

# WH- IN SITU PRODUCTION IN CHILD FRENCH\*

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## ABSTRACT

This article addresses claims that French children produce more wh-in situ questions than adults, and that this is motivated by a desire for more “economical” structure in regard to wh-question formation. Experimental results of an elicitation study with 19 children (3;09-5;08) conducted in Paris are reported. Results indicate that children do not demonstrate a preference for wh-in situ, contra previous research with corpora, and most are in fact completely adult-like. As a consequence, I argue that children are not motivated by an economical “in situ strategy”, and that they have the mechanism to produce fronted wh-questions with overt movement from as young as 3 years.

**Keywords:** first language acquisition, syntax, wh-movement, wh-in situ, child French

## 1. INTRODUCTION

Languages differ in how wh-questions, are formed. Some languages, like English, require fronting of the wh-word to the beginning of the clause to form information-seeking questions, as shown in (1).<sup>1</sup> Others, such as Chinese (2), require the wh-word to remain in situ. French, however, allows for both options; the questions in (3-4) are both considered to be grammatical.

(1) What did John buy? (fronted)

(2) Lisi mai-le sheme (ne)? (in situ)  
Lisi buy-ASP what (Q)  
'What did Lisi buy?'

(3) **Qu'est-ce que** tu lis? (fronted)  
what-is-it that you read.PRES.2SG  
'What are you reading?'

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<sup>1</sup> English, of course, does allow for echo questions, where the wh-word remains in situ. These serve a different function; that is, they are not information-seeking (see Culicover 1976, among others).

- (4) Tu lis                      **quoi ?**                      (in situ)  
 you read.PRES.2SG what  
 ‘What are you reading?’

However, while (3) and (4) are both acceptable as information-seeking questions in adult French, it seems that adults produce fronted forms more often than wh-in situ (see, for example, Haiden et al. 2009). From an acquisition standpoint, what is interesting is that there is reportedly a significant difference in the production rates of wh-in situ between child and adult French. Previous research has found that French-speaking children produce considerably more wh-in situ questions than French-speaking adults, at least in spontaneous discourse (Gotowski & Becker 2016; Hamann 2006). Early attempts at explaining this asymmetry (Hamann 2006; Zuckerman & Hulk 2001) have suggested that children are motivated by Economy- a desire to produce constructions with less (overt) movement- and start off with wh-in situ (see also Jakubowicz 2005); more recent studies have questioned this claim (cf. Gotowski & Becker 2016).<sup>2</sup> However, the literature on this topic provides conflicting results, which seem to be linked to methodology; high rates of wh-in situ are found in corpora, while lower rates are reported in elicited production.<sup>3</sup>

This study is an attempt to follow up on previous research, and contribute to the literature concerning wh-questions in children’s elicited production. Specifically, the following experiment was conducted with French children and adults to (i) contribute to this debate concerning French children’s early wh-questions, particularly to (ii) add to the literature by further probing if children rely on a wh-in situ strategy, and (iii) highlight differences in production related to methodologies. In regard to the last point, I will discuss this topic through the lens of the possibility that a *perceived* preference for wh-in situ may actually be an artifact of spontaneous production rather than an Economy-driven or computational function.

The paper is set up as follows: first in Section 2, I will provide a brief overview of previous research on wh-in situ in child French. In Section 3, I discuss the new elicitation experiment and its results. In Section 4, I offer discussion of the results and, in Section 5, conclusions and directions for future research.

## 2. PREVIOUS RESEARCH

As mentioned, child and adult French seem to differ in terms of the rates of wh-in situ questions produced (see references above). Hamann (2006) conducted a corpus-based analysis with three children (1;08-2;09) from the Geneva corpus on CHILDES (Hamann et al. 2003; MacWhinney 2000). She noted that all of the children primarily produced wh-in situ questions, with production rates as high as 90.7% (in so called “free choice contexts”). These rates are reported to be higher than adults’ rates, although exact adult rates are not provided (see Table 1).

<sup>2</sup> For the purpose of this paper, when I discuss “Economy,” I refer to it as it relates to the issue of wh-question production in particular.

<sup>3</sup> This research discusses local wh-movement alone (partly to make comparisons to research on corpora)- not wh-question production with long-distance (LD) movement. Children’s elicited production of wh-questions are discussed by e.g. Jakubowicz (2011), Oiry (2011), Strik (2003), among others. Although this topic is deserving of more attention, I make no claims on children’s abilities with non-local movement in this paper.

TABLE 1

Production of Fronted Wh-Questions vs. Wh-In Situ Questions  
(Geneva Corpus)

Child	Age	Rate of Fronted Wh-Questions	Rate of Wh-In-Situ
Augustin	2;00-2;09	09.3%	90.7%
Louis	1;09-2;03	26.7%	73.3%
Marie	1;08-2;03	23.9%	76.1%

Gotowski & Becker (2016) conducted a corpus-based analysis, but they focused on ‘what’ *qu’est-ce que* (fronted) vs. *quoi* (in situ), and with older children (2;05-3;10) from the Palasis Corpus (Palasis 2010). They report results similar to those in Hamann (Table 2), but they directly compared production rates to those of the adult in the same corpus. The children produced wh-in situ forms 81.5% of the time, while the adult produced in situ forms merely 13.2% of the time.

TABLE 2

Production of Fronted Wh-Questions vs. Wh-In Situ Questions  
(Palasis Corpus)

	Qu’est-ce que	Quoi
Children (2;05-3;10)	18.5%	81.5%
Adult	86.8%	13.2%

Hamann (2006) interpreted children’s high rates of wh-in situ as indicating that children are motivated by Economy, and thus a desire for a simplified syntactic structure. Zuckerman and Hulk (2001) take an Economy-based approach in analyzing their (very different) results from an elicitation experiment with children 4;00-5;09 (results summarized in Table 3). The rates of in situ are quite low for both children and adults, but the difference is reportedly still statistically significant ( $p < 0.05$ ). This difference is more noticeable with *qu’est-ce que/quoi* (what); in situ questions with *quoi* were elicited 18% of the time from children, but only 3% of the time with adults. However, not all wh-words (whether argument or adjunct) highlighted this same kind of asymmetry (see Zuckerman & Hulk (Z&H) (2001; p. 88) for a breakdown of elicited in situ production by wh-word). This finding alone seems to cast (at least) some doubt on the claim that Economy is influencing children’s wh-question production; otherwise it seems reasonable to expect that wh-in situ would be preferred across the board.

TABLE 3

Results from Zuckerman & Hulk (2001)

	Overall Rate- Fronted Wh-Questions	Overall Rate- Wh-In Situ	Qu’est-ce que	Quoi
Children	97%	3%	82%	18%
Adults	99%	1%	97%	3%

In addition, although Jakubowicz (2005, 2011) argues that wh-in situ is less derivationally complex or “less costly” (following her Derivational Complexity Metric (DCM)), she finds that wh-in situ for object questions is not well attested in the elicited production of typically developing

(TD) children aged 3-6; she reports that it is more common, however, for those with Specific Language Impairment (SLI) (Jakubowicz 2011).<sup>4</sup> This would seem to suggest that, if overt wh-movement is more complex (which could well be the case), TD children do not seem to be “constrained” by this complexity. In addition, Haiden et al. (2009) conducted an experimental study in which they elicited wh-questions from children using pictures (much like the new study to be discussed in Section 3) and found that children ages 4;00-4;05 produced fronted wh-questions 78.2% of the time, and those 6;02-6;08 produced them 97.3% of the time. Note that unlike in corpus data, both children and adults produce the fronted form more often than the wh-in situ form when prompted in elicitation studies; therefore, it cannot be that children are constrained to produce “simpler” wh-questions (without overt movement).

It cannot be ignored, however, that these studies include children from different age ranges; the children in the corpora studies are younger than those included in the elicitation studies. It may seem that wh-in situ is preferred by younger children, but there is reason to suspect that this apparent trend is not entirely categorical. There is, in fact, corpus data that illustrates the opposite developmental pattern. In particular, Crisma (1992) found that Philippe, a French-speaking child from the Leveillé corpus (Suppes et al. 1973), produced only fronted wh-questions until the age of 2;06. Hamann (2006) attempts to explain this finding by attributing Philippe’s early production of fronted wh-questions to the limited number of wh-in situ questions found in the input he receives. However, Gotowski & Becker (2016) importantly found no direct correlation between children’s input and the rate of wh-in situ in the output. They note that rates of wh-in situ production for ‘what’-questions are actually quite similar for the French-speaking adult in the Palasis corpus and the English-speaking adults from the Brown corpus (Brown 1973).<sup>5</sup> However, it is only French-speaking children who have a high rate of wh-in situ production.

TABLE 4

Wh-In Situ Input vs. Output*			
Language	Corpus	Adult Input	Child Output
English	Brown: Eve (Files 1-20)	16.0%	0.4%
	Brown: Adam (Files 1-19)	22.0%	0.1%
French	Palasis	13.2%	81.5%

\*rates for ‘what’ questions alone

Gotowski & Becker (G&B) (2016) argue that children are not constrained by Economy, despite the well-attested asymmetry in spontaneous production. They point out that in addition to the data from Philippe, there studies on other child languages in which fronting and in situ are both grammatical options indicating that children do not uniformly prefer the “more economical” (i.e.

<sup>4</sup> This finding with SLI children has been taken as support for wh-movement being more complex, but if so, this complexity does not seem to affect TD children’s production. That is, by around the age of 3 (Jakubowicz 2011) or age 4 (Haiden et al. 2009, Z&H 2001), children are performing complex wh-structures according to the DCM. Differences between TD children and those with SLI are also reported by Haiden et al. (2009) and Roesch & Chondrogianni (2013). Hamann (2006) also looks at children with SLI but finds that they, like TD children, prefer wh-in situ over fronted questions in spontaneous production (see Table 1). Therefore, there might still be a split in related to methodology (spontaneous or elicited production) for children with SLI.

<sup>5</sup> English wh-in situ questions, however, are always echoic and not information-seeking.

in situ) form. For example, acquisition data from European Portuguese (see Soares 2004), confirms that fronted wh-questions may in fact be produced first. Additionally, G&B argue that since wh-in situ still involves covert movement of the wh-operator, an Economy-based analysis is also problematic on theoretical grounds (cf. Lasnik & Saito 1992).<sup>6</sup>

In sum, the debate hitherto has focused on whether children are constrained by Economy (or complexity) in wh-production, or if there is another reason behind the asymmetry in production that has yet to be fully determined. Nevertheless, it cannot be ignored that there are wide-discrepancies between rates tied to methodology; corpus-based and elicited production studies have found strikingly different rates and have thus complicated the puzzle. Children's rate of wh-in situ production, while not completely adult-like, decreases significantly when elicited production is analyzed. Furthermore, earlier research importantly reports varying rates of wh-in situ in the adult grammar; in Zuckerman & Hulk (2001) adults' rate is only 1%, in Gotowski & Becker (2016) it is instead around 13%, and AI (1976) reports that adults' rate is even higher, at 33%. This indicates a rather high degree of variability in the adult grammar.

The purpose of this particular study is to further explore this contrast between spontaneous production and elicited production; the goal is therefore to underline the importance of methodology, while attempting to add to the literature on in situ in child French. In discussing the experimental research described here, I will argue that spontaneous production is not representative of children's capabilities regarding wh-question formation, nor does support the claim that (TD) French children are constrained in forming wh-questions with local movement. In doing so, I will confirm earlier elicitation studies (Haiden et al. (2009), among others) in showing that these more complex questions (in terms of the DCM, viz. Jakubowicz (2005)) are in fact favored when children are prompted to ask a question.

### 3. EXPERIMENTAL STUDY

In order to follow up on the aforementioned previous research, I conducted the following elicitation task. Participants included 12 adults and 19 children (3;09-5;08) recruited in Paris, France; 6 additional child participants had to be excluded for not wanting to complete the task.

#### 3.1. Methods

Participants were presented with pictures of two different animals, one on each side of a computer screen; one animal was performing some action (e.g. painting). They looked at these pictures with a puppet (Zap), controlled by the researcher, while a research assistant remained behind the screen and could not see the pictures. The research assistant then prompted the participant to ask the puppet a question. The target responses were all object wh-questions with 'what' to provide a comparison to Gotowski & Becker (2016). Participants were told that this was to see if Zap had been paying attention or not; the task had thus been framed as a kind of game. There were two types of prompts, which differed only in whether a specific animal was named or not.<sup>7</sup> In the first condition (A), neither animal is named (see 5, translated). In the second condition (B) in contrast,

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<sup>6</sup> Although, in theory, it could be that overt movement is more challenging than covert movement (in line with Jakubowicz 2011), but movement is nevertheless involved in both cases.

<sup>7</sup> This was initially done to see if there could be an effect of saliency; however, this proved to be inconsequential (no significant difference) and the two conditions will be collapsed for the remainder of the paper.

one of the animals is mentioned (6); otherwise, the two prompts had the same format. The actions of the animals in the pictures, and thus the verb in the prompt, varied so that the children would not become bored with the task. As in Haiden et al. (2009), the prompts did not include an embedded, fronted wh-question. Rather, the prompts ended with “...*je sais pas quoi. Demande Zap...*” (I do not know what. Ask Zap...). This was designed so as to avoid biasing the children to produce fronted wh-questions.

(5) There are two animals in this picture. Hm...I think one of the animals painted something, but I do not know what. Ask Zap. He knows.



(6) There are two animals in this picture. Hm...I am sure that a cat painted something, but I do not know what. Ask Zap. He knows.

The prompt type-variable (A or B) was manipulated within-subjects, in a block design; half of the participants were given prompt type A first, and half were given B first. There was a total of 4 prompts per condition. There were also 4 fillers (2 in each of the blocks) that alternated with the target prompts, in the same general format (see 7); the participant could still see two pictures, but this time he/she was asked *who* was doing a particular action, in which case only a fronted wh-question is grammatical (8). Children received a total of 12 items during the experiment.

(7) There are two animals in this picture. Hm... I think that one of the animals ate some grapes, but I do not know who. Ask the puppet who ate the grapes.

(8) **Qui** a mangé des raisins ?  
 who have. PRES.3SG eaten of.the grapes  
 ‘Who ate the grapes?’

There were also four demos and three pre-task prompts (which were not scored) to help the child understand the task and become comfortable interacting with Zap. In the demos, the one researcher would provide the prompt and the other would answer (as the puppet); the response varied so that half of the responses were fronted wh-questions and half were wh-in situ responses (to avoid any potential confound before the task).

The prediction is if wh-in situ is the “default” form in child French, and children are constrained by Economy, then child participants should produce wh-in situ in response to the prompt (as in 9) more often than fronted wh-questions (10). If children are behaving differently than adults, we would also expect children to exhibit a preference for in situ forms that is absent in the adult grammar; that is, more wh-in situ forms questions should be produced than fronted ones (viz. the results from spontaneous production).

- (9) Le chien/il fait quoi?  
the dog/ he do. PRES.3SG what  
'What is the dog/he doing?' (lit. The dog/he does what?)
- (10) Qu'est-ce qu'il fait ?  
what-is-it that-he do.PRES.3SG  
'What is he doing?'

Furthermore, we predict that if spontaneous production is more representative of the child grammar, children should produce high rates of in situ. Conversely, if elicited production is more informative, we would expect to find results closer to those reported in past elicitation tasks.

### 3.2. Results

Adult participants overwhelmingly produced fronted wh-questions when prompted (see Table 5); in fact, only a single in situ question was produced. Adults did produce some 'other' responses, which were categorized separately; for example, one participant asked double wh-questions (e.g. *Who painted what?*) and some gave responses in the passive voice (*What was painted?*) in which case only one form was possible. Most of the questions that were elicited, however, were fronted wh-questions. The results illustrate a preference for the fronted form in adult French.

TABLE 5

Adult Responses	
Response Type	Response Rate
Fronted Wh-Q	79% (76)
Wh-In Situ	1% (1)
Other	20% (19)

As mentioned, there were a total of 25 children recruited for this same task, with 6 needing to be excluded for not wanting to complete the task. The responses found in Table 6 are therefore from 19 total participants.

TABLE 6

Child Responses	
Response Type	Response Rates
Fronted Wh	51% (78)
Wh-In Situ	12% (18)
Other	37% (56)

Children, just like the adults, produced more fronted wh-questions than wh-in situ questions, and few in situ questions overall; these results seemingly confirm those of Haiden et al. (2009).<sup>8</sup> In fact, the rate of in situ (12%) is lower than the rate reported in Haiden et al. (2009),

<sup>8</sup> It could be argued that children produce fewer wh-in situ questions due to the formality of the task. However, children seemed to see the task as a game (as was the objective). In any case, children's ability to produce fronted questions more often than not would nevertheless argue against them desiring the "simpler" form to respond.

where the rate of wh-in situ is around 22% for children around the same age. As the adults produced wh-in situ only 1% of the time, there is a contrast between child and adult production. Crucially, however, if individual performance is considered, the wh-in situ questions (n= 18) are produced by only 5 out of the 19 children. That is, the vast majority of the children do not produce *any* wh-in situ questions when prompted. The children did produce some ‘other’ responses as well, e.g. an ambiguous response or no response. In spite of the larger number of these responses from children, however, the trend remains.

Importantly, there was no detectable trend concerning age; the two youngest children produced only fronted wh-questions, while one of the oldest participants (5;08) produced multiple wh-in situ questions. If children were motivated by Economy, the opposite pattern would be expected; the rate of wh-in situ production should gradually decrease as the children become older. Moreover, only 3 of these 5 children produce *more* in situ questions than fronted questions, again suggesting that children are not constrained in their wh-question production. Even if these 5 children are taken to be somehow “non-adult-like”, 11 of the children would be considered completely adult-like. These findings thus cast strong doubt on the claims that the child grammar drastically differs from the adult grammar in terms of wh-question production. In fact, the findings from this research suggest that children from a young age do not prefer less complex questions (in terms of the Derivational Complexity Metric of Jakubowicz (2011)). The lack of an apparent connection between children’s age and their wh-in situ production also indicates that age alone is likely not driving the difference between spontaneous and elicited production. Nevertheless, in future research, it would be helpful to obtain spontaneous production data from the same children who participate in any elicitation tasks to directly address any effect of age.

#### 4. DISCUSSION

While the difference in the rates of wh-in situ question production between French children and adults is noticeable, at least in regard to spontaneous production, it is important to stress that a difference in rates alone does not signify that children have difficulties with overt movement or that they are motivated by a desire for more economical syntactic structure in their development of wh-questions. This is especially true considering wh-in situ questions are grammatical in adult French, and there is additionally a high degree of variability in how often adults produce in situ.

In light of the discussion in the syntactic and semantic literature as to whether or not there is any interpretable difference between fronted and wh-in situ questions in adult French, this issue of variability is still far from uncontroversial. It had been previously claimed that, for example, wh-in situ is associated with presupposition, and that a possible answer to a wh-in situ question could not be *rien* (nothing), as in (11) (see Chang 1997).

- (11) a. Tu fais                    quoi ?  
           you do.PRES.2SG what  
           ‘What are you doing?’
- b. (#) Rien.  
           nothing  
           ‘Nothing.’

However, more recent analyses have argued that this is not the case (see Mathieu 2004; Hamlaoui 2011), and this has been confirmed by native speakers who have consulted throughout this project.<sup>9</sup> Recently, Oiry (2011) argues for true optionality in regard to wh-question formation in French. The idea of a mixed system has also been assumed by Aoun et al. (1981) and Lasnik & Saito (1992). It has been claimed, for example, that fronted wh-questions and wh-in situ differ in that only the former are acceptable in embedded clauses (see Bošković 1998; Cheng & Rooryck 2000). However, Adli (2004, 2006) reports that wh-in situ in embedded contexts is common, and that speakers consider such constructions (as in 12) grammatical. Oiry (2011) has also shown that both adults and children produce wh-in situ questions in embedded contexts in elicitation.

- (12) Tu penses qu'il lit quoi?  
 you think.PRES.3SG that-he read.PRES.3SG what  
 'What do you think he is reading?' (lit. You think he is reading what?)

In addition, recent research by Gotowski (in progress) indicates that adults are just as likely to select fronted wh-questions as they are to select wh-in situ questions in a forced judgment task.

Nevertheless, the reason why adults may produce fewer wh-in situ questions in spontaneous contexts than children could be that the fronted form is considered to be more 'correct' (in prescriptive terms) and formal. Starke (2001) in fact attributes earlier claims of in situ being infelicitous in embedded contexts to possible influence from what he refers to as "classical" French. Wh-situ is associated with Colloquial French, and as a result is considered to be more informal; in other words, there is a well-known difference in register between the two forms (see Starke 2001, among others). Adults are more likely to be influenced by this difference than children, especially considering the young age of those included in this study and in previous corpora consulted. Adults, aware that they are being recorded, could be focused on producing what they consider to be expected "proper" or standard French. Nevertheless, both children and adults importantly pattern in the same exact direction; they produce more wh-in situ questions in natural, spontaneous production and considerably lower rates of these in elicited production. This pattern, coupled with the fact that the children actually exhibit a preference for fronted wh-questions when prompted in elicitation tasks, this one and those mentioned in Section 2, suggests that children are not constrained in their syntax in terms of wh-question formation.

## 5. CONCLUSIONS

The purpose of this research had been to further examine the claim that French children are motivated by Economy in terms of their wh-question production, exploring elicited production with an emphasis on methodology in the analysis. These results indicate that while children use wh-in situ more often than adults overall, children nevertheless produce more fronted forms than in situ when prompted. In fact, all of the wh-in situ questions that were elicited came from only 5 of the 19 children who participated in this study; the majority did not produce even a single token of wh-in situ. What this suggests is that, while it may be true that in *spontaneous* production children often (but not always, cf. Crisma 1992) produce wh-in situ, they are nevertheless not confined to producing these forms. Based on the results of this research, it seems to be that children have the syntactic mechanism needed to produce fronted wh-questions, and that their production

<sup>9</sup> These consultants were not the same people as those who participated as adult controls.

rates are in fact quite adult-like. While future research is needed to further explain why children produce more in situ in natural speech, it is crucial to consider that not only is wh-in situ grammatical in adult French, but that it is often associated with more conversational French. It may thus be the case that children are simply more likely to use an informal register when speaking, and will thus produce more colloquial forms than adults. In this respect, more research on adults' production of wh-in situ questions in various registers might be particularly helpful moving forward in continued research on this topic.

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