

## How “Native” Are Heritage Speakers?

Silvina Montrul  
University of Illinois at Urbana-Champaign

### Abstract

One of the chief characteristics of heritage speakers is that they range in proficiency from “overhearers” to “native” speakers. To date, the vast majority of linguistic and psycholinguistic studies have characterized the non-target-like linguistic abilities of heritage speakers as a product of incomplete acquisition and/or attrition due to reduced exposure and opportunities to use the language during childhood. This article focuses on the other side of the problem, emphasizing instead the high incidence of native-like abilities in adult heritage speakers. I illustrate this issue with recent experimental evidence from gender agreement in Spanish, a grammatical feature that is mastered at almost 100% accuracy in production by native speakers; yet it is one of the most difficult areas to master for non-native speakers, including near-natives. I discuss how age of acquisition and language-learning experience explain these effects.

### Introduction

A central issue in contemporary studies of heritage language acquisition is a proper characterization of the linguistic profiles of heritage speakers and the type of linguistic ability they possess in their heritage language. For more than a decade now, we have been describing heritage speakers as bilingual individuals with a stronger command of the majority language than of the heritage language learned at home in childhood. In fact, one of the most distinctive features of heritage speakers is the wide range of overall proficiency and specific proficiencies they exhibit in their heritage language, ranging from minimal to superior, depending on the language and on their lifelong experience with it. Language proficiency—which includes grammatical accuracy and fluency, knowledge of vocabulary, and discourse competence—has been estimated from patterns of language use or self-rating scales or actual proficiency measures like vocabulary tasks, close tests, oral proficiency interviews (OPIs),<sup>1</sup> depending on the study (Martin, this volume; Montrul, in press; Valdés, 1995). To date, the vast majority of linguistic and psycholinguistic studies have investigated the lower end of the proficiency spectrum, characterizing the non-target-like linguistic abilities of heritage speakers as the products of incomplete acquisition and/or attrition (Au, Knightly, Jun, & Oh, 2002; Montrul, 2010; Polinsky, 2011; Sekerina & Trueswell 2011; Sherkina-Lieber, Pérez-Leroux, & Johns, 2011).

The fact that heritage speakers undergo language shift with the onset of schooling in the majority language, if not earlier, contributes significantly to reduction in input and opportunities to use the heritage language at a critical time during language development. Amount and quality of input and frequent and consistent use of the language are, of course, fundamental to successful linguistic outcomes, as is exposure to the language from birth and in early childhood (age of acquisition or timing of input). In fact, some specific aspects of language, like phonology for example, develop very early in life, and even when input and exposure to the language is reduced later on, it is possible to retain native-like ability in some specific areas, like acoustic perception.

Not all areas are so resilient in the face of a shift to a majority language, but despite this some heritage speakers are able to develop very high levels of proficiency in the heritage language overall, and/or in specific domains of their linguistic competence, including morphosyntax.

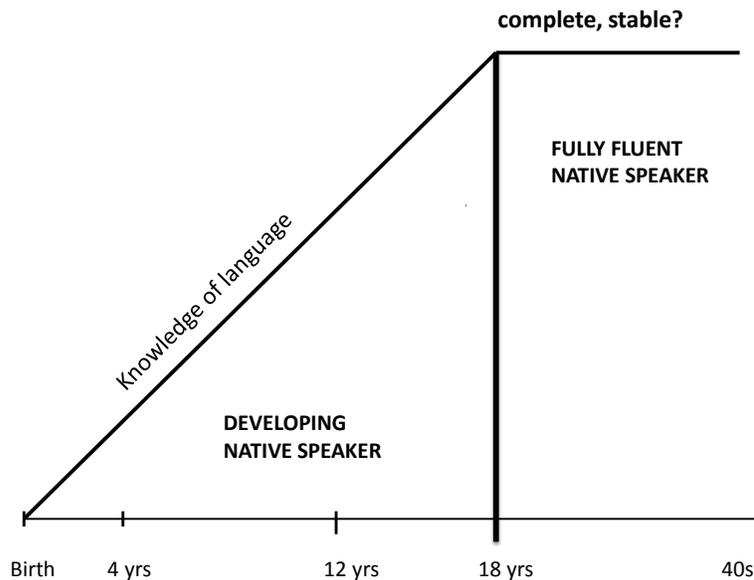
Documenting and characterizing the high end of the proficiency spectrum, and to what extent heritage speakers can reach the highest levels of linguistic achievement in their heritage language, has not, unfortunately, been the focus of much research in this field, but it is certainly an area that deserves attention if we are to understand the possibilities of heritage language speakers. To fill this important gap, this article highlights the superior and “native” linguistic abilities of heritage speakers in gender agreement in noun phrases, a grammatical area that is extremely difficult to acquire at ceiling, i.e., at the highest level of linguistic attainment, if language learning takes place later in life, as in typical second language (L2) learners. I begin by providing some background on native abilities and on possible degrees of linguistic attainment in bilinguals.

### **1. Native Speakers and “Native” Language Ability**

When we see or hear a native speaker we intuitively recognize them as such. Yet, when asked to define a native speaker, a precise definition remains elusive (Davies, 2003).<sup>2</sup> Native speakers are exposed to the language from birth and grow up speaking the language. We can agree that prototypical (educated) native speakers have “native” pronunciation and a sizable and comprehensive vocabulary. They speak in grammatical sentences (except for the occasional slip of the tongue), do not omit or misplace morphemes, recognize ambiguity and/or multiple interpretations and pragmatic implications of words and sentences, and are attuned to their sociolinguistic environment (social class, social context, gender, register, etc.). All native speakers have abstract and relatively stable knowledge of their language that allows them to generate and produce grammatical and novel sentences in their language (i.e., a vocabulary that feeds into an internalized generative system of rules and exceptions).

When judging speakers, we all have an intuitive idea of a norm. At the same time, we know there is predictable variation among native speakers. Not only can we recognize immediately whether somebody is, or sounds like, a native speaker, but we can also tell a great deal by the way a native speaker speaks, how he or she pronounces certain sounds, and the words and syntactic structures he or she uses (i.e., education, nationality, social class, etc.). Thus, on the one hand, we have a sense that linguistic competence is stable, categorical, and deterministic, fitting some idealized norm, as readily expressed in the Chomskyan linguistic tradition; while on the other hand, we also know there is predictable variation among native speakers in their use of language, as studied in the Labovian sociolinguistic tradition, for example. This notion of categorical linguistic knowledge, together with some degree of predictable variability, is precisely what characterizes the complete and successful outcome of the acquisition of a first (or native) language in a (predominantly) monolingual environment. All these capacities are assumed to be present in adults, but we also know that adults are not born with them, and that knowledge of language develops from birth, if not earlier, as illustrated in Figure 1.

Figure 1. Development of Linguistic Knowledge from Birth into Adulthood



Children are born with some phonetic and phonological abilities, and later develop a phonological system and are ready to start building a vocabulary by the first year of life. Depending on which theoretical stance one adopts, they are born with or develop a set of grammatical principles and language-specific rules. They also develop morphological expressions of forms, meanings, and sentence structure. As the structural basis of language develops, so does the developing native speaker's communicative and sociolinguistic competence. We assume for the sake of argument that by the time normally-developing children are adults (18 years old or earlier), they have reached their linguistic and cognitive maturity and can be considered competent native speakers of their language with "stable" abstract linguistic competence.

Native speakers are hard to define, and in many ways they are a myth if one embraces uncritically the Chomskyan conception of a native speaker (Paikeday, 2003). But for some reason the concept of native speaker, as well as the notion of any linguistic norm, often evokes equivalence with the concept of monolingualism, and we must bear in mind that a monolingual is just one type of native speaker. In fact, it is also possible to be a "bilingual native speaker," a person who is a native speaker of or has native linguistic ability in a particular language but also happens to know at least one other language, even if such knowledge is not equivalent to that of the native language. All speakers vary in socioeconomic status (SES) and level of education, literacy development (literate, semiliterate, illiterate), and in whether they have normal language skills or suffer some kind of health-related impairment (aphasia, specific language impairment,

autism spectrum disorder). We know that the presence or absence of language pathologies affects linguistic knowledge, representation, storage and use (Leonard, 1998; Paradis, 2004; Rice, 2009; Tager-Flusber, 2009). How SES and level of education affect linguistic competence, not just language use or register, in monolingual native speakers is a matter of recent debate, with researchers like Dąbrowska (1997, 2012) claiming that there are competence differences related to level of education in monolingual native speakers. Bilingual native speakers also vary in all these dimensions, but they vary as well with regard to age of acquisition of the two languages (simultaneous versus sequential bilinguals; early versus late bilinguals) and on the degree of use of the two languages (more versus less dominant, fluent versus non-fluent, productive versus receptive command, etc.). These variables are important because they have a significant impact on the ultimate attainment of one or both languages of bilingual native speakers.

Ultimate attainment is understood as the final state and stable grammar of people who have completed the language acquisition process. Leaving aside vocabulary or stylistic dimensions of language, phonology, syntax, semantics and discourse skills are no longer developing. The end state of normally developing first language (L1) acquisition in a monolingual context (assuming the same dialect) typically results in native competence of that dialect. However, ultimate attainment is not always “native” in bilingual native speakers. For the non-dominant language, attainment can range from fully native, as in monolingual native speakers, or near-native, as in many highly fluent second language speakers, to clearly non-native, as in the case of most L2 learners. Sorace (1993), Schachter (1990), and White (2003) have all discussed these possible outcomes of ultimate attainment in adult L2 acquisition, and Montrul (2008) made a similar case for heritage speakers. Thus, in terms of types of bilingual native speakers we find fully fluent and linguistically competent native speakers, who have clearly achieved native competence in one or both languages. We also find the “interrupted” native speaker, such as cases of international adoptees and many heritage speakers who experienced disruption in input to their first language when they are forced to become native speakers of a second language during language development. We also find the attrited native speaker: the L2 speaker whose native language ability is affected after several years of intense exposure to the second language (Schmid, 2011; Sorace, 2000). Finally, there are bilingual aphasic native speakers, whose one, two, or more languages can be differentially disrupted and/or recovered, as described by Paradis (2004).

In addition, “native” ability can also be dissociated in bilinguals. In fact, recent research has shown that it is unlikely for highly fluent bilinguals to exhibit similar native ability on all linguistic dimensions within and across languages (Grosjean, 2008), especially if one of the languages was acquired after puberty (Hyltenstam & Abrahamsson, 2009). What we typically find is that some speakers display native ability in morphosyntax, with near-native or non-native ability in phonology and pronunciation, as for example many near-native second language learners (White & Genesee, 1996). On the other hand, we find bilinguals, including many heritage speakers, with non-native or near-native morphology and syntax and native phonology (Au et al., 2002).

With this background in mind, the purpose of the article is to show that despite exhibiting high variability in the degree of ultimate attainment, heritage speakers are native speakers because

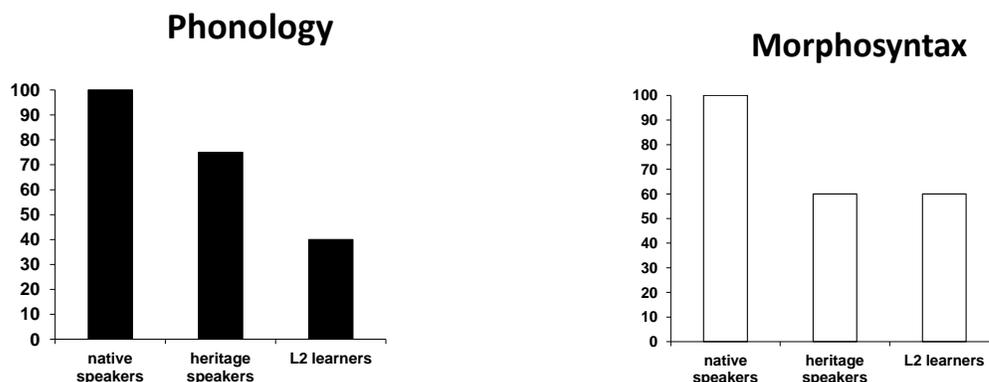
they were exposed to the heritage language since birth. And because of their early language experience with the language, they show a much higher incidence of native ability in morphosyntactic and lexical aspects of language, areas that are extremely hard for L2 learners to master at native levels, even after being exposed to significant amounts of input and having used the language for several years. I review three related recent studies that show these effects.

## **2. Native Speakers, Heritage Speakers, and L2 Learners**

In order to examine the limits and possibilities of heritage language speakers, the most common research design has been to compare and contrast the linguistic abilities of heritage speakers to a control group of fully fluent native speakers (monolingual or bilingual) and a group of adult second language learners matched in proficiency to the heritage speakers. The native speaker group usually acts as a baseline. The L2 group is included because L2 speakers are notorious for also displaying variability in ultimate attainment and such variability is usually attributed to the acquisition of the target language after puberty (Bley-Vroman, 1989). The key question is whether early language experience provides heritage speakers with advantages in their knowledge of early acquired aspects of language, and aspects of morphosyntax in particular, when compared to L2 learners who started acquisition of the language much later. By “advantage” I mean knowledge and performance closer to native-speaker norms.

This question was first addressed by Terry Au and collaborators in a series of studies on Spanish and Korean (Au et al., 2002; Knightly, Jun, Oh, & Au, 2003). Au et al. and Knightly et al. conducted an experimental study of incipient L2 learners of Spanish and Spanish heritage speakers with receptive knowledge of the language (*overhearers*). The native speakers in this study were living in California, so they were bilingual native speakers. Participants completed a production task aimed at eliciting voice onset time (VOT) measurements of the Spanish stops [p, t, k, β, ð, γ], an aural grammaticality judgment task testing different aspects of Spanish morphosyntax broadly defined (clitics, gender agreement, verbal agreement, tense, aspect, mood, etc.), and an oral narrative task testing gender agreement. They found that the heritage speakers were significantly more native-like on the phonetics/phonology and pronunciation measures than the L2 learners. On the morphosyntactic measures, the L2 learners and the heritage speakers did not differ from each other, performing at slightly above 60% accuracy in the grammaticality judgment task (cf. native speakers 92%) and about 50% accuracy on the narrative task (cf. native speakers 97%). Figure 2 gives a schematic representation of the dissociation that Au et al. found in phonology and morphosyntax with Spanish overhearers: while L2 learners appear to be clearly non-native in both domains, the heritage speakers are significantly more native-like in phonology than in morphosyntax. They concluded that early input as predicted by critical period accounts brings advantages for phonology but not for morphosyntax in heritage speakers.

Figure 2. Overall Pattern of Accuracy Found by Au et al. (2002) in Phonology and Morphosyntax



Au et al.'s (2002) findings of an advantage for heritage speakers in phonology and pronunciation have since been confirmed by other studies on different aspects of phonology and different heritage languages, such as vowel production in Arabic (Saddah, 2011) and consonants in Mandarin (Chang, Haynes, Rhodes, & Yao, 2008). In phonological perception, Spanish and Russian heritage speakers have also been shown not to differ from native speakers while L2 learners are far from native-like (Kim, 2012, May; Lukyanenko & Gor, 2011). Thus, when it comes to phonological abilities, existing studies point to impressive native-like abilities for heritage speakers as opposed to L2 learners, advantages which are most likely related to early exposure to the language. This does not mean that all heritage speakers manifest an intact phonological system at the level of production and perception, as some studies have also found significant differences between native speakers and heritage speakers in production (Au et al., 2002; Godson, 2004; Kim, 2012, June). To date, the nature of heritage accents is a topic that deserves more in-depth study.

So far, the findings on phonology have been consistent in showing much higher incidence of native-like abilities in heritage speakers than in L2 learners, but research findings on morphosyntax are less clear-cut. Although Au et al. (2002) found no significant advantages for heritage speakers in several aspects of morphosyntax, other studies have found advantages depending on the specific phenomenon of morphology or syntax being investigated (Håkansson, 1995; Montrul, 2005, 2010). Other studies have found that advantages for heritage speakers over L2 learners in morphosyntax can be detected under certain conditions, most notably in production and in tests that tap more implicit knowledge of the language (Montrul, 2011a). Implicit knowledge is knowledge that is not observable but inferred (Paradis, 2004). It is not verbalizable and it is accessed and deployed automatically and without awareness. Implicit linguistic knowledge is equivalent to what linguists call linguistic competence, or unconscious and intuitive knowledge of language. Explicit knowledge, by contrast, is verbalizable. It is also acquired explicitly with conscious effort as when one learns language rules explicitly in the classroom and develops metalinguistic rules. The rest of the current article illustrates the

advantages possessed by heritage speakers with regard to implicit knowledge by presenting evidence from four recent studies on gender agreement in Spanish.

### **3. Gender Agreement in Spanish**

Native speakers typically produce gender marking in noun phrases with very high accuracy. That is, adult monolingual native speakers of languages morphologically inflected for gender hardly ever produce gender errors, not even with irregular forms or nouns with non-transparent, non-canonical endings. Bilingual native speakers with native ability in Spanish do not make these errors either. Several theoretical accounts consider that gender is a formal feature in nouns (Carroll, 1989; Carstens, 2000; Chomsky, 1995; Franceschina, 2005; Hawkins & Franceschina, 2004), and that the acquisition of this formal feature takes place in early childhood. Children learning languages with gender often make gender errors at the earliest stages of development, especially with non-canonical or irregular ending nouns. The Spanish-speaking child studied by Hernández Pina (1984), for example, produced gender errors with determiners (*\*un llave* “a key”, *\*un leche* “a milk”, *\*una camión* “a van”, *\*una pez* “a fish”) before age 2;8, but these errors disappeared by age 3;00. In an experimental study with made-up words, Pérez-Pereira (1991) found that by age 4 Spanish-speaking children had already mastered the gender agreement system of their L1. Thus, gender in Spanish is learned and mastered very early, by 3 or 4 years of age, and once acquired, native speakers are assumed to have a mental representation of gender as a grammatical category and to deploy this knowledge efficiently and successfully during oral production by making correct gender agreement between nouns, determiners and adjectives.

Commanding and controlling gender marking in a second language is quite different. Unlike native speakers, L2 learners have great difficulty mastering gender marking with native-like ability in oral production, even at very advanced levels of proficiency, including near-natives. (Near natives are second language learners of superior proficiency, who are indistinguishable from native speakers in many dimensions, but not in all.) Franceschina (2001) studied a Spanish L2 speaker deemed to have reached the end state of acquisition, but whose gender agreement performance did not reach 100% accuracy. Franceschina's subject, Martin, was a native English speaker brought up and educated in England who started learning Spanish at age 17, had lived in a Spanish-speaking environment for 24 years, and spoke River Plate Spanish at the time of testing. Martin was 100% accurate on noun endings but less accurate on gender agreement on adjectives, articles, pronouns and demonstratives, ranging from an 8% to 15% error rate. In another recent study, Grüter, Lew-Williams, and Fernald (2012) tested 19 highly proficient L2 speakers of Spanish with age of acquisition (AoA) after puberty who were indistinguishable from native speakers on self-ratings and two proficiency measures at the onset of the study. On an elicited production task, the highly proficient L2 speakers were much less accurate (80%) than the native speakers (98.7%), producing more than 17% of lexical assignment errors (e.g., *el flor rojo* “the red flower”). An on-line comprehension task with eye tracking also revealed that the L2 speakers' use of gender in real time was not as efficient as that of native speakers. Thus, gender in Spanish remains an area very difficult to master at native-speaker levels if acquisition takes place after puberty, especially in production and in on-line comprehension.

Carroll (1989) and Hawkins and Franceschina (2004) claim that problems for L2 learners of languages with gender whose L1 does not have gender (e.g., English speakers learning Romance languages or German as an L2) are related to maturational constraints and transfer effects. That is, many L2 learners cannot acquire the gender feature after puberty because their native language does not instantiate gender. For Carroll (pages 573–574) the main problem lies in lexical assignment: After age five, the universal feature of gender distinction “atrophies” and disappears for those speakers whose L1 has no grammatical gender system. Alternatively, for Hawkins and Franceschina (2004) the syntactic mechanism for gender agreement (the abstract gender feature) fossilizes in L2 learners due to a critical period effect if formal gender features are absent in the L1.

On the other side of the debate, White, Valenzuela, Kozłowska-MacGregor, and Leung (2004) argue that it is possible to overcome the blueprint imposed by the L1, and that L2 learners of non-gender marking languages can acquire the grammatical gender feature instantiated in the L2. In fact, results from several recent studies have shown that L2 learners are quite accurate with gender marking in offline written production and comprehension tasks (Alarcón, 2011; Grüter et al., 2012; Montrul, Foote, & Perpiñán, 2008; White et al., 2004), including tasks that test knowledge of gender indirectly through the phenomenon of noun drop (Liceras, Díaz, & Mongeon, 2000) and the semantics of adjective placement (Rothman, Judy, Guijarro-Fuentes, & Pires, 2010). Other studies also show that L2 learners are sensitive to gender agreement violations in aural and visual recognition tasks that require explicit focus on grammatical forms or explicit monitoring of grammatical concepts (Keating, 2009; Sagarra & Herschensohn, 2011). These studies give credibility to the view that gender agreement is acquirable in L2 acquisition, that the formal gender feature is not subject to maturational constraints in L2 acquisition, and that L1 transfer can eventually be overcome.

However, many of these studies documenting apparent native-like performance in L2 learners have focused on gender marking with regular, canonical-ending nouns (Table 1), which are the most frequent in the language.

**Table 1**

*Canonicity of Spanish Inanimate Nouns Based on Noun Ending*

	Canonical		Non-canonical	
	-a/-o	e	consonant	-a/-o
masculine	<i>libro</i> “book”	<i>puente</i> “bridge”	<i>motor</i> “engine”	<i>planeta</i> “planet”
	<i>techo</i> “roof”	<i>diente</i> “tooth”	<i>papel</i> “paper”	<i>cometa</i> “comet”
feminine	<i>libra</i> “pound”	<i>noche</i> “night”	<i>piel</i> “skin”	<i>mano</i> “hand”
	<i>casa</i> “house”	<i>nube</i> “cloud”	<i>nariz</i> “nose”	<i>foto</i> “photo”

Studies of Spanish that have also included non-canonical ending nouns, such as nouns ending in *-e*, a consonant, or an exceptional word marker (masculine *-a* and feminine *-o*) as shown in Table 1, have found that L2 learners are actually highly inaccurate on gender assignment (i.e., classifying a noun as masculine or feminine in the mental lexicon) and gender agreement (syntactic concord) with these nouns. It is therefore hard to accept, on the basis of successful

deployment of gender marking with canonical nouns reported in some studies using written and metalinguistic tasks, that L2 learners have the same mental representation of gender features as native speakers.

Several studies have also shown that heritage speakers make gender errors as well (Alarcón, 2011; Anderson, 1999; Lipski, 1993; Montrul et al., 2008; Montrul & Potowski, 2007; Mueller Gathercole, 2002), and it cannot be claimed in their case that they received exposure to the language and activated the gender feature later in life, as is the case with L2 learners. Since learning gender is related to learning nouns, and learning vocabulary is highly dependent on input frequency and experience, it is likely that reduced exposure to and use of the language throughout childhood in heritage speakers may influence their lexical knowledge (which in the case of nouns in Spanish includes lexical specifications for gender), lexical retrieval and access, and the computing of gender syntactically in production and comprehension. So, although the outcome of L2 acquisition and heritage language acquisition may be very similar, the underlying reasons for non-native performance in this area can be different in the two groups. Still, if early age of acquisition brings advantages to heritage speakers in general, there must be areas of morphosyntactic knowledge where those advantages are found as well. We turn to recent studies on gender that found revealing evidence of native-like abilities in heritage speakers.

#### ***4.1. Gender Agreement in Written Tasks and in Oral Production***

Montrul et al. (2008) was the first experimental study that compared proficiency-matched L2 learners of Spanish and Spanish heritage speakers in their knowledge of gender agreement in Spanish.

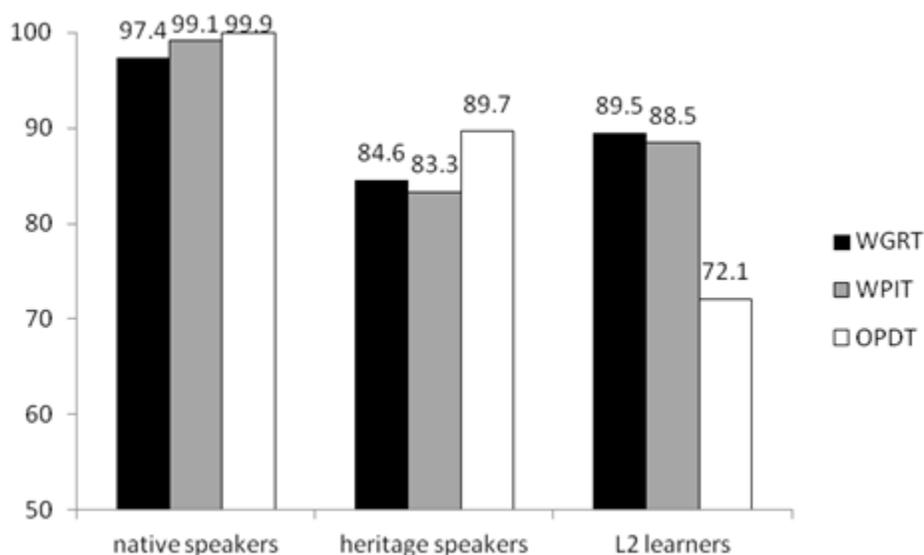
Seventy-two L2 learners of Spanish, 69 Spanish heritage speakers ranging from low to advanced proficiency, and 22 native speakers born and raised in Spanish-speaking countries but residing in the United States at the time of testing participated in this study. They completed three tasks: (1) a written picture identification task (WPIT), (2) a written gender recognition task (WGRT), and (3) an oral picture description task (OPDT). In the WPIT, participants matched a sentence with a determiner inflected for gender and number (and a null nominal) to one of three pictures. In the WGRT, participants read a paragraph and were assigned to select the correct masculine or feminine form of the missing determiner or adjective. And in the OPDT, participants were presented with photographs of objects, animals, and people, and orally described each photograph using the phrase *Veo un/una/el/la NOUN ADJECTIVE* ("I see a/the NOUN ADJECTIVE"). All tasks included canonical ending nouns ending in *-a* or *-o* and non-canonical ending nouns ending in *-e* or consonant (see Table 1).

The results of the three tasks showed that both L2 learners and heritage speakers make gender errors and were about 70% accurate overall, while the native speakers hardly made any errors and performed at ceiling (98% to 100% accuracy). Consistent with what has been found in all previous studies on the acquisition of gender, accuracy on the feminine was lower than on the masculine, with significant overgeneralization of masculine forms in feminine contexts. In terms of domain of agreement, agreement on determiners was more accurate than agreement on adjectives, and in terms of word endings, agreement on canonical-ending nouns (*-a* feminine and

-o masculine) was more accurate than on nouns with unclear endings (consonant, -e, or opposite word marker).

There were statistical differences between the two experimental groups as well, but these differed by task (group by task interaction). Overall, the L2 learners were significantly more accurate than the heritage speakers in the two written tasks, while the heritage speakers were significantly more accurate than the L2 learners in the oral picture description task. These accuracy scores are displayed in Figure 3.

Figure 3. Mean Accuracy on Gender Agreement in the WGRT, WPIT, and OPDT (adapted from Montrul, Foote, & Perpiñán, 2008)

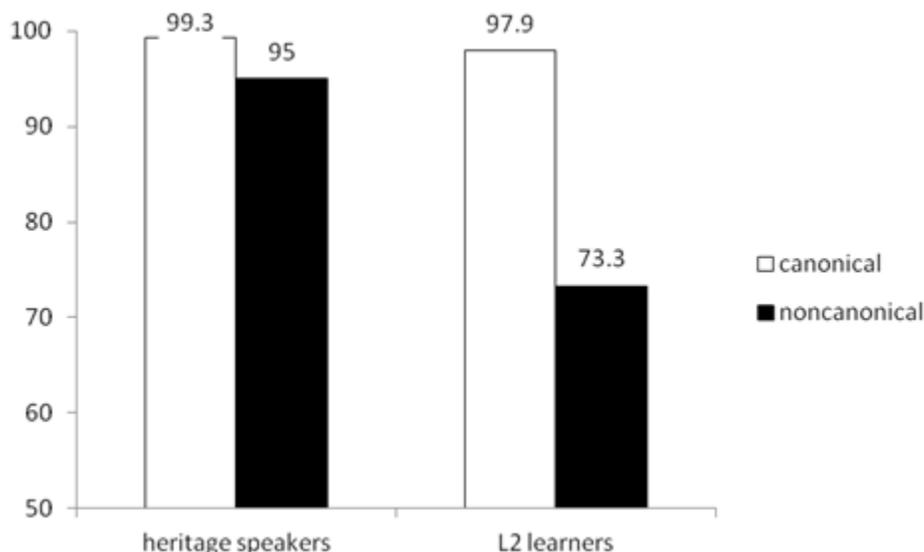


This study showed that both L2 learners and heritage speakers have knowledge of gender, since accuracy averages above 70% cannot be dismissed as lack of knowledge, but also made errors. Error rates were manifested quantitatively differently in written comprehension and oral production. To assess incidence of native-like performance in the two groups, an analysis of individual subjects showed advantages for the heritage speakers. Many L2 learners, including many of low proficiency, scored above 90% accuracy on the two written tasks, while only 4 of 66 (3 advanced, 1 intermediate) or 6% performed above 95% accuracy (the range of variation of the native speakers) in all three tasks. However, 28 of 65 heritage speakers (4 low, 5 intermediate, 19 advanced) or 43% performed at the native-speaker level in the three tasks. Despite incomplete knowledge of gender in Spanish, heritage speakers have an advantage over L2 learners when it comes to oral production and incidence of native-like knowledge.

Alarcón (2011) partially replicated Montrul et al.'s (2008) study. She used similar tasks, a written gender recognition task and an oral production task, and she also included canonical and non-canonical ending nouns. The main difference between Alarcón and the Montrul et al. study

is that Alarcón only tested high proficiency L2 learners and heritage speakers (18 subjects in each group). Alarcón found that the two groups scored above 93% accuracy in the written recognition task, and the heritage speakers were slightly more accurate than the L2 learners. In the oral description task, both heritage speakers and L2 learners were significantly more accurate with canonical than with non-canonical ending nouns, but the L2 learners were significantly more inaccurate than the heritage speakers (95% vs. 73.3%), as shown in Figure 4.

Figure 4. Accuracy on Oral Production According to Noun Ending  
(adapted from Alarcón, 2011).



Alarcón (2011) also mentions that 77.8% of the heritage speakers and 44.4% of the L2 learners scored within the native speakers' range in the written recognition task. (The native speakers in this study were also individuals born and raised in Spanish-speaking countries and residing in the United States). In the oral production task 38.9% of the heritage speakers scored within the native-speaker range, while none of the L2 learners did. Thus, this study confirms that heritage speakers are more accurate with gender than L2 learners in oral production and many score within the native-speaker range.

The most important finding of these two studies is the task effect: the L2 learners were more target-like than the heritage speakers in the written tasks, while the heritage speakers were more target-like than the L2 learners in the oral production task. Considering the modality, type and timing of required response, and the explicitness of each task (Bialystok & Ryan, 1985; Ellis, 2005), the untimed written tasks used by Montrul et al. (2008) and Alarcón (2011) may have tapped the L2 learners' explicit, and even metalinguistic, knowledge of gender. The oral task, by

contrast, seems to tap into a more implicit type of knowledge. But because the explicitness or implicitness of the tasks was confounded with modality in the two studies, it is not clear whether

the heritage speakers were better at the implicit task than the L2 learners because the task elicited oral production, or because it was tapping into implicit grammatical knowledge of Spanish gender. Similarly unclear is whether the L2 learners did better than the heritage speakers in the more explicit tasks because those tasks were written, or rather because they were more controlled and tapped into explicit and metalinguistic knowledge of gender in Spanish. Since theoretical debates on the role of maturational effects in L2 acquisition specifically concern implicit knowledge, it is crucial to understand the types of implicit or explicit knowledge different tasks tap into in L2 learners and in heritage speakers and, additionally, how the implicit/explicit dimension of the task interacts with the participants' age of acquisition.

#### ***4.2. Gender Agreement in Online Spoken Word Recognition***

To bring more clarity to this issue, Montrul, Davidson, de la Fuente and Foote (2013) and Montrul, de la Fuente, Davidson and Foote (2013) conducted a study with a group of intermediate and advanced heritage speakers ( $n = 29$ ), 33 proficiency-matched L2 learners, and 23 Spanish native speakers (all born and raised in Spanish-speaking countries and living in the United States). Montrul, Davidson, et al. used three online experiments with aural presentation of the stimuli to avoid the use of written language. The same participants also completed an oral elicitation task, reported in Montrul, de la Fuente, et al. Because all the tasks were aural and oral, the L2 learners and the heritage speakers were matched for proficiency in Spanish and general bilingual dominance using a picture naming task in English and one in Spanish.<sup>3</sup> The L2 learners and the heritage speakers did not differ from each other in the English or the Spanish picture naming tasks.

All participants completed three online spoken word recognition tasks: a gender monitoring task (GMT), a grammaticality judgment task (GJT), and a word repetition task (WRT). All three tasks required participants to listen to grammatical and ungrammatical Spanish noun phrases (Det-Adj-N) but systematically varied the type of response required of them. For all three tasks, 300 determiner-noun-adjective phrases (half target, half fillers) were constructed with 150 nouns, three determiners (masculine *el*, feminine *la*, neutral *su*), and seven adjectives. All nouns were inanimate (half feminine, half masculine) with canonical and non-canonical endings, controlled for syllable length, stress, and frequency. All tasks used the same stimuli but involved different distribution of fillers and targets in the three experiments.

**Table 2***Example of Stimuli for All Three Experiments*

Grammaticality	Noun Gender	Adjective Transparency	Noun Ending	
			Canonical	Non-Canonical
grammatical	feminine	opaque	la gran guerra	la gran calle
		transparent	la quinta guerra	la quinta calle
	masculine	opaque	el peor texto	el peor viaje
		transparent	el quinto texto	el quinto viaje
ungrammatical	feminine	opaque	*el gran guerra	*el gran calle
		transparent	*el quinto guerra	*el quinto calle
	masculine	opaque	*la peor texto	*la peor viaje
		transparent	*la quinta texto	*la quinta viaje
neutral <sup>1</sup>	feminine	opaque	su gran guerra	su gran calle
		transparent	su quinta guerra	su quinta calle
Grammaticality	Noun Gender	Adjective Transparency	Noun Endings	
	masculine		Canonical	Non-Canonical
		opaque	su peor texto	su peor viaje
		transparent	su quinto texto	su quinto viaje

*Note:* The neutral condition was not included in the Grammaticality Judgment Task.

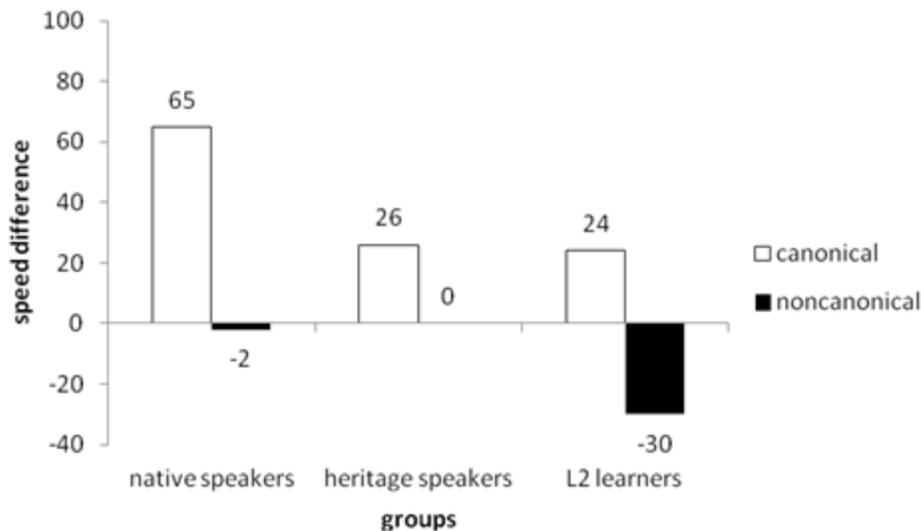
The GMT required participants to listen to the noun phrases and push one of two buttons on the keyboard (one for feminine, one for masculine), depending on the gender of the noun. This task, then, focuses very explicitly on gender. In the GJT, participants listened to the noun phrases and pushed one of two buttons to indicate whether the phrase was grammatical or ungrammatical. The focus on gender in this task is still explicit, because subjects are required to focus on form, but more indirect than in the GMT. In the WRT, participants listened to the noun phrases and were asked to repeat the last word in each phrase as quickly and accurately as possible. The WRT is implicit because it requires no metalinguistic decision and no attention to gender or its morphological markers. If L2 learners tend to do better or the same as heritage speakers in more explicit tasks, no advantages for the heritage speakers over the L2 learners were predicted for the GMT and the GJT. Because heritage speakers tend to do better than L2 learners in implicit tasks and tasks with oral production, advantages for the heritage speakers over the L2 learners were predicted in the WRT.

The results showed that canonical and non-canonical nouns are processed differently, although noun canonicity did not affect the native speakers to the same extent that it affected the two experimental groups. Heritage speakers and L2 learners were statistically slower and less accurate on non-canonical ending than on canonical-ending nouns. In the GJT and in the GMT, the native speakers, heritage speakers, and L2 learners demonstrated a grammaticality effect: that

is, ungrammatical noun phrases violating gender agreement were responded to more slowly and more inaccurately than grammatical noun phrases. This means that all three groups use gender cues in determiners during noun recognition. In these two tasks, the native speakers were faster and more accurate than the heritage speakers and the L2 learners, who were not different from each other. These results confirmed the predictions based on the explicitness of the tasks.

In the WRT, by contrast, the heritage speakers and the native speakers patterned together, and they were both significantly different from the L2 learners. That is, the native speakers and the heritage speakers showed a grammaticality effect, while the L2 learners did not. Figure 5 shows the speed difference between ungrammatical and grammatical conditions by noun canonicity for the WRT, which showed a different pattern of responses for the L2 learners.

Figure 5. Word Repetition Task (WRT): Difference in Mean Reaction Times between Ungrammatical and Grammatical Conditions by Canonicity



For each group, we graphed the difference between the mean percentage accuracy of grammatical phrases minus ungrammatical phrases by canonicity. For example, the speed in reaction times for native speakers for grammatical phrases with canonical-ending nouns was 739 and the mean accuracy for ungrammatical phrases with canonical endings was 804, a difference of 65 ms. The same difference for the non-canonical ending phrases was 765 - 763 = -2 ms. The length of the bars represents the size of the difference between grammatical and ungrammatical phrases, which is a quantitative measure of the magnitude of the grammaticality or congruency effect. When the bars are on the positive values of the Y-axis, this means that the participants were more accurate with grammatical than with ungrammatical phrases, and the grammaticality effect is in the right direction for all groups. So, for the heritage speakers there was an effect in the right direction with canonical-ending nouns (ungrammatical sentences 878 - grammatical sentences 852 = 26 ms) and no difference for grammatical non-canonical ending nouns (843 ms) and ungrammatical non-canonical ending nouns (843 ms), thus a 0 difference. Although the L2

learners showed an effect in the same direction for canonical ending nouns (a 24 ms difference), they showed a different pattern for non-canonical ending nouns: they repeated ungrammatical phrases faster (805 ms) than grammatical phrases (835 ms), a difference of 30 ms in the exact opposite direction.

These results confirm that heritage speakers have an advantage (i.e., show native-like patterns) over L2 learners in tasks tapping implicit knowledge. Although this advantage could be due to age of onset of bilingualism (early vs. late) (Guillelmon & Grosjean, 2001), it may also be related to context of acquisition (naturalistic vs. instructed) and experience with oral production. Because heritage speakers are born in a home environment where the heritage language is spoken, they are exposed to the language from birth and during early childhood in a naturalistic setting. The input they receive in the heritage language at that age is primarily through the auditory medium, and they use spoken language in social interactions with their caregivers. Most heritage speakers receive limited to no schooling in their heritage language. By contrast, L2 learners start acquisition of the second language around or after puberty in a formal setting (a classroom) or in a naturalistic environment. Although they have access to spoken language and receive auditory input, a great deal of input is actually written. Unlike heritage speakers who can be illiterate in the heritage language, L2 learners are fairly literate in their second language, exposed to both visual and aural input in the classroom. Thus, it is possible that in addition to age of acquisition (timing of input), modality of input and experience with more or less spoken or written language may play a role in linguistic knowledge and input processing strategies.

#### **4.3. Gender Agreement in Oral Production**

Montrul, de la Fuente, et al. (2013) examined whether type of early language experience provides advantages to heritage speakers over L2 learners with gender agreement by investigating the interaction of gender marking in nouns with diminutive formation. Diminutives are a hallmark of Child Directed Speech in early language development and a highly productive morphological mechanism that facilitates the acquisition of declensional noun endings in many languages (Savickienė & Dressler, 2007). In Spanish, diminutives regularize gender marking in nouns with a non-canonical ending. Gender learning is easier if the input contains fewer non-transparently gender-marked nouns (Frigo & McDonald, 1998; Kempe & Brooks, 2001). In Spanish the most common and frequent diminutive affix is *-it* or its variants *-cit*, *-ecit*, and with gender agreement it is *-ito*, *-cito*, *-ecito* (masculine) or *-ita*, *-cita*, *-ecita* (feminine) (Melzi & King, 2003). The diminutive affix regularizes gender marking in nouns with non-canonical endings by making the canonical word marker on the noun explicit, as shown in Table 3.

**Table 3**

*Gender Agreement with Canonical and Non-Canonical Masculine and Feminine Nouns in Simplex and Diminutive Forms (D stands for diminutive affix).*

	Canonical		Non-canonical	
	<i>simplex</i>	<i>diminutive</i>	<i>simplex</i>	<i>diminutive</i>
masculine	el <b>auto</b> rojo the car red “the red car”	el <b>autito</b> rojo the car-D red “the little red car”	el <b>coche</b> negro the car black “the black car”	el <b>cohecito</b> negro the car-D black “the little black car”
			el <b>lápiz</b> amarillo the pencil yellow “the yellow pencil”	el <b>lapicito</b> amarillo the pencil-D yellow “the little yellow pencil”
feminine	la <b>casa</b> blanca the house white	la <b>casita</b> blanca the house-D white “the little white house”	la <b>nube</b> blanca the cloud white “the white cloud”	la <b>nubecita</b> blanca the cloud-D white “the little white cloud”
			la <b>nariz</b> fría the nose cold “the cold nose”	la <b>naricita</b> fría the nose-D cold “the little cold nose”

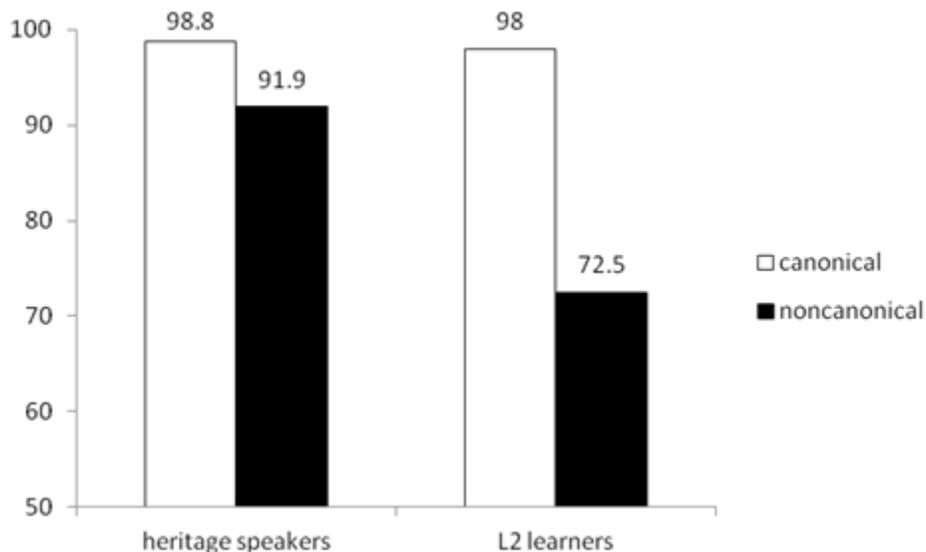
Diminutives in Spanish are acquired and used productively between the ages of 1;9 and 1;10 (Marrero, Aguirre, & Albalá, 2007). Spanish-acquiring children use 13 times more diminutives than Spanish-speaking adults, and adults addressing children use them as much, if not more, than the children themselves (Marrero et al., 2007, p. 155).

The hypothesis tested in this study was that Spanish heritage speakers should be more accurate at producing diminutives and at gender agreement with non-canonical nouns than L2 learners. Because heritage speakers are exposed to Spanish from birth, they are potentially also exposed to many instances of diminutives through Child Directed Speech, whereas L2 learners of Spanish are not exposed to such forms in early childhood. Although L2 learners of Spanish may have learned diminutives in the classroom as adults, the frequency of diminutive use in adult speech is much lower than in the speech directed to children (Marrero et al., 2007). Hearing non-canonical nouns in diminutive forms in early childhood may help heritage speakers classify these nouns as feminine and masculine reliably in their mental lexicon as they grow up, thereby reducing the likelihood of making agreement and assignment errors with those nouns later in adulthood.

The main task testing this hypothesis was an elicited production task with pictures. Participants saw 96 images, each with a big colored animal or object and a smaller version of the same colored animal or object placed on, under, to the right, or to the left of an image of a table. Participants heard four questions uttered by a female Mexican Spanish speaker: *¿Qué hay debajo de / encima de / a la derecha de / a la izquierda de la mesa?* “What is under / on top of / to the right of / to the left of the table?” Participants were asked to orally produce sentences like: *un elefante blanco* “a white elephant” or *un elefantito blanco* “a little white elephant.” Both simplex and diminutive forms were requested. Responses were audio-recorded, transcribed, and coded for analysis. The native speakers performed at ceiling (100% accuracy) on agreement. The L2 learners and the heritage speakers made gender errors, but the main finding was that the groups showed different accuracy scores depending on the canonical or non-canonical ending of the

nouns, as displayed in Figure 6. Results showed that the heritage speakers were more accurate than the L2 learners with gender agreement in general, and with non-canonical ending nouns in particular.

Figure 6. Accuracy on Canonical and Non-Canonical Ending Nouns by Group  
(adapted from Montrul, de la Fuente, Davidson & Foote, 2013)



At the same time, accuracy in general was uniform and was not affected by the form of the noun, that is, whether the nouns were in the simplex forms or in the diminutive, but the heritage speakers were more accurate with diminutive forms than the L2 learners (7% error vs. 18.5% error), suggesting that they were more familiar with these morphemes than the L2 learners.

The most important result of this study was that none of the native speakers made gender agreement errors in this oral production task, and 19 of the 29 heritage speakers (65%) behaved like the native speakers and made no agreement errors. By contrast, none of the L2 learners showed this pattern as all of them made gender errors. This study confirms that early language experience and the type of input received confer some advantages to heritage speakers over L2 learners with early-acquired aspects of language, especially in oral production. There is a much higher incidence of native-like ability in the heritage speakers than in the L2 learners.

## 5. Discussion

The results of the three studies discussed above show that while native speakers of Spanish perform at ceiling on different tasks eliciting production and grammatical awareness of gender agreement, heritage speakers and L2 learners are less accurate. Yet, in tests that tap more implicit knowledge of gender, such as the word repetition task used by Montrul, Davidson, et al. (2013) and the oral production tasks used by Montrul et al. (2008), Alarcón (2011), and Montrul, de la Fuente, et al. (2013), none of the L2 learners performed at the native-speaker level, whereas an

important number of heritage speakers did. Although L2 learners may have acquired the knowledge that Spanish nouns have a gender feature, this does not seem to be integrated and processed in the same way as it is with native speakers and heritage speakers during oral repetition and oral production, nor do L2 learners seem to use the gender feature as efficiently during word recognition as the heritage speakers and the native speakers. This finding replicates the finding of Guillelmon and Grosjean (2001) with L2 learners of French.

By contrast, it seems that the gender feature is acquired and retained at native-speaker levels by many heritage speakers. The finding that heritage speakers are more native-like than L2 learners is of course consistent with an age of acquisition effect: heritage speakers are exposed to Spanish from birth while L2 learners begin exposure after age 11. In all three tasks used by Montrul, Davidson, et al. (2013), despite being slower and less accurate than the native speakers, the heritage speakers were sensitive to the grammaticality effect and detected gender violations in the same way as the native speakers. The L2 learners only displayed sensitivity to gender-marking errors in the two more explicit tasks in this study and were also very accurate in the off-line written tasks used by Montrul et al. (2008) and Alarcón (2011). These findings are consistent with other recent studies showing that metalinguistic tasks improve linguistic performance in L2 learners (Bowles, 2011; Rebuschat & Williams, 2011). At the same time, the native speakers in all these studies were not affected by the ending of the noun to the same extent as the two experimental groups, for whom canonicity of the noun was highly significant in both accuracy and reaction times. Still, the most striking finding of all these studies is that heritage speakers are quite native when it comes to gender agreement whereas L2 learners are clearly non-native.

To a large extent this important difference between the two groups is due to differences in language-learning experience including, among other factors, amount of input in childhood and exposure to diminutives, which are likely available to heritage speakers through Child Directed Speech but are not common in the input that L2 adults receive. Although L2 learners are able to develop sensitivity to gender agreement with canonical-ending nouns, and may even attain similar mental representations of gender as a syntactic property, gender assignment at the lexical level is a feature that is very difficult to fully master, and the difficulty may lie in the cumulative experience with the language, the type of input, timing of input, and the type of input processing that goes with such experience.

Evidence for the role of experiential factors in gender production comes from the error analysis performed by Alarcón (2011) and Montrul, de la Fuente, et al. (2013). The overwhelming majority of errors were of the sort *\*un<sub>M</sub> nube<sub>M</sub> blanco<sub>M</sub>* “a white cloud,” with a masculine determiner and a masculine adjective instead of *una<sub>F</sub> nube<sub>F</sub> blanca<sub>F</sub>* with a feminine determiner and a feminine adjective. This suggests that the noun *nube* may have been misclassified as masculine (subscript M in the first example) in the participant’s mental lexicon instead of feminine (subscript F in the second example) because there is correct agreement between the determiner and the adjective. This finding suggests that gender errors in advanced speakers have a lexical rather than a syntactic etiology, and that lexical errors are related to input and experience, rather than to inability to represent the abstract gender feature in the syntax before

and after the critical period (cf., Carroll, 1989; Franceschina, 2001, 2005). The heritage speakers are better than L2 learners in oral production and implicit tasks because they have been exposed to more aural input than the L2 learners. As adult learners, the L2 learners in this study were primarily exposed to both visual and aural input in the classroom. Thus, in addition to having been more or less exposed to diminutives, the two groups also received different input in terms of modality, and this difference may have had an effect on their input processing experience and strategies.

For example, in native Spanish there is a strong association between determiners and the gender of nouns in the lexicon. These strong links are developed in childhood during exposure to aural input. Because L2 learners are exposed to visual input, they do not associate the determiner with the noun as strongly, leading to weaker lexical links. Gollan, Montoya, Cera, and Sandoval (2008) proposed the *weaker links hypothesis* to explain potential speed and accuracy differences between monolinguals and bilinguals in lexical access. Extending the weaker links hypothesis to the specific case of gender processing and production in heritage speakers, we can assume that gender-noun links may have been stronger in their childhood but may have also progressively weakened as their first language became the secondary language. Weaker links due to reduced frequency of exposure and use lead to slower retrieval of nouns in the lexicon and gender assignment errors like the ones we have observed.

The results of the studies discussed in Section 4 also found that in tasks using non-canonical ending nouns, the L2 learners and the heritage speakers are more accurate in tasks that use canonical ending nouns, and can even display at-ceiling performance. Although gender is assigned in the lexicon, it has an overt morphological expression in Spanish nouns through the word markers *-a*, *-o*, *-e* and various consonants (Harris, 1991). Feminine *-a* and masculine *-o* are regular while the rest are irregular, and L2 learners and heritage speakers are certainly guided by these morpho-phonological cues when assigning gender to nouns. The existence of non-canonical gender-marked nouns makes it tempting to view the Spanish system of morpho-phonological gender marking in terms of a large class of regulars and a class of exceptions. If we assume the dual mechanism model of inflection (Pinker & Ullman, 2002), for example, regular morphological processes occur in procedural memory and irregularities are stored in declarative memory. Extending this approach to gender marking, once canonical-ending nouns are learned, the gender of the noun is associated with the word marker and is automatized as a regular, decomposable, inflectional morpheme attached to the root or a base (if the root has a diminutive), stored in procedural memory and handled by rule when marking agreement (implicitly acquired in childhood by heritage speakers and learned later but automatized through practice in L2 learners). Non-canonical ending nouns, by contrast, need to be memorized and stored in declarative memory because there are no transparent morpho-phonological rules from which to extract regularities. Reduced input and use of Spanish by L2 learners and heritage speakers may affect storage in declarative memory. Although non-canonical nouns may be more difficult to learn and process, mature native speakers whose primary language is Spanish do not typically exhibit gaps with declarative memory because they use the language more frequently on a daily basis. Their lexical-association links remain strong for both canonical and non-canonical ending nouns (Gollan et al., 2008). This hypothesis predicts that non-canonical ending

nouns will be highly affected under L1 attrition in native speakers. In fact, Montrul's (2011b) study of an adult Guatemalan adoptee, who stopped using the language at about age nine, showed that the vast majority of gender errors produced by the adoptee were precisely with non-canonical ending nouns.

In conclusion, heritage speakers are quite native when it comes to implicit knowledge and production of gender, a very difficult aspect to master at native-like levels by L2 learners. Non-native-like performance observed in some heritage speakers is largely due to cumulative reduced exposure and use of the language rather than to an incomplete grammatical representation lacking a formal gender feature acquired in early childhood.

### **5.1 Future Directions**

Until now, the field of heritage language acquisition has placed a significant focus on the knowledge that heritage speakers may be missing when compared to a baseline, contributing to a deficit view of heritage language acquisition. To tip the scales, more remains to be uncovered about heritage speakers' native abilities in many other areas of the grammar and their overall linguistic behavior. This study has only given a glimpse of knowledge and use of gender, and other areas of knowledge using similar techniques remain to be investigated. To be able to understand how "native" heritage speakers are, more studies need to focus as well on the upper level of attainment, by investigating heritage speakers with very high proficiency in the language. Studies of this sort will allow us to understand the possibilities, not just the limits, of heritage language acquisition.

### **References**

- Alarcón, I. (2011). Spanish gender agreement under complete and incomplete acquisition: Early and late bilinguals' linguistic behavior within the noun phrase. *Bilingualism: Language and Cognition*, 14, 332-350.
- Anderson, R. (1999). Noun phrase gender agreement in language attrition: Preliminary results. *Bilingual Research Journal*, 23, 318-337.
- Au, T., Knightly, L., Jun, S., & Oh, J. (2002). Overhearing a language during childhood. *Psychological Science*, 13, 238-243.
- Bialystok, E., & Ryan, E. (1985). A metacognitive framework for the development of first and second language skills. In D. L. Forrester-Pressley, G. E. MacKinnon, & T. G. Waller, (Eds.), *Metacognition, cognition, and human performance* (pp. 207-252). Orlando, FL: Academic Press.
- Bley-Vroman, R. (1989). The logical problem of second language learning. In S. Gass & J. Schachter (Eds.), *Linguistic perspectives on second language acquisition* (pp. 41-68). Cambridge, UK: Cambridge University Press.
- Bowles, M. (2011). Measuring implicit and explicit linguistic knowledge: What can heritage language learners contribute? *Studies in Second Language Acquisition*, 33, 247-272.

- Carroll, S. (1989). Second language acquisition and the computational paradigm. *Language Learning*, 39, 535–594.
- Carstens, V. (2000) Concord in minimalist theory. *Linguistic Inquiry*, 31, 319–355.
- Chang, C., Haynes, E., Rhodes, R., & Yao, Y. (2008). A tale of two fricatives: Consonant contrast in heritage speakers of Mandarin. *University of Pennsylvania Working Papers in Linguistics*, 15(1), 37-43.
- Chomsky, N. (1995) *The minimalist program*. Cambridge, MA: MIT Press.
- Dąbrowska, E. (1997). The LAD goes to school: A cautionary tale for nativists. *Linguistics*, 35, 735-766.
- Dąbrowska, E. (2012). Different speakers, different grammars. Individual differences in native language attainment. *Linguistic Approaches to Bilingualism*, 2(3), 219-253.
- Davies, A. (2003). *The native speaker. Myth and reality*. Clevedon, UK: Multilingual Matters.
- Ellis, R. (2005). Measuring implicit and explicit knowledge of a second language: A psychometric study. *Studies in Second Language Acquisition*, 27, 141-172.
- Franceschina, F. (2001). Morphological or syntactic deficits in near-native speakers? An assessment of some current proposals. *Second Language Research*, 17, 213–247.
- Franceschina, F. (2005). *Fossilized second language grammars. The acquisition of grammatical gender*. Amsterdam: John Benjamins.
- Frijo, L., & McDonald, J. (1998). Properties of phonological markers that affect the acquisition of gender-like subclasses. *Journal of Memory and Language*, 39, 218-245.
- Godson, L. (2004). Vowel production in the speech of Western Armenian heritage speakers. *The Heritage Language Journal*, 2, 1–26. Available at <http://www.heritagelanguages.org>
- Gollan, T., Montoya, R., Cera, C., & Sandoval, T. (2008). More use almost always means a smaller frequency effect: Aging, bilingualism, and the weaker links hypothesis. *Journal of Memory and Language*, 58(3), 787-814.
- Grosjean, F. (2008). *Studying bilinguals*. Oxford, UK: Oxford University Press.
- Guillelmon, D., & Grosjean, F. (2001). The gender marking effect in spoken word recognition: The case of bilinguals. *Memory and Cognition*, 29, 503-511.
- Grüter, T., Lew-Williams, C., and Fernald, A. (2012). Grammatical gender in L2A: A production or a real-time processing problem? *Second Language Research*, 28, 191-216.
- Håkansson, G. (1995). Syntax and morphology in language attrition. A study of five bilingual expatriate Swedes. *International Journal of Applied Linguistics*, 5, 153–171.
- Harris, J. (1991). The exponence of gender in Spanish. *Linguistic Inquiry*, 22, 27–62.
- Hawkins, R., & Franceschina, F. (2004). Explaining the acquisition and non-acquisition of determiner-noun gender concord in French and Spanish. In P. Prévost & J. Paradis (Eds.), *The acquisition of French in different contexts* (pp. 175–205). Amsterdam: John Benjamins.
- Hernández Pina, F. (1984). *Teorías psicosociolingüísticas y su aplicación a la adquisición del español como lengua materna* [Psychosociolinguistic theories and their application to the acquisition of Spanish as a mother tongue]. Madrid: Siglo XXI.
- Hyltenstam, K. & Abrahamsson, N. (2009). Age of onset and nativelikeness in second language acquisition: Listener perception versus linguistic scrutiny. *Language Learning*, 59(2), 249-306.
- Keating, G. (2009). Sensitivity to violations of gender agreement in native and nonnative Spanish: An eye-movement investigation. *Language Learning*, 59, 503-535.

- Kempe, V., & Brooks, P. (2001). The role of diminutives in the acquisition of Russian gender: Can elements of Child Directed Speech aid in learning morphology? *Language Learning*, 51, 221-256.
- Kim, J-Y. (2012, May). *Perception of lexical stress by L2 learners of Spanish and heritage speakers*. Poster presented at the 4<sup>th</sup> Annual SLATE Graduate Research Symposium, University of Illinois at Urbana-Champaign.
- Kim, J-Y. (2012, June). *Native listeners' judgments on Spanish heritage speakers' production of Spanish lexical stress*. Poster presented at the 6<sup>th</sup> Heritage Language Research Institute, University of California, Los Angeles.
- Knightly, L., Jun, S., Oh, J., & Au, T. (2003). Production benefits of childhood overhearing. *Journal of the Acoustic Society of America*, 114, 465-474.
- Leonard, J. (1998). *Children with specific language impairment*. Cambridge, MA: MIT Press.
- Liceras, J., Díaz, L., & Mongeon, C. (2000). N-drop and determiners in native and non-native Spanish: More on the role of morphology in the acquisition of syntactic knowledge. In R. Leow & C. Sanz (Eds), *Spanish applied linguistics at the turn of the millennium* (pp. 67-96). Sommerville, MA: Cascadilla Press.
- Lipski, J. (1993). Creoloid phenomena in the Spanish of transitional bilinguals. In A. Roca & J. Lipski (Eds.), *Spanish in the United States* (pp. 155-173). Berlin: Mouton.
- Lukyanchenko, A., & Gor, K. (2011). Perceptual correlates of phonological representations in heritage speakers and L2 learners. In N. Danis, K. Mesh, & H. Sung (Eds.), *Proceedings of the 35th Annual Boston University Conference on Language Development* (pp. 414-426). Somerville, MA: Cascadilla Press.
- Marrero, V., Aguirre, C., & Albalá, M. J. (2007). The acquisition of diminutives in Spanish. In I. Savickienė & W. Dressler, *The acquisition of diminutives: A crosslinguistic perspective* (pp. 155-184). Amsterdam: John Benjamins.
- Melzi, G., & King, K. (2003). Spanish diminutives in mother-child conversations. *The Journal of Child Language*, 30, 281-304.
- Montrul, S. (in press). Dominance and proficiency in second language acquisition and bilingualism. In C. Silva-Corvalán & J. Traffers-Dallers (Eds.), *Measuring dominance in bilingualism*. Cambridge, UK: Cambridge University Press.
- Montrul, S. (2005). On knowledge and development of unaccusativity in Spanish L2 acquisition. *Linguistics*, 43(6), 1153-1190.
- Montrul, S. (2008). *Incomplete acquisition in bilingualism. Re-examining the age factor*. Amsterdam: John Benjamins.
- Montrul, S. (2010). How similar are L2 learners and heritage speakers? Spanish clitics and word order. *Applied Psycholinguistics*, 31, 167-207.
- Montrul, S. (2011a). Morphological errors in Spanish second language learners and heritage speakers. *Studies in Second Language Acquisition*, 33(2), 155-161.
- Montrul, S. (2011b). First language retention and attrition in an adult Guatemalan adoptee. *Language, Interaction and Acquisition*, 2, 276-311.
- Montrul, S., Davidson, J., de la Fuente, I., & Foote, R. (2013). Early language experience facilitates gender agreement processing in Spanish heritage speakers. *Bilingualism: Language and Cognition*, 1-21. doi: 10.1017/S1366728913000114

- Montrul, S., de la Fuente, I., Davidson, J., & Foote, R. (2013). The role of experience in the acquisition and production of diminutives and gender in Spanish: Evidence from L2 learners and heritage speakers. *Second Language Research*, 29(1), 87-118.
- Montrul, S., Foote, R., & Perpiñán, S. (2008). Gender agreement in adult second language learners and Spanish heritage speakers: The effects of age and context of acquisition. *Language Learning*, 58, 3-53.
- Montrul, S., & Potowski, K. (2007). Command of gender agreement in school-age Spanish bilingual children. *International Journal of Bilingualism*, 11, 301-328.
- Mueller Gathercole, V. (2002). Grammatical gender in monolingual and bilingual acquisition. A Spanish morphosyntactic distinction. In D. K. Oller & R. Eilers (Eds.), *Language and literacy in bilingual children* (pp. 207-219). Clevedon, UK: Multilingual Matters.
- Paikedey, T. (2003). *The native speaker is dead!* Brampton, ON: Lexicography, Inc.
- Paradis, M. (2004). *A neurolinguistic theory of bilingualism*. Amsterdam: John Benjamins.
- Pérez-Pereira, M. (1991). The acquisition of gender: What Spanish children tell us. *Journal of Child Language*, 18, 571-590.
- Pinker, S., & Ullman, M. (2002). The past and future of the past tense. *Trends in Cognitive Sciences*, 6(11), 456-463.
- Polinsky, M. (2011). Reanalysis in adult heritage language: A case for attrition. *Studies in Second Language Acquisition*, 33, 305-328.
- Rice, M. (2009). Children with specific language impairment: Bridging the genetic and developmental perspectives. In E. Hoff & M. Shatz (Eds.), *Blackwell handbook of language development* (pp. 411-431). Malden, MA: Wiley-Blackwell.
- Rebuschat, P., & Williams, J. (2011). Implicit and explicit knowledge in second language acquisition. *Applied Psycholinguistics*, 33, 1-28.
- Robusto. (2011, March 1). Re: Meaning of “native speaker of English” [Web log comment]. Retrieved from <http://english.stackexchange.com/questions/14582/meaning-of-native-speaker-of-english>
- Rothman, J., Judy, T., Guijarro-Fuentes, P., & Pires, A. (2010). On the (un)-ambiguity of adjectival interpretation in L2 Spanish: Informing debates on the mental representation of L2 syntax. *Studies in Second Language Acquisition*, 32, 47-77.
- Saddah, E. (2011). *The production of Arabic vowels by English L2 learners and heritage speakers of Arabic* (Unpublished doctoral dissertation). University of Illinois at Urbana-Champaign.
- Sagarra, N., & Herschensohn, J. (2011). Proficiency and animacy effects on L2 gender agreement processing during comprehension. *Language Learning*, 61, 98-116.
- Savickienė, I., & Dressler, W. (2007). *The acquisition of diminutives: A cross-linguistic perspective*. Amsterdam: John Benjamins.
- Schachter, J. (1990). On the issue of completeness in second language acquisition. *Second Language Research*, 6, 93-124.
- Schmid, M. (2011). *Language Attrition*. Cambridge, UK: Cambridge University Press.
- Sekerina, I., & Trueswell, J. (2011). Processing of contrastiveness by heritage Russian bilinguals. *Bilingualism: Language and Cognition*, 14(3), 280-300.

- Sherkina-Lieber, M., Pérez-Leroux, T., & Johns, A. (2011). Grammar without speech production: The case of Labrador Inuit heritage receptive bilinguals. *Bilingualism, Language and Cognition*, 14(3), 301-317.
- Sorace, A. (1993). Incomplete vs. divergent representations of unaccusativity in native and non-native Italian grammars of Italian. *Second Language Research*, 9, 22-47.
- Sorace, A. (2000). Differential effects of attrition in the L1 syntax of near-native L2 speakers. *Proceedings of the 24<sup>th</sup> Boston University Conference on Language Development* (pp. 719–725). Somerville, MA: Cascadilla Press.
- Tager-Flusberg, H. (2009). Atypical language development: Autism and other neurodevelopmental disorders. In E. Hoff & M. Shatz (Eds.), *Blackwell handbook of language development* (pp. 431-453). Malden, MA: Wiley-Blackwell.
- Valdés, G. (1995). The teaching of minority languages as “foreign” languages: Pedagogical and theoretical challenges. *Modern Language Journal*, 79, 299-328.
- White, L. (2003). *Second language acquisition and universal grammar*. Cambridge, UK: Cambridge University Press.
- White, L., & Genesee, F. (1996). How native is near-native? The issue of ultimate attainment in adult second language acquisition. *Second Language Research*, 12, 238-265.
- White, L., Valenzuela, E., Kozłowska-Macgregor, M., & Leung, Y-K. I. (2004). Gender agreement in nonnative Spanish: Evidence against failed features. *Applied Psycholinguistics*, 25, 105-133.

**Notes**

1. In the United States, OPIs are administered by the American Council on the Teaching of Foreign Languages (ACTFL) or the Interagency Language Roundtable (ILR).
2. As an example, the following is from a blog on English language and usage in response to a question regarding who is considered a native speaker of English: “A ‘native speaker of English’ refers to someone who has learned and used English from early childhood. It does not necessarily mean that it is the speaker's only language, but it means it is and has been the primary means of concept formation and communication. It means having lived in a truly English-speaking culture during one's formative years, so that English has been absorbed effortlessly as by osmosis” (Robusto, 2011).

One can have been born and grown up in a country that lists English as one of its official languages and not be a “native” speaker. For example, Canadians from Quebec cannot *automatically* be considered native English speakers even though many speak English quite well; they were brought up speaking French as a first language and think in French (or *Canardien*, as I have heard unkind Parisians refer to it). But the rest of Canada does consist of native speakers of English.

Speaking “like a native” of any language means more than just knowing vocabulary and grammar. Many educated foreign speakers speak better formal English than, say, many Americans or British or Australians. But formal English is only one aspect of the language. Knowing instantly what slang means, what cultural references mean, how to reduce syntax to a bare minimum and still convey precise meaning — all these things, and more, are what constitute native speech.

3. For a discussion of proficiency measures and dominance measures in bilinguals, including heritage speakers, see Montrul (in press).