).

(12) [Tu penses [que j'habite *où* ?]]
     you think   that I live   where
     "Where do you think (that) I live?"

The third and last possibility for LD questions in French involves *wh* movement to a medial position, the left periphery of the embedded clause. Those questions are generally considered ungrammatical. However, like *wh* in situ LD questions, they were attested in adult data of previous studies (Strik 2007, 2008). A first type of medial *wh* questions involves PM. In (13a-c) the *wh*-word moved only one cycle, to the left periphery of the embedded clause. In (13a-b) the left periphery of the matrix clause is empty, whereas in (13c) it is filled by the *wh*-word *qu'est-ce que* ("what"). I consider this to be a scope marker, a dummy *wh*-word used to fill the matrix left periphery (following Van Riemsdijk 1982 and McDaniel 1989 among others, but see Dayal 1994, for instance, for a different approach). The scope marker is directly merged into its position.

(13) a.   [Tu penses [*où*   que j'habite ~~*(où)*~~ ?]]
              you think   where that I live   ~~(where)~~

     b.   [Tu penses [que c'est *où*   que j'habite *(où)* ?]]
              you think   that it is where that I live   ~~(where)~~

     c.   [*Qu'est-ce-que* tu penses [*où*   j'habite *(où)* ?]]
              what is it that you think   where I live   ~~(where)~~
              "Where do you think (that) I live?"

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[1] Note that the various interrogative structures in French are not all equal with respect to speech register. For instance, questions with inversion are more frequent in formal and/or written language, whereas *wh* in situ rather belongs to informal language. Moreover, for some authors there are semantic and pragmatic differences between the structures. See Strik (2008) and the references cited therein for a more detailed discussion of this point.

Another type of medial *wh* questions involves complete *wh*-movement, but with an overt spell out of the *wh*-copy in the embedded left periphery. As mentioned above, this strategy is called *wh* copying:

(14)   [*Où*   tu   penses [*où*   j'habite ~~*(où)*~~ ?]]
          where you think   where I live   ~~(where)~~
          "Where do you think (that) I live?"

From this perspective, *wh* copying is essentially the same as LD *wh*-movement, and it is assumed that the overt spell out of the *wh*-word serves to make the *wh*-chain visible and therefore, to ease the processing of the sentence (see Gutierrez 2005 etc., but see Felser 2004, for instance, for an alternative analysis).

3   Study

3.1   Research Questions

In section 1, we saw that in L2 acquisition of LD *wh*-questions a common pattern is the production of medial *wh* questions, both PM and *wh* copying. These structures were also found in L1 acquisition of LD questions. Although in some studies the number of medial *wh*-questions was small, it is clearly a pattern that emerges across typologically different languages. This suggests that medial *wh* questions represent a developmental phenomenon in the acquisition of LD questions, regardless of the language being acquired and the type of acquisition, L1 or L2. It also suggests that L2 learners have access to UG (cf. Schwartz and Sprouse 1996; White 2003 etc.). As was discussed in section 1, PM and *wh* copying questions are attested in a variety of different natural languages and stay within the structural options provided by UG (see Crain and Thornton 1998, Gutierrez 2005, 2006, Slavkov 2009, 2012, Strik 2008, Thornton 1990, Van Kampen 1997). Moreover, in L2 acquisition, medial *wh* questions are not necessarily the result of influence of the L1. In the case of the studies with L1 Bulgarian, French and Spanish-Basque, PM or *wh* copying is not part of the L1. PM and *wh* copying can be considered avoidance strategies for LD *wh*-movement (see Gutierrez 2005, 2006, Jakubowicz 2011, Jakubowicz and Strik 2008, Slavkov 2009, 2012, Strik 2008, 2009). In PM the *wh*-word is moved only one time, to the beginning of the embedded clause. This and the direct merge of a scope marker in the matrix CP is more economical than complete movement of the *wh*-word to this position. In both PM and *wh* copying, the spell out of the *wh*-word in medial position makes the copy in that position visible, which is argued to facilitate the processing of the LD movement chain. Other avoidance strategies were found as well. For example non-LD structures, such as root *wh*-questions, yes/no questions and adjoined and paratactic structures (cf. Gutierrez 2005, 2006, Jakubowicz 2011, Slavkov 2009, 2012).
      In section 2, we saw that three main possibilities exist for LD *wh*-questions in French: the *wh*-word can be fronted (the standard structure), in situ (less frequent, but possible), or in a medial position (considered to be ungrammatical, but attested in previous child and adult L1 data). In English there are fewer possibilities: the *wh*-word can be fronted (the standard option), or in a medial position (considered to be ungrammatical, but attested in previous child L1 and adult L2 data). Another difference between French and English,

that I did not put emphasis on, is the position of the conjugated verb. In French subject-verb inversion (i.e., I-to-C movement of the verb) is possible but not obligatory. In English, it is obligatory, although it is the verb *do* that is in the C position and not the lexical verb (do support).

Given the previous studies on the acquisition of LD *wh*-questions and given the various options of LD *wh*-questions in French, the main question of the present study is: in an elicited production context for LD questions, what happens in adult L2 French? A number of other questions follow: are L2 adults different from L1 adults, and if yes, how? Are medial *wh* questions produced, as in child L1 French (and other languages) and adult L2 English? Are other non-target structures attested? Is there influence from the L1, English? How can the observed patterns be explained? I adopt the hypothesis that syntactically less complex structures are acquired before more complex structures (cf. Jakubowicz and Strik 2008, Jakubowicz 2011 and many other studies). In the case of LD *wh*-questions, which involve a high number of syntactic operations, and which are taxing with respect to processing capacities, less complex non target-consistent structures are likely to be produced. I also assume that L2 learners have access to UG (see above) and thus, that they will have medial *wh* structures at their disposal. As was mentioned above, no previous data on LD *wh*-questions in L2 French exist. Therefore, the objective of the present study is to study LD questions and to test the hypothesis of derivational complexity in this population. A secondary aim is to use a slightly different methodology, using a prompt with fewer cues with respect to the formation of LD *wh*-questions.

3.2   Methods

To elicit LD *wh*-questions, a task adapted from Strik (2008) (see also Jaubowicz 2011, Jakubowicz and Strik 2008, and Strik 2009) was used. This task was inspired by the study in Thornton (1990) and subsequent work. The task contained three Long Distance test conditions, for a total of 18 test items. It included six items with the direct object *wh*-word *que/quoi* ("what"), six items with the subject *wh*-word *qui* ("who") and six items with the adjunct *wh*-word *où* ("where"). These were preceded by three training items: two targeting root *wh*-questions and one targeting a (direct object) LD *wh*-question. Six items with root *wh*-questions served as fillers. Participants were invited to ask questions to Nina, a robot puppet on a computer screen. Nina was often interrupted by her little brother and sister, Billy and Lala, who spoke (partially) in their own robot language, which is incomprehensible for humans. Nina was able to translate the robot language into French and therefore, the participants had to ask her what Billy and Lala *said*. Thus, the matrix verb of the LD questions was expected to be *say*. An example of a test item with the *wh*-word *où* ("where") is presented in (15).

(15)   Prompt: Ah Nina ne sait plus où le poisson nage, mais peut-être que Billy et Lala se rappellent bien. *Le poisson nage quelque part et on veut savoir où. Demande à Nina ce que Billy a dit*.
    "Ah Nina doesn't know anymore where the fish is swimming but maybe Billy and Lala remember. The fish is swimming somewhere and we want to know where. Ask Nina what Billy said."

Note that no clues as to how to construct an LD *wh*-question are provided in the prompt. This is different from Strik (2008), where the following prompt was used:

(16) Prompt: Demande à Nina où Billy a dit que le poisson nage.
      "Ask Nina where Billy said the fish is swimming."

This prompt contained an embedded LD question that could be repeated by the participant. The objective of the present study was to avoid this possibility, and to use a methodology with no overt indications for LD questions in a context where those questions are appropriate. However, with the prompt in (15) root *wh*-questions about what Billy or Lala said are also appropriate. Therefore, the investigator would follow up with a different question, in the first two items of every condition:

(17) Prompt: Attends, qu'est-ce que Billy a dit sur *où* (*quoi/qui*)?
      "Wait, what did Billy say about *where* (*what/who*)?"

Then, if this did not yield an LD question, the investigator would use the prompt in (16). The investigator could also give an example during the training item.
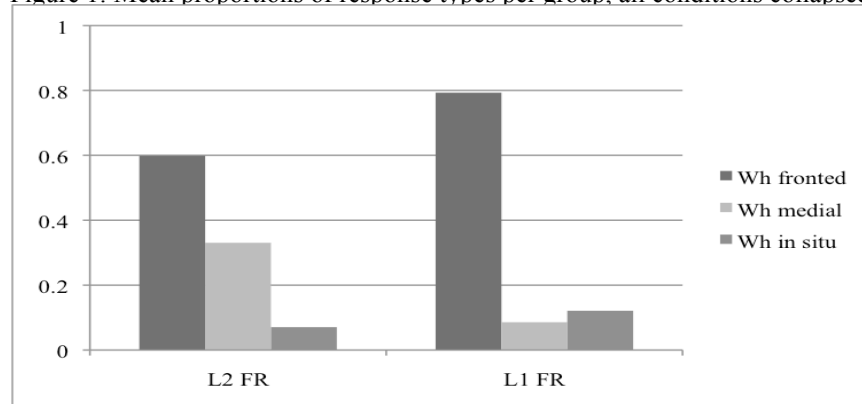
Participants included a group of ten L2 learners of French (mean age 21;04, S(tandard) D(eviation) 0;02). The L1 of the learners was English, but one participant also spoke Korean and another Tonga. The participants were all enrolled in a low-intermediate second year university French course. They had taken the same first year course before and most of them had had core French in high school to a certain extent. The students had not received formal instruction about question formation in their second year class (this was going to follow later in the term), but they had had some basic instruction about this in the first year class they had taken before. Eleven native speakers of French served as controls (mean age 25;04, SD 0;03). This group was composed of six Franco-Ontarian, two Québécois, two Acadian (from New Brunswick) and one Franco-Manitoban speakers.

3.3   Results

All participants were able to produce LD *wh*-questions, but a variety of other structures that were appropriate for the context were also produced. In this section, I first present the various types of LD responses, then I present the non-LD responses, and I finish with a description of errors that were found, especially in the L2 group.

The total number of LD questions was 118/180 for the L2 group and 108/198 for the L1 group, mean proportions 0.66 (SD 0.34) and 0.55 (SD 0.27) respectively. Reponses that were produced after a second prompt were also included in the analyses because they formed a small number. All participants were also able to produce LD questions after the first prompt. LD *wh*-questions were divided into three response types, based on the position of the *wh*-word as described in the preceding sections: *wh* fronted, *wh* medial, and *wh* in situ. The mean proportions of responses per group for all three conditions are presented in Figure 1.

Figure 1: Mean proportions of response types per group, all conditions collapsed

Both for the L2 and the L1 speakers, standard *wh* fronted LD questions were the most common response type and composed more than half of the LD responses. In the L2 group, about a third of medial *wh* questions were produced, as well as a small number of *wh* in situ questions. In the L1 group, *wh* in situ was a bit more frequent than *wh* medial, but neither response type was frequent and was only produced in and around 10% of the cases. Although the L2 speakers produced clearly more medial *wh* and less *wh* fronted questions than the L1 speakers, the differences between the two groups were not statistically significant. In Table 1 mean proportions of responses as well as SD's per group are presented for each condition separately.

Table 1: Mean proportions and SDs (in parentheses) of LD response types per group, per condition

	Wh fronted	*Wh* medial	*Wh* in situ
LD Object			
L2	0.85 (0.19)	0.11 (0.17)	0.04 (0.13)
L1	0.97 (0.1)	0	0.03 (0.1)
LD Subject			
L2	0.21 (0.36)	0.71 (0.38)	0.08 (0.24)
L1	0.5 (0.46)	0.29 (0.41)	0.21 (0.38)
LD Adjunct			
L2	0.44 (0.43)	0.42 (0.42)	0.14 (0.38)
L1	0.72 (0.31)	0.14 (0.19)	0.14 (0.28)

Table 1 shows that *wh* fronted questions were the most frequent in the object condition for both groups. Most of the *wh* medial questions were produced in the subject condition, especially for the L2 group, where more than half of the responses were of this type. In the adjunct condition almost a third of the L2 responses were medial *wh* questions. Most of the *wh* in situ responses were produced in the L1 group in the subject condition.

The total number of non-LD questions was 62/180 for the L2 group and 90/198 for the L1 group; mean proportions 0.34 (SD 0.34) and 0.45 (SD 0.27) respectively. Three main categories of non-LD questions can be distinguished: root *wh*-questions about what Billy or Lala said (see (18)), root *wh*-questions followed by *selon Billy/Lala* ("according to Billy/Lala") (see (19) and root *wh*-questions with an adjoined clause (see (20)).

(18) Nina, qu' est-ce que Billy a   dit? (L1-7, 26)
      Nina what is it that Billy has said
      "Nina what did Billy say?"

(19) Nina, qui a   mangé le   plus grand morceau de gâteau selon   Lala?
                                                                  (L1-2, 23)
      Nina who has eaten the biggest   piece   of cake   according to Lala
      "Nina who ate the biggest piece of cake according to Lala?"

(20) a.   Nina qu' est-ce que Billy a   dit sur   qui a   boit   de l'eau?
                                                                (L2-6, 21)
            Nina what is it that Billy has said about who has drinks water
            "Nina what did Billy say about who drank water?"

      b.   Nina qu' est-ce que Billy a   dit ehm ## pour qui   mange
            Nina what is it that Billy has said ehm   for   who eats
            le plus grand ehm ## oui le   morceau de gâteau? (L2-4, 21)
            the biggest   ehm   yes the piece   of cake
            "Nina what did Billy say for who is eating the biggest piece of cake?"

Note that root *wh*-questions as in (18) match the matrix clause of the corresponding LD questions and that root *wh*-questions as in (19) match the embedded clause of the corresponding LD questions. Root questions with the verb *to say* are fine in the test context, but not as complete as LD questions. Root questions with *selon Billy/Lala* have exactly the same meaning as LD questions and are totally appropriate in he context from a semantic and pragmatic point of view. The same holds for root questions with an adjoined clause. These responses are all more or less acceptable alternatives for LD *wh*-questions. Mean proportions of non-LD responses and SD's are presented in Table 2. In addition to the three response types listed above a small number of other non-LD responses were produced. Those are labeled as "other" in the table.

Table 2: Mean proportions and SDs (in parentheses) of non-LD response types per group, per condition

	Root *wh*	Root *wh* + *selon Billy/Lala*	Root *wh* + adjoined clause	Other
LD Object				
L2	0.19 (0.32)	0.11 (0.31)	0.37 (0.43)	0.33 (0.47)
L1	0.44 (0.53)	0.04 (0.11)	0.41 (0.49)	0.11 (0.33)

LD Subject				
L2	0.2 (0.45)	0	0.8 (0.45)	0
L1	0.26 (0.42)	0.19 (0.37)	0.45 (0.45)	0.1 (0.25)
LD Adjunct				
L2	0	0	1	0
L1	0.47 (0.46)	0.14 (0.38)	0.31 (0.41)	0.08 (0.14)

Root *wh*-questions with an adjoined clause were the largest category of non-LD responses in the L2 group, in particular in the adjunct and the subject condition, where they are produced 100% and 80% of the time, respectively. The L1 speakers produced an important number of questions with an adjoined clause too, especially in the subject condition. Overall, simple root *wh*-questions were a bit more frequent for the L1 speakers. Root *wh*-questions with *selon Billy/Lala* were almost exclusively produced in the L1 group, except from one token in the object condition for the L2 group. As was the case for the LD responses, none of the differences between the two groups were statistically significant.

Although L2 speakers were fairly similar to L1 speakers with respect to the number of LD questions they produced and the response types both for LD and non-LD questions, they were very different for one point: the number and the type of errors in their (LD and non-LD) responses. In the L2 group, 106/180 responses contained one or more errors; mean proportion 0.59 and SD 0.27. In the L1 group, only 7/198 responses contained an error and those were only minor errors; mean proportion 0.035 and SD 0.05. L2 speakers produced significantly more questions with errors than L1 speakers (Wilcoxon test, $W=0$, $p<0.0001$). Some of the errors they committed were in the *wh*-word, such as the use of *quel* ("which") instead of *qu'est-ce que* or *que* ("what") (see (21)). Note that there is also an infinitive verb (*dire*, "say") instead of a past participle (*dit*, "said"), an incorrect word order (see also (25)) and a preposition *à* ("to") instead of a complementizer *que* ("that"). Some errors concerned the complementizer, which could be absent as in (22).

(21) Quel a   Billy dire à Grenouille mange? (L2-3, 19)
       which has Billy say to Frog   eats
       "What did Billy say that Frog is eating?"

(22) Nina où   est-ce que Lala a   dit ∅ le poisson nage? (L2-1, 19)
       Nina where is it tha Lala has said ∅ the fish   swims
       "Nina where did Lala say the fish is swimming?"

Other errors were made with verbs (for instance the use of an infinitive instead of a conjugated verb; see (23)), gender (for instance the use of masculine instead of feminine; see (24)), and word order (mostly the placement of the subject between the auxiliary and the past participle, instead of the use of complex inversion or no inversion; see (25)).

(23) Eh qu'est-ce que a Lala dit où   Canard cacher le cadeau?
       eh what is it   that has Lala said where Duck   hide   the present
                                                          (L2-3, 19)
       "Where did Lala say Duck hid the present?"

(24) Qu' est-ce que Billy a   dit le grenouille a   mangé? (L2-5, 21)
      what is it that Billy has said the frog   has eaten
      "What did Billy say the frog ate?"

(25) Nina qui a   Lala dit qui a   entendu les pleurs? (L2-1, 19)
      Nina who has Lala said that has heard   the crying
      "Nina who did Lala say heard the crying?"

4 Discussion and conclusion

Overall, all L2 speakers produced a certain number of LD *wh*-questions. In other words, low intermediate speakers of French were able to perform the syntactic operation of LD *wh*-movement. Target-like LD questions with *wh* fronting were the most prevalent LD response type, as was the case for L1 speakers. Both L2 and L1 speakers also produced non-LD responses that were appropriate in the context, such as simple root *wh*-questions or root *wh*-questions followed by an adjoined clause. No significant differences between the L2 and the L1 speakers were found in the proportions of the response types, both for LD and non-LD responses. Nonetheless, the results showed some tendencies. L2 speakers produced less *wh* fronting and more medial *wh* questions, and thus, it seems they favoured structures with less syntactic operations. L2 speakers also produced numerous questions with one or more errors. The presence of errors appeared to be the clearest distinguishing factor between the L2 and the L1 speakers. This answers our first research question, what happens in the acquisition of LD questions in adult L2 French. It also answers the second question, whether and how L2 speakers are different from L1 speakers.

Note that the number of participants in the present study was relatively small. Only ten L2 speakers participated in the task. They had a low intermediate level of French and errors are characteristic for this level of proficiency. Yet, they were able to produce LD questions and to understand the instructions of the task. Possibly, less advanced learners would have more difficulties with LD *wh*-movement and would be more prone to producing non-target structures. At the same time, the experimental task could be too difficult to use with speakers in the earliest stages of L2 acquisition. Although all speakers were capable of understanding the task and of producing questions, some participants needed extra instructions. Even for many of the L1 speakers, LD *wh*-questions did not sound as natural and they too sometimes found the task complicated. For future work, it would be interesting to have a larger group of participants and to distinguish different levels of proficiency, in order to study the developmental patterns in the L2 acquisition of LD questions.

Other questions included whether medial *wh* questions and other non-target structures would be produced, as in previous studies on L1 and L2 acquisition of LD questions. Indeed, medial *wh* questions were found, both in the L2 and L1 groups. These questions were more frequent in L2 speakers, but used by L1 speakers as well, even though they are considered to be ungrammatical in French. Similarly, non-target structures such as root *wh*-questions and adjoined structures were also produced both in the L2 and L1 groups. Only root *wh*-questions with "according to Billy/Lala" were (almost) exclusively produced by L1 speakers. None of the structures that were found in L2 French were new or totally different from those found in previous studies. Thus, overall, the results confirm those of previous studies: 1) medial *wh*

questions are a developmental phenomenon in the acquisition of LD *wh*-questions, and show up in both L1 and L2 acquisition; and 2) other non-target structures might be used as well, for instance simple root *wh*-questions, root *wh*-questions with "according to Billy/Lala", adjoined structures or yes/no questions.

Another question included whether there was influence from English. This seems to be the case for a few types of errors that were found. For example the absence of a complementizer, which is grammatical, and very common, in English (see (22)). However, note that a few questions without an overt complementizer were also found in the L1 group. Another instance of influence from English was the word order *qui a Lala dit* ("who has Lala said") in matrix clauses (see (25)). In French the subject *Lala* cannot occur between the auxiliary *a* and the past participle *dit*, contrary to English. It has to go either before the auxiliary (*qui Lala a dit*) or in a structure with complex inversion (*qui Lala a-t-elle dit*).

A secondary aim of the study was to use a prompt with no direct clues about how to construct LD *wh*-questions. The new prompt was difficult, for both L2 and L1 speakers of French. Almost all speakers needed some form of extra information during the first LD items, that is, the second prompt or some help during the training item. Then, most speakers were able to produce LD questions in the subsequent items, although some still opted for root *wh*-questions in a generalized way. The same prompt was used with monolingual Francophone children from Quebec. Those children also had difficulties with it and more so than the adult speakers; they almost exclusively produced LD questions after the second prompt (Strik 2011).

The last question that was asked was about how the observed patterns could be explained. Although LD questions with *wh* fronting formed the majority of response types, the participants produced a number of different structures to avoid LD *wh*-movement. All those structures involved fewer or different syntactic operations. In questions with *wh* in situ the *wh*-word is not moved overtly and in PM questions it is moved only one cycle instead of two. In questions with *wh* copying the *wh*-movement chain is visible, which eases the processing of the sentence. In all non-LD structures, root *wh*-questions, possibly combined with an adjoined structure or the expression "according to Billy/Lala", the *wh*-word is moved one cycle. This is compatible with the hypothesis of derivational complexity. Indeed, in the context of an elicited production task of LD *wh*-questions, involving a high number of syntactic operations, less complex non-target structures are produced. Those structures are within the limits of UG. Thus, in an elicited production context, speakers might opt for structures that are less complex and not part of the grammar they are acquiring, but that are attested in the grammars of other natural languages (see also Gutierrez 2005, 2006, Slavkov 2009, 2012, Strik 2008, Van Kampen 1997 etc.).

What might be surprising is that all non-target structures were found in the L1 group as well. Even though they were less frequent in the L1 group, the difference with the L2 group was not significant. The question arises of what the exact status of these questions is in French. A small number of medial *wh* questions were also attested in previous studies on French (see Strik 2007, 2008). Clefted medial *wh* questions (such as *Tu penses que c'est où que j'habite?*, "literally "You think that it is where that I live?") are considered grammatical structures (although they are not usually described in French grammars), but a few non clefted medial *wh* structures were produced by

Francophone adults too. Liceras' et al. (2011) results showed that medial *wh* questions were accepted by native Spanish speakers, even though they are ungrammatical in this language. The authors proposed this result was due to the grammaticality judgment task itself. Yet, in the context of this task, medial *wh* questions were accepted. Note that a similar situation was found in Dutch. According to the literature, medial *wh* questions are not grammatical in Dutch. However, in an acceptability task with more than 600 speakers of Dutch, it appeared that both PM and *wh* copying were accepted in up to half of the cases, depending on the *wh*-word used (Strik 2008). See also Barbiers et al. (2005), who showed that various types of medial *wh* questions are attested in a number of Dutch dialects. It would be interesting to know more about the status and the acceptability of medial *wh* questions in (adult) French. These structures might be more widely used and/or accepted than previously thought. Also note that the previous data collected by Strik (2007, 2008) were from speakers of French from France, whereas the data from the present study are from speakers of Canadian French. There might be dialectal differences between the different varieties of French. There are differences between Canadian and European French in the domain of interrogative structures (see Vinet 2001 for instance), but to my knowledge no study has focused on LD *wh*-questions. The production of medial *wh* questions might also be related to the experimental context. Apparently, certain less complex structures can show up even in the speech of adult native speakers, in the context of an elicited production task.

In conclusion, medial *wh* questions are an option provided by UG. They show up when speakers are "challenged"; that is, in the context of an elicited production task of LD questions, a situation in which processing abilities are limited. This seems to be the case for both L2 learners and adult native speakers. Further research is needed, focusing, in particular, on two questions. First it would be useful to test groups with different proficiency levels of French, in order to investigate whether the acquisition of LD *wh*-questions shows a developmental pattern. Second, it would be valuable to study the status and acceptability of the various types of LD *wh*-questions in L1 and L2 French.

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