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Attrition of English as a consequence of the influence of Spanish

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ABSTRACT

Attrition of the first language is a complex linguistic phenomenon by which an individual's ability to produce language in the mother tongue is significantly reduced. This paper studies the complexity of the attrition process through different analyses of a number of participants. First, a theoretical explanation of the term attrition is provided, together with a review of the most common factors that have been considered the cause of L1 attrition, as well as a detailed description of how to properly identify instances of attrition. In order to elicit data, this study applied two measurement tests to our participants. On the one hand, a Grammaticality Judgment Task and, on the other, a taped interview of each participant that would be rated by native speakers of English. The results showed that, even though the participants of this study matched some of the factors that are typically linked with L1 attrition, no attrition was found in either of the participants by means of either of the measurement tests. Nevertheless, a thorough evaluation of each participant's background allowed this study to confirm which factors cannot be considered the cause of L1 attrition on their own. In addition, our data has allowed us to establish one factor that appears to have prevented attrition from occurring in every case that we analyzed.

1. INTRODUCTION

Bilingualism can be defined as the human ability to communicate in two languages (Hammers & Blanc, 2000). Although it may look like a very straightforward definition, actually, many linguists differ in what this definition entails. Whereas some claim that only a native-like mastery of both languages qualifies as bilingualism (Bloomfield, 1935), others suggest that a minimal skill in, at least, one of the basic linguistic competences (reading, writing, listening or speaking) is enough to discuss that bilingualism is present (Macnamara, 1967). The object of this paper is not to be part of the current discussion on this topic; that is, this study is not intended to clarify the use of the term *bilingualism*. What is important for the object of this study is the coexistence of two different languages in an individual's mind— whether it can be properly called bilingualism or not— being one of them the mother tongue, and a second acquired language. For the purposes of this study, the mother tongue in use will be the English language (L1), whereas the second acquired language will be Spanish (L2).

Another relevant concept for the understanding of this study is that of *acquisition*. Krashen (1995) distinguishes between the terms *learning* and *acquisition*. *Learning* refers to the conscious attempt to internalize a language, whereas *acquisition* means the actual internalization of the language; the unconscious process by which a language becomes part of an individual's system. In this regard, the starting point of this paper assumes that the L1 has been, at some point, fully acquired following the natural stages of L1 acquisition. On the other hand, the L2 has also been acquired in order to satisfy the previous statement related to bilingualism.

Finally, the most significant concept for this study has been called *attrition*. Schmid (2008:10) defined it as "the non-pathological decrease in a language that had previously been acquired by an individual". In other words, the process of a reverse acquisition. This, however, has to be taken carefully. It appears that very often other processes are interpreted as instances of attrition when, strictly speaking, they are not. For this, it is required to bear in mind that when a certain function of the language is "attried", it means that the individual is not able to produce it, or that its production poses problems for the individual where a non-attrier would not have them. It implies that this function is no longer part of the individual's linguistic system. Köpke & Schmid (2004) suggested four possible scenarios that may be easily interpreted as instances of attrition, which are borrowings, restructuring, convergence and shifting. This contribution clarifies how not to misinterpret the data that will be collected in this study. It also will be throroughtly considered when ultimately determining whether the participants of this study show attrition or not.

Considering all this, the purpose of this paper is to study the circumstances leading to the appearance of attrition. Although attrition, may refer to both L1 and/or L2, this study will be centered on L1 attrition. This paper attempts to find the possible circumstances that lead to L1 attrition, that is, why it occurs in some cases but not in others; the reasons why it may or may not appear, and the consequences of such phenomena on the speaker. The research questions of this study are:

- In an environment where English is not the language spoken by the community and the person has fully acquired the L2; is the L2 a triggering factor for the appearance of L1 attrition?

- Since it is the case that English is the language that counts more L2 speakers in the world (Lewis, Simons & Fennig, 2014), and that technology grants the access to media in English in a country such as Spain, is it possible that the strong presence of English worldwide does not allow attrition to take place?
- Or, as stated before, since English is the language with more L2 speakers in the world, is it possible that the contact of native speakers of English with non-native speakers results in L1 attrition?

2. LITERATURE REVIEW

Attrition is generally understood as the total or partial loss of a language. Schmid (2008:10) provides a very clear definition of attrition by arguing that it is simply a "non-pathological decrease in a language that had previously been acquired by an individual". The definition is clear enough to be easily understood, but also vague enough to create confusion, as it will be explained. The aim of this section is to compare and analyze the findings of previous research on the field of attrition. Furthermore, in this section we will revise the common existing misbeliefs on how attrition takes place. These are quite relevant for the development of our experiment since the results obtained in it are an attempt to prove that these misbeliefs have no empirical ground. This review is divided into two main sections. First, we revise the definition of the term attrition and we cover the main factors that may cause L1 attrition. Then, we discuss how instances of attrition should correctly be interpreted.

2.1 DEFINING ATTRITION

As has been stated above, the definition of the term attrition is still unclear. Many scholars have worked in this field; nevertheless, the parameters used to determine what attrition is and what it is not vary slightly depending on each author. Some important linguists have carried out experiments in this discipline, such as Ammerlaan (1996:5), who summarizes this phenomenon as "get[ting] a bit wobbly". According to Ammerlaan, this definition is insufficient. It is important to bear in mind that not only the definition of the term attrition is fundamental, but also the reasons why it occurs. For the purposes of this piece of research, defying the term attrition is fundamental as it is also the reasons why it occurs. The ultimate goal of this study is to determine what individual circumstances are responsible for attrition. In the following lines we will analyze a compilation of causes and factors found in previous studies.

First, Köpke & Schmid (2004) claimed that attrition is set after 10 years from emigration. Although it is a daring assumption to trace a line in time, it is true that prolonged exposure to a L2 may be a crucial factor in the process of attrition. Some researches seem to think in this direction. For instance, Cherciov (2011) studied a group of Romanian adults who were raised in Canada, in a predominant English as a second language environment. All subjects presented with varying degrees of attrition after more than 10 years living in the L2 environment. In addition, Laufer (2003) studied the correlation between the degree of attrition and the length of residence in the L2 country. In order to correlate these variables, she tested two groups —one that had been away for 2-6 years and another for 17-40 years. The second group showed more severe cases of attrition, although attrition was also found in the first group. This indicates that attrition

does not necessarily occur only after 10 years from emigration, but can appear before. This proves that the previous statement should not be understood as a general assumption.

Second, age is considered a factor that plays an important role in L1 attrition. Cherciov (2011) has tested that when a subject is immersed in a L2 community at an early age, attrition of the first language can be so severe that the L1 system may ceased to function completely. Ventureyra and Pallier (2004) accounted for this phenomenon as the result of brain plasticity. Brain plasticity is enhanced at early ages, and allows young children to acquire the L2 rapidly. Since the L1 system has not been completely developed, it appears that children lose access to the L1 knowledge when contact with the first language stops. On the other hand, the decrease of brain plasticity found in adults is also the reason why they are more resistant to L1 attrition given the same circumstances.

Third, Paradis (2007) considered that when the individual has little or no contact with the L1 community attrition is more aggressive. In the language choice of a speaker, two parameters need to be analyzed. The first one is the amount of use of the L1 in the L2 community. The second one is the environment where the L1 is used; that is, whether it is used at home, at work, with friends, etc. Although it may seem obvious that a continuous use of the L1 will prevent attrition, evidence for this is hard to find. Among the literature that discusses this topic we can find confronting results. De Bot et al. (1991) reported that an infrequent use of the L1 in the L2 community would result in L1 attrition over time. However, other studies have not been able to correlate infrequent use of the L1 with attrition of the first language (Köpke, 2001). Therefore, infrequent

use may not be a source of attrition on its own, although it may be a factor that contributes to it if combined with others.

In addition, reemergence in the L1 community for a given period of time may constitute an alteration in the attrition process. Very few studies have been made on the recovery of the first language after attrition has taken place. Hubbell-Weinhold (2005) found that attrition is partially reversible in some cases, although in others it is possible to fully recover from it. This data points out that being in the L1 community after prolonged exposure to the L2 community may be a factor adverse to attrition of the first language. The available data is very limited in this respect, but still, reemergence in the L1 community needs to be considered when assessing the reasons why an individual may or may not present with L1 attrition.

2.2 INTERPRETING ATTRITION

To continue with the second part of this section, as has been previously mentioned, attrition is not always an easy process to interpret (Köpke & Schmid, 2004). There exist other linguistic processes that can be taken as attrition due to a similar linguistic outcome. In the following lines we will analyze the two main linguistic processes that are sometimes taken for instances of attrition. This observation is relevant for the interpretation of the results of this study.

First, the linguistic process known as *borrowing* appears to be one of the phenomena more easily misinterpreted as attrition (Köpke & Schmid, 2004). Borrowings are especially in the vocabulary, although they may also be present in syntax or even in rhetoric. They may appear under two circumstances: when in the subject's L1 the new words in the L2 do not exist; and when two words in L1 and L2

coexist and the use is just a question of preference of the speaker. In either case, it should not be possible to assume that the speaker's first language has been deteriorated. That is, adding words to your linguistic system is cannot be interpreted as a decay of the first language; nor can be the preference of a speaker in the use of one specific word in either language. For these reasons, borrowings should not be interpreted as instances of attrition.

In addition to borrowing, restructuring is another linguistic process that also takes place in bilingual or multilingual communities (Cherciov, 2011). It may be defined as involving "a deletion of certain L1 elements and/or addition of L2 elements into the L1" (Köpke & Schmid, 2004:50). We can see an example of this in Cuban immigrants in the US. In English the verb *to run* has another sense different from its conventional use. Thus, in English it can be said that a politician is *running for office*. Here is where restructuring takes place. Cuban immigrants take this sense from the L2 and add it to the L1, resulting in the sentence *correr para governador*, where the verb to run has been given a new meaning in Spanish influenced by English. As is the case with borrowings, the occurrence of a restructuring process cannot be interpreted as an instance of L1 attrition. Nevertheless, even though the two processes appear to be very similar in nature, but what distinguishes them is that attrition implies that a given part of language has been *un*-acquired.

To summarize, in this review we have discussed the definition of the term attrition. Moreover, some of the main factors that are considered to cause L1 attrition have been analyzed in detail. This has led us to conclude that there exists no unique factor to produce attrition of the first language, but rather a combination of several of

the factors in very specific circumstances. Finally, we also have examined the main linguistic processes that may be confused with L1 attrition. This examination has been intended to provide this study and other future research with the appropriate instruments in data classification. In the following sections we will see how all this information has been fundamental for the development of this study.

3. METHODOLOGY

The design of a proper measurement is crucial for the elicitation of data, as well as the selection of adequate participants. In this section, a description of the participants that took part in this study will be provided. In addition, we will also describe the measurement tests used in this study.

3.1 PARTICIPANTS

In order to find evidence of L1 attrition, two participants that are likely to manifest attrition of L1 will be examined. All these subjects were born in English speaking countries and had lived there for a period of time sufficient to complete at least obligatory education. As result, these participants are to be considered native speakers of English. In addition, all the participants have been living in Spain for a period longer than 10 years. A detailed chart with the relevant information of each participant is provided in Appendix A. The important data that will be considered in this study are age at the moment of the study, age of departure from their original countries, period of time living in Spain, contact with L1 in L2 environment, frequency of contact with L1 in L1 environment, language spoken at their homes and L2 proficiency. Other specific data of each participant that may be interfering for or against L1 attrition will also be accounted

for. As a control group, two native speakers of English who are very unlikely to exhibit L1 attrition will go through the same tests as the participants previously mentioned. All this data, together with the results of the study will be responsible for answering our research questions.

3.2 PROCEDURE

The study will consist of two phases. During the first, all participants will be part of an individual interview in English. The participants will not know the purpose of the study in order not to influence the data collected. Through the interview, they will be asked to speak freely about their lives and they will be asked trivial questions such as their professions or studies. Some specific questions and topics will be presented. These topics will be selected attempting to cause problems which might show if L1 attrition is affecting them. These specific questions and topics will be related to sociocultural issues. All the interviews will be recorded, including the ones to the control group.

These recordings will then be given to professors at university, native speakers of English (from now on, raters). The raters will be provided with some training on what to look for in the recordings by means of a list of elements they need to rate on a scale from 1 to 5. These elements may include functions such as phonetical performance of the participants, if compared to a native speaker of the language. The raters will not know the purpose of the study in order to offer a more reliable rating. This kind of test may be pointed at entering in the paradox of how to know that the raters are not attriers themselves in order to provide judgment for the attriers. For this reason, the fact that the raters are university professors in the field of linguistics serves the premise that their

metalinguistic knowledge grants them with a more accurate expertise in assessing the speech of others. The rater's sheet can be found in the appendix of this paper.

The following phase of the study will consist of a grammaticality judgment task. According to Krashen (1995:10), the notion of grammatical correctness is characteristic of native speakers who have acquired their first language. In this sense, native speakers can determine the grammaticality or ungrammaticality of a given sentence, even if they do not know the reasons to claim such judgment. Because of this, it appears logical to think that a speaker whose grammaticality judgment has been attried may be as consequence of L1 attrition. Following this principle, all participants, attriers and non-attriers, will have to complete a grammaticality judgment task whose results will serve to draw conclusions in relation to L1 attrition. While the participants complete the grammaticality judgment task, they will be closely observed to see if any particular sentence poses problems. In addition, although it will not be considered crucial, the participants will be timed as a way to attempt to notice if they need to spend more time judging the grammaticality of a sentence. The grammaticality judgment task can be found in the appendix of this paper.

4. RESULTS

In this section, the results of the tests explained in the Methodology will be presented. First, the results of the Grammaticality Judgment Task will be given followed by the results obtained from the scores of the interviews provided by the raters. A third section will also be included with the notes taken while the participants were

performing both tasks. In order to make it more visually appealing, each participant has been associated with a color, as it can be seen in figure 1.

4.1 GRAMMATICALITY JUDGMENT TASK

As was explained in the previous section, the Grammaticality Judgment Task was one of the two measurement test used to find attrition among our participants. Figure 1 summarizes the results obtained from this task of each participant. All participants scored a 83.3% level of accuracy in this task.

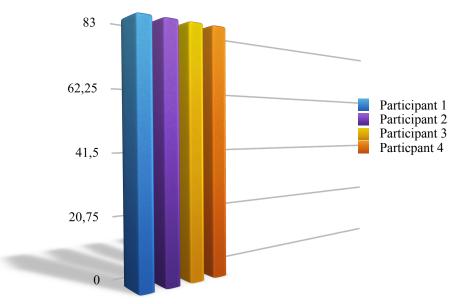


Figure 1: Total Results Grammaticality

Although the total scores may show that all the participants are at the same level, a closer look to the answers reveal differences among participants in terms of which answers are correct and which are incorrect, as it can be seen in Table 1.

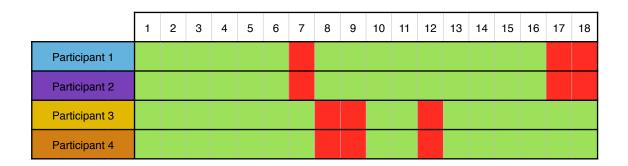


Table 1: Results of Grammaticality Judgment Task – Question by Question

At this point we should remember that our initial conception in relation to the selection of participants was that participants 1 and 2 would be native speakers of English with a very high probability of not being attriers. On the other hand, participants 3 and 4 would have a high chance of being attriers. Taking this into consideration, even though the total scores are the same, a detailed analysis of the answers show a correlation between participants 1 and 2, and another correlation between participants 3 and 4.

4.2 RATERS' SCORES

The second measurement test used in this study consisted on a recorded individual interview to each participant. During the interview all participants were encourage to carry on a casual conversation with an interlocutor. The audios of these conversations were then given to our raters to assess their speech and their use of language. Figure 2 summarizes the results provided by the raters.

As it can be seen in figure 2, the scores obtained from our raters show a 100% in all the disciplines they were asked to evaluate. There appeared to be no difference among participants, both from the possible attriers and the non-possible attriers.

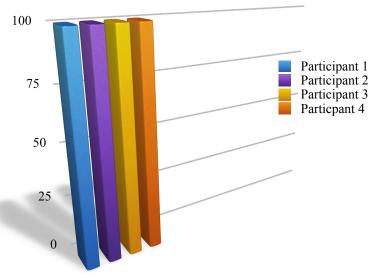


Figure 2: Raters' Scores

4.3 SELF-OBSERVATION OF L1 ATTRITION

The aim of having external evaluation from the speech of our participants was double. On the one hand, it would provide this study with a more objective and unbiased interpretation of the data. On the other hand, since attrition is most perceived by native speakers of the language, and since the author of this study is not native speaker of English, we assumed that a better reading of the data would be given by native speakers. Nevertheless, during both the interviews and the Grammaticality Judgment Task, all participants were closely observed and some annotations were recored.

First of all, we considered the language choice off-tape before and after the tests.

Participants 1 and 2 presented with a very low proficiency level of Spanish/Catalan. For

this reason, all conversations before and after the tests were carried in English as no other possibility was available for them. Participant 3, however, presented with a higher proficiency level of Spanish/Catalan. Previous interactions with this participant, before the tests, were introduced in English, nonetheless he switched to Spanish in every occasion. In fact, it had to be asked to switch to English just before the interview took place. Once the switch was made, the participant did not go back to Spanish/Catalan during of after the tests were carried out. Participant 4 displayed a good command of Spanish/Catalan as well. All previous interactions with this participant via e-mail or phone call took place in English, and he did not attempt to switch to Spanish/Catalan with his interlocutor. Only English was used during and after the tests. This participant pointed out that his choice of language depended on the language both interlocutors were more comfortable with and that typically meant Spanish/Catalan. In this occasion, however, both interlocutors felt more comfortable in English, so all communication took place in that language.

Second of all, we analyzed whether our participants were producing careful speech during the recorded interviews. Considering that neither participant was aware of the purpose of the tests, we expected that being recorded would imply a more careful production of their speech. For this reason all the interviews started with trivial questions to build up their confidence. The effect was better than we anticipated. Even though at the beginning all participants looked at the recorder sporadically, this only lasted for a few minutes. After that, all of them seemed to have forgotten they were being taped, which coincided with the moment of the interview which could show more instances of attrition. No further observation was made on any careful speech

production, so that we considered that the data collected from the interviews would be perfectly valid in terms of casual speech.

Third of all, we observed how long it took our participants to complete the Grammaticality Judgment Task. Instructions indicated that there was no time limit to complete the task, nevertheless, we observed the time lapse in order to see if the task meant a greater effort to conclude among the participants. It is important to mention that this task was design in a way that would not favor those participants who are more accustomed to formal tests. For this reason, finding differences in the time it took to complete the task was taken into account. On the one hand, participants 1 and 2 went through the task slowly and carefully thinking each sentence. On the other hand, participants 3 and 4 went quickly through the task, but then, in a second round, they carefully examined each sentence. We observed that participant 3 took noticeable more time to complete the task and hesitated in a number of sentences. We also noted that participant 4 completed the task faster than the other participants. In addition, participants 1 and 2 took approximately the same amount of time to complete that task. Finally, we dedicated special attention to hesitations and doubts during both the interviews and the Grammaticality Judgment Task. To begin with, during the interviews no irregularities were found in either of the participants in terms of hesitations and doubts when performing casual speech. Nevertheless, the Grammaticality Judgment Task showed more cases of uncertainty. Participant 1 specially hesitated in sentence 18, which in the end was incorrect, as Table 1 showed. The same phenomenon occurred with participant 2, whose result in the same sentence was identical. Participant 3 doubted sentence 7 for a long time, which in the end resulted in mistake. As for participant 4, sentence 12 meant a greater effort, even though the outcome of this sentence was erroneous. In general, the sentences that were noted to be problematic for our participants, resulted in mistakes once the Grammaticality Judgment Task was corrected.

To conclude, the results obtained from the Grammaticality Judgment Task, the scores obtained from the raters, as well as the Self-observation record will be discussed in the following sections of this study.

5. DISCUSSION

The scope of this study was to investigate the phenomenon of attrition. With this idea in mind, we attempted to find whether the coexistence of two languages in an individual would create the conditions to stimulate attrition of the first language. In addition, we also wished to determine what factors cause L1 attrition and what factors prevent speakers from undergoing such linguistic phenomenon. In this section we will discuss the results obtained from all our measurement tests, that is, the Grammaticality Judgment Task, the assessment sheets from the raters, as well as the Self-observation evaluation. Then, with the results and discussion in mind, we will attempt to answer the research questions that we formulated in previous sections.

First of all, the Grammaticality Judgment Task was designed to evaluate our participants' sense of grammatical correctness. According to Krashen (1995), the sense of grammatical accuracy is a notion that native speakers of a language acquire, which allows them to identify whether a given sentence is grammatically correct or not. With this in mind, our assumption was that this test would help us evaluate whether this sense

is still intact after being in contact with a second language. The results from this test showed that all participants obtained the same results. Our initial thoughts were that participant 3 and 4 would perform worse than participants 1 and 2, which would indicate that 3 and 4 presented the effects of attrition. The identical scores across participants does not report attrition from either of the participants. Nevertheless, it was intriguing to discover that participants 1 and 2 failed in the same sentences, or that they failed in any sentence at all. Furthermore, that participants 3 and 4 made some mistakes was expected; what was not expected was that they failed in the exact same sentences and that they scored they same in the test as participants 1 and 2. What may be interpreted from these results is diverse. It could be argued that attrition has not affected the sense of grammatical correctness, specially in participants 3 and 4, who were suspected to be attriers. This could also mean that, at the level of grammatical accuracy, attrition may not have taken place. Nonetheless, it could also be said that not having a perfect score in either of the participants may be an indicator of the fact that the sense of grammatical correctness is not a reliable sign of L1 attrition. Further research needs to be made in trying to detect L1 attrition at a grammatical level.

Second of all, the results obtained by our raters show no differentiation among the participants. Instructions were provided to the raters to detect irregularities in choice of vocabulary, both general and topic-specific, in the use of expressions, idioms and collocations, as well as sentence formation and phonetical realization. All participants obtained a 5 out of 5 in each parameter by both raters. This implies that our raters, native speakers of English, could not identify any abnormality in the participants casual speech. Regardless the fact that some of our participants gather many of the factors that

could lead to L1 attrition that we commented in previous sections. It appears that, to the criteria of our raters, there are no discrepancies between the participants of this study and other non-attrier native speakers of English. Ultimately we could say that, this data together with the good performance in the Grammaticality Judgment Task, would be sufficient to claim that neither of our participants can be considered a total attrier. Whether some of them might have started the slow process of attrition is out of the scope of this study, and must be left for further research.

Third of all, the Self-observation evaluation only contributes to corroborate our previous statement. Neither of the parameters examined during this evaluation—language choice before and after the interviews, the production of careful speech, the time taken to complete the GJT and excessive doubts or hesitations— could be highlighted as possible indicators of L1 attrition. Perhaps, participant 3's continuous use of Spanish before our tests took place could reveal a change of preference of use in one language over the other. In any case, shifts, according to Köpke & Schmid (2004:53), should not be considered as instances of attrition as such. More tests ought to be made to this participant to analyze whether he might have initiated the process of L1 attrition. As for the rest, it cannot be said that any parameter might indicate possible instances of L1 attrition.

Finally, all the data and evaluation will be use to answer our research questions. First, we theorized about the possible influence of a second language as the consequence of L1 attrition. To answer this question we should focus on the data obtained from participants 3 and 4, who have been in contact with Spanish for more than 20 years. As it can be seen, no difference was found in any of our measurement

tests if compared with participants 1 and 2, who have been in contact with the second language during considerable less time. Bearing this information in mind, we could result to claim that Spanish as a L2 cannot be considered a factor of L1 attrition on its own.

To continue, we also speculated about the fact that, since most residents of Spain have access to multimedia content in English, it could be possible that the contact with their L1 may prevent L1 attrition to appear. In this sense, our analysis showed that, for various reasons, having access to this content does not mean that people actually take advantage of it. Our participants— specially those whose Spanish/Catalan level is high–explained that most of the content that they watch and listen is already in Spanish/Catalan. For these reasons, we cannot claim that the access to such media content helps to prevent L1 attrition.

Lastly, we attempted to analyze if interactions in English between native speakers of English with non-native could act in favor or against L1 attrition. To do this, we analyzed what our participants described about their interactions in English with other people. All of them reported that, even though their communication with other people typically took place in Spanish/Catalan, they did converse with non-natives in English at some point everyday. This happened more in participants 1 and 2, who are students at university and communicate with non-native professors and students, as well as participant 3, who is a language teacher and interacts with non-native teachers and students in English. Since attrition was not found in either of the participants in our tests, we could say that interaction with other non-native speakers in the L1 cannot be considered a cause of L1 attrition on its own.

6. CONCLUSION

This study has analyzed a number of participants trying to find and explain instances of L1 attrition. Our goal was to determine the factors that may contribute to the occurrence of attrition. In addition, we also considered those factors that may prevent attrition to take place. Our measurement tests showed that no attrition was found in either of the participants. Nevertheless, a thorough analysis to them allowed us to indicate various factors that have not contributed in favor to L1 attrition, as opposed to the common factors that have traditionally been associated as causes for attrition of the first language. At the same time, our research also allowed as to answer our research questions.

Our data has shown that prolonged exposure to a L2 cannot be considered a cause of L1 attrition. Some of the participants that underwent our tests have been exposed to a Spanish/Catalan environment for more than 20 years, and they have score the same as those who have been exposed less than a year. Moreover, we have been able to account for the fact that not using your L1 for a prolonged period of time does not contribute to L1 attrition. More importantly, our analysis shows that bilingualism may not affect the first language and, therefore, it is not a factor that causes L1 attrition.

Finally, what our data seems to show more relevantly is the fact that neither of our participants presented with attrition. We believe that, the only factor shared by all our participants is that they completed primary and secondary education in their countries. For this reason, we may say that one of the strongest factors that prevents attrition of the first language is the late age of departure from the L1 community, according to our data

analysis. As we can see, the complexity of the phenomenon of attrition much greater than what it is usually attributed to.

7. LIMITATIONS OF THE STUDY AND FURTHER RESEARCH

The aim of this research was to investigate under what circumstances the phenomenon of attrition takes place and what factors may prevent its occurrence. Even though, we were not able to find instances of attrition through our participants by means of the measurement tests we applied, we could find some factors that may prevent the occurrence of L1 attrition. Nevertheless, this study holds some limitations that need to be taken into account for future research.

First, the small scale of our elicited data creates a difficult situation to generalize what factors might cause or prevent attrition of the first language. In addition, since no attrition was found among our participants, we have not been able to confirm or reject any factor that is traditionally associated with L1 attrition. Finally, the most significant finding of this study— that a late age of departure from the L1 community seems to prevent L1 attrition— needs to be verified by studying subjects who have left their countries before completing secondary education. A larger scale study, with the same measurement tests used in this one, would help corroborate our findings in relation to cause and prevention of L1 attrition.

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APPENDIX A: INFORMATION ABOUT THE PARTICIPANTS

Participant 1

This participant is a 26-year-old female who was born in Peterborough, UK. She was raised in the same place and studied primary and secondary education there as well. At the age of 20 she moved to Spain to start her university education. During the first five years of her residency in Spain she lived with other Catalan people who spoke English with her. After that, for the last year she has been living with English roommates. She described that her environment is generally surrounded with English speakers with occasional Spanish/Catalan interactions. As for reinsertion in the L1 community, she explained that during this time she only returns to the UK once or twice a year for holidays, so they are short stays. We noticed that, even though her Spanish/Catalan proficiency level is quite good, after six years she does not sound native-like.

Participant 2

This participant is a 21-year-old female who was born in Edinburgh, Scotland. She was raised in the same place and study primary and secondary education there as well. She also initiated her university studies in Edinburgh. She has been living in Spain since September 2014 to study an academic year at the UAB. She does not live with other native speakers of English. She shares an apartment with other Catalan girls whose proficiency level of English is very low. As for reinsertion in the L1 community, she mentioned that she has indeed returned to Edinburgh to visit her family for one week, which we consider a short stay. Her social and free-time environment is surrounded by English. She mentioned that when she watches television or such activities, it is usually in English, as her level of Spanish is not high.

Participant 3

This participant is a 55-year-old male who was born in Kent, England. He was raised in England, although he studied primary education in Germany. Secondary and further education was studied in England. Nearly 21 years ago he moved to the Canary Island for work and stayed there for a year and a half. After that, he returned to England to finish his teacher training and then, finally he moved to Madrid, Spain and stayed there for 17 years before moving to Catalonia, where he has been living ever since. His proficiency level of Spanish/Catalan is quite high, for this reason, most of his daily communications are carried in those languages. Nevertheless, as a language teacher is in in contact with the language with other non-native speakers.

Participant 4

This participant is a 50-year old male who was born in Wellington, New Zealand. He was raised there and completed his education there. He moved to Barcelona 25 years ago in 1990. Nevertheless, he moved to Sydney in 1997 for a year, and then from 1998 to 2000 he moved to London. For the past 15 years he has lived uninterruptedly in Barcelona. His proficiency level of Spanish/Catalan is very high. His work asks him to communicate with other people in those languages. He has very little contact with the L1. For the same reasons, the language used for free-time activities and leisure time is mainly Spanish/Catalan. There seems to be no chance for communication in English in his environment. The use of English is very rare and takes place in very few occasions.

APPENDIX B: GRAMMATICALITY JUDGMENT TASK

Decide whether the following sentences are grammatically correct or not. In those sentences that are ungrammatical, please, if possible, provide a brief description of the reason causing the ungrammaticality and/or the grammatical version of the sentence. 1. Peter wonders what position you deserve. Grammatical Ungrammatical 2. Which book was he reading? □ Grammatical Ungrammatical 3. They decided for we joined their cause. □ Grammatical Ungrammatical 4. They asked which book that you should read. □ Grammatical Ungrammatical 5. Andrew asked that the pears were ripe. □ Grammatical Ungrammatical I still don't know the reason why you quit. Grammatical ☐ Ungrammatical They wondered whether would John have attended that conference. □ Grammatical Ungrammatical Sonia is demanding he leave the company. □ Grammatical Ungrammatical 9. They decided for us to join their cause. Grammatical Ungrammatical 10. My parents got divorced when I was only 2. Grammatical Ungrammatical 11. They appeared that there were many people. □ Grammatical Ungrammatical 12. It was Peter reading the book. □ Grammatical Ungrammatical 13. Have you seen the new iPad? Grammatical Ungrammatical

☐ Grammatical ☐ Ungrammatical	
15. It has been found a	a wallet in Betty's purse.
☐ Grammatical ☐ Ungrammatical	
16. The sun is shinnin	g today.
☐ Grammatical ☐ Ungrammatical	
17. This is the person	that Susan has the firm believe that must address the issue in the
meeting. Grammatical Ungrammatical 18. I won't read those	books which Peter made the suggestion that she could order.
Grammatical Ungrammatical	

APPENDIX C: PARTICIPANTS' SAMPLES

5	
	Participant N° 1
	5.2 GRAMMATICALITY JUDGMENT TEST
	Decide whether the following sentences are grammatically correct or not. In those sentences that are ungrammatical, please, if possible, provide a brief description of the reason causing the ungrammaticality and/or the grammatical version of the sentence.
	Peter wonders what position you deserve
	☐ Grammatical I would say "which position" ☐ Ungrammatical
	2. Which book was he reading?
	☐ Grammatical
	3. They decided for we joined their cause
	☐ Grammatical ————————————————————————————————————
	4. They asked which book that you should read
	☐ Grammatical "which book you should" ☐ Ungrammatical
	5. Andrew asked that the pears were ripe ☐ Grammatical "asked if" ☐ Ungrammatical
	6. I still don't know the reason why you quit
	☐ Grammatical ————————————————————————————————————
	7. They wondered whether would John have attended that conference
	☐ Grammatical would add "or not" at the end
	8. Sonia is demanding he leave the company
	Grammatical "denouding that he leave" sounds better Ungrammatical
	9. They decided for us to join their cause
•	Grammatical Ungrammatical
	10. My parents got divorced when I was only 2 ☐ Grammatical ☐ Ungrammatical
	11. They appeared that there were many people
	☐ Grammatical It appeared There appeared to be party people Ungrammatical
	12. It was Peter reading the book Refer who # Peter was reading
	Grammatical Ungrammatical It was Peter who # Peter was reading
	13. Have you seen the new iPad?
	☑ Grammatical
	☐ Ungrammatical
	☐ Ungrammatical

The state of the s	
14. They didn't plan for her to buy a new car	
☐ Grammatical	
15. It has been found a wallet in Betty's purse	
Grammatical Ungrammatical Wallet has been found	
16. The sun is <u>shinning</u> today	
☐ Grammatical Shining Ungrammatical	
17. This is the person that Susan has the firm believe that must address the issue	in the
meeting Grammatical Ungrammatical	
18. I won't read those books which Peter made the suggestion that she could order	er
"Which Beter suggested that she	
Ungrammatical or suggested for her to order	
11	
II .	

		Participant Nº 2
5.2 GRAMMAT	CALITY JUDGMENT TEST	•
are ungrammatical, pleas		Illy correct or not. In those sentences that f description of the reason causing the entence.
1. Peter wonders whatGrammaticalUngrammatical	position you deserve	
2. Which book was he	eading?	
☐ Grammatical ☐ Ungrammatical		
3. They decided for we ☐ Grammatical ☐ Ungrammatical		s to join their cause'seems
4. They asked which bo	ok that you should read	
☐ Grammatical ☐ Ungrammatical		
5. Andrew asked that the	e pears were ripe	-10-1 H. 11 1- 6/11
☐ Grammatical ☐ Ungrammatical	grammatical se	ems slightly odd butstill
6. I still don't know the	reason why you quit	(he reason that we will
☐ Grammatical ☐ Ungrammatical	gar coma ano sa	y ' the reason that you guit'
, •	her would John have attende	d that conference
☐ Grammatical ☐ Ungrammatical		
8. Sonia is demanding Grammatical Ungrammatical	1 would possibly	insert 'that' before (he leave'
9. They decided for us	o join their cause	
☐ Grammatical ☐ Ungrammatical		
10. My parents got divor	ced when I was only 2	
☐ Grammatical ☐ Ungrammatical	han witten dar	re Whely to be spoken aloud
11. They appeared that t	nere were many people	
☐ Grammatical ☐ Ungrammatical	'It appeared that	<u></u>
12. It was Peter reading	he book)
☐ Grammatical ☐ Ungrammatical	it was feter who	Was
13. Have you seen the no	ew iPad?	
☐ Grammatical ☐ Ungrammatical		

0				
	14. They didn't plan for I	ner to buy a new car		
	Grammatical Ungrammatical			
	15. It has been found a v			
	☐ Grammatical ☐ Ungrammatical	'A wallet has	been fund in Betty's pise'	
	16. The sun is shinging	today		
	☐ Grammatical ☐ Ungrammatical	(shining)		
	17. This is the person th	at Susan has the firm	believe that must address the issue in the	
	meeting Grammatical Ungrammatical		sammabial but perhaps quite	
		ooks which Peter made	the suggestion that she could order	
	☐ Grammatical ☐ Ungrammatical			
			11	
			11	

9	Participant N° 3
4	5.2 GRAMMATICALITY JUDGMENT TEST
	Decide whether the following sentences are grammatically correct or not. In those sentences that are ungrammatical, please, if possible, provide a brief description of the reason causing the ungrammaticality and/or the grammatical version of the sentence.
	Peter wonders what position you deserve
	☐ Ungrammatical
	2. Which book was he reading?
	☐ Grammatical ————————————————————————————————————
	3. They decided for we joined their cause
	Grammatical They decided that we should join their cause?
	4. They asked which book that you should read
	Grammatical Ungrammatical
	5. Andrew asked that the pears were ripe Grammatical Ungrammatical
	6. I still don't know the reason why you quit
	Grammatical Ungrammatical
	7. They wondered whether would John have attended that conference Grammatical Ungrammatical
	8. Sonia is demanding he leave the company
	☐ Ungrammatical
	9. They decided for us to join their cause
	☐ Grammatical ☐ Ungrammatical ☐ They deede we should join their cause?
	10. My parents got divorced when I was only 2
	☐ Ungrammatical ————————————————————————————————————
	11. They appeared that there were many people
	Grammatical Ungrammatical
	12. It was Peter reading the book
	☐ Grammatical ————————————————————————————————————
	13. Have you seen the new iPad?
	Grammatical
	10

14. They didn't plan fo	r her to buy a new car
Grammatical	
Ungrammatical	
	a wallet in Betty's purse
☐ Grammatical ☐ Ungrammatical	A wallet has been found in Bretty's purse.
16. The sun is shinning	
Grammatical Ungrammatical	spelling mistake -> Shining
17. This is the person	that Susan has the firm believe that must address the issue in the
meeting Grammatical	Suran 1 believes that this person must address.
Ungrammatical	books which Peter made the suggestion that she could order
Grammatical	
Ungrammatical	Ondeciphe able
	11

5.2 GRAMMATICALITY JUDGMENT TEST Decide whether the following sentences are grammatically correct or not. In those sentences that are ungrammatical, please, if possible, provide a brief description of the reason causing the ungrammatically and/or the grammatical version of the sentence. 1. Peter wonders what position you deserve Grammatical Ungrammatical Ungramm		Participant N°
are ungrammatical, please, if possible, provide a brief description of the reason causing the ungrammaticality and/or the grammatical version of the sentence. Peter wonders what position you deserve Grammatical Ungrammatical Ungr	5.2 GRAMMATICALITY JUDG	GMENT TEST
Grammatical Ungrammatical 2. Which book was he reading? Grammatical Ungrammatical	are ungrammatical, please, if possible,	provide a brief description of the reason causing the
Ungrammatical Which book was he reading? Grammatical Ungrammatical	1. Peter wonders what position you de	eserve
Grammatical Ungrammatical		
Ungrammatical 3. They decided for we joined their cause Grammatical They decided that we Should join their cause Ungrammatical They decided that you should read Ungrammatical Ungrammatical They asked which book that you should read Ungrammatical Ungr	2. Which book was he reading?	
Grammatical Ungrammatical		
Ungrammatical 4. They asked which book that you should read Grammatical Ungrammatical	3. They decided for we joined their cau	use y / d / d
Grammatical Ungrammatical Ungr	- Granmation	use.
Grammatical Ungrammatical	4. They asked which book that you sho	ould read
Grammatical Ungrammatical		shed what book you should read.
Ungrammatical 6. I still don't know the reason why you quit Grammatical Ungrammatical		ipe
Grammatical Ungrammatical	= 11 // 1/10/	asked if the pews were ripe.
Ungrammatical 7. They wondered whether would John have attended that conference Grammatical Ungrammatical		u quit
Grammatical Ungrammatical		
8. Sonia is demanding he leave the company Grammatical Ungrammatical	7. They wondered whether would John	n have attended that conference
Grammatical Ungrammatical 9. They decided for us to join their cause Grammatical Ungrammatical Grammatical Ungrammatical Ungrammatical Grammatical Ungrammatical Grammatical Ungrammatical Grammatical Ungrammatical Grammatical Ungrammatical Grammatical Grammatical Ungrammatical	11	tred whether John world have
9. They decided for us to join their cause Grammatical Ungrammatical		mpany
9. They decided for us to join their cause Grammatical Ungrammatical		
Grammatical Ungrammatical		ISE .
Grammatical Ungrammatical 11. They appeared that there were many people Grammatical Ungrammatical Ungrammatical Ungrammatical Ungrammatical Grammatical Ungrammatical Grammatical Grammatical Grammatical Grammatical Grammatical Grammatical Grammatical	☐ Grammatical	and I all the all the acceptance of the
Ungrammatical 11. They appeared that there were many people Grammatical Ungrammatical Ungrammatical Ungrammatical Ungrammatical Ungrammatical Ungrammatical Ungrammatical Grammatical Grammatical 13. Have you seen the new iPad? Grammatical	10. My parents got divorced when I was	only 2
11. They appeared that there were many people Grammatical Ungrammatical 12. It was Peter reading the book Grammatical Ungrammatical Grammatical Grammatical Grammatical Grammatical		
Grammatical Ungrammatical Ungrammatical Grammatical Ungrammatical Ungrammatical Grammatical Grammatical Grammatical Grammatical Grammatical Grammatical		v people
12. It was Peter reading the book Grammatical Ungrammatical 13. Have you seen the new iPad? Grammatical		
Grammatical Ungrammatical 13. Have you seen the new iPad? Grammatical		If the appeared to be many people.
Ungrammatical 13. Have you seen the new iPad? Grammatical	,	
Grammatical		
	13. Have you seen the new iPad?	
10		10

14. They didn't plan for her to buy a new car Grammatical	
Ungrammatical Ungrammatical	
15. It has been found a wallet in Betty's purse	
Grammatical Wallethas heen and in belf 45 luse.	
16. The sun is shinning today	
☐ Grammatical Shint S	
17. This is the person that Susan has the firm believe that must address the issue in the	
meeting Grammatical Ungrammatical Must address the Issue the meeting 18. I won't read those books which Peter made the suggestion that she could order	
☐ Grammatical	
Ungrammatical The second secon	
0	
11	

APPENDIX D: RATERS' SHEET

You are going to lis	sten to 4 recordings	s from 4 different pe	eople. Your objective	is to establish the
		•	nat will be provided t	•
	_		1 being very far fror speaker of English:	n native-like and 5
,				
Use of general voc	abulary:			
1	2	3	4	5
Use of topic-specifi	ic vocabulary:			
1	2	3	4	5
Use of expressions	:			
1	2	3	4	5
Use of idioms:				
entence formation	(meaning that sent	ences might be too	long, or that there i	s an overuse of
bordination, etc.):				
1	2	3	4	5
dering of the elem	ents in a sentence	:		
1	2	3	4	5
			is a native person fr	

APPENDIX E: RATERS' SHEET SAMPLES

Use of general vocabu	ılarv:			
1	2	3	4	5
Use of topic-specific v	ocabulary:			
1	2	3	4	5
Use of expressions:				
1	2	3	4	5
Use of idioms:				
1	2	3	4	5
Use of collocations:				
1	2	3	4	5
0				
Sentence formation (m subordination, etc.):	eaning that senter	nces might be too	long, or that there	is an overuse of
1	2	3	4	5
Ordering of the elemen	its in a sentence:			
1	2	3	4	5
In general, to what deg	uroo would you oo	y that this parson i	a a nativo norgan f	rom any of the
English-speaking coun		y that this person i	s a native person i	formally of the
English speaking count	110011			

Use of general vocabu	ılary:			
1	2	3	4	5
		3		
Use of topic-specific vo	ocabulary:			
1	2	3	4	5
Use of expressions:				
1	2	3	4	5
Use of idioms:				
1	2	3	4	5
Use of collocations:				
1	2	3	4	5
Sentence formation (m	eaning that senter	nces might be too lo	ng, or that there	is an overuse of
subordination, etc.):				
1	2	3	4	5
Ordering of the elemen	nts in a sentence:			
1	2	3	4	5
		, that this paragrais	a native person t	from any of the
In general to what dec	gree would you say	y that this person is	a native person	nom any or the
English-speaking cour	ntries?			