

# Topics on the acquisition of L2 morphosyntax

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**The acquisition of complex wh-questions in L2**

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## **ABSTRACT**

The main goal of this paper is to review how complex wh-questions are acquired in the process of learning a second language (L2). Adopting a generative perspective, the paper will consider experimental studies that have dealt with the issue of whether L2 learners have access to Universal Grammar (UG) and how other factors such as first language (L1) transfer, derivational complexity, the age of the learners, age of first exposure and length of exposure might be influential in this process. Although most studies to date have focused on learners acquiring English as an L2 with a rather wide variety of first languages (L1s), two recent studies have considered the acquisition of L2 French. They will be reviewed too in order to provide a wider perspective on the acquisition of the syntactic structure under focus: wh-movement.

The paper is structured as follows: the first section presents a brief overview of different ideas about how languages are learned to then focus on the generative approach. Additionally, basic concepts of the approach and several misconceptions about it will be commented on. Section 2 provides a crosslinguistic review on wh-question formation, considering other possible structures in other languages, and analyzes how this structure is formed in English and what its main constraints are. Section 3 reviews some studies on the acquisition of wh-questions in L1 and L2 acquisition, whereas section 4 focuses on two more recent studies that consider derivational complexity as a crucial factor in the L2 acquisition process. Section 5 touches on the issue of ultimate attainment and section 6 concludes the paper.

**Keywords:** generativism, L2 English, second language acquisition (SLA), Universal Grammar (UG), wh-movement.

Word count: 274

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## 1. Introduction

Even if there are several different kinds of questions, L2 English learners are usually instructed to make a clear distinction between two main types from their first contact with the target language; these are *yes/no questions* and *wh -questions*. Their labels seem self-explanatory since the former type of questions can only be answered by “yes, no, maybe” or “I don’t know” and the latter take their name from the fact that most of the words that introduce them begin with the cluster <wh-> and their responses must necessarily be informative phrases. In this paper I have decided to limit the scope to the acquisition of the second type since I consider them far more demanding for the learner than *yes/no questions* and hence more interesting. I will especially concentrate on the L2 acquisition of wh-constructions in English because (i) as a former learner and future teacher of English that is the L2 I am most interested in, and (ii) most of the research that has been conducted regarding second language acquisition (SLA) of wh-questions has taken English as the target L2.

In this paper, after analysing how these types of questions are formed crosslinguistically, I will aim at showing some of the main issues that have been studied regarding wh-movement in SLA. Thus, I will pay attention to the influence of the L1 on the processing of wh-movement, first in terms of Universal Grammar (UG) accessibility and then adopting the derivational complexity hypothesis (DCH). Moreover, we will see how the L1 and its properties interact with other factors that may affect L2 processing, such as input, age of exposure or length of exposure. To conclude, I will focus on the ultimate attainment of L2 acquirers.

### 1.1 Early theories in SLA

During the decades of the 1950s and the 1960s, the behaviourist approach was the most popular approach to understand SLA. This movement was built around the idea that in the learning process only external factors, and not internal ones, were involved. That is to say, behaviourists understood human behaviour as a set of responses to external stimuli and subsequent reinforcement or punishment, where the roles of frequency and environment were especially significant (VanPatten & Williams, 2007). By the same token, behaviourist researchers supported the idea that language learning happened as any other kind of learning and it was all a matter of habit formation. One of the most

well-known scholars on this perspective is Skinner whose proposals for L1 acquisition were later fiercely criticized by Noam Chomsky, the father of Universal Grammar.

Chomsky (1959)'s critique of Skinner (1957)'s work was two-fold. On the one hand, he believed that due to an inner faculty, children internalized rules rather than strings of words and thus, they were able to produce sentences they had never heard before. On the other hand, he highlighted children's capacity to master the rules of a given language in a quick and effective manner despite their complexity and abstractness, in an environment where they receive limited input. This idea was later referred to as 'Plato's problem' or the 'logical problem' of language acquisition. It is important to bear in mind that both Skinner and Chomsky dealt with ideas regarding L1 acquisition.

However, in the 1980s Chomsky's ideas were extended to SLA and since then they have been highly influential in this field (see White, 2003, for an overview). On the one hand, Krashen (1981) tried to explain the process of SLA in his Monitor Theory, which ended up being one of the most ambitious and influential theories in this field. The Monitor Theory was comprised by five interrelated hypotheses - The Acquisition-Learning Hypothesis, The Monitor Hypothesis, The Natural Order Hypothesis, The Input Hypothesis and The Affective Filter Hypothesis- each of which deserves close consideration but, due to space constraints, this would be beyond the scope of this paper. Although the Monitor Theory received much criticism, the most convincing evidence for its value is that it was able to account for the fact that "what is taught is not always learned, and what has apparently been mastered in drills and other controlled exercises seems to disappear in activities that call for spontaneous use" (Van Patten and Williams, 2007: 33).

Curiously, the aforementioned hypotheses took for granted human's innate possession of a Language Acquisition Device (LAD) that would provide an analysis of the L2 input through which unconscious interlanguage development would be guaranteed. Still, Krashen never established the real contents of such an interesting device.

On the other hand, Chomskian supporters drew their attention to the concept of Universal Grammar (UG) as having an influence on the L2 acquisition process and they carried out research on the acquisition of different phenomena claimed to be explained by UG modules (White, 2003).

## 1.2 Generative linguistics: definition and misconceptions

This section will be devoted to present the main constructs of generative linguistics and to the clarification of the most important misunderstandings linked to this framework.

### 1.2.1 Definition

As described by White (2007:37) “Generative linguistic theory aims to provide a characterization of the linguistic competence of native speakers of a language and to explain how it is possible for child L1 acquirers to achieve that competence”. Similarly, referring to the approach in a SLA context, Slabakova, Leal-Méndez and Liskin-Gasparro (2014) argued that generative grammar makes reference to a limited set of universal unconscious rules- which belong to our natural endowment of Universal Grammar- that is capable of *generating* – thus, the name of the framework- all the acceptable sentences in a certain language. They also claim that SLA is based upon these rules and that, as the acquirer receives input on the target language, s/he replaces native rules for new ones. These universal rules that generativists talk about are introduced in the coming section.

We cannot understand what UG can offer us without talking about principles and parameters. Chomsky (1973) argued that there is a set of universal properties, referred to as principles, which all languages obey. These principles are innate, they do not have to be learned. However, languages feature variation, which is captured by the concept of parameter. During the process of L1 (or L2) acquisition, children have to set the appropriate parametric choice of a given principle in a given language on the basis of the type of input they receive. In order to clarify these concepts, take subjects, for instance. We know that subjects operate in all natural language of the world. However, in some languages such as in English subjects must necessarily be overt (*They* are tall), whereas in others there is no need to have an overt subject, as in Spanish (*Son* altos). In this case, the fact that all natural languages of the world have a subject would be a principle and the option of having and overt or a covert manifestation of it would be the parametric choice to be made. Nowadays, within the Minimalist Program (MP) (Chomsky, 1993, 1995), features have become the center of learnability theory, as they are conceptualized as the elementary building units of linguistic structure. Features have been defined as the units that make up functional categories and they are the locus

of parameterization, since the presence or absence of a feature or its value in a given functional category defines the parametric options for the various languages.

### 1.2.2 Misconceptions

Obviously, it is impossible to find a theory of SLA that can account for all aspects of it. The main scope of generative linguistics is to see what kind of changes take place in the interlanguage grammar of the L2 acquirer at the time of parameter setting. As Gregg (1996) and Carroll (2001) suggested these changes may vary at different points in time but the precise mechanisms that lead to such grammar change are not part of the theory of UG.

One of the most common misconceptions about the generativist approach to SLA is the following: If we assume that grammar constraints are involved in UG and there is full access to it in the acquisition of an L2, then this would mean that the ultimate attainment of L2 learners and that of native speakers should not differ significantly (White, 2007). However, this is not actually the right claim since generativist linguists do not state that L2 learners will necessarily attain the same grammar as a native speaker, only that if a certain principle has been acquired the relevant constraints of such a principle are also acquired thanks to UG.

L1 transfer issues have also been misconceived in this field due to the Full Transfer Full Access Hypothesis (FTFA) proposed by Schwartz and Sprouse (1996). These researchers claim that in the first stages of L2 acquisition, L1 grammars play roles of great relevance since the L2 learner will characterize the new input taking their native language grammar as reference. Hence, revision to the L2 grammar will be needed since there are surely different principles governing different grammatical aspects of the target language. However, these revisions are assumed to be UG-constrained, which would reinforce the idea that supports that there seems to be access to UG in the process of L2 acquisition.

The methodology employed by generativists has also been under criticism because some consider it unsuitable or unreliable. Given the fact that the main goal of generative researchers is to have access to the ‘unconscious knowledge’ of language, grammaticality judgment tasks are of common usage among them since they offer quite a straightforward way of assessing this type of knowledge. However, generativists state

that “different kinds of data provide different kinds of evidence and the suitability of any particular task will depend on the precise issue that the researcher is trying to investigate” (White, 2007:47).

Other persistent myths that Slabakova et al. (2014) identified in their conversations with graduate students and colleagues have to do with a) instantaneity of parameter setting, b) disregard of input and c) assumption of the fact that native speakers have a perfect command of the language. A concise explanation of each is given in the following lines.

#### **a) Instantaneity of parameter setting**

At first, it seemed logical to believe that parameters were set in an instantaneous action. Hyams (1986), for instance, in her research on the Null Subject Parameter (NSP) proposed the metaphor of the ‘light switch’ to suggest that even if native English children did not start with the correct parametric value, they could later reset it to the correct one indicating the instantaneous nature of the shift. It is worth considering that these parameter settings were thought to involve the command, or, at least, the employment of a number of apparently unrelated constructions. Continuing with the example of the null subject parameter (NSP), Rizzi (1982) had previously suggested that once a learner had set the NSP s/he would also be able to show the command of a number of structures related to it such as null-subjects, postverbal subjects and the so called that-trace effect. Nevertheless, an early SLA study conducted by White (1985) showed that the acquisition of the aforementioned characteristics was not simultaneous. White’s findings were supported by Lardiere (2009) who viewed L2 acquisition as a two step process where the learner first found similarities between the new input and his/her L1 and then gradually reassembled the features (gender, number...) that are necessary in the L2 grammar.

#### **b) Disregard of input**

Nowadays, input frequency (and the role it plays in the L2 acquisition process) is believed to be of considerable relevance since according to O’Grady, Lee and Kwak (2009) it is very important for learners to find mappings between a word form and its meaning. Likewise, if the presence of a parameter in the input is abundant and unambiguous, the learner will acquire such parameter distinctively easier than a parameter whose presence is scarce and ambiguous. Yang (2002) proposed the Variational Learning Model to explain this idea. Therefore, as stated by Slabakova et al.



(2014:4) “linguistic input has emerged as perhaps the key factor in addressing the fundamental question of differences between native and L2 acquisition”.

**c) Assuming native speakers have a perfect command of the language**

Tolerance of variation in grammaticality judgment tasks has been questioned by many non-generative linguists when such judgments are carried out by native speakers (NS). However, this has nothing to do with the widespread belief that generativists assume all native speakers (NSs) speak their language perfectly well. By contrast, they make a distinction between proficient and non-proficient NSs, acknowledging exposure as the key to correct comprehension and language usage. After several studies, among which we can find the one by Meisel, Elsig and Bonnesen (2011) on French subject-verb inversion, the conclusion many researchers drew was that if limited exposure to a certain construction can result in variability among NSs, then the non-native grammars would equally be conditioned by input and thus the variability that characterizes L2 grammars could be explained.

To summarize, we have seen that generativists believe that when a learner acquires a principle its relevant parameters are also acquired. In fact, more recently, generative linguists would rather refer to the features of each language and argue that the process of L2 acquisition is a two step process rather than a single step one where learners first find similarities between input and their L1 grammars and then gradually pick up the features that are necessary in the L2 grammar. Last but not least, we have seen that frequency and type of input can mark the difference between L1 and L2 acquisition and that by no means do generativists assume that native speakers have a perfect command of their L1.

Once we have presented the basic ideas of the framework to be adopted in this paper, in the following section I will move on to define and analyze the specific syntactic structure I have selected: wh-movement.

## **2. Wh-movement: Definition and constraints**

Wh-movement is a syntactic mechanism used for building questions containing a wh-word. This term has its origins in early generativism (1960s and 1970s) and traditionally its name comes from the fact that most of the interrogative words used in English begin

with the cluster <wh-> (*what, who, why, where, whose...*). In English, amongst other natural languages, sentences containing this type of interrogatives present a special word order in which the wh-phrase appears at the beginning of the sentence although it has not been base generated there. This indicates that movement happens leftwards in the sentence and that the wh-phrase will move from its canonical position at an underlying structure to word initial position in the surface structure. An example of wh-movement in English is provided below in example (2) where “t” refers to the trace left by the moved constituent.

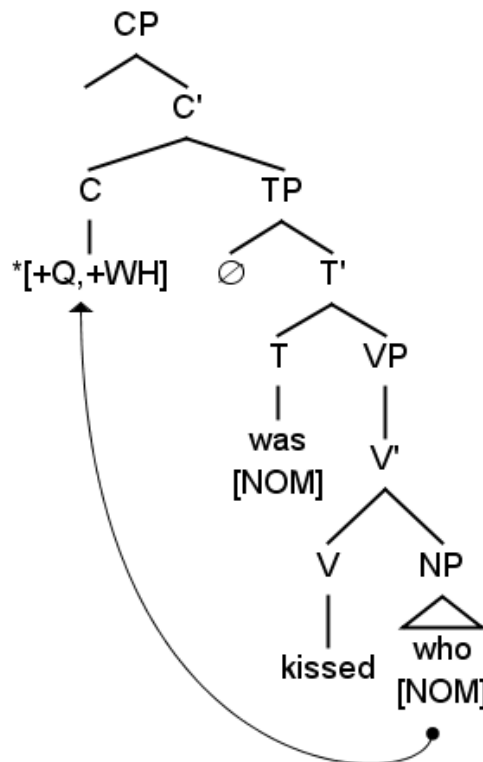
(1) I bought a white car.

(2) What<sub>i</sub> did you buy t<sub>i</sub>?

A trace is an empty (i.e. a phonologically null) category that occupies a position in the syntactic structure of a sentence. It indicates that a constituent has been there at some point but it has moved to take some other place in a given syntactic structure. Therefore, traces must always be correferential with another item in a sentence.

In short, one characteristic of wh-words in English is that they appear in a position far away from where they were base generated. According to Carnie (2006) there is a feature that triggers such movement, the [+WH] feature, and it appears in the head complementizer phrase (CP) of a wh-sentence. Carnie states that wh-movement consists in “moving a wh-phrase to the Specifier (Spec.) of a complementizer phrase (CP) to check the wh-feature in the complementizer (C)” (Carnie, 2006:285). This phenomenon is possible in both main and embedded clauses as long as there is no occurrence of violated limitations constraining the phenomenon under focus. You can see the presence of the [+WH] feature illustrated in the syntactic tree below:

(3) Who was kissed?



(Carnie, 2006:289)

It is worth mentioning that most research on the L2 acquisition of wh-movement has been based on data from participants with a variety of L1s acquiring English as an L2. Because of that and because, as an English Studies student, English is the language I am mostly interested in, this paper will mainly focus on the acquisition of wh-movement in L2 English. Nonetheless, in the following section I will provide a brief crosslinguistic examination of wh-questions.

## 2.1 Wh-questions crosslinguistically

Not all languages choose the mechanism of wh-movement for wh-question formation. In this respect and according to Slavkov (2009,) a main distinction is to be made between *wh-in situ* and *wh-movement* languages.

On the one hand, wh-in situ is described as being one of the main mechanisms for building wh-questions and consists in leaving the wh-phrase *in situ* (i.e. in its base generated position). This is the case of Chinese and Japanese, for instance. Below you can find an example taken from Cheng (1990) in which you can compare a Chinese declarative sentence (4) and its equivalent question asking information about the object (5).

- (4) *Hufei mai- le yi- ben- shu*  
 Hufei buy-asp. one-cl.-book  
 ‘Hufei bought a book’

- (5) *Hufei mai-le sheme*  
 Hufei buy-asp. what  
 ‘What did Hufei buy?’

Even though I have provided a simple question, the structure would be similar in a complex question since the wh-phrase would remain *in situ*.

On the other hand, we can find movement languages such as English, Spanish or Basque (examples 6-8), which, as clearly explained by Slavkov (2009) “front one or more wh-elements to the left periphery of the matrix clause, regardless of whether the question is simple or complex.” As stated above, this wh-construction will constitute the primary focus of this paper. Remarkably enough, movement languages may employ other fronting mechanisms. In fact, this is the case of English and its so called-echo questions, where wh-in situ appears to be possible as in (9).

- (6) Who do you think he kissed?

- (7) Zer            uste    duzu ikusi duela Mirenek?  
 what-ABS think aux see aux-comp Miren-ERG  
 ‘What do you think Mary saw?’

- (8) Qué    crees    que ha visto María?

what think-you that has seen Maria  
 ‘What do you think that Mary has seen?’

(Gutierrez and García Mayo, 2008:269)

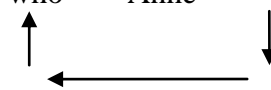
- (9) John thinks he should buy what?

(Slavkov,2009:24)

This type of structure is far more marked (i.e. less common), though, and uttered only under specific discourse circumstances. Due to this reason, English will be considered

an “absolute” movement language in this paper and I will not be paying attention to structures of the type in (9) because of space constraints.

Additionally, I would like to mention a third typological option for wh-questions crosslinguistically: *wh-scope marking*, also known as partial wh-movement. This strategy is exclusively used with complex wh-questions which “consist of at least two clauses with the questioned element being a constituent of the embedded clause” (Schulz, 2011:315). In these cases there is only partial movement of the wh-phrase, which is moved from its base generated position to the beginning of the embedded clause, instead of to the sentence initial position (Specifier of the matrix CP). In English, wh-scope marking is ungrammatical, whereas in German, for example, it is fully grammatical as illustrated in (11).

- (10)\*What does Tim think [ who Anne should invite *t* ] ?
- (11) was denkt Tim [wen Anne *t* einladen soll] ?
- what thinks Tim      who Anne      invite should ?
- 
- ‘Who does Tim think Anne should invite?’

(Schulz, 2001:315)

As you can see in the ungrammatical example in (10) –which is the equivalent translation into English of the German grammatical construction in (11)- the wh-word “who” only moves partially to the Spec. CP position in the embedded clause instead of moving to the matrix Spec. CP position. Languages that use medial wh-movement make use of an extra wh-word, in this case “what”, to occupy the matrix Spec. CP position and this extra element is known as the scope marker.

Finally, there is a last type of wh-question forming mechanism that is *wh-copying*. This mechanism consists in “copying” a wh-construction in an embedded clause and moving it to the matrix Spec. CP position. It resembles wh-scope marking in that both contain more than one wh-phrase but in wh-copying the doubled wh-phrase is the same, whereas in wh-scope marking these constituents may differ.

- (12) wen glaubst du    wen sie *t* liebt ?
- who** believe you **who** she loves
- ‘who do you think she loves?’

## 2.2 Constraints in English wh-question formation

It has already been explained that English uses the mechanism of movement to construct wh-questions but are there any rules that constrain this movement?

When talking about restrictions to movement we should first mention syntactic islands. Carnie (2006) states that the name here is meant to be iconic, since in syntactic islands, elements are limited in where they can move as in physical islands. That is to say, one cannot move out of an island but can move around within it; this is precisely what happens to elements within a syntactic island. The *complex NP island* or the *wh-island* are two examples of this phenomenon. Ross (1967) was the first to observe this phenomenon, proving that it is not legitimate to move a wh-word out of a CP contained within a noun phrase (NP) as is the following example:

(13) \*What<sub>i</sub> did Bill make [<sub>NP</sub> the claim [<sub>CP</sub> that he read  $t_i$  in the syntax book]] ?

In the same way, movement of either subject (14) or object (15) to the Spec. CP seems to be acceptable, whereas their simultaneous movement results in an ungrammatical sentence (16).

(14) Who<sub>i</sub> did you think  $t_i$  kissed the gorilla?

(15) I wonder what<sub>j</sub> John kissed  $t_j$

(16) \* Who<sub>i</sub> did you think what<sub>j</sub>  $t_i$  kissed  $t_j$  ?

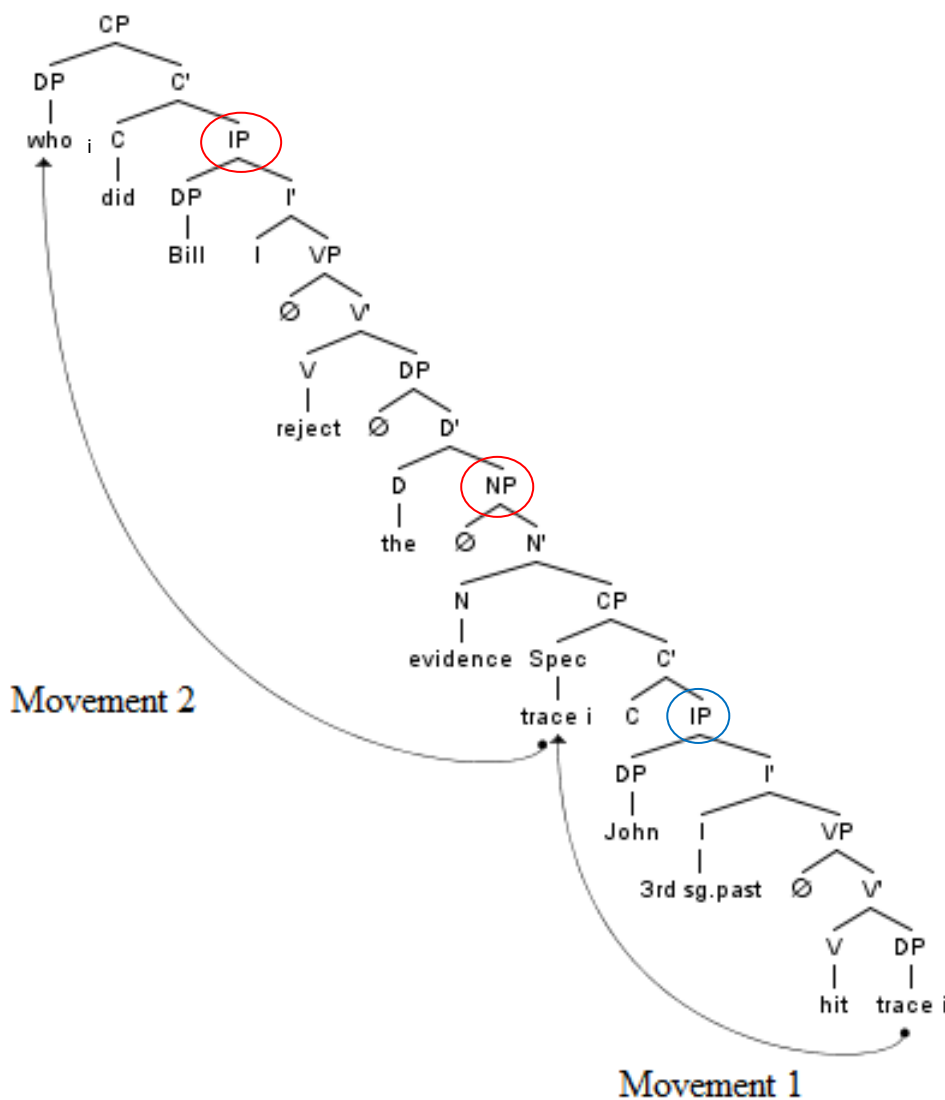
(Carnie, 2006:295)

This ungrammaticality is explained by the wh-island which conditions the movement of wh-phrases inside a sentence. Hence, the account for this illegitimacy would be that once you move a wh-phrase into Spec. CP, then this CP becomes an island for further extraction.

In the 1980s, and within the so-called Government and Binding (GB) framework (Chomsky, 1981), a module of UG was devoted to explain these constraints: Bounding Theory. According to this theory, there are certain types of nodes, which are called *bounding nodes*, that are boundaries for movement. The Subjacency condition (Chomsky, 1973) is the principle constraining movement. Chomsky (1973) clarified

that wh-movement may not cross more than one bounding node, where noun phrases (NPs) and inflectional phrases (IPs) are bounding nodes in English but it may cross one at a time. Wh-movement proceeds via all intermediate Spec. CP positions, first moving to the Spec. CP of the clause in which it is base-generated and then from Spec. CP to Spec. CP until it reaches the matrix CP. In (17) the first part of the movement is fine but the problem appears in the second step because two bounding nodes, NP and IP, are crossed thus rendering the sentence ungrammatical:

(17) \*Who<sub>i</sub> did Bill reject the evidence  $t_i$  that John hit  $t_i$ ?



Subject/object asymmetries are observed in English: whereas wh-movement of objects seems to be free as in (18) and (19) (you can apply movement without taking into account whether there is a complementizer or not), wh-movement of subjects is only possible when there is no overt *that* complementizer, as in (20). Its ungrammatical

counterpart is illustrated in (21) where extraction of the subject in the embedded clause is not possible due to the overt *that* complementizer.

(18) What<sub>i</sub> do you think \_\_\_ Matt kissed *t<sub>i</sub>*?

(19) What<sub>i</sub> do you think that Matt kissed *t<sub>i</sub>*?

(20) Who<sub>i</sub> do you think \_\_\_ *t<sub>i</sub>* kissed Matt?

(21) \*Who<sub>i</sub> do you think that *t<sub>i</sub>* kissed Matt?

The issue of whether L2 learners have access to UG constraints or not while acquiring wh-questions is under debate, although, as will be seen below, SLA research seems to support the access position.

This section has presented how wh-questions are formed crosslinguistically and has paid special attention to the wh-movement phenomenon in English. The following section will focus on research that consider L1 and L2 acquisition of this structure in English.

### 3. Wh-movement under focus

L1 effects on the process of SLA have been –and still are- one of the main and most attractive focus for SLA researchers. This could be so because it seems reasonable to believe that learners may find links between new L2 input and the already under controlled L1 grammar, assuming that the links (if any) between the two languages may facilitate the process of learning an L2.

In order to narrow down the scope I will basically be focusing on the acquisition of complex (mostly biclausal) questions that involve long-distance (LD) wh-movement as in (22):

(22) What<sub>i</sub> do you think *t<sub>i</sub>* Mary is eating *t<sub>i</sub>*?

This type of questions entails that the wh-phrase has to move at least twice (considering a sentence is biclausal, as it is the case in the example above) from its base generated position to its final landing site, leaving traces as evidence for the double movement.

The section is organized as follows. First I will briefly refer to work on child L1 acquisition to then move on to see the extent to which an L1 (and its features) may influence the acquisition of L2 wh-question formation.



### 3.1 L1 acquisition of wh-questions

As mentioned above, one of the most relevant (though yet unresolved) issues in SLA is to show whether there is access to UG or not. Previous research on the acquisition of LD wh-questions showed that L1 as well as L2 learners of English went through a developmental stage where they produce LD wh-questions that are not-target-like (i.e. never produced by L1 adult speakers of English). This type of questions will henceforth be referred to as “non-adult” wh-questions. The production of non-adult LD wh-questions is, in fact, what Thornton (1990) studied with data from children acquiring English as their L1. Thornton (1990) showed that, at some point in their process of acquisition, children acquiring L1 English came to produce non-adult LD wh-questions featuring two related wh-phrases, one being in the matrix sentence and the other one in the embedded clause. Examples (23) and (24) illustrate this point. Notice that this kind of wh-questions are not allowed in English but are so in other language such as German (see (11) above).

(23) *What* do you think *who* jumped over the can?

PARTIAL WH-MOVEMENT / WH-SCOPE MARKING

(Thornton, 1990: 213)

(24) *Who* do you think *who* is in the box?

WH-COPYING

(Thornton, 1990:212)

Out of the 21 children who participated in Thornton’s (1990) only 2 produced non-adult wh-questions consistently while the rest produced them sporadically (this may suggest that when learners become proficient enough they may realize that the constructions they have previously been using are not grammatical and might therefore reject them). The mean age of the subjects in this experiment was 4;3. The 21 children participating in the study were engaged in a guessing game where they had to ask questions to a puppy but since LD wh-questions are not easy to find in natural production an elicitation task had to be prepared. Additionally, Thornton (1990) analyzed not only non-adult wh-productions but also looked at the relevance of length of movement; that is to say, the distance a constituent needed to cross when moving from its base generated position to its landing site. Thus, she included the word “really” between the

matrix verb and the embedded CP position and found that an extra *wh*-phrase still appeared no matter the distance, as illustrated in (25).

(25) *What* do you think really really really really really *what*'s in there?

(Thornton, 1990:332)

All in all, Thornton's main finding supported what generativists already assumed: There is, indeed, access to UG in child acquisition of L1 English. The productions of the participants in Thornton's study proved the existence of constructions that were absent in the L1 they were studying (the children could not have acquired them through natural exposure and even less through formal teaching) but were possible in other natural languages. This finding was later supported by data from other languages such as L1 Dutch (van Kampen, 1997) or French (Oiry, 2002).

### **3.2 L2 acquisition of *wh*-questions**

Some studies have also provided evidence for UG access in L2 acquisition. Johnson and Newport (1991), for instance, showed how Subjacency restricts *wh*-extraction. In this study their initial assumption was that given the case that L2 grammars are constrained by Subjacency, and assuming that, for instance, a Chinese L2 learner of English has acquired *wh*-movement, this learner should observe restrictions on *wh*-extraction in spite of the fact that these restrictions are not present in his/her L1. Data in Johnson and Newport (1991) came from Chinese L2 learners of English who were first exposed to the target language at different ages and had lived in the USA for some time. Participants were all adults at the time of testing. With this study, Johnson and Newport (1991) were able to show that Chinese L2 learners of English were able to fully acquire *wh*-movement thanks to the accessibility to UG, although the strategies to form *wh*-questions in Chinese and English are different.

Within the generative perspective, it is always important to distinguish between competence and performance. These terms represent a steady-state grammar and the way this grammar is put to use, respectively. As stated by Juffs (2005:122) "the field of second language acquisition has focused on comprehension performance because comprehension plays a central role in making data available to the learner". Work by Juffs and Harrington (1995) suggested that the higher difficulty of Chinese learners who participated in their study when judging grammatical LD subject extraction when

compared to object extraction could be due to a performance deficit, rather than a competence deficit.

Yamane (2003) and Wakabayashi and Okawara (2003) looked at L1 Japanese L2 English and reported that the Japanese learners went through a developmental stage in which they came to produce non-adult (not-target-like) constructions. As explained before the parameter for wh-movement in English and Japanese is set differently and “the finding of non-adult questions could be interpreted as an attempt by the Japanese English learners to produce L2 target-like structures. Since their L1 cannot accommodate LD wh-movement, they resort to an option allowed by UG” Gutierrez and García Mayo (2008:276).

### **3.2.1 L1 influence in the acquisition of wh-questions**

In this section we will briefly review some studies which show that the L1 plays a crucial role in the SLA process. For example, Juffs (2005) considered the processing of wh-questions by adult Spanish, Japanese and Chinese L2 English learners. On the basis of findings from a previous study by Juffs and Harrington (1995), Juffs (2005) reported on the processing performance of nonnative speakers producing grammatical and ungrammatical wh-movement. He worked following Pritchett (1992), who claimed that “as a sentence is constructed each principle of the grammar is satisfied as early as possible”. Juffs (2005) assumed that when considering L1 transfer in studies of this kind, not only do L1 grammars have a noteworthy effect but also L1 processing preferences. Therefore, he focused his study on two potential sources of variability among Chinese, Japanese and Spanish L2 learners when compared to native speakers these being (i) accuracy in grammaticality judgment tasks, and (ii) word-by-word parsing decisions.

Therefore, Juffs (2005) carried out a study in which 30 L1-Chinese, 28 L1-Japanese and 46 L1-Spanish participants took part and he made sure that all of them were equally proficient –they were all advanced learners of English-. There was also a group of 22 monolingual native speakers of English but the researcher clarified that the profile of the native speakers should exclusively be used for comparative descriptive purposes. The participants completed a grammaticality judgment task online.

Regarding the participant's L1s, if we know that Spanish, as English, is a movement language whereas Chinese and Japanese are wh-in situ languages, we initially assume that Spanish learners would encounter fewer difficulties acquiring English wh-movement features because they build wh-chains in the same ways as native English speakers do so. On the contrary, the remaining two groups are not supposed to create any wh-phrase filter-gap relationships because they are unnecessary in their L1s. Besides, recall that English, Spanish and Chinese are predominately SVO languages, whereas Japanese differs in this aspect because it is an SOV language. This may also be another source of confusion when processing the L2 under study.

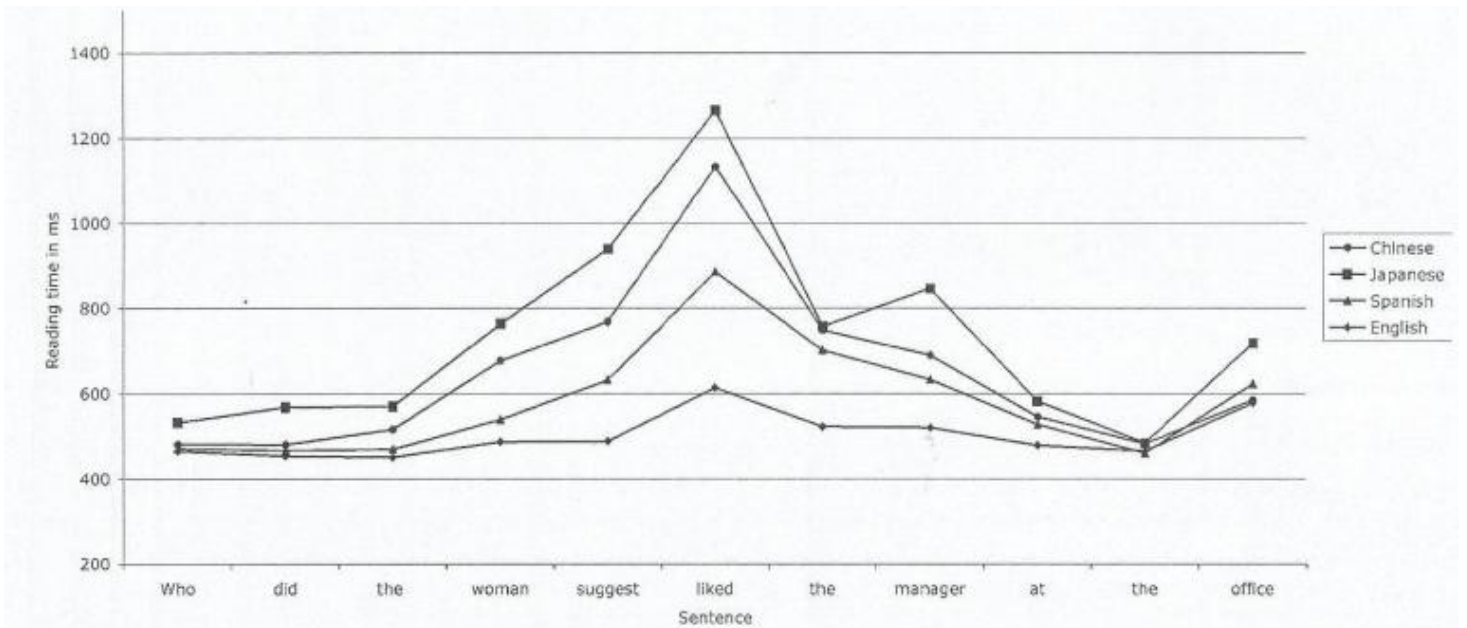
Results showed that subject or object -but especially subject- extraction from a finite (i.e. it contains a inflected verb) clause, of the type in (26) and (27) was particularly difficult for all learners:

(26) Who<sub>i</sub> did the woman suggest [ t<sub>i</sub> liked the manager at the office]? ( Subject extraction from a finite embedded clause)

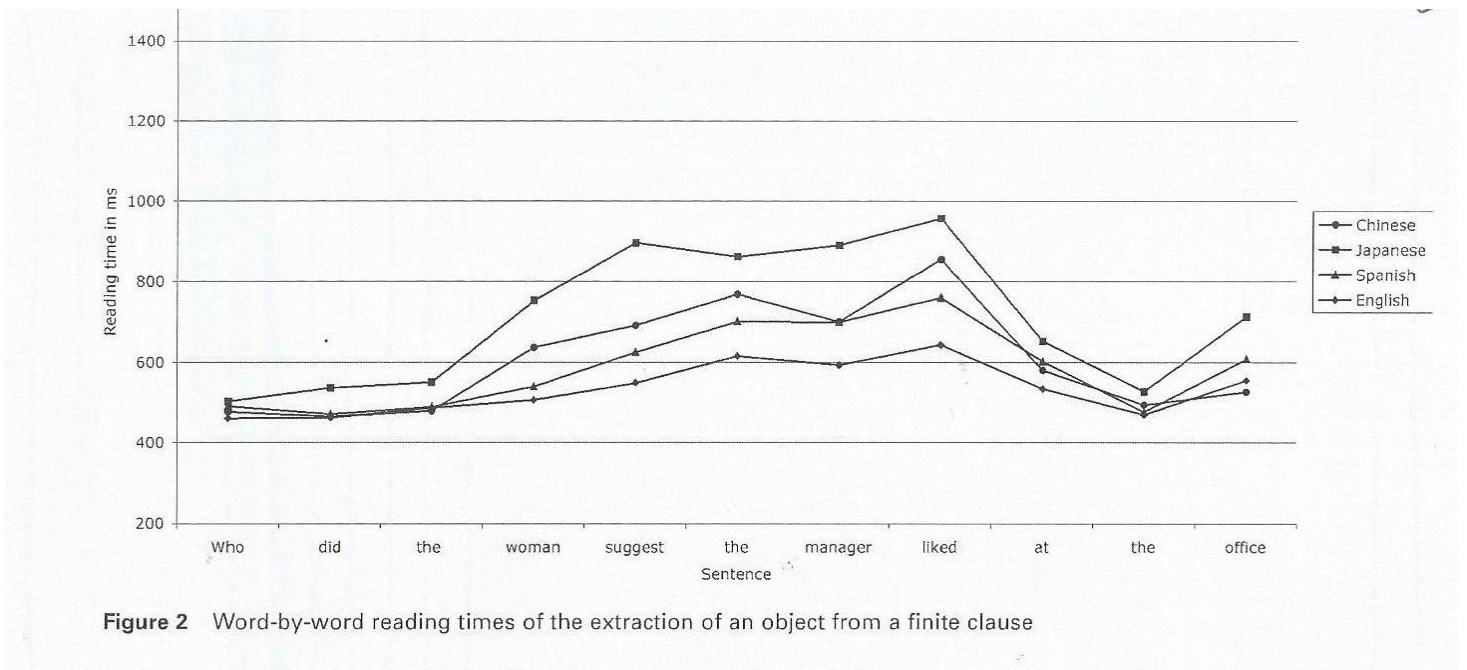
(27) Who<sub>i</sub> did the woman suggest the manager liked t<sub>i</sub> at the office? (Object extraction from a finite embedded clause)

(Juffs, 2005:136-137)

This problem can also be seen in the following figures taken from Juffs (2005):



**Figure 1** Word-by-word reading times of extraction of a subject from a finite clause



**Figure 2** Word-by-word reading times of the extraction of an object from a finite clause

Also, as can be observed in the figures above, the initial and final few words were read at approximately the same speed by all participants, including the native speakers. Hence, the locus of processing decision variability seemed to be the middle of the sentence. Moreover, results show that processing difficulties are greater for the Japanese than for any other language groups, subject extraction from an embedded clause being the most problematic type of extraction for all the groups.

Essentially, in terms of accuracy, it could be deduced that lack of wh-movement in the L1, as was the case of Japanese-speaking learners, was a clear disadvantage for judging wh-fronting in English, not only when the extraction or movement happened from the subject position of an embedded clause, but in all possible movements. In contrast, the presence of this feature in the L1 appeared to be beneficial, as was the case of Spanish-speaking learners, although the use of such a feature may be different (since in Spanish it is necessary to have a complementizer in the head of the lowest embedded clause and does not require an overt subject). Even so, the L1 Spanish group still presented parsing difficulties regarding subject and object extraction from embedded clauses.

To summarize, the results of Juffs (2005)'s study showed that advanced nonnative speakers are capable of detecting grammatical as well as ungrammatical wh-extractions, in on-line tasks. Besides, he adds that the L1 affects the processing of wh-movement in the L2 only to certain extent, since, regardless of the language, all the three L2 learner groups in his study experienced Subject-Object asymmetries when processing grammatical wh-extraction. Finally, Juffs proved that word order in the L1 has an additional negative effect when processing wh-extraction in cases where there is no wh-movement in the L1.

In the context of the Basque Autonomous Community, Gutierrez and García Mayo (2008) reported findings from 260 young and old learners who were enrolled in model D at school. This means that Basque was the main language of instruction and Spanish was taught as an ordinary subject. By contrast, English was taught as a foreign language to all of the participants. Their level of proficiency in English was established by the teacher as "beginners" when students were younger than 15. The older participants took an Oxford Placement Test (OPT) which indicated that overall, their proficiency level was "low intermediate".

The three languages of the participants (Spanish, Basque and English) shared the way of forming LD wh-questions. Therefore, it would not seem necessary for the participants to find other mechanisms at the time of constructing wh-questions. The findings from the analysis of data obtained from a written grammaticality judgment task and an oral comprehension task showed that there were instances of partial wh-movement and wh-copying in the participants' productions. This could not be accounted for in terms of L1

transfer, because these structures were not licensed in their L1s, hence, they could only be explained in terms of access to UG in the SLA process.

The authors conclude that “UG is indeed accessible in L2 acquisition, which as White (2003) pointed out, cannot be interpreted in exclusion of L1 influence.” Gutierrez and García Mayo (2008:282). Therefore, on the basis of the findings from the papers reviewed above we need to assume that there is a complex interaction between the L1 and other options allowed by UG.

In the studies reported on above, the findings were explained on the basis of access to UG and/or L1 influence in the SLA process. In the following section, I will review two more recent studies that consider the impact of derivational complexity in the acquisition of wh-questions.

#### **4. Derivational complexity and L2 wh-question acquisition**

As stated by Slavkov (2014:182), the derivational complexity hypothesis (DCH) encodes a “developmental view of language acquisition in which grammar and processing are two separate but interdependent systems”. In other words, it is assumed that in the process of acquisition of either L1 or L2, learners develop their grammars acquiring first derivationally simpler structures moving on to more complex structures as their processing resources and capacity increase. Hence in this process learners go through different stages in which they are exposed to a number of structures some of which are more demanding than others, the latter being the ones to be acquired in the later stages of acquisition. That is to say, “all other things being equal, derivations that are less complex appear earlier in language development” (Slavkov, 2014:182). Jakubowicz and Strik (2008) put forward the DCH and the following is the metric they designed to measure derivational complexity.

##### **(28) Derivational complexity Metric (DCM)**

- a) Merging  $\alpha_i$   $n$  times gives rise to a less complex derivation than merging  $\alpha_i$  ( $n + 1$ ) times.
- b) Internal Merge of  $\alpha$  gives rise to a less complex derivation than Internal Merge of  $\alpha + \beta$ . (Jakubowicz and Strik, 2008:106)

Since we are dealing with wh-movement, let me put the formulae above in the context of our interest. On the one hand, sentence (28a) basically says that the language learner is sensitive to the number of times a wh-element needs to move in the sentence. This means that if in a given structure a wh-word needs to move only once, as in (29), that structure would be derivationally simpler and, consequently, easier to acquire than a structure in which more than one wh-word movements are required, as in (30):

(29) What did Susan eat? (1 movement involved; derivationally simpler)

(30) What did Peter say that Susan ate? (2 movements involved; derivationally more complex)

On the other hand, sentence (28b) suggests that the language learner would show preference for these structures in which only one wh-element is moved in comparison to structures that involve movement of more than one element.

The DCH has mostly been applied to LD wh-movement in L1 and child SLA, but adult L2 learners also seem to show preference for derivationally simpler structures at the first stages of L2 acquisition. Within this context, Slavkov (2014) provided evidence for this idea with his research on questions with LD wh-movement produced by L1 French (Canadian) and L1 Bulgarian adult learners of L2 English. The aim of his research was threefold; firstly, he wanted to add two new typologically distinct L1 backgrounds. Secondly, he was interested in analyzing not only medial wh-construction and the issues they may have given rise to but also other structures that are allowed by UG. Lastly, he wanted to discuss the role of grammatical competence versus processing in L2 acquisition and adopted an approach in which both are needed to account for the phenomena observed; that is, the derivational hypothesis approach. Below you can find



the complexity hierarchy of wh-questions (in all languages) according to this approach.

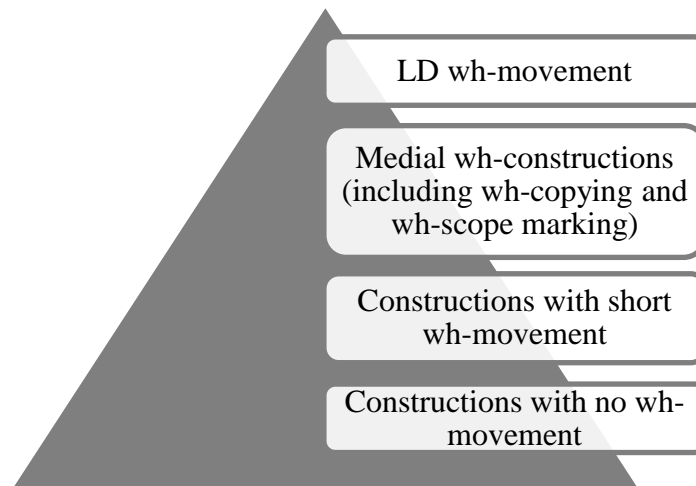


Figure 3: Derivational complexity hierarchy of wh-questions.

In the study by Slavkov (2014) data came from a group of 66 subjects, all of whom were adults. This group was divided into 26 L1 French speakers enrolled in a summer English as a Second Language (ESL) program in Ottawa (Canada) and were between 15 and 18 years old; 30 L1 Bulgarian adult L2 English learners who were enrolled in a English as a Foreign Language (EFL) program at the Department of Language Learning of Sofia University in Bulgaria who were between 18 and 40 years old; and finally, a last group of 10 native speakers of English who belonged to the control group (i.e the group with whom to make comparisons). Slavkov (2014) used the already standardized methodology employed by Thornton (1990) which consisted in a guessing game especially designed so as to elicit LD wh-movement questions. However, a language background questionnaire was given to participants and those who reported that they had more than one L1 were excluded. The task involved 15 different situations and the targeted structures included object and adjunct wh-extractions.

French has a very rich system of wh-question formation; wh-in-situ, plain wh-fronting, wh-fronting with the question marker ‘*est-ce que*’, wh-fronting with clefting and wh-fronting with inversion. Hence French speakers should realize that English is much more limited in this respect and thus, L1 transfer may lead the learner to both positive and negative transfer.

As far as Bulgarian is concerned, its system to form wh-questions is similar to that of English but differs from it in that, when there are several wh-phrases in the same

sentence, multiple wh-elements can be moved to initial position in Bulgarian as in (31), whereas in English only one wh-element moves and the rest remain in situ, as in (32):

(31) Koj, kâde, (koga) mislis (ce) Ivan e tselunal ?

Who, where, (when) think.2sg (that) Ivan has kissed

‘Who do you think (that) Ivan has kissed?’

(32) Who do you think Ivan kissed where (and when)?

(Slavkov, 2014:188)

Despite the differences, Bulgarian speakers were expected to feel quite comfortable with the target system of LD wh-questions due to the fact that in Bulgarian, speakers not only raise one wh-element as in English, but the raising of all wh-elements is allowed.

Slavkov (2014) found that both experimental groups used LD wh-movement in a target-like way although avoidance strategies could be perceived. The avoidance strategies used by the two groups were remarkably similar but the two populations differed in the rates of variance strategies since French subjects showed a higher rate of LD wh-movement and of biclausal structures in general while Bulgarian ones were characterized by their use of monoclausal structures and medial wh- questions. Hence, it could be said that, overall, the Bulgarian population made a higher use of avoidance strategies. “Many of these avoidance strategies were constructions that are licensed options in English, including embedded wh-questions, yes/no questions, and monoclausal wh-questions; however they were not appropriate in the particular elicitation context” (Slavkov, 2014:202). Note that the general proficiency of the participants was placed at low intermediate level; this may suggest that their grammatical competence and availability of processing resources is not yet high enough to consistently produce LD wh-questions in a target-like way but that this will be possible as they become more proficient in the L2. However, despite the low level of proficiency both populations were able to produce target-like LD wh-questions (66% of French and 43% of Bulgarian), which as reported by the researcher is a very positive indication. Finally, as far as L1 transfer is concerned, it could be assumed that positive transfer played a more important role than negative transfer in both groups due to the fact that their corresponding L1 systems use the mechanism of LD wh-movement in

complex question formation. Overall, the results in Slavkov (2014)'s study supported the DCH in L2 acquisition even though this metric does not offer specific predictions about exactly which type of productions should be expected at any given stage of acquisition.

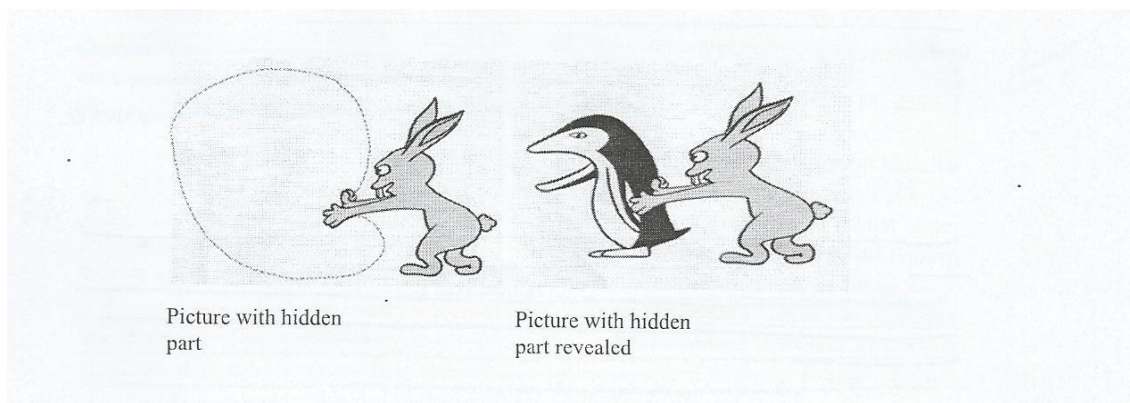
It is also interesting to see how derivational complexity interacts with other factors at the time of language acquisition. In order to see this, I will consider Prévost, Strik and Tuller (2014), whose goal was to unveil whether interaction of derivational complexity with other factors considered influential at the time of acquiring an L2 may influence the process of SLA. This group of researchers selected their participants from two previous studies conducted by Prévost, Tuller, Scheidnes, Ferré and Haiden (2010) and Strik (2012). It is worth pointing out that few researchers have conducted studies on wh-question formation with L2 French as the target language. As far as I can tell, only three studies have looked at spontaneous production of L2 French learners (Belletti and Hamann, 2004; Bonnesen and Kroffke, 2007 and Grondin and White, 1996) and two at elicited production (Prévost et al., 2010 and Strik, 2012). Hence, Prévost et al. (2014) aimed at finding a reasonable justification for the different results obtained in the two previous elicited production studies in L2 French by L1 English and L1 Dutch child learners ((Prévost et al., 2010 and Strik, 2012). More precisely, their focus was on whether these differences may have been caused by differences in onset age (i.e age of first exposure), length of exposure and L2 input or whether they were a result of different L1 (Dutch and English) properties.

In order to conduct their analysis, Prévost et al. (2014) considered 15 Dutch-speaking children from Strik (2012)'s study and 15 English-speaking children from Prévost et al. (2010)'s. All the participants were regularly attending French elementary school at the time of testing, which means that they were exposed to a highly formal register. Besides, all of them lived in France at the time of testing and Dutch and English were their home languages. However, there were some relevant differences among the two groups of participants. First, L1 English (mean age 8;1) children were significantly older than L1 Dutch (mean age 6;3) L2 French learners. Thus, it may not be surprising that whereas onset age was about 4 years old in the English group, the Dutch group first contact with the target language was earlier than at 4. Consequently, this meant that the length of exposure was significantly higher in the L1 Dutch group.

In this study participants were subdivided in 3 groups matching the children for age, age of onset (AoO) and length of exposure (LoE) so as to make more detailed comparisons between the British and the Dutch children. A picture task was used to elicit wh-questions and it contained 54 test items that were presented in a randomized but fixed order. There is an example below:

(33) Le lapin pousse quelqu'un, mais on ne voit pas qui. Demande-lui.

‘The rabbit is pushing somebody, but we don’t know who. Ask him’



(Prévost et al.,2014:236)

As mentioned above, French features various ways of constructing wh-questions. In Dutch, only one wh-question structure is attested, the same as in English. However, English is a residual V2 language while Dutch is a V2 one. This means that in Dutch the finite verb obligatorily needs to be the second constituent in all type of clauses (main or embedded) whereas in English “the finite verb is in second position in wh-questions and perhaps certain other constructions, but not across the board” (Holmberg, 2013: 2)

Results indicated that no matter the way they were subdivided (by age, AoO or LoE) both L1 English and L1 Dutch children mainly used plain wh-fronting in French. Among the rest of the options allowed by the French wh-question forming system, wh-in-situ and wh-fronting with inversion were mostly employed by L1 English children rather than the L1 Dutch children. On the one hand, this preference cannot be explained by age, AoE or LoE since both groups behaved similarly in the production of this structure. By contrast, the fact that both populations use wh-in situ questions despite the fact this option is not allowed in their native systems shows that the predictions made by the DCH are correct and learners opt for the simplest structures even if these are not

licensed in their native languages. This way it is proven that derivational complexity does, indeed, play a role in L2 acquisition as it was argued by Prévost et al. (2010). In other words, “children favored the least complex fronting constructions, rather than the fronting strategy used in their L1” (Prévost et al, 2014:241).

On the other hand, the fact that English-speaking children use inversion more frequently than Dutch-speaking children can be accounted for by looking at the properties of the L2 input they receive. We should bear in mind that the English population was significantly older than the Dutch group, hence, schooling is understood to have a normative effect in this aspect because as I have already mentioned wh-fronting with inversion in French is mostly used in formal speech, and hence older students may have perceived this structure more in their L2 input. To these researchers it was clear that the longer the exposure the more complex questions L2 learners were able to produce, and not only that but they would frequently abandon less complex constructions.

All in all, the results presented in the study by Prévost et al. (2014) showed that there is what they call a “trial interaction” between L1 properties, input and computational complexity whereas AoO and LoE have a limited impact in this case.

## **5. Ultimate attainment**

Finally, I consider it interesting to have a look at the steady-state grammars of people who have completed their L2 acquisition process. A question that usually rises is whether it is possible or not to achieve native-like proficiency when dealing with an L2. In fact, it is usually assumed that ultimate attainment is precisely what marks the difference between an L1 and an L2. That is to say, in L1 acquisition all acquirers are supposed to achieve the same linguistic competence. That is not the case with L2 acquisition, though. This is so because each L1 is constrained by a variety of values that are part of UG. However, the L2 (L2 English, for instance) is constrained by the same values for all L2 English learners regardless their L1 and these learners do not always capture all the constraints in the L2 so they end up with different grammars. In this respect, White (2003:241) stated the following:

Intuitively, it might seem obvious: (i) that L2 speakers differ from each other in their ultimate attainment, even in cases of the speakers with the same L1 who have acquired the same L2; and (ii) that the endstate grammars of L2 speakers differ from the native speaker steady-state.

White (2003) makes a distinction between native-like, near-native, or non-native ultimate attainments. Different criteria have been used to determine that a learner has achieved his or her endstate; length of residence in a country where the L2 is spoken, frequency of use of the L2, proficiency level or degree or native-like performance. However, these criteria might sometimes be misleading and thus, as proposed by Lardiere (1998a and 1998b), longitudinal data might be the best resource used to see if a learner has completed his/her L2 acquisition process or not.

It does not come as a surprise that the issue of the critical period plays a role in the ultimate attainment. Long (1990:255) suggested that if morphological and syntactic aspects of the language are not acquired before the age of 15 it would be hard for that acquirer to ever fully acquire them since from this age on language-learning abilities decline and this severely affects the outcome of the acquisition process.

The phenomenon of near-nativeness is of special interest to me. White and Genesee (1996) suggested that L2 learners who could pass, mostly, as native speakers of an L2 were likely to have attained a native like, yet not identical steady-state linguistic competence in the L2. In order to investigate that, White and Genesee (1996) centered on the the Subjacency Principle in participants who had reached native-like proficiency on the basis of independent criteria. They used computerized grammaticality judgment tasks in which they included ungrammatical subjacency violations as well as grammatical sentences. Results showed that near-native speakers performed with a high level of accuracy in the task. Hence, they claimed that no kind of significant differences existed in the competence of near-native and native speakers and concluded that the competence of these near-natives was clearly native-like. Hence the differences must be at the performance level.

## 6. Conclusion

The main goal of this paper was to provide an overview of the L2 acquisition of LD wh-movement. In order to do so, first I presented information about the framework within which I was going to approach the topic, namely the generative framework. Then I considered it convenient to show how different languages vary in the way they form wh-questions before I focused on wh-movement in English and its constraints. The paper reviewed some research studies on the acquisition of wh-questions in L1 and L2 English as well as L2 French. By doing so, I tried to show that the three main issues discussed in the paper -access to UG, L1 influence and how derivationally complex structures are- have an impact on the acquisition process. I have also briefly mentioned the issue of whether non-native speakers could be native-like in this type of structures.

As a personal reflection I would like to add that this was the first time that I have written a paper of this kind and, although I needed to devote many hours to it, I believe it has been a very challenging and rewarding experience through which I have learned a number of very interesting things. On the one hand, it has been very interesting to learn about how the generative approach has been applied to SLA data. On the other hand, I would have never imagined that the errors made by L2 learners acquiring wh-questions could be accounted for in terms of derivational complexity and UG accessibility. In fact, I found the interaction of these constructs especially amazing. Equally attractive was the classification by White (2003) for L2 acquirers depending on their ultimate attainment and more precisely the issue of near-nativeness. The truth is that I have always asked myself if I would one day be able to produce the English language in a native-like way and by investigating to write this paper I have learned that I could possibly reach target-like competence but performance would be a different story. Still, I believe that more research into ultimate attainment of L2 learners is necessary before making any further claim on the impossibility of reaching target-like performance.

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