

Order of Acquisition

A Comparison of L1 and L2 English and Spanish Morpheme Acquisition

Kyle McFerren

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Paul Müller, Ph.D.
Thesis Chair

Stephanie Blankenship, M.A.
Committee Member

Michael Babcock, Ph.D.
Committee Member

Brenda Ayres, Ph.D.
Honors Director

Date

Abstract

This paper examines the order of acquisition for grammatical morphemes in Spanish and English first and second language learners. Brown's first morpheme order study, conducted in 1973, laid the foundation for what would become one of the most common types of study conducted within the field of second language acquisition. The four orders of acquisition relevant here are examined and compared in order to support the roles of salience, morphophonological regularity, complexity, input frequency, and native language transfer in first and/or second language acquisition. The conclusion is that these five determinants work interdependently in determining the difficulty of acquiring a particular morpheme in second language acquisition, and the same factors, except native language transfer, work together in first language acquisition as well, to varying degrees.

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For decades, researchers have conducted morpheme order studies, also known as natural order studies, in hopes of gaining greater insight into how language learners (LLs) learn a language. These studies were first undertaken in 1973, when Brown came to a remarkable conclusion: the order of acquisition of grammatical features was significantly similar among various English-speaking children (cited in Larsen Freeman, 1975, p. 409). Since then, many studies have been carried out examining morpheme acquisition order in many different languages among both first language (L1) and second language (L2) learners. Comparing orders of acquisition for L1 and L2 learners of various languages reveals a great deal about the nature of second language acquisition, specifically, what makes one grammatical feature more difficult to learn than another. This paper will examine the L1 and L2 English and Spanish orders of acquisition in order to examine the roles of salience, morphophonological regularity, complexity, input frequency, and native language transfer in first and/or second language acquisition, ultimately concluding that these determinants work interdependently to determine the difficulty of acquisition of a particular morpheme.

Background

Before examining the actual orders of acquisition researched over the years, it is helpful first to discuss the nature of morpheme order studies. In these studies, researchers choose a range of important grammatical morphemes in a target language. They then elicit speech samples from various learners of the target language, L1 or L2, to examine how often the learners use the selected morphemes correctly in their speech. Researchers

then rank the morphemes by how often the respondents correctly used them in order to create an order of acquisition, that is, to determine which morphemes are acquired in which order when learning a language.

Morpheme order studies have not been without their share of criticism. Scholars such as Andersen (1977) have criticized the methodology used to carry out these studies for their allegedly inaccurate means of measuring acquisition. Traditionally, researchers have determined whether or not a particular morpheme has been acquired by a participant in binary terms: if the participant supplies the correct morpheme in a context where it is obligatory in the target language, then it is counted as correct; otherwise, it is counted as incorrect. Researchers then examine all of the responses relating to a particular morpheme for each individual, and the “90% criterion” is used to determine acquisition: if the subject has supplied the morpheme correctly 90% of the time it is considered acquired; if the subject has supplied the morpheme 89% or less of the time it is considered not acquired (Andersen, 1977, p. 50). Andersen criticized such a binary view of acquisition, suggesting that it would be more accurate to use terms such as “correctly used,” “not correctly used,” or even “correctly used X percent of the time” (p. 55). He also has criticized the 90% criterion, claiming that Brown and others have justified its use in L1 morpheme studies, but its credibility in L2 studies has never been established (p. 76).

In addition, the means of calculating a group score has been scrutinized. Traditionally, researchers have used the “Group Means Method,” which, as its name suggests, calculates the mean correct use of a morpheme among the group as a whole. Andersen, however, suggests that a more helpful and accurate method would be the

“Group Range Method,” which examines the percent of the group that used a morpheme correctly to varying degrees (90%, 80%, 70% of the time, etc.) (p. 50). Nonetheless, despite these criticisms, morpheme order studies have continued to play an essential role in the field of second language acquisition, and provide a useful window into how LL’s learn a language.

The acquisition of morphology is particularly important in language acquisition as a whole. A number of theories cite morphological acquisition as the primary factor in language development. For example, Pienemann’s Processability Theory, which indicates that grammatical forms are acquired in a predictable way based on their inherent complexity, claims that “morphological acquisition is the driving force in English as a second language (ESL) development” (cited in Dyson, 2009, p. 355). Similarly, Slabakova has proposed the Bottleneck Hypothesis, claiming that “learners are able to acquire syntax and semantics, but the main challenge is inflectional morphemes, and formal features are what cause problems” (cited in Gass, Behney, & Plonsky, 2009, p. 180). Both hypotheses emphasize the importance of morpheme acquisition in learning a language, which is why examining the natural order of morphemes can be so insightful.

L1 English

As the background work behind much of this research was carried out on English L1 learners, it is best to begin by examining the order of acquisition of English grammatical features in L1 learners. Brown’s study looked at eleven grammatical morphemes in English and studied their use by three children, observing when the children fully acquired each feature. He found the order of acquisition to be “(1) present progressive, (2/3) prepositions in, on, (4) plural marker –s, (5) past irregular, (6)

possessive (-s), (7) uncontractible copula (*is, am, are*), (8) articles (*a, the*), (9) past regular (-ed), (10) third person regular (-s), (11) third person irregular” (cited in Gass et al., 2009, p. 115). Further studies have shown that this order has little variance across English L1 learners, and a child’s level within the order can even be easily predicted based on the length of the child’s utterances (Mace-Matluck, 1979, p. 699). This means that the process by which a child acquires his first language is not arbitrary or random; there must be a reason why there is a consistent order of acquisition for all children learning English as their L1.

L2 English

Much research has been conducted to determine if the order of acquisition in English is different between L1 and L2 learners. One of the best known studies is Dulay and Burt’s experiment comparing various ESL learners from Chinese and Spanish backgrounds with Brown’s original study. The morphemes involved in this study were nearly the same, except pronoun case, the auxiliary, and the long plural (-es) were studied instead of the prepositions *in* and *on* and the third person irregular. Dulay and Burt (1974) found the general ESL group means natural order to be (1) pronoun case, (2) article, (3.5) copula, (3.5) progressive -ing, (5) plural, (6) auxiliary, (7) past regular, (8.5) past irregular, (8.5) possessive, (10) long plural, (11) third person (p. 51). There are both similarities and differences between this ESL order and Brown’s original L1 English order, which leads to several implications considered further below.

There was very little variance between the Spanish and Chinese LL’s in this study, leading Dulay and Burt to state “the sequences of acquisition of 11 functors obtained for Spanish and Chinese children are virtually the same” (p. 49). There were a

few differences, however, such as the reversal of the orders of the copula and progressive *-ing*, and of the auxiliary and plural (p. 49). This led many scholars to form a conclusion about the role, or lack thereof, of L1 transfer in second language acquisition. However, to maintain a more balanced perspective on this issue, another slightly different ESL order of acquisition will now be considered.

Mace-Matluck (1979) conducted a similar study of ESL students from Cantonese, Spanish, Tagalog, and Ilokano backgrounds (p. 699). She compiled an order of acquisition for each language examined in the study separately, as well as a “composite order,” averaging the orders of the four languages (p. 699). The morphemes considered in this study were the same as Brown’s, except here the uncontractible copula was replaced with the contractible copula (i.e. *he’s* instead of *is*). Mace-Matluck’s composite order found that ESL students generally acquired grammatical morphemes in the following order: (1) present progressive *-ing*, (2) contractible copula, (3) past irregular, (4) *in, on*, (5) possessive, (6) articles, (7) plural, (8) third person regular, (9) past regular, and (10) third person irregular (p. 699).

Among the natural orders of the individual L1 backgrounds there was little variation. In fact, the Cantonese and Tagalog ESL orders were identical other than the reversal of the positions of the past irregular and the possessive (p. 699). However, it still must be noted that the orders were in fact different, and the acquisition of some morphemes was even quite different among learners of different language backgrounds. For example, the Spanish ESL learners did not acquire the possessive morpheme until sixth in the order, while Cantonese speakers acquired it third in the order (p. 699). Thus, while the L1 background seemed to matter very little in Dulay and Burt’s study, it

appears to have had a slightly greater impact on Mace-Matluck's results. Although most researchers dismissed these slight differences initially, later researchers reexamined them, as will be explored in the discussion of determinants below.

It is also noteworthy that the way in which the orders were acquired differed between the L1 and L2 learners of English. Whereas L1 learners generally progress through the order of acquisition in a "linear fashion," that is, step-by-step from one morpheme to the next, the ESL students progressed through the order in a "global manner." That is, even the least proficient of ESL learners display knowledge of all the morphemes; it is just the level of mastery that increases as they become more proficient (Mace-Matluck, 1979, p. 700). This indicates that there is some difference between the natures of first and second language acquisition, as will be explored in depth later in this paper.

L1 Spanish

By examining the order of acquisition for L1 Spanish learners next, the nature of language acquisition becomes even clearer. As van Naerssen (1978) has pointed out, because the majority of natural order studies have focused on the acquisition of English, "caution should be taken in generalizing principles of language acquisition based primarily on English, especially for languages with much more complex inflectional systems" (p. 146). Examining Spanish morpheme order studies is helpful, then, because it sheds more light on the universal nature of language acquisition, balancing out what may only be true of English in particular. Spanish, as a highly inflected language with fusional morphology, provides a larger window into the process of language acquisition. Thus, in Vivas' (1979) study, 21 morphemes were examined, rather than the 11 or 14 that are

typical in English studies. It should also be noted that many Spanish words contain multiple inflectional morphemes, often fused together. So, for example, use of the word *bonitas* (pretty) by participants in the study would demonstrate their acquisition of both the feminine gender and plurality (p. 81).

Vivas' concluded natural order for Spanish was (1) present, (2) third person singular, (3) masculine gender, (4 and 5) past regular and past irregular, (6) imperative, (7) preposition *en*, (8) feminine gender, (9) first person singular, (10) plural, (11) copula (*ser*), (12) article, (13) copula (*estar*), (14) possessive (*de*), (15) future marker (*ir a...*), (16) second person singular, (17) third person plural, (18) preposition *a*, (19) progressive, (20) past imperfect, (21) auxiliary (p. 87).

Other researchers have investigated different morphemes. Van Naessen (1978) compiled a meta-analysis of Spanish L1 acquisition studies and discovered the following tentative order: (1) present progressive, periphrastic future, present indicative, (2) imperative, (3) interrogative, *ir* + gerund, (4) present and past subjunctive, *andar* + gerund, past progressive, relative clauses, (5) present perfect, prepositions, (6) inflected future, conditional, past perfect subjunctive (p. 149). This list agrees with Vivas' order in some respects – relatively early acquisition of the present tense and the indicative – but differs in other respects – earlier acquisition of the periphrastic future (*ir a...*), for example. Due to the tentative nature of this meta-analysis and its less complete list of morphemes, this paper will primarily refer to Vivas' order when discussing L1 Spanish order of acquisition.

Upon comparing Vivas' list to Brown's English L1 list, Vivas' conclusion was "that we are comparing apples to oranges," due to the significant linguistic differences

between Spanish and English (p. 93). In other words, even comparing the Spanish morphemes that do have English equivalents would be difficult, as their syntactic and semantic qualities are not identical. For example, while it may initially seem possible to compare the English possessive -'s with the Spanish possessive *de*, even a cursory examination of the two morphemes shows that “the syntactic position of *de* in Spanish is much more similar to that of *of* in English” than to the equivalent English possessive morpheme (p. 93). So to compare these two morphemes would be to disregard any influence that syntax has on the order of acquisition. At the same time, to equate the acquisition of the Spanish *de* with the acquisition of the English *of* would be to introduce slight semantic differences that would interfere with any influence that semantics has on the order of acquisition.

To further complicate the issue, some of the Spanish morphemes examined have no comparable English counterpart. Perhaps the most obvious example would be gender, which does not exist in English. Therefore there would be no conceivable way to compare the order of the acquisition of the masculine and feminine genders to English. In addition, some have proposed matching Spanish's copula *ser* with the uncontractible copula in English, and the Spanish copula *estar* with the contractible copula in English. This too would be a mistake, as the difference between the two in Spanish is largely semantic, distinguishing between permanence and temporality, while in English the difference is mostly syntactic and is in many cases even optional (pp. 93-94). Nevertheless, examining and comparing the Spanish L1 natural order with other orders is still very revealing of the nature of language learning, as will be seen in the discussion of determinants below.

However, the incompatibility of the data itself may be informative to the nature of morpheme order studies and the conclusions drawn from them. Van Naerssen (1978) suggests that it is only when one compares the order of acquisition for a more inflectionally complex language like Spanish that “one becomes aware of how easy it is to oversimplify regarding the stages or points of acquisition in English (p. 146). Van Naerssen cites definite and indefinite articles, and “the interactions among articles, plurals, and count/mass nouns” as examples of how many researchers of English orders of acquisition may not be aware of how they are oversimplifying the language (p. 146). Thus, while it may be frustrating that Spanish and English orders of acquisition cannot be correlated more closely, this fact itself is helpful in evaluating the nature of language learning.

L2 Spanish

Although there has been very little research done on the order of acquisition of grammatical morphemes for Spanish L2 learners, this section will follow van Naerssen’s (1978) approach by posing “some interesting observations and comparisons...with suggested acquisition orders” (p. 146). One of the most well-known areas of difficulty for Spanish L2 learners is gender acquisition. For English-speaking students of Spanish in particular, “mastery of this grammatical category is a frequent source of errors, particularly in spontaneous and elicited oral production, and even at higher proficiency levels” (Alarcón, 2009, p. 814). Acquisition of both the masculine and feminine gender morphemes seems to be a very slow process, especially for learners whose L1 lacks a gender system, such as in English. In particular, English learners of Spanish “operate with a default value, [and] overgeneralize the masculine forms of determiners and

modifiers,” although they do “show improvement as exposure and proficiency level increase” (p. 814). Van Naerssen’s (1978) study found similar results, concluding “these students perceived the masculine form to be the basic form for adjectives” (p. 150). It seems to be well established that gender, especially the feminine gender, is a large problem spot for Spanish L2 learners.

It is interesting to note that the feminine, and especially the masculine, gender morphemes are acquired relatively early in the Spanish L1 order, whereas they would probably fall relatively late in the L2 order, especially for L1 English speakers. Because English speakers “show a strong preference for masculine forms” (Alcarón, 2009, p. 822), it would seem as though their initial default for all nouns is to inflect them for the masculine form, and then later learn which ones need to be changed to the feminine form. The fact that the feminine gender morpheme is acquired later than the masculine by L1 learners too suggests that Spanish-speaking children may even go through this same process, although they quickly progress through it and show complete mastery of it, unlike L2 learners.

Another problem spot for L2 learners of Spanish is the acquisition of the two copulas *ser* and *estar*. VanPatten (2010) outlined five steps that L2 learners go through in the acquisition of the copulas: (1) “lack of copular verbs for any function,” (2) “acquisition and overgeneralization of *ser*,” (3) “appearance of *estar* with *-ndo* to express progressive function,” (4) “appearance of *estar* with true locatives,” and (5) “appearance of *estar* with adjectives to express conditions” (p. 32). This shows a process similar to how L1 Spanish learners are supposed to learn the copulas. As will be discussed more below, it has been hypothesized that L1 Spanish learners have to first learn the general

function of the copula, and then divide its uses between the two Spanish copulas. Nearly the same process is shown here; the L2 learners learn the purpose of the copula in Spanish and equate it with the verb *ser*, and then later learn specific circumstances that instead necessitate the use of *estar*.

The resemblance between L2 acquisition of gender and the copulas in Spanish is also noteworthy. It seems when a LL's L1 has one morpheme where Spanish has two (referred to as "differentiation" by Stockwell, et al. (cited in Gass, Behney, & Plonsky, 2013, p. 90)), the LL begins by equating the L1 morpheme with just one Spanish morpheme, and then later learns which conditions demand the use of the second morpheme instead. Although gender technically constitutes what Stockwell calls a "new category" in this case (p. 90), it appears that Spanish learners from genderless L1 backgrounds rather address it as a differentiation issue. Also, morphemes that require differentiation prove to be the most difficult for L2 learners (p. 90), and thus could be placed further down the hypothetical L2 Spanish order of acquisition.

Simple past verbs, especially irregular ones, are also notorious for presenting a great challenge to L2 Spanish learners. This too could be a point of difference between the L1 and L2 Spanish orders of acquisition. Van Naerssen (1978) found in her study that "there was a significantly higher number of errors for the preterite tense" than for the present indicative and imperfect past (p. 151). For L1 learners, both regular and irregular past tense verbs are acquired simultaneously early in the order, as interestingly enough "there [is] no apparent difference in the behavior of the two in the data as [is] the case in English" (Vivas, 1979, p. 87). This is perhaps due to the fact that the majority of irregular past tense Spanish verbs "have their own generalizable rule system"; they are simply

different conjugation rules than those which most verbs follow, whereas in English past tense irregular conjugations are largely unpredictable (Kvaal et al., 1988, p. 391). It is evident that in the Spanish L2 order of acquisition regular and irregular past tense morphemes would not appear together, but that the irregular past tense morpheme would appear significantly after the regular. With L2 learners, the difference between regular and irregular past tense verbs is not so simple.

Order Determinants

The remainder of this paper will focus on the various determinants which contribute to the orders of acquisition examined above, with the goal of demonstrating that the difficulty of acquiring L2 grammatical morphemes is caused both by NL transfer and various aspects of the L2 itself, all working interdependently. A large number of explanations have been posited by different scholars in order to explain why some morphemes are consistently acquired before others, with different writers placing greater emphasis on different determinants, and even occasionally dismissing various determinants altogether. In general, it can be said that there is most likely a large number of factors that contribute to the orders of acquisition, and no one determinant fully explains these studies. However, that being said, the most critical determinants of the English and Spanish L1 and L2 orders of acquisition are perceptual salience, morphophonological regularity, complexity, frequency, and native language transfer.

Perceptual Salience

Perceptual salience, often referred to simply as salience, is defined as the degree to which a feature “stands out from the context in which it is embedded...a property of a stimulus that engages attention in an automatic, bottom-up way” (Trenkic & Pongpairoj,

2013, p. 153). Saliency is one of the most common explanations as to why certain morphemes are more quickly acquired than others in both L1 and L2 acquisition studies. This seems to be a fairly simple but valid explanation, as, in the words of Brown, “a child will not learn what he cannot hear” (cited in Goldschneider & DeKeyser, 2005, p. 48). The assumption here is that a morpheme that stands out more audibly among other morphemes will be acquired before less salient morphemes.

Saliency is often cited as the explanation of why the progressive *-ing* is the first morpheme to be acquired in both L1 and L2 English, as [ɪŋ] is relatively easy to hear, constituting an entire syllable. This also would explain why morphemes such as the past regular *-ed* come later in the order of acquisition (ninth in both L1 and L2 English), since the morpheme more often than not occurs as the non-syllabic allomorph [t] or [d], which has relatively low saliency.

In addition, saliency often works alongside redundancy as a determinant. For example, the past tense in English is often redundantly signaled by more salient lexical items such as *yesterday* or *last week*. Ellis and Collins (2009) have pointed out that in sentences where the past tense is signaled by both the *-ed* morpheme and a lexical item, “both provide cues to temporal relationships, but the lexical items are much more likely to be perceived” (p. 331). In cases like this, the saliency of the lexical items nearly eliminates the need of the LL to perceive the non-salient inflection, thus adding to the difficulty of acquiring the past tense morpheme (p. 331). The case is likely the same for learners of Spanish and their difficulty in acquiring various tense morphemes, especially irregular ones, since Spanish often redundantly marks tense with more salient lexical items (e.g. *ayer* [yesterday], *la próxima semana* [next week]) as well. This explains why

the Spanish future marker *ir a* is not acquired until fifteenth in the L1 order. Even though its forms are fairly salient, they are still less salient than the adverbial markers which often accompany them. For example, the future marker (*voy a*) in the sentence “*voy a correr mañana*” (“I’m going to run tomorrow”) is less salient than the adverbial marker *mañana*, and if a LL produced the incorrect sentence **corro mañana*,” he would still be understood because of the adverbial marker, reducing the urgency to correctly acquire this form. This explanation could also be extrapolated to the third person singular *-s*, which is signaled by more salient lexical items (e.g. he, she, the boy, etc.), having the same effect on the acquisition of this morpheme, which could contribute to its relatively late position in the English L2 order.

Salience may also be the cause of the delayed acquisition of the Spanish plural morpheme *-s* in comparison to its English counterpart. Vivas (1979) has proposed that because in many Spanish dialects the plural marker */-s/* is reduced to [h], which is less salient than the English plural markers [s], [z], and [əz], there may be a delay in children acquiring this morpheme when learning Spanish as their L1 (pp. 99-100). Spanish L1 learners then need additional time to be able to perceive the barely audible word-final [h] before they can begin to recognize that this morpheme represents plurality and gain control of it. More research would need to be done in order to confirm this proposition, testing whether the plural morpheme is acquired earlier among learners of dialects where the */-s/* reduction is not present.

In addition, Kvaal, Shipstead-Cox, Nevitt, Hodson, and Launer (1988) cite salience as a possible explanation of why children learning Spanish acquire articles before children learning English. Kvaal et al. note that this is a particularly interesting

occurrence because one would naturally expect the complexity of the Spanish article, which marks number, gender, and definiteness, to delay its acquisition in comparison to the English article, which is only marked for definiteness (p. 392). Thus, this instance suggests an important role for salience, since the Spanish articles [el], [la], [los], [las], [un], [una], [unos] and [unas] are supposedly more salient than the English [ðə] and [ə] (p. 392). If this is the case, then it would seem that salience is also more influential than morphophonological regularity, since there are eight variations of the Spanish article versus only two (or four, if one distinguishes between [ðə] and [ði], and [ə] and [eɪ]) in English.

Van Naerssen (1978) has also cited salience as an explanation for L2 Spanish learners' delayed acquisition of the simple past tense. She noted that while L1 Spanish learners learn the simple past before the past imperfect, it is the opposite with L2 learners. Van Naerssen suggested that this is because LLs "confuse the vowel and stress changes between the preterite and present indicative" (p. 151). This is a valid explanation, as the first person singular conjugation of *-ar* verbs in the simple past only differs phonologically from the third person singular conjugation of *-er* verbs in the present indicative in its placement of stress (i.e. *-é* versus *-e*.) This is also the case with the third person singular conjugation of *-ar* verbs in the simple past and the first person singular conjugation of the present indicative (i.e. *-ó* versus *-o*.) If van Naerssen is correct, then this suggests that either salience plays a greater role in L2 acquisition than L1 acquisition, or that other determinants offset the role of salience in these circumstances in L1 acquisition.

Morphophonological Regularity

Morphophonological regularity or “the degree to which the functors are (or are not) affected by their environment” is another determinant in natural order studies, although it has been researched and discussed much less than salience (Goldschneider & DeKeyser, 2005, p. 51). Morphophonological regularity not only includes the number of allomorphs belonging to a morpheme, but also “homophony with other grammatical functors” and “redundancy” (p. 52). The reasoning behind this determinant is that it should be easier for LLs to acquire morphemes that are pronounced the same in every environment than to acquire those that have a large number of allomorphs or sound similar to another morpheme.

Morphophonological regularity likely contributes to the placement of the present progressive in the English orders as well. This is a highly regular morpheme, as it always appears as [ɪŋ], or [ɪn] for some speakers, and does not vary from context to context, making it relatively easy for LL’s to acquire. Similarly, the plural -s, possessive -’s, and third person -s, all of which phonologically vary between [s], [z], and [əz], and the past regular -ed, which varies between [t], [d], and [əd], are all examples of morphemes whose acquisition may be delayed due to morphophonological irregularity (Goldschneider & DeKeyser, 2005, p. 52).

In addition, this provides a great example of why one single determinant alone cannot explain the orders of acquisition. If that were the case, then one would expect the plural -s, possessive -’s, and third person -s all to be acquired simultaneously. Instead, these morphemes are acquired fourth, sixth, and tenth in the L1 order, respectively, showing that morphophonological regularity alone cannot account for their acquisition (cited in Gass, Behney, & Plonsky, 2009, p. 115). However, in the L2 order the

morphemes are acquired fifth, sixth, and seventh, respectively (Mace-Matluck, 1979, p. 699). More study would need to be conducted in order to examine whether this is caused by an increased role of morphophonological regularity in L2 acquisition or some other factor, but it does suggest that the role of morphophonological regularity in language acquisition differs between L1 and L2 learners.

In regard to the Spanish natural orders, Vivas proposed that homophony, a subfeature of morphophonological regularity, is one of the determinants in the delay of the acquisition of the copula, *estar*, in relation to the other copula, *ser*. The conjugations of *estar* (*estás, está, etc.*) are phonetically very similar to several of the demonstrative pronouns in Spanish (*estas, esta, etc.*) and in some cases only differ in their placement of stress, which would cause this copula to easily be confused in context of everyday speech, where both the copula and demonstrative pronouns are very common. It is possible then that additional time is required for children to be able to audibly differentiate between the two before they can acquire *estar*, which explains why it falls later in the order of acquisition than *ser*, whose forms are more distinct (Vivas, 1979, p. 95).

Vivas has also proposed that something similar to morphophonological regularity explains why the third person singular morpheme is acquired so much later in English than in Spanish. The nature of the morpheme is nearly identical in both languages, so it does not seem to be an issue of complexity, which will be discussed further below. However, the explanation may be that the inflected *-s* in the English morpheme only occurs in affirmative statements, as it is transferred to the inserted *do* in negative statements and questions. For example, English speakers say “he walks” (affirmative),

but ‘he *doesn’t* walk’ (negative). In Spanish the third person singular marker has much higher regularity; it occurs in both affirmative and negative statements. For example, the same sentences in Spanish would be “*él camina*” and “*él no camina,*” the final *-a* marking the third person singular in each sentence. It may take longer for an English-speaking child to sort out all of this information before he can acquire the morpheme, whereas the Spanish-speaking child has a much easier time due to the regularity of the Spanish morpheme (Vivas, 1979, p. 98).

Morphophonological regularity likely plays a large role in the difficulty that L2 learners of Spanish have in acquiring the irregular past tense morpheme. Irregular verbs by their very nature have a large number of allomorphic variations, and so it is reasonable that LLs would have a difficult time forming hypotheses about the irregular past tense morpheme if they perceive it in so many different forms. Yaden (2007), based on Pinker’s dual-mechanism model, even goes as far as suggesting that irregular past tense forms provide such an obstacle to LLs’ rule formations that they do not create rules to explain this grammatical feature, but rather store each irregular past tense verb fully inflected in all of its conjugations in their lexicons (p. 798). For example, according to Yaden, Spanish LL’s do not recognize the specific patterns associated with the irregular past tense forms of verbs such as *repetir*, *preferir*, and *pedir*, but they store all past tense conjugations of these verbs in their lexicons.

Complexity

For the purposes of this paper, complexity will include both the semantic and grammatical complexity of a morpheme. Semantic complexity refers to the amount of grammatical information contained by a morpheme. For example, the third person *-s* in

English, is relatively semantically complex for the language; it marks third person, singular number, and present tense all in one morpheme (Goldschneider & DeKeyser, 2005, p. 50). A morpheme such as the plural *-s* in English is much less semantically complex; it only marks the plural number. Grammatical complexity, on the other hand, often refers to the category (free, bound, lexical, etc.) of a morpheme (p. 53). Complexity of a morpheme is often cited as an important factor in language acquisition, as presumably a LL will learn a grammatically and semantically less complex morpheme more easily than a complex morpheme.

Spanish may also help to give some answers to Brown's explanation of the English L1 order. Brown had predicted that semantic complexity was one explanation for the order (cited in Goldschneider & DeKeyser, 2005, p. 50). If this is correct, then the third person singular morpheme, which expresses person, number, and tense, should be acquired later than the plural marker, which only expresses number. This is the case in English, which would seem to confirm Brown's explanation, but it is not the case in Spanish, which brings the explanation into question (Vivas, 1979, p. 102). Though this does not altogether disconfirm the role of semantic complexity in morpheme acquisition, it does show that the contributing forces are more complex than just this one determinant.

Complexity may be a factor in why the acquisition of the copula differs in Spanish and English L1 orders. While there is only one copula in English, *be*, there are two copulas in Spanish, *ser* and *estar*. On a simplistic level, *ser* indicates an intrinsic or permanent relation, while *estar* indicates temporary and spacial relationships. The delay in the acquisition of the Spanish copula then could result from the time it takes the Spanish-speaking child to first learn the nature of the copula, and then to divide its uses

between *ser* and *estar* (p. 95). Inferring from the orders of acquisition, then, it seems as if the natural inclination of a child is simply to learn the function of a copula without processing the varying, yet similar, uses of it. Therefore, there is a complexity issue involved as Spanish-speaking children must learn to differentiate the usages of *ser* and *estar* before acquiring the copulas, while English-speaking children do not face this kind of complexity.

The copula is an excellent example of semantic complexity, as it is marked for a wide range of grammatical information in both English and Spanish. Van Naerssen (1978) points out that the copula is marked for “tense, person, and number marking,” and, in Spanish, for “semantic distinctions between the two verbs” (p. 150). It is interesting to note, then, the delayed acquisition of the copula(s) in L1 and L2 Spanish, and L1 English – but not L2 English. Perhaps the reason for this exception among ESL learners is because Dulay and Burt (1974) studied the copula in general, and Mace-Matluck (1979) studied the contractible form (e.g. *I’m, you’re, he’s*, etc.), while Brown’s (1973) L1 study examined the uncontractible copula (e.g. *am, are, is*). It seems reasonable that the monosyllabic, much used nature of the contractible copula may lend itself to be stored as an unprocessed lexical unit, while the more variable, free nature of the uncontractible copula forces the LL to grammatically process the verb before using it. If this explanation is true, then it would seem that the semantic complexity of the copula, in L1 and L2 Spanish and English, causes the verb to be acquired later in the natural order.

Input Frequency

The frequency of a morpheme in a LL’s input has been a somewhat controversial determinant. The assumption here is that “the more often a grammatical item occurs in

the input available to the learner, the more easily and quickly the item will be acquired” (Kwon, 2005, p. 12). In L1 acquisition, the role of frequency has largely been dismissed. This is primarily because research has found that there is “no clear evidence at all that parental frequencies influence the order of development of the forms” (cited in Goldschneider & DeKeyser, 2005, p. 54). Similarly, Gass, Behney, and Plonsky (2009) state that the English L1 order of acquisition “does not reflect the frequency of these morphemes in the speech of the children’s parents” (p. 115). Evidently, a speaker’s L1 is not acquired simply by noticing and incorporating frequently heard morphemes into the developing interlanguage, but rather a more complex and seemingly more innate process is at work here.

Frequency provides one of the best examples of the difference between L1 and L2 acquisition. Whereas it has been almost completely dismissed as a determinant in the L1 natural orders, researchers have consistently emphasized its critical role in L2 orders of acquisition. Some, such as Larsen-Freeman (1976), go as far as saying that frequency of a morpheme in a LL’s input is “the principal determinant for the oral production morpheme order of second language learners” (p. 132).

Ellis and Collins (2009) make a distinction between two types of frequency that affect language learning: type frequency and token frequency. The token frequency of a morpheme refers to how often it appears in general in input, while type frequency refers to the number of lexical stems with which the morpheme can be paired (p. 330). Ellis and Collins claim that type frequency is the basis of rule formation (p. 330). While this is a reasonable explanation, it does not hold out when applied to the L2 natural orders. The authors use the past regular *-ed* as an example of a morpheme with high type frequency,

and the past irregular (i.e. *swam*) as an example of a low type frequent morpheme, which according to Ellis and Collins should cause a much quicker acquisition of the past regular compared to the past irregular. This is not the case though, as the two morphemes are acquired consecutively in the English L2 order, ninth and tenth, respectively (Mace-Matluck, 1979, p. 699). While type frequency may explain why the regular is acquired before the irregular, the data suggests that it is not the sole determinant, and there are certainly other factors at work here.

There is also evidence that while input frequency plays an important role in second language acquisition, other determinants may restrict its role, at least initially. Gass and Mackey (2002) note that frequency can only have an effect on acquisition when “learners have the processing capacity necessary for forms at the preceding stage of acquisition” (p. 253). Thus, if LLs cannot perceive or understand a certain morpheme because of its salience, complexity, morphophonological regularity, or another factor, the frequency of that morpheme will not affect the LL immediately. Gass and Mackey do note that “when learners are not at the correct developmental level to make immediate use of input, it may be stored and made available at a later time for processing and use” (p. 254). Their study found that input frequency’s influence on the acquisition of a morpheme might be a delayed effect, occurring only after LLs understand enough of the surrounding linguistic context to be able to make sense of the morpheme they have been hearing. This captures well the interdependence of the morpheme acquisition determinants; one factor can scarcely be examined without mentioning the others.

A similar situation occurs in L2 learners of Spanish. For example, as discussed above, the acquisition of gender morphemes is an especially difficult area for those

learning Spanish as a L2. However, Alcarón (2009) notes that LLs acquiring these morphemes do “show improvement as exposure and proficiency level increase” (p. 814). This sounds remarkably similar to Gass and Mackey’s explanation of the interdependence of frequency and developmental learning stages, providing evidence for the universality of this determinant in L2 acquisition.

Likewise, frequency may explain why L1 Spanish learners acquire the more morphophonologically irregular and less salient past simple more quickly than the imperfect past. Van Naerssen (1978) has claimed that “the high frequency of use of the preterite (i.e. simple past) compared with the imperfect in natural language” may be the cause of this quicker acquisition (p. 151). Moreover, the Spanish past tenses are a great example of the interplay between various factors in determining acquisition order, and the variation of this interplay in L1 versus L2 learners. According to Van Naerssen (1978), for the past simple, in L1 acquisition frequency has a larger role along with its lower “conceptual complexity,” while its low saliency (discussed earlier) is largely unimportant; however, in L2 acquisition the roles of frequency and conceptual complexity are offset by its low saliency and morphophonological variability (p. 151). Despite the perhaps unwarranted emphasis on frequency in L1 acquisition, this perfectly demonstrates how the relative influences of various factors combine in different proportions to determine a morpheme’s placement in the order of acquisition.

Native Language Transfer

The influence of a speaker’s native language, which is obviously only relevant in the L2 natural orders, is by far the most debated determinant in natural order studies. NL influence can work both ways – by facilitating acquisition where a grammatical feature is

similar in the L1 and the L2, known as *transfer*, or by inhibiting acquisition where a difference exists between the L1 and the L2, often called *interference*. These terms were originally associated with behaviorism, but now reflect the more complex, integrated picture of language acquisition that has been developing in recent decades (Ellis, 2008, p. 350).

As Luk and Shirai (2009) have pointed out, NL transfer has been largely and unjustly dismissed, and “in many current SLA [second language acquisition] textbooks, the universality of morpheme acquisition order is emphasized, and in some cases, it is treated as a fundamental assumption on which theorizing in SLA is based” (p. 724). Despite discrepancies between the acquisition orders of speakers from different NL backgrounds (e.g. Mace-Matluck, 1979), many researchers simply overlook any role that NL transfer might have in second language, seemingly out of a reactionary attitude towards behaviorism and the many faults of contrastive analysis.

However, a great deal of research confirms the conclusion that NL transfer plays an important, but not the sole, role in L2 acquisition. For example, DeKeyser (2005) has noted that grammatical features are often difficult to acquire “because of novelty, abstractness, or a combination of both” (p. 5). In particular, he notes that “articles, classifiers, grammatical gender, and verbal aspect” are common grammatical features that are present in some languages and absent in others and present a serious obstacle to language learners (p. 5). He goes on to summarize that “where the semantic system [of grammatical features] of the L1 is different from that of the L2...or where equivalent notions do not get expressed overtly in L1...the learning problem is serious and long-lasting” (p. 5). If DeKeyser is correct in emphasizing the role of NL interference in L2

acquisition, then categories which exist in English and Spanish but not in the NL of the LL should be delayed in acquisition.

In addition, Hakuta (1974) tested the role of L1 transfer by predicting in what ways the natural order of a Japanese ESL learner would differ from Brown's original natural order based on the peculiarities of Japanese grammar. The ESL learner's NL was such an accurate predictor of differences in morpheme acquisition that 27 of the 30 predictions Hakuta made were confirmed (p. 35). One example of this is the tendency of Japanese ESL learners to overgeneralize the possessive -'s to pronouns (i.e. you's, we's, they's), which is grammatically correct in Japanese but not in English (p. 32). More evidence supporting Hakuta's conclusion becomes evident when comparing his study to Mace-Matluck's later study of the ESL natural order. Articles, a category present in English but not in Japanese, come sixth in the general L2 English order, but not until eleventh in the Japanese ESL order (Hakuta, 2005, p. 29; Mace-Matluck, 1979, p. 699).

Fathman, as well, found similar evidence among Korean ESL learners. In comparing Spanish and Korean natural orders, she concluded that "learners differed markedly on morphemes, namely articles, which are a feature of Spanish syntax but are absent from Korean" (cited in Kwon, 2005, p. 15). Similarly, Luk and Shirai (2009), in studying the allegedly discountable differences between East Asian (Chinese, Japanese, and Korean) and Spanish orders of acquisition, have provided further evidence for L1 transfer, as "in most cases, Japanese, Korean, and Chinese learners deviate from Krashen's NO [natural order] and acquire the possessive morpheme much earlier, and plurals and articles much later, than predicted by the NO, but as predicted by Andersen's (1983) L1 transfer account" (p. 735).

Conclusion

It is clear that there is no single factor that determines when a LL will acquire a particular morpheme. Rather, perceptual salience, morphophonological regularity, complexity, and in L2 acquisition, input frequency and native language transfer work interdependently to create a predictable order of acquisition for a certain language and group of LLs. Many other factors likely play a smaller role in morpheme acquisition as well. Over the years, researchers have often claimed an exclusive or near exclusive role for different determinants, completely dismissing all other factors. However, no single determinant should be elevated in importance at the expense of the other factors which interdependently determine the difficulty of acquisition for a particular morpheme.

The natural orders of L1 and L2 English and Spanish reveal a great deal about the nature of language learning, especially what causes some morphemes to be consistently more difficult to acquire than others. In particular, this speaks to the often debated nature of second language acquisition, revealing two important conclusions: (1) L2 learning is qualitatively different than L1 learning, as it relies on input frequency and L1 transfer where L1 learning does not, and (2) L2 learning is accomplished through a combination of both NL influences and L2 influences. As more research is conducted investigating natural orders, especially among languages other than English, the nature of language learning will become even clearer, giving researchers a better understanding of both the human mind and language pedagogy.

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