PROFICIENCY MATTERS: L2 AVOIDANCE IN SPANISH COMPLEX *WH-* PRODUCTION

María Turrero-García
Drew University

ABSTRACT. The Derivational Complexity Hypothesis (Jakubowicz & Strik 2008) proposes that computationally complex structures interact with syntactic constraints in linguistic production, causing the rise of avoidance strategies in child L1 and adult L2 speakers. These avoidance strategies have until recently been understudied in the field of SLA (as opposed to the use of ungrammatical structures), but they actively compete with target-like forms during the language acquisition process and can therefore advance our understanding of non-native linguistic development. This article provides evidence for the DCH based on avoidance strategies shown by non-native speakers of Spanish in the production of the *wh-* island (*How did you say when the jewels were stolen?*). Through a game-based elicitation task, speakers at the intermediate and high-advanced level were prompted to produce questions containing a *wh-* island. The results show that intermediate speakers of Spanish significantly avoid producing questions that contain an island, as opposed to native and high-advanced speakers. The strategies used instead of the target are of a less complex nature (pronominalization of the second clause, omission of the middle verb), therefore supporting the DCH. High-advanced and native data, on the other hand, show a use of creative strategies that is absent from the intermediate data. Off-target constructions by these groups often consist of questions that are structurally more complex than the intended target forms (use of relative clauses and embedded NPs).

Keywords. Second Language Acquisition; Derivational Complexity Hypothesis; Avoidance Strategies; Wh- Islands; Production; Spanish.

RESUMEN. La Hipótesis de Complejidad Derivacional (Jakubowicz y Strik 2008) propone que las estructuras complejas desde un punto de vista computacional interactúan con las restricciones sintácticas en la producción lingüística, causando así un aumento del uso de estrategias de evasión en hablantes de L1 (niños) y L2 (adultos). Estas estrategias de evasión han recibido poca atención en el campo de la adquisición de segunda lengua hasta la fecha (a diferencia del uso de estructuras agramaticales), pero compiten con las formas meta durante el proceso de adquisición y, por tanto, pueden contribuir a nuestro conocimiento del desarrollo lingüístico no nativo. Este artículo apoya la HCD basándose en el uso de estrategias de evasión por parte de hablantes no nativos de español en la producción de la isla *qu-* (*¿Cómo dijiste cuándo fueron robadas las joyas?*). Con el uso de un experimento de estimulación lúdico, se motivó a dos grupos de hablantes intermedios y cuasi-nativos a producir preguntas que contuvieran una isla *qu-*. Los resultados muestran que los hablantes intermedios evitan producir preguntas que contengan una isla, al contrario que los hablantes cuasi-nativos y nativos. En su lugar, utilizan estructuras más simples desde un punto de vista computacional (pronominalización de la segunda cláusula, omisión del verbo medio), apoyando por tanto la HDC. Los datos nativos y cuasi-nativos, por otra parte, muestran un uso de estrategias creativas no existente en los datos intermedios. Cuando estos grupos proporcionan respuestas alejadas de la meta, a menudo se trata de preguntas más complejas computacionalmente que la meta esperada (uso de oraciones relativas y sintagmas nominales subordinados).

Keywords. Adquisición de segunda lengua; hipótesis de complejidad derivacional; estrategias de evasion; islas *qu-*; producción; español

1. Introduction

Research in both First and Second Language Acquisition (henceforth SLA) has long been interested in an observed asymmetry between interpretation and production of linguistic strategies. This dichotomy is caused by the flexibility in interpretation and/or processing shown by non-native speakers (or infants, in the case of First Language Acquisition) as opposed to their conservatism in production (Hendriks 2014, Snyder 2007, Conroy and Lidz 2007, Tasseva-Kurktchieva 2008, Pickering & Garrod 2013, Chater 2016, Unal & Papafragou 2016). Most researchers on the field accept this asymmetry nowadays, but this discussion is still an open one (v. Pickering & Garrod 2013 for a unified account of production and comprehension).

This claimed conservatism in production can take different forms, but it can be argued that its main manifestation is avoidance. When speakers feel unsure about a structure in production, they often chose to ignore that option altogether, resorting to alternative, less computationally demanding structures.

Wh- movement is an area of linguistic inquiry where computational complexity plays a meaningful role. Movement can be either local or long-distance, creating a first layer of distinct complexity. Within long-distance constructions, the moved structure can undergo a number of cycles, adding an extra layer of complexity with each additional move (Stepanov 2001, Felser 2003, van Urk & Richards 2015, Schippers 2016). Therefore, computational complexity within *wh-* movement is subject to much derivational variability. This makes it an ideal structure for testing for any theoretical account of linguistic computation that takes complexity as its basis.

The main aim of this article is to provide data-based evidence for an approach to SLA that focuses on the role of avoidance as an active production strategy. Particularly, this work seeks to analyze whether proficiency co-relates to use of avoidance strategies in the production of *wh*-island-containing questions in two groups of L2 Spanish speakers (intermediate and high-advanced levels), as well as how proficiency influences the use of creativity in the completion of the proposed task.

1.2. Wh- islands

When a bi-clausal question contains two wh- words, one in the higher SpecCP and the other in the lower SpecCP position (see Example 1 below), *wh-* islands may occur. In these structures, the fronted wh- word is the target, [+direct] wh- word, whereas the middle wh- word undergoes local movement within its CP. The nature of the subcategorization frames of both verbs in the clause determines whether the medial *wh-* word constitutes a barrier for movement or not. Authors such as Chomsky (1977), Johnson (2002), Truswell (2007) have claimed that there is an asymmetry between argument and adjunct extraction, the latter being more restrictive than the former, both for the English and for the Spanish grammar. Example (1) shows this distinction, where 1.a. shows the grammaticality of lower clause extraction of arguments while 1.b. shows its ungrammaticality for adjuncts:

(1)   a. Who did she ask how to help?
        a.i. Who$_i$ did she ask (t$_i$) how to help?
        a.ii. Who$_i$ did she ask how to help (t$_i$)?

        b. How did she ask who to help?
        b.i. How$_i$ did she ask (t$_i$) who to help?
        b.ii. *How$_i$ did she ask who to help (t$_i$)?

As seen in example (1b), the extraction of an adjunct *wh-* word from this type of bi-clausal construction creates an island for extraction. Therefore, from a syntactic point of view, in questions such as Example (2) below, the only available option to the adult native speaker would be to carry out an operation of local movement, hence interpreting the initial wh- word within its CP (that is, responding only to the fronted 'Where'). The intermediate wh- word (which is an indirect question, with the feature [-qu] keeping it from requiring a response) would also have to be interpreted as having undergone local movement within its own clause.

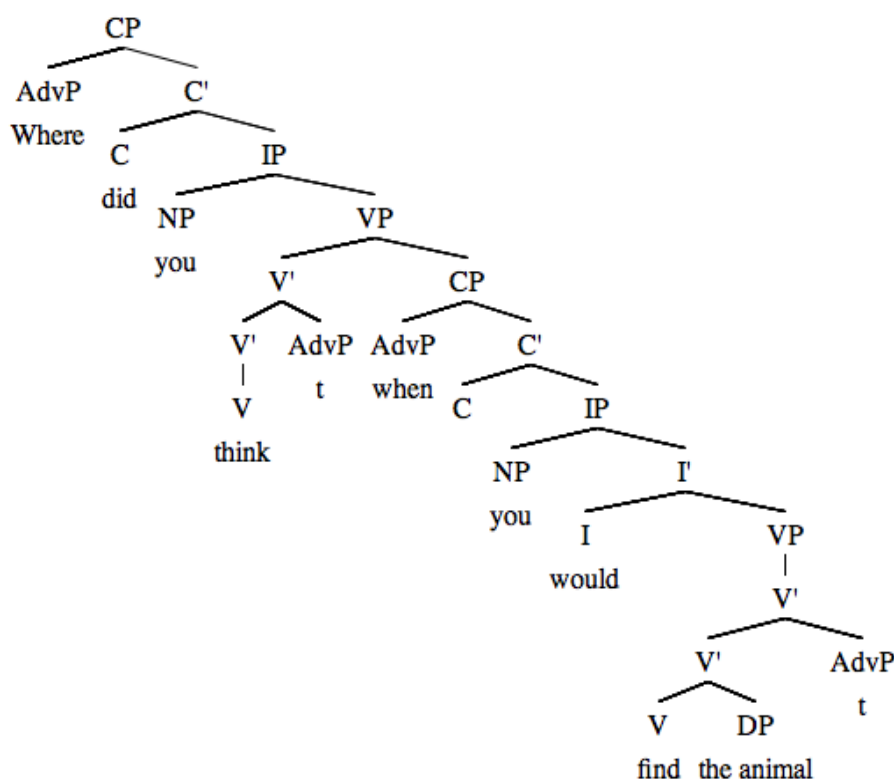(2)   "*Where$_i$ did you think when you would find the animal t$_i$?"

Figure 1: Syntactic representation of English *Wh-* island

In a structure like the one presented above, long-distance movement of the higher *wh-* word is disallowed due to the presence of a wh- word in the lower SpecCP position. That *wh-* word in the lower SpecCP would block extraction of a *wh-* word originated below it, since the absence of a resting site prohibits that movement, and since wh-movement needs to be cyclic (Chomsky 1973, Chung 1982).

2. Background and Motivation

2.1. Avoidance

Alonso-Vázquez (2005) defines avoidance as the procedural strategy that learners use when they substitute the "required" form with another because they lack the necessary linguistic abilities to produce the target. Based on the model by Faerch and Kasper (1983), the author proposes the existence of "avoiding behavior" in L2 speakers. This entails that non-native speakers of a language tend to use alternative structures when they feel unsure about a specific linguistic structure. As Laufer and Eliasson

(1993: 36) claim, "Any description of learner language must account for avoidance (…). Explaining why avoidance occurs contributes to our understanding of the operating principles that underlie the process of L2 learning". Avoidance can inform researchers not only of the difficulty faced by learners of a second language, but also of the tools that are available for them in compensating for their shortcomings.

Most research on avoidance strategies to date has been grounded on classroom-based studies (Schachter 1974, Kleinmann 1977, Tarone 1983, Hubert 2011, 2015). Avoidance became a topic of interest in Error Analysis (Schachter 1974, Kleinmann 1977, Tarone 1983) and, when this theoretical current was abandoned in favor of new trends, it lost part of its spotlight in SLA and Applied Linguistics research. In recent years, however, there has been a resurgence of the idea of linguistic avoidance as central to L2 acquisition based on new theoretical trends such as the Derivational Complexity Hypothesis, explained below (Jakubowicz and Strik 2008, Prévost et al. 2014, Slavkov 2015). Hubert (2011, 2015) looks into the extent to which non-native speakers of Spanish use the grammatical structures learned in a university setting (specifically, the distinction between preterit and imperfect and the production of the present subjunctive) or whether they use avoidance strategies instead, both in speaking and writing. The data were gathered through oral interviews (Hubert 2011) and through two communicative writing assignments and post-task interviews with the instructor (Hubert 2015). His results suggest that avoidance of complex grammatical structures is common at all levels of language instruction in both modalities tested.

2.2. The Derivational Complexity Hypothesis

One of the hypotheses that have been proposed to account for avoidance in L2 production is the Derivational Complexity Hypothesis (DCH) (Jakubowicz 2004, Jakubowicz and Strik 2008). The DCH adopts Chomsky (2001) in the idea that the iteration of Merge (External Merge and Internal Merge) is the key to linguistic computation. The DCH is a developmental view of language acquisition where grammar and processing are two separate but interdependent systems. Jakubowicz (2004) claims that language acquisition is affected by developmental constraints such as working memory (WM) capacity. These developmental constraints appear to be sensitive to the complexity of the derivation, defined in terms of the number of times the Merge operation takes place in a given linguistic derivation, such that less complex derivations are 'input convergent' (i.e. correctly spelled out as pronounced) before more complex derivations (Slavkov 2015). Derivational Complexity can be measured by the following metric:

1. Derivational Complexity Metric
   A. Merging α n times gives rise to a less complex derivation than merging α (n+1) times.
   B. Internal Merge of α give rise to a less complex derivation than Internal Merge of $\alpha + \beta$
   (Jakubowicz and Strik 2008)

The DCH has only recently been applied to research on SLA (Prévost et al. 2010, Slavkov 2015). The main appeal of the DCH for many researchers who focus on *wh-*movement lies in the fact that it has the potential to make predictions about a wide range of constructions that are attested in long-distance *wh-* movement. With the DCM, researchers can contrast complex *wh-* questions with a large number of alternative productions and compare them in terms of relative acquisition difficulty. When

applying the DCM to *wh-* questions, the first notable observation that arises is that questions with long-distance movement are viewed as more complex than short-distance *wh-* questions. The more cycles a *wh-* expression undergoes, the more complex a new expression is (Slavkov 2015): the language learner is sensitive to the number of times a *wh-* element is moved during the utterance. This entails that utterances with fewer applications of *wh-* movement will be preferred initially, as well as derivations with movement of one element over derivations with movement of more than one element.

Prévost et al (2014) focus on child L2 acquisition of French by native speakers of both Dutch and English. Their study allows the researchers to test for how Derivational Complexity interacts with other variables such as L1 properties, L2 input, age of first exposure (AoE), or length of exposure (LoE). Their results show a triple interaction between L1 properties, input, and computational complexity: children avoid computational complexity in L2 acquisition, but only if this is compatible with the input options, and as long as one of the input options is not strongly favored by L1 properties. Hence, they claim that children opt for less complex strategies only within what is allowed in the language they are learning. According to the authors, complexity interacts with the properties of the target language, as children do not favor less complex options if they are not licensed in the target language (and hence are not part of the input to which speakers are exposed).

Slavkov (2015) analyzes the production of long-distance *wh-* questions by intermediate L2 speakers of English (L1 French and Bulgarian). Through the DCH, Slavkov proposes a complexity hierarchy for LD questions: LD wh-movement > Medial wh- constructions > Constructions with short movement > Constructions with no wh- movement. One of the main research questions in his study refers to the possibility that native speakers of French and Bulgarian resort to simpler constructions that avoid LD wh- movement, even when strongly prompted to use this syntactic structure. This constitutes an avoidance strategy, defined by the author as "a wide variety of alternative structures, which [have] a lower degree of derivational complexity" (Slavkov 2015: 202). The results of the study show a high tendency of non-native speakers of English to use avoidance strategies in their production of LD wh-questions.

Schulz (2011) studies the occurrence of non-L1, non-L2 structures in the interlanguage of L1 Japanese speakers of L2 English producing and judging long-distance *wh-* questions. Her main focus is on the existence of scope-marking strategies that are grammatical in some languages such as German (Brandner 2000) or Hindi (Lutz et al. 2000) but are not grammatical either in English or in Japanese. Her results are interpreted as evidence for Universal Grammar being available to non-native speakers, who entertain all typologically possible options until exposed to enough evidence from input to discard ungrammatical structures in the L2.

The focus of the current study are *wh-* islands and how/whether non-native speakers of Spanish produce them. In the case of the *wh-* island, avoidance in production is seen mainly in the substitution of the entire lower clause for a pronoun. This can be considered a resumptive strategy, which is an active strategy for L2 speakers. Of all non-target productions produced by native speakers, an avoidance scale based on complexity, *à la Slavkov,* would take the following form:

(3)   Complexity avoidance scale
        Target wh- island > wh-wh swap > other responses with long movement > wh-
        complementizer swap >omission middle wh- > other responses with only short
         movement > omission 2ⁿᵈ clause

3. Research Questions

1. Are non-native speakers of Spanish (L1 English) capable of producing questions that contain a *wh-* island at different proficiency levels?

It is expected that both intermediate and high-advanced L2 speakers of Spanish will produce the target structure with varying degrees of accuracy. However, because of the computational complexity of the *wh-* island, it is also expected that both groups will resort to avoidance strategies in their production.

2. a. What strategies are available for non-native speakers in order to avoid producing the highly complex target expected of them?
2. b. Are said avoidance strategies different for intermediate and for high-advanced speakers?

This work hypothesizes that intermediate speakers resort to avoidance by using strategies that allow them to minimize movement in their L2 *wh-* productions. This can be done through the use of pronouns that substitute the entire lower clause in these two-clause constructions, or through the nominalization of said lower clause. High-advanced speakers, on the other hand, are expected to resort to these strategies less frequently than their intermediate counterparts, although they are still expected to resort to less complex structures than the target. However, because their L2 proficiency is closer to that of native speakers, it is expected that their performance rely more on reducing complexity by producing long movement in questions while avoiding the usage of two *wh-* words that imply an extra layer of movement.

4. Methodology

This study focuses on the production of two distinct L2 Spanish groups: an intermediate group (n=30) and a high-advanced group (n=30). Their data was contrasted with that of a control group of monolingual native speakers of Peninsular Spanish (n=30).

All non-native speakers were recruited at a University in continental U.S. The intermediate group consisted of learners of Spanish at the intermediate level (5ᵗʰ semester), and the high-advanced group consisted mainly of graduate students of Spanish (completed Spanish major + graduate work carried out in Spanish). All non-native speakers were native speakers of English who had begun acquiring Spanish after age 15. None of the intermediate speakers had lived in a Spanish-speaking country for longer than one month. All high-advanced speakers lived in a Spanish-speaking country for at least three months. None of the speakers reported speaking any languages other than English or Spanish. The subjects had a 10-minute interview in Spanish with the experimenter where they were asked to talk about their previous experience with the language.

Production data for this experiment was gathered through a game-based elicitation technique. It was a deduction game based on a scenario in which subjects had to solve

a mystery theft. The game consisted of a board, suspect cards, event cards, and 'question word' cards. The steps to the experiment were the following:

1. The experimenter explained the task and asked if any clarification was needed.
2. The experimenter read an event card to the participant.
3. The participant picked a card from the WH- pile and formed a question fronted by whichever word they obtained from the pile. They were encouraged to ask a question worded as similarly to the original event as possible, but this was not mandatory.
4. The experimenter answered the question and the participant could move suspect cards around the board if they thought it useful.
5. The following event card was read.

The aim of the game was to elicit *wh-* islands from subjects. In order to do that, some of the event cards contained an embedded wh- question such as "Mr Gonzalez knew **where the security cameras were**". Some events focused on the time at which things happened, some on the place, and some on the manner. The question words available from the WH pile were "cuándo" [when], "dónde" [where], "cómo" [how], and "por qué" [why]. The question words were picked at random by the subjects, so the questions were sometimes pragmatically odd, but the aim was for their syntax to be as accurate as possible. Appendix 2 contains a comprehensive list of events included in the cards that subjects heard.

The experiment took place in the experimenter's office. First, participants filled out a language background questionnaire with information about their L1 and L2 experiences. After that, the experimenter explained the instructions and modelled the game to ensure comprehension. The experiment began right after, and it was recorded for further coding and analysis.

4.2. Coding

The open-ended nature of the task required a three-level coding process to be developed for the categorization and further analysis of the data. First, the questions produced by the subjects were categorized as being target or non-target. Target questions were those in which the subject created a question that contained the *wh* word from the card they picked, and the relevant information from the event card.
Example 4: Target production

(4). "When did Mrs. Garcia ask where the dogs were?"

Within non-target responses, a second tier of coding divided productions into grammatical, ungrammatical and non-sensical. Table 1 shows examples of each type.

TYPE	MEANING	EXAMPLE
Grammatical	Grammatical response that deviates from the expected outcome	*'When did he find the security cameras?'* (N-N 19) Target: *When did he know where the security cameras were?*
Ungrammatical	Ungrammatical question-formation structure	*'Why where (s/he) knew the dogs?'* (Interm. 23) Target: *Why did she know where the dogs were?*
Non-sensical	Question that, while grammatical, are completely unrelated to the experiment	*'Where do the guards achieve it?'* (Interm. 22) Target: *Where did he say when the guards rest?*

Table 1: Type of non-target responses

The last level of coding concerns the category of grammatical non-target responses. There are five distinct categories within this tier, as shown in Table 2.

TYPE	MEANING	EXAMPLE
Wh › wh	Target wh- word changed for a different wh- word	*'How did he ask **where** the guards rested?'* (Interm. 01) Target: *How did he ask **when** the guards rested?*
Wh › complementizer	Target wh- word changed for a complementizer (*if, that*)	*'Where did [s/he] ask **if**/**whether** there were dogs'* (Interm. 21) Target: *Where did [s/he] ask **where** the dogs were*
Omission middle	Middle *wh-* word and higher verb are omitted	*'How did Mr Martinez discover the jewels?'*- (Interm. 18) Target: *How did he discover where the jewels were?*
Omission 2ⁿᵈ clause	2ⁿᵈ clause is omitted entirely	*'How did [he] discover it?'* (N-N 04) Target: *How did he discover where the jewels were?*
Other	Response does not fit any of the previous categories	*'And how did he feel in front of the cameras?'*(N-N 26) Target: *How did he know where the cameras were?*

Table 2: Type of grammatical non-target responses

4.3. Statistical Analysis

Three separate analyses were carried out for each of the levels of coding carried out for this experiment. The first analysis, concerning the rate of target vs. non-target responses, was a one-way ANOVA used to determine group significance in overall accuracy scores. A series of post-hoc *t-test* were carried out for intra-group comparisons. For both the second and third level of analysis, Kruskal-Wallis tests were carried out, as the type of data under study calls for a non-parametric analysis. Post-hoc Mann-Whitney tests were carried out for pairwise intra-group comparisons.

5. Results and Analysis

The results of this experiment consist of 180 utterances per group (6 experimental utterances per speaker), with a total of 540 obtained from 90 speakers. Table 3 shows the total number of utterances produced in each category per experimental group.

TYPE	INTERMEDIATE	HIGH-ADVANCED	NATIVE
Target	100	93	118
Wh › wh	12	5	6
Wh › complementizer	4	7	13
Omission middle	25	41	26
Omission 2nd clause	10	1	1
Other	12	31	16
Ungrammatical + Non-sensical	17	2	0
TOTAL	**180**	**180**	**180**

Table 3: Utterances per category per speaker group

In the first tier of analysis, target vs. non-target productions (Figure 1), we find slight differences among groups that do not reach statistical significance. The control group provided a larger percentage of target productions (64%), followed by the intermediate group (54%) and the high-advanced group (51%). A one-way ANOVA reveals no statistical significance among groups (Table 4).
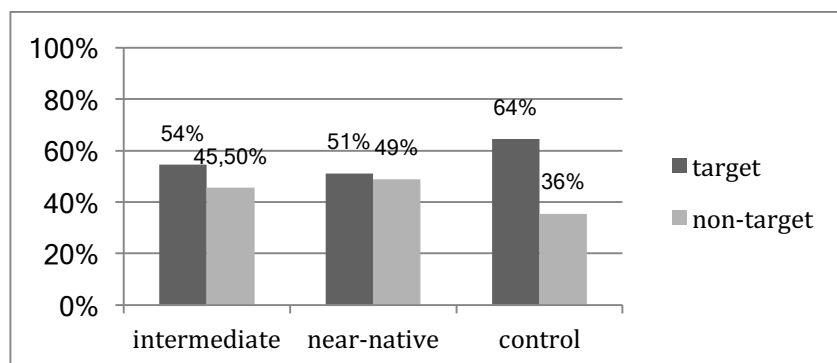

Figure 2: Target vs. Non-Target responses

	Sum of squares	d.f.	Mean square	F	p-value
Between groups:	12.356	2	6.178	1.95	0.148
Within groups:	275.6	87	3.168		
Total:	287.956	89			

Table 4. One-way ANOVA comparing the number of target responses among the three experimental groups.

Within the non-target responses, there is a division in non-target responses that are grammatical, non-target responses that are non-sensical (that show a clear lack of understanding from the speaker's perspective), and non-target responses that are ungrammatical (Figure 3).
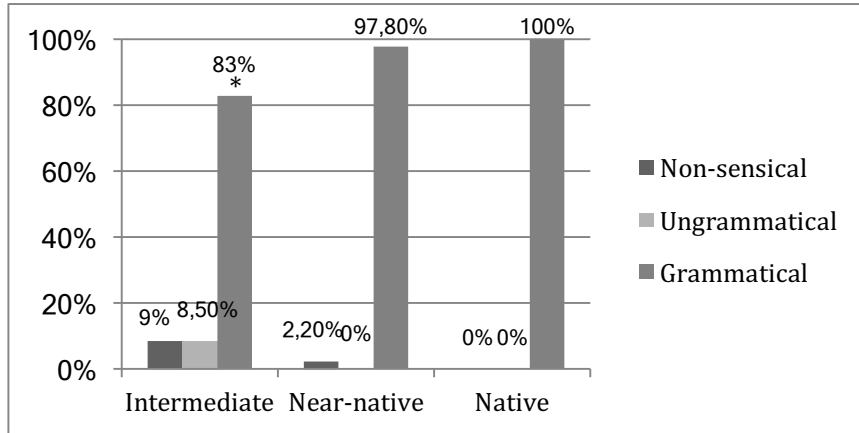
Figure 3: Type of Non-Target response

As seen in Figure 3, native speakers never produce any ungrammatical or non-sensical questions: their performance, whether target or off-target, is 100% grammatical. High-advanced speakers, true to their more advanced level, do not produce any ungrammatical questions, but 2.2% of their utterances are non-sensical, showing occasional misunderstanding of the task. Intermediate speakers are found to be the least linguistically accurate: 9% of their total non-target responses are non-sensical, and 8.5% are ungrammatical. For statistical analysis, the classes 'non-sensical' and 'ungrammatical' were combined. A contingency chi-square test is highly statistically significant (Chi-square= 27.365, 2 d.f., p<<0.001).

The third and most crucial analysis of the data consists of an analysis of the off-target but grammatical responses and on the different response types provided by all groups. The breakdown can be seen in Figure 4:
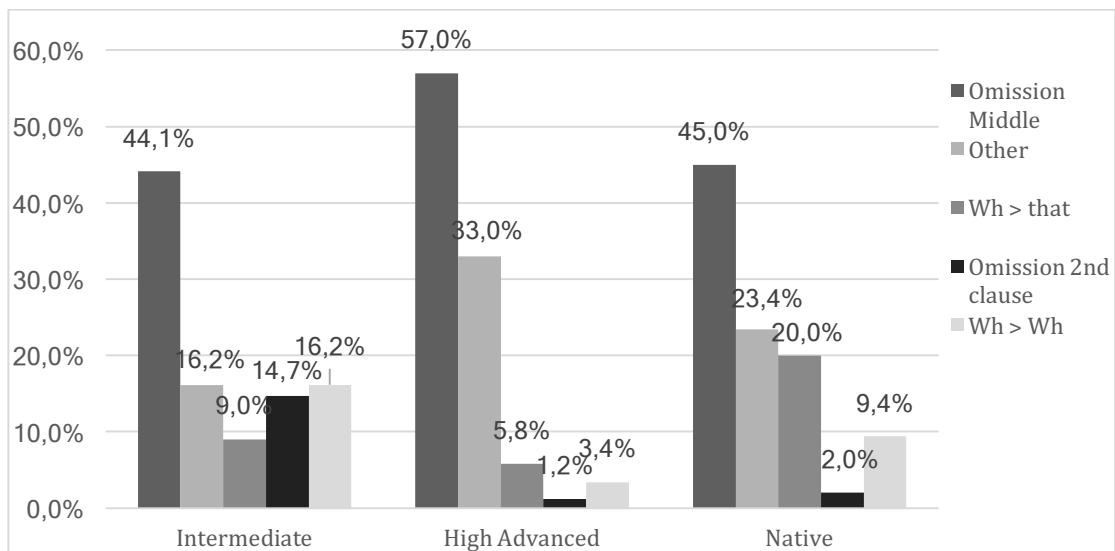

Figure 4: Type of Grammatical Non-Target Response

As Figure 4 shows, all three groups share a preference for the omission of the middle *wh-* word and middle verb, at a rate of 45% for native speakers, 57% for high-advanced and 44.11% for intermediates. One must keep in mind, however, that the nature of the task often allowed for this response pattern to occur; therefore, it is not surprising that all speakers would show a tendency to produce this simple, mono-clausal question. The second most common type of response was the "Other"

category, with 23.40% production by native speakers, 33% by high-advanced and 16.15% by intermediates. It is important to remember, however, that "Other" has different implications for the different proficiency levels, as is discussed below. The remaining three categories show much more group-specific variation. Native speakers' preference is to swap the middle *wh-* word for a complementizer (20% of responses fall under this category). This is strongly dispreferred by high-advanced (5.8%) and intermediate speakers (9%). Intermediate speakers, on the other hand, show a preference for omitting the second clause (14.7%) that is absent from native and non-native speakers (2% and 1.15%, respectively). They are also more prone to swap *wh-* words than the other groups are, at a rate of 16.15% as opposed to 9.38% for native speakers and 3.40% for high-advanced speakers. A contingency chi-square test is highly statistically significant (Chi-square=33.988, 8 d.f., p<<0.001).

5.1. *Native speakers and complementizer swap*

This type of non-target production implies a shift in the syntactic position occupied by the element in the middle, but both are possible options in Spanish: while the *wh-* word is located in SpecCP, both "que" and "si" complementizers are in a lower branch, SpecC'. The fact that this strategy is much more active for native speakers than for either experimental group seems to suggest a difference in their internal grammar, by which native speakers have a preference to keep a medial element in LD questions, whether it be a SpecCP *wh-* word or a different type of complementizer; whereas non-native speakers favor different question-forming strategies that do not involve a complementizer. Native speakers, as seen in this task, do not need to reduce their questions in length, even though they show a preference for making them syntactically simpler through changing the *wh-* word for a complementizer. This creates a contrast with non-native speakers, whose strategies show a tendency to reduce sentence length by all possible means. This was reinforced from a post-hoc Chi-square test comparing the proportion of Wh-to-Complementizer swaps among the three groups. The results are statistically significant (Chi-square=8.036, 2 d.f., p=0.016).

5.2. *High-advanced speakers and 'Other' responses*

The variation in the choice of this response pattern already speaks for itself: this strategy is rather dispreferred by the intermediate speakers, who do not yet possess the creative ability in Spanish that this choice requires. Most "other" questions produced by intermediate speakers are related to the information provided by the situation (an example of this would be a question such as "When did they arrive from the train?" for a target "When did they ask how to arrive to the train station?"). High-advanced and native speakers, on the other hand, produce questions categorized as "other" with much more freedom and creativity. The graph above presents a 33% of "other" productions for high-advanced speakers, and 23.40% for native speakers. A contingency chi-square comparing intermediate and high-advanced results was significant at 0.05 error probability (Chi-square=5.329, 1 d.f., p=0.02). The qualitative analysis of the data for this experiment, however, provides a better understanding of the phenomenon. It stems from the data that native and high-advanced speakers' focus in this experiment is in forming questions that will aid them in solving the mystery that is presented as the ultimate goal of the game rather than being linguistically compliant with the rules of the game. They do this by asking questions that will give them what they consider to be the maximum amount of relevant information, rather than questions that follow the model originally given to them. The author believes this to stem from their superior confidence in their linguistic abilities: their focus can easily shift from the Spanish-

language challenge and into the logical-deductive challenge of the task. This entails that some responses deviate completely from the expected target, but still comply with the general rule of the game that expects them to use the given wh- word to find information about the clues provided (examples of this would be: "¿*Cómo podría el Sr. Rodriguez inventar una justificación para sus acciones durante la fiesta*?" 'How could Mr. Rodriguez make up a justification for his actions during the party?' instead of the expected 'How did he say when the guards took a break?' [high-advanced speaker 7] or "*Cuando preguntó cuántas salidas hay, ¿ya había echado la siesta*?" 'When she asked how many exits there are, had she already taken a nap?' [native speaker 16]). This is done in very creative ways, where the focus of the question is off target-like accuracy (although, as seen above, these speakers produce highly accurate sentences from a syntactic perspective) and on the actual potential responses they may obtain. This strategy, therefore, would not constitute an avoidance strategy *per se*, as it draws from a very rich and complex pool of syntactic structures. Although it is a deviation from the target, it does not serve the specific purpose of sidestepping the use of a *wh-* island.

5.3. *Intermediate speakers and clause omission*

While not exclusive to the intermediate group, the tendency to omit the second clause (most often, but not only, through substitution for a pronoun) is significantly most pronounced in this group whose linguistic abilities in Spanish do not give them much freedom to be creative with the language yet. Of all possible target and non-target question-forming strategies, this was the least favored by both high-advanced and native speakers, whose command of Spanish is high enough that complex sentence formation is not necessarily considered challenging. The pattern is very different for intermediate speakers, whose production of this alternative reaches 14.7%. These results are statistically significant: while there is no significant difference between the native and the high-advanced speakers, the intermediate groups' results are significantly higher (Chi-square=17.252, 2 d.f., p=0.0001, highly significant after Bonferroni correction for three post-hoc comparisons). This is consistent with an avoidance-based explanation of the data: as proficiency augments, so does syntactic and structural complexity. As this strategy is the one that most clearly represents avoiding the production of a *wh-* island, since it reduces the entire embedded question to a single pronoun, it is not surprising that the group with lowest proficiency should take advantage of it to such an extent.

6. Discussion

Overall, the results obtained in this study are consistent with an account of Second Language production based on derivational complexity. The DCH predicts that the more complex a linguistic structure is, the more L2 speakers will avoid producing it and will opt, instead, for structures with a lesser number of Merge operations. In the case of the *wh-* island, there are multiple Merge operations taking place (both in the higher and the lower CP). The data presented here consistently show that non-native speakers of Spanish favor linguistic constructions that have few movement operations, relying instead on resumptive and reductive strategies.

The first research question addressed the issue of whether non-native speakers would be able to produce questions containing a *wh-* island at all. As hypothesized, the results show a capacity from both intermediate and high-advanced speakers to ask these questions when prompted to do so. The proficiency gap that was expected is seen in the data, with high-advanced speakers showing a much higher command of the various linguistic skills required by the task. Avoidance strategies were present in both groups,

but prominently more so in the intermediate speakers, as shown especially by their use of omission strategies that were dispreferred by their high-advanced and native counterparts. This use of avoidance strategies complies with a view of L2 acquisition that proposes production as a more conservative aspect of linguistic acquisition. Previous research (Author 2013) shows that interpretation of *wh-* questions by non-native speakers of Spanish shows differences by proficiency level, but avoidance is not found in interpretation. While it would be possible to attribute this difference to specific task limitations, the reality of the matter is that interpretation by non-native speakers is more accurate than their production is.

The second research question addressed the nature of avoidance strategies. The different linguistic structures used by non-native speakers at the intermediate level are consistent with a DCH approach of language production. Questions where the movement of *wh-* word was minimized are prevalent, as is expected by an account to production that considers derivational complexity to be the driving force of speakers' decisions. The low occurrence of *Other* responses when compared with the other experimental groups suggests that these speakers lack the necessary skills to use more complex structures at this point in their L2 experience. Meanwhile, the strategies used by high-advanced speakers, while showing some avoidance, remain open to interpretation: some of the questions asked by this group of speakers showed great computational complexity and where, in fact, on par with those provided by native speakers. An explanation for this may look into issues of how (or whether) creativity improves alongside the second language. Further research is necessary at this point to better understand issues of creativity and SLA.

This study has a number of theoretical implications. First, this article demonstrates how proficiency impacts the degree to which computationally complex structures are produced. While there is no evidence for a full convergence with native speakers, there is a clear pattern of advancement towards the target standard. Further research based on longitudinal studies could help determine if the production of L2 speakers with respect to the *wh-* island ever fully converges with that of natives. Second, the support for the Derivational Complexity Hypothesis provided by the data in this study expands the grammatical structures in which this computational approach holds. It is therefore expected that further testing of structures that undergo multiple Merge operations would yield similar results consistent with the DCH. Future studies should address how other such linguistic constructions affect non-native speaker production in different languages. Finally, this study is (to the author's knowledge) the first to study the DCH in Spanish as an L2 in relation to the *wh* island (see Frank 2013 for a DCH account of Spanish L2 *wh* inversion). As the DCH is considered to be a linguistically universal hypothesis, the expansion of research within this framework to other languages provides further evidence of how computation factors interact with syntax in a number of different contexts and linguistic properties.

7. Conclusion

This study has shown that intermediate speakers of Spanish use avoidance as an active strategy in the production of questions containing a wh- island. Upper-level speakers, however, have the capacity to resort to more innovative linguistic structures, therefore producing questions that are more focused on the pragmatic contents of the responses to be obtained than on producing questions that are grammatically reduced. Future studies should further investigate the issue of avoidance in a twofold manner. On the one hand, the use of avoidance in the production of L2 can be a proficiency indicator. As the present work indicates, proficient speakers are less likely to resort to

avoidance, opting for more creative linguistic forms. On the other hand, the identification of avoidance can in turn be used to develop teaching strategies that directly tackle computationally complex structures in a way that prevents students from eluding their production.

María Turrero-García
Brothers College 205B
36 Madison Avenue
Madison, NJ, 07940
mturrerogarcia@drew.edu

References

Alonso Vázquez, M.C. (2005). Avoidance as a learning strategy. *Estudios ingleses de la Universidad Complutense* 13, 67-83.

Brandner, E. (2000) Scope marking and clausal typing, in Lutz, U., Muller, G. and von Stechow, A. (eds.), *Wh- Scope Marking*. Amsterdam: John Benjamins, 45-75. https://doi.org/10.1075/la.37.03bra

Chater, N, S. M. McCauley, and M. H. Christiansen (2016). Language As Skill: Intertwining Comprehension And Production. *Journal Of Memory And Language* 89, 244-254. https://doi.org/10.1016/j.jml.2015.11.004

Chomsky, N. (2001). Derivation by phase, in M. Kenstowicz (ed.), *Ken Hale: A life in language*. Cambridge: MIT Press, 1-52.

Chomsky, N. (1977). On wh-movement, in P. Culicover, T. Wasow, and A. Akmajian (eds.), *Formal syntax*. St. Louis: Academic Press, 71-132.

Chomsky, N. (1973). Conditions on Transformations, in S. Anderson and P. Kiparsky (eds.), *A Festschrift for Morris Halle*. New York: Holt, Rinehart & Winston, 232–286.

Chung,S. (1982) Unbounded dependencies and Chamorro grammar. *Linguistic Inquiry* 13, 39-77. .

Conroy, A., and J. Lidz. (2007) Production/comprehension asymmetry in children's why questions. *Proceedings of the second conference on generative approaches to language acquisition North America*, 73-83.

Faerch, C., & Kasper, G. (1983) *Strategies in interlanguage communication*. New York: Longman

Frank, J. (2013) Derivational Complexity Effects in Bilingual Adults: Instances of Interrogative Inversion in Spanish. *Selected Proceedings of the 16th Hispanic Linguistics Symposium*, ed. J. Cabrelli Amaro et al.. Somerville, MA: Cascadilla Proceedings Project, 143-155

Hendriks, Petra. (2014) *Asymmetries between language production and comprehension*. Dordrecht: Springer. https://doi.org/10.1007/978-94-007-6901-4

Hubert, M. D. (2011), Foreign language production and avoidance in US university Spanish-language education. *International Journal of Applied Linguistics* 21, 222–243. https://doi.org/10.1111/j.1473-4192.2010.00276.x

Hubert, M. D. (2015), Avoidance behavior in US university Spanish-language instruction. *International Journal of Applied Linguistics* 25, 139–1. https://doi.org/10.1111/ijal.12060

Jakubowicz, C. (2004) Is movement costly? The grammar and the processor in language acquisition. Presentation JEL (Journee d'Etudes Linguistiques), University of Nantes.

Jakubowicz, C. and Strik, N. (2008), Scope-marking strategies in the acquisition of long distance *wh* questions in French and Dutch. *Language and Speech* 51, 101–32. https://doi.org/10.1177/0023830908051001070

Johnson, K. (2002) Towards an etiology of adjunct islands. Ms., University of Massachusetts.

Kleinmann, H. H. (1977), Avoidance Behavior in Adult Second Language Acquisition. *Language Learning*, 27, 93–107. https://doi.org/10.1111/j.1467-1770.1977.tb00294.x

Laufer, B. and S. Eliasson (1993). What causes avoidance in L2 learning. L1-L2 differences, L1-L2 similarities, or L2 complexity. *Studies in Second Language Acquisition*. 15, 35-48. https://doi.org/10.1017/S0272263100011657

Lutz, U., G. Müller, and A. von Stechow, eds. (2000) *Wh-scope marking*. Amsterdam: John Benjamins Publishing. https://doi.org/10.1075/la.37

Pickering, M., and S. Garrod. (2013) An integrated theory of language production and comprehension *The Behavioral and brain sciences* 36.4, 329–47. https://doi.org/10.1017/S0140525X12001495

Prévost, P., Tuller, L., Scheidnes, M., Ferré, S., and Haiden, M. (2010) Computational complexity effects in the acquisition of wh-questions in child L2 French. In Guijarro-Fuentes, P. and Domínguez, L. (eds) *New directions in language acquisition: Romance languages in the generative perspective*. Cambridge: Cambridge Scholars Publishing, 251–79

Prévost, P., N. Strik, and L. Tuller. (2014). Wh-questions in child L2 French: Derivational complexity and its interactions with L1 properties, length of exposure, age of exposure, and the input. *Second Language Research* 30.2, 225-250. https://doi.org/10.1177/0267658313519814

Schachter, J. (1974). An error in error analysis. *Language learning* 27, 205-214. https://doi.org/10.1111/j.1467-1770.1974.tb00502.x

Schippers, A. (2010). Partial wh-movement and wh-copying in Dutch: Evidence for an indirect dependency approach, in N. Rolle, J. Steffman & J. Sylak-Glassman (eds.), *Proceedings of the 36th Annual Meeting of the Berkeley Linguistics Society*, 338-353. https://doi.org/10.3765/bls.v36i1.3922

Schulz, B. (2011). Syntactic creativity in second language English: *Wh*-scope marking in Japanese–English interlanguage. *Second Language Research* 27, 313–41. https://doi.org/10.1177/0267658310390503

Slavkov, N. (2015) Long-distance Wh-Movement and Long-Distance Wh-Movement Avoidance in L2 English: Evidence from French and Bulgarian Speakers. *Second Language Research.* 31.2, 179-210. https://doi.org/10.1177/0267658314554939

Snyder, W. (2007). *Child Language: The Parametric Approach*. Oxford: Oxford University Press.

Stepanov, A. (2001). *Cyclic Domains in Syntactic Theory*. Ph.D. dissertation. University of Connecticut Storrs.

Tarone, E. (1983). On the variability of interlanguage systems. *Applied Linguistics* 4, 143-163. https://doi.org/10.1093/applin/4.2.142

Tasseva-Kurktchieva, M. (2008). What About Grammar? Comprehension and Production at the Initial Stage of L2 Acquisition, in in Slabakova, R., Rothman, J., Kempchinsky, P. and Gavruseva, E. (eds) *Proceedings of the 9th Generative Approaches to Second Language Acquisition Conference* (GASLA 2007), Somerville, MA: Cascadilla Proceedings Project, 242-250.

Truswell, R. (2007). *Locality Of Wh-Movement And The Individuation Of Events*.

London: University College London Dissertation.

Ünal, E., & Papafragou, A. (2016). Production-Comprehension asymmetries and the acquisition of evidential morphology. *Journal of Memory and Language* 89, 179-199. https://doi.org/10.1016/j.jml.2015.12.001

Urk, C. and N. Richards (2015). Two components of long-distance extraction: Successive cyclicity in Dinka. *Linguistic Inquiry* 46(1), 113–155. https://doi.org/10.1162/LING_a_00177

<u>Appendix 1: Game task instructions</u>

"Mrs Mateo organized a dinner party in her house and she invited [suspect characters]. The party took place between 6 and 10 PM, and when it was over, Mrs Mateo discovered that someone had stolen her jewels! She called the police, and they sent their best detective over: you! However, when you get to the scene of the crime, you see that there is already another agent in the house: me! Because you are the best agent in town, I am very jealous of you, so I am trying to not be very helpful. I already have all the information necessary to solve the theft, but I will not give it to you. I cannot lie to you, but I will make you ask me every question; some of the information I give you will be useful to you, but some will not. These are the event cards. They refer to all the things that happened at the party. These are question words. You will have to pick one for each event, and ask me a question about each of them with that word. After you have asked a question about each event, you will have to guess who stole the jewels, and how."

Appendix 2: List of experimental target and non-target events

a. Target

1. La Señora Sánchez quería saber dónde estaban los perros

Mrs. Sanchez wanted to know where the dogs were

2. El Señor Rodríguez dijo cuándo descansaban los guardas

Mr. Rodriguez said when the guards rested

3. El Señor Martínez descubrió dónde estaban las joyas

Mr. Martinez discovered where the jewels were

4. La Señora Fernández preguntó cuántas salidas había

Mrs. Fernandez asked how many exits there were

5. El Señor González sabía dónde había cámaras de seguridad

Mr. Gonzalez knew where there were security cameras

6. Los Señores Rodríguez y González preguntaron cómo llegar a la estación de tren

Mr. Rodriguez and Mr. Gonzalez asked how to arrive to the train station

b. Non-target

1. La Señora Sánchez escondió sus cosas en el salón

Mrs. Sanchez hid her things in the living room

2. La Señora Fernández caminó sola durante media hora

Mrs. Fernandez walked alone for half an hour

3. La Señora García encontró una pala en la cocina

Mrs. Garcia found a shovel in the kitchen

4. La Señora Sánchez y la Señora Fernández preguntaron si había taxis cerca

Mrs. Sanchez and Mrs. Fernandez asked whether there were cabs nearby

5. El Señor González preguntó el tamaño de la casa

Mr. Gonzalez asked about the size of the house

6. La Señora García preguntó si había policía cerca

Mrs. Garcia asked if there was police nearby

7. El Señor Rodríguez desapareció durante una hora

Mr. Rodriguez disappeared for an hour