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Heritage Spanish in the US: How Heritage Languages Can Contribute to Disentangling Factors Driving Language Development

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Abstract: This paper focuses on the language acquisition trajectory of heritage speakers, with an emphasis on heritage speakers of Spanish in the United States, in order to illustrate how this acquisition trajectory provides unique opportunities for the linguistics of bilingualism and language development. The results from an eye-tracking study on the facilitative use of grammatical gender in Fuchs (2021) showed that heritage speakers were able to use gender information on the articles *el* and *la* to anticipate the upcoming noun, much like control speakers. In the present work, these findings are put into the context of two broader discussions to illustrate how heritage language studies —particularly on Spanish, which is so commonly spoken by heritage speakers, L2 learners, and first-generation immigrants in the US— may help disentangle various factors involved in language development: (a) nativeness from proficiency, through the case study of processing of grammatical gender agreement in the noun phrase, and (b) language input from general cognitive development, through the case study of spoken word recognition. The need for such studies to incorporate systematic and transparent reporting of participants' language background and proficiency is also highlighted.

Keywords: Heritage Spanish, bilingualism, heritage linguistics, language acquisition, eye-tracking

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OBSERVATORIO de la lengua española y las culturas hispánicas en los Estados Unidos

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1. Introduction[1]

Heritage bilingualism is not a new phenomenon —certainly not in the United States— but heritage linguistics is still fresh, rapidly expanding as we grasp the many ways in which the study of heritage languages can inform our understanding of human language more broadly. Heritage linguists join the ranks of educators, clinicians, and other professionals who work with heritage speakers (sometimes under different titles, such as 'English Language Learners' in the field of K-12 education) in recognizing their unique language profile and in acknowledging the incredible diversity of personal and linguistic experiences in this population. From the perspective of linguistics, what is particularly exciting about heritage languages is that in the midst of all this variation, there is also a remarkable amount of consistency. The language of heritage speakers is far from a language free-for-all: there are evident patterns in terms of which domains of the heritage language are vulnerable to the effects of transfer or reduced input in acquisition and which domains remain robust to these effects. Careful study of such patterns in linguistic behavior can lend important insight into questions regarding, among others, bilingualism, language acquisition, and linguistic theory (for a recent overview, see Polinsky & Scontras, 2020).

In this article I focus on the potential for heritage languages to play a major role in big-picture questions in language science regarding what factors are critical to the development of certain linguistic abilities, with a particular emphasis on Spanish: Spanish speakers of all backgrounds (heritage speakers, first-generation immigrants, second-language learners) are omnipresent in the US and have been studied from

[1] I would like to thank Juan Manuel Arias, Ethan Kutlu, Marta Mateo, and Maria Polinsky for their helpful feedback. Any errors are my own.

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both the pedagogical and the linguistic perspective, laying a firm foundation for the types of studies that will be discussed here. Two aspects of heritage speakers' language acquisition make it possible for studies on this population to tease apart competing hypotheses regarding language development, which I demonstrate through two cases studies focusing on Spanish as a heritage language (HL). The first concerns processing noun phrases. Adult heritage speakers learned their heritage language as their first language (i.e., in childhood and in many ways similar to monolingual speakers of the language), but in adulthood they are on a spectrum of proficiency, much like adult second-language learners (L2 learners) of the language. As a result, heritage language studies are poised to tease apart whether it is language proficiency or the nature of first language acquisition that determines the ability to use grammatical gender agreement on articles to anticipate the subsequent noun in the heritage language (in this case Spanish) (Section 4.1). The second case study concerns spoken word recognition. Child heritage speakers are typically-developing children, for whom the input to one of their languages is at some point (usually around school age) drastically reduced. Consequently, studies of heritage speakers have the opportunity to disentangle effects of experience with the language (i.e. input) from effects of general cognitive development in the development of spoken word recognition (Section 4.2).

What is remarkable about Spanish in this respect is that baseline Spanish is relatively well understood, and that the demographics of the United States are such that both heritage speakers of Spanish (adults and children) and adult L2 learners of Spanish are abundant, in addition to first-generation immigrants, who serve as control populations in the types of studies described here (see also the discussion in Section 5). Such an understanding of the baseline grammar and how it is processed by members of the control population[2] allows for setting clear hypotheses for formal

[2] Following arguments that heritage speakers are native speakers of their heritage language (Kupisch & Rothman 2018, Pascual y Cabo & Rothman 2012), the field has been moving away from referring to the comparison group in heritage studies as the 'native' group. See Section 5 below for arguments why 'monolinguals' is also a misleading label for this group. Instead, this group might be referred to as the 'control' or 'baseline' group.

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and psycholinguistic work. Additionally, the demographics of Spanish speakers in the US allow for access to robust sample sizes, which in turn ensures reliable generalization, necessary for the pursuit of answers to the big-picture questions discussed in Section 4.

To set up these discussions, Section 2 will provide a definition of heritage speakers, with an emphasis on the elements of their acquisition trajectory that will be fundamental for the rest of the discussion. Section 3 will put these elements into the broader context of bilingualism, discussing in more detail the crucial ways in which heritage speakers differ from other types of bilinguals, and what the implications of this are for research in the domain of bilingualism. Along the way, illustrative examples of relevant research will be drawn from the area of grammatical gender. This is motivated by the wealth of research on the relevant populations (control speakers, L2 learners, and heritage speakers of Spanish) that reveals grammatical gender is learned early in childhood and is almost error-free in adulthood for control speakers, but that L2 learners and heritage speakers show consistent difficulties in production and comprehension of grammatical gender agreement (for discussion of these findings for Spanish, see Montrul et al., 2008 and Scontras et al., 2018, among many others). Section 4 turns to the case studies, demonstrating how the aspects of heritage speakers' language acquisition discussed in Sections 2 and 3 can inform debates regarding the role of certain factors in shaping the development of linguistic abilities: nativeness vs proficiency in the processing of grammatical gender in the noun phrase (Section 4.1) and input vs general cognitive maturation in the development of spoken word recognition (Section 4.2). Then, Section 5 discusses some of the methodological challenges inherent to this work, providing a few suggestions for tackling these issues.

The goal of this paper is to take advantage of the availability of the rich Spanish-speaking communities in the US, which include not only heritage speakers but also first-generation immigrants and L2 learners of Spanish, and to identify and

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highlight potential new contributions of heritage languages to broader questions in language science, with the intention of motivating further work on heritage languages from this perspective.

2. The Heritage Language Acquisition Trajectory

There are many ways of being a heritage speaker, and there are many ways of defining a heritage speaker. The goal of this section is therefore twofold: First, to introduce and acknowledge the variability that we see in this population, and then to identify the unifying properties of heritage speaker populations. The focus in this second part will be to identify those properties that will be crucial to the later discussion.

To begin by introducing the variability inherent to heritage speaker populations, let us consider just a few of the ways in which their experiences can differ. Some heritage speakers may be sequential bilinguals: the first few years of their life are a "period of monolingualism" in their heritage language (Armon-Lotem & Meir, 2019), and they aren't exposed to the majority language until some time later. Simultaneous bilinguals are exposed to both languages roughly from birth, for instance when each parent speaks a different language with the child. Some heritage speakers may spend some time in the homeland, others may never set foot in it. Some heritage speakers may speak the heritage language only at home, others may be part of a neighborhood or community where the HL is the primary language used. And there are more such factors: these include (but are certainly not limited to) the number of siblings that a heritage speaker has, the availability of weekend community language-schools, the availability of bilingual education programs in the school system, and more. Any or all of these may factor into the linguistic development of the heritage speaker and may influence where on the spectrum of proficiency the speaker may fall in childhood and adulthood.

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I will return to the importance of recognizing, documenting, and reporting variation in our linguistic studies in Section 5, but at this point I move to providing a unifying theme. With so much variation within the population of heritage speakers, it is important to identify the aspects of their language profiles that define individuals as members of this rich community. Several statements regarding who falls under the broad umbrella of the term *heritage speaker* have been provided in the literature (see Ortega, 2020 for an overview of how these most-often cited definitions differ from one another); here I quote one such definition that captures succinctly the elements of the heritage language acquisition process that are central to the issues discussed in Section 4:

> a heritage speaker is an early bilingual who grew up hearing (and speaking) the heritage language (L1) and the majority language (L2) either simultaneously or sequentially in early childhood (that is, roughly up to age 5; see Schwartz 2004, Unsworth 2005), but for whom the L2 became the primary language at some point during childhood (at, around, or after the onset of schooling). (Benmamoun et al. 2013, p. 133)

This definition centers on two key characteristics of heritage speakers' language background. The first is that heritage speakers are early childhood bilinguals -- they are exposed to both the home language and the majority language at some point during childhood. Both simultaneous and sequential bilinguals are part of this category.[3] The other main ingredient is a major shift in input, along with the ensuing shift in dominance. This shift in input usually occurs when the child starts formal education: having previously spent most of their time at home, the child now spends most of their time at school, in a linguistic environment dominated by the majority language, where linguistic abilities in the majority language are crucial to both academic and social success. The drastic decrease in time spent at home entails a decrease in the amount of input to the heritage language. The acquisition of the

[3] Ortega (2020) suggests sequential bilingualism is more typical for heritage speakers.

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majority language takes off, and typically the heritage speakers' dominance shifts, as they feel increasingly more confident in production and comprehension of the majority language and less so in the heritage language.

It is crucial to note at this point that the defining characteristics of a heritage speaker are not language-specific. In other words, in discussing the interplay between the home language and the community language, definitions of heritage speakers do not make reference to specific languages; rather, a heritage language is the outcome of acquisition in a particular language contact environment. Valdés (2000) provides one of the earliest definitions of a heritage speaker and her definition is indeed English-centric, in that it assumes English to be the majority language of a heritage speaker, but this need not be the case, as evident in heritage speaker populations around the world and as reflected in definitions of heritage speaker populations put forth in later years. While the discussion in this article will focus on Spanish as the heritage language and English as the language spoken in the community (and indeed, Heritage Spanish is the most commonly studied HL in the heritage linguistics literature, Scontras & Putnam [2020]), any language may be a heritage language.

3. Heritage Speakers in the Broader Context of Bilingualism

The previous section offered a definition that attempts to unite an already diverse group based on certain aspects of their language acquisition trajectory. In this section, I will discuss more in-depth how the acquisition trajectory of a heritage language distinguishes the category of heritage speakers from other types of bilinguals. It has long been established in the field of bilingualism research that a bilingual is not simply the sum of two monolinguals (Grosjean, 1989, Kroll et al., 2014). Rather, the two languages within the monolingual mind are always active (Kroll et al., 2014) and instantiate a complex interaction of grammars, with each

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affecting the other. As a result, bilinguals are far from a monolithic group —sub-groups are distinguishable by which languages they speak, the proficiency in each of their languages, how these languages were acquired, etc.

This is perhaps most evident when we categorize bilinguals according to which languages they speak —intuitively Spanish might interact differently with English in a bilingual mind than with, say, French, Japanese, or Swahili. Accordingly, Surrain & Luk (2019) show in a meta-review of studies on bilingualism published in 2005 - 2015 that, when more specific descriptors than just 'bilinguals' are used to identify linguistic groups in these studies, it is most often language labels that are introduced, ex. Spanish-English bilinguals, Spanish-French bilinguals, etc. But similar care should be taken to understand that socio-demographic factors can also carve the broad category of bilinguals into finer categories, as these factors affect the language acquisition trajectory itself, with clear impact on the adult language. In Section 3.1 I will discuss first the distinctions between heritage speakers and second language learners: not just what these distinctions are but also how they should inform our experimental design and procedures. In Section 3.2, I will focus on distinctions between heritage speakers' and diglossic-environment (balanced) bilinguals' trajectory. This distinction has been increasingly recognized as meaningful for the psycholinguistic literature on bilingualism, not just as a matter of proper labels but also for the underlying differences it represents in terms of the sociolinguistic environment that shapes a bilingual individual's language learning. By providing this context, this section will lay the foundation for the questions discussed in Section 4.

3.1. Adult second-language learners

Second-language learners (L2 learners) —in most cases those who learn a given language as a foreign language in a classroom setting— have been of interest to researchers both from an applied perspective and from a language science perspective. Applied linguists are interested in how second language learning

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proceeds, in order to support students in achieving their second-language learning goals. Formal linguists approach this through the lens of a comparison with first-language acquisition. In first language acquisition, the child is learning not just *a* language, but their *first* language. An L2 learner is, by definition, learning their second language, and so the development of this grammar occurs in the presence of an already fully-formed grammar (here and throughout, I assume the case of the adult L2 learner). The field of second language acquisition is interested in observing how this L2 learning proceeds, including, among other questions, how properties of the first language impact the development of relevant properties of the second language.

It is not uncommon for L2 learners and heritage speakers to be compared to each other (as well as to a control group) in linguistic studies, and there is good reason for this. In several respects, heritage speakers and L2 speakers may resemble each other, especially when contrasted with a control speaker. The most notable thing they have in common is that both groups land on a spectrum of proficiency: adult control speakers of Spanish are fully proficient in Spanish, whereas both adult heritage speakers and adult L2 learners can range from a very low proficiency to a near-baseline proficiency. This is at least in part the result of something that their language acquisition processes have in common: variable input. Whereas a control speaker is exposed to plentiful input in their first (and only) language in all environments, the input to a heritage language (especially after the onset of schooling) and the input to a second language both tend to be inconsistent in frequency and often restricted to specific domains —for the heritage speaker this is likely the home environment and its extensions; for the L2 learner this is typically the classroom and its extensions. Additionally, both heritage speakers and L2 speakers have another, more dominant, language in addition to their HL or L2, respectively, and so their acquisition of the HL/L2 is vulnerable to transfer effects from that dominant language.

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But a closer look reveals that the main similarities between the acquisition processes of heritage speakers and L2 learners more or less end here. At the core of the differences in their language learning is the timing. Heritage speakers learn their HL as children: it is either their first language (sequential bilinguals) or one of their first languages (simultaneous bilinguals). As such, heritage speakers have access to all the cognitive processes that are thought to be available in first language acquisition, and which are not necessarily assumed to be available in adulthood (see Montrul et al., 2008 and citations therein). Adult L2 learners therefore might not deploy the same mechanisms in their language acquisition, and so the outcomes of the learning process may be different in nature as well.

A factor closely tied to the timing of the acquisition process is its nature. Heritage speakers, who learn their heritage language as (one of) their first language(s), acquire the language naturalistically, by hearing the speech of their caregivers. This speech is a continuous stream of sound that the child must learn to process and segment into first chunks, then words, then morphemes and to ascribe meaning to these units. It is also the case that the speech of caregivers —referred to as child-directed speech— tends to have certain distinguishing properties that may influence the learning trajectory. For instance, diminutives may be as much as 13 times more frequent in child-directed speech in Spanish than in adult-directed speech (Marrero et al., 2007). This is thought to give children a boost in learning grammatical gender. Many non-diminutivized nouns in Spanish do not have clear morphophonological cues to gender (ex. *la nube* [the cloud] and *el coche* [the car]), but the formation of a diminutive requires that the word take on a transparent gender cue, one of *-a* or *-o* (ex. *la nubecita* [the little cloud] and *el cochecito* [the little car]) (Kempe & Brooks, 2001; Savickienė & Dressler, 2007; Seva et al., 2007). The prominent figuring of diminutives in child-directed speech may thus serve as an aid in the learning of grammatical gender to monolingual children and heritage speaker children.

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With the exceptions of those who learn a second language through immersion (due to life circumstances or by means of an immersive language program), L2 learners' language acquisition is by and large centered on formal instructed learning. It is therefore likely to be missing some of the ingredients that distinguish child-directed speech, such as the presence of diminutives. In fact, Montrul et al. (2014) found that L2 learners of Spanish were less accurate in producing correct diminutive forms of various nouns than were adult heritage speakers of Spanish. However, their study did not find any advantage for heritage speakers in the production of gender agreement on articles and adjectives modifying non-diminutivized nouns; while child heritage speakers are thought to have access to a high frequency of diminutives in early acquisition —and thereby transparent morphophonological gender cues that help learn the gender of a noun, experimental studies have yet to determine whether this advantage carries over into producing gender agreement on other elements in the noun phrase in adulthood. In addition, the nature of the typical L2 learners' learning is such that it often relies on metalinguistic information. For instance, whereas one of the child's early tasks in acquisition is to segment the speech stream into smaller and smaller sequences, the L2 learner can skip this task, at least when engaging in writing or reading exercises: the spaces between words on the page do the work of segmentation for them. This difference will come into play in Section 4.1.

Further tied to the timing and nature of the acquisition process of heritage and L2 populations is the resulting experience with literacy. As a result of the instructed nature of their acquisition, L2 learners frequently encounter their L2 in written form —in textbooks, workbooks, and other written exercises. Heritage speakers, on the other hand, typically do not encounter their HL in a classroom setting (again, there are exceptions: some heritage speakers may attend language and culture classes at their local community center or at the university level, for instance). As a result, while fully literate in their majority language, heritage speakers are likely to have lower literacy rates in the heritage language than do controls (but cf. Ortega, 2020 for an overview of results that suggest advanced heritage speakers

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who have experience from university-level language coursework show no differences from controls in terms of literacy in the heritage language). Of course, the difference in a heritage speaker's literacy in their HL versus their majority language can be more or less pronounced: the two languages of a heritage speaker of Spanish in the US share an alphabet, whereas the two languages of a heritage speaker of Arabic in the US have completely different writing systems. One heritage language may also differ from another in the degree to which its written form is present in the public domain — in some parts of the US, Spanish is pervasive in the public domain, whereas this may not be as common for languages like Arabic or Polish. Nevertheless, even for heritage speakers of Spanish, the effects of a lack of experience with literacy and the classroom setting impact how we can assess their linguistic knowledge in an experimental setting. Studies have compared how heritage speakers and L2 learners perform on experimental tasks in different modalities (Montrul et al, 2008; Alarcón 2011). In tasks targeting the ability to produce correct gender agreement on pre-nominal articles and post-nominal adjectives given a noun, results suggest that when the task is written —akin to what one might encounter in a language classroom— the L2 learners are more accurate than the heritage speakers. But when the task is oral, the heritage speakers are more accurate than the L2 learners, although neither group performs at ceiling on either type of task.

The takeaway from these studies is that modality (i.e. whether the task is written or oral) matters in bilingualism studies, because different groups have been exposed to the language in different ways. Thus, the ways in which we assess the linguistic knowledge of a given group in psycholinguistic work should be commensurate with that experience; not doing so risks putting some group at a disadvantage. Fortunately, there has been a push to increasingly implement experimental methods that do not rely on literacy or even explicit knowledge of a language. For instance, eye-tracking and EEG methodologies target subconscious eye-movements or the electrical activity of the brain, respectively. These studies have offered more nuanced insight into the linguistic abilities of bilinguals (for further

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discussion, see Bayram et al., 2020). A parallel push has been underway in terms of carefully selecting objective measures of proficiency in light of what we know about heritage speakers' sensitivity to the modality of a task, as will be discussed further in Section 5.

3.2. Diglossic-environment bilinguals

Distinguishing between adult L2 learners and heritage speakers in large part boils down to determining the timing and nature of acquisition, as discussed above, but in this section I underscore the importance of distinguishing between heritage speakers and other types of early bilinguals. In particular, care should be taken to not conflate heritage speakers with what I will call 'diglossic-environment' bilinguals. It might be tempting to refer to this group as 'balanced bilinguals', but as Grosjean (2015) points out, the balanced bilingual —who has acquired both or all of their languages in childhood and speaks all of them without an accent— is a rare occurrence. Most bilingual speakers do not sound like a monolingual speaker of each of their languages. Nevertheless, certain contexts around the world provide linguistic environments that can foster the development of diglossic-environment bilingualism, in which a bilingual's two (or more) languages are equally recognized and used in the community. The psycholinguistic literature includes studies on these populations under the umbrella of 'bilingualism'; while both balanced-environment speakers and heritage speakers are bilinguals with an early and naturalistic acquisition process, to equate their linguistic abilities is to overlook stark differences in their linguistic and sociocultural development.

It is the case that bilinguals typically acquire and use each of their languages in different domains, with different people in their life, and/or for different purposes (Grosjean, 1997, 2010). Heritage speakers are perhaps a particularly pronounced instantiation of this. For most heritage speakers, the heritage language is limited very strictly to conversations with their immediate family (in terms of people) and thereby

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to the home (the domain) as well as to the kinds of conversations that occur around the house (the purposes). Some heritage speakers may live in neighborhoods or communities that lend themselves to further interaction in the heritage language outside the home (Ortega, 2020), although this may still entail limitations in the number of individuals with whom and the purposes for which the heritage speaker uses the HL. The majority language typically dominates most other domains of their life, which crucially includes school and/or the workplace, where the individual spends a large amount of their waking hours. The imbalance in the distribution of the heritage speaker's languages across domains has a dramatic effect on the amount of input they have to the acquisition or maintenance of their language skills.

Consider for contrast the status of bilingualism in diglossic linguistic environments. The classic illustrative case is Montreal, Canada, where the sociocultural context as well as governmental/institutional policies support French-English bilingualism, thereby creating a "favorable learning environment for French and English" (Thordardottir, 2011, p. 426). The lines between domains where one language is preferred over the other are not nearly as strict as they are for heritage speakers, as both French and English in Montreal are encountered in media, education, and government (Smithson et al., 2014). Smithson et al. (2014) present Edmonton, Canada as a similar diglossic linguistic environment. Such environments are also not uncommon in Europe: German and Swiss German (not mutually intelligible) spoken in the German part of Switzerland (Grosjean, 2015), Spanish and Catalan spoken in Catalonia, Basque and Spanish spoken in the Basque Country, Galician and Spanish spoken in Galicia, and Valencian and Spanish spoken in Valencia. Another way of distinguishing these environments from those that shape heritage speakers is that in diglossic environments, while one of the languages may be a 'minority' language in the statistical sense, neither language is the 'minority' language in the sociocultural sense of being associated with lower prestige and other negative sociolinguistic attitudes from the majority community. By contrast, Ortega (2020) notes that heritage bilingualism is a case of inequitable multilingualism, and I

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point the reader to Ortega (2020) for an in-depth discussion of the implications of this for the ways in which the heritage speaker may interact with or experience their environment.

Clearly, the language experiences of heritage speakers and diglossic-environment bilinguals are not equal in terms of both the quantity of input they have access to in their acquisition process but also in terms of the social pressures they are subject to in childhood. This has an impact on the heritage speakers' language acquisition, which can then carry over into their linguistic ability in the heritage language in adulthood. Research on the linguistic development of one of these bilingual groups need not result in the same findings as that of research on the other. Research on the receptive vocabulary of child bilinguals has come to contrasting findings: studies conducted in the US on Spanish-English bilinguals (likely heritage speakers) have suggested a 'bilingual vocabulary disadvantage' in which bilingual children have smaller receptive vocabularies than their monolingual peers (Bialystok et al., 2010, among others), but studies conducted in French-speaking parts of Canada have not found this to be the case (see Smithson et al., 2014 and discussion therein). A growing body of research points to the notion that the sociolinguistic status of a language as majority or minority modulates the importance of other factors known to determine vocabulary growth, such as the amount of input in the home, the amount of input at school, and the socioeconomic status of the family (Hammer et al., 2009; Smithson et al. 2014).

As psycholinguists pursue questions regarding the science of bilingualism, a sensitivity to the different environments in which childhood bilingualism may arise is important to distinguish between heritage speakers and other early bilinguals. Heritage speakers' acquisition of the heritage language is defined by a very restricted linguistic domain and often a very limited number of individuals from whom the heritage speaker receives input. The asymmetry in the linguistic environment that shapes the heritage speakers' language also sets them up for the dramatic shift in

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input that occurs when they begin their formal education —a shift that will be critical to the discussion in Section 4.2. Prior to the onset of schooling (around age 5), the heritage speaker spends most of the time at home, but after starting school, the heritage speaker spends many hours per day outside of the home, immersed in the majority language. This shift is unique to the heritage speakers' acquisition trajectory and is pivotal for their linguistic development.

4. Opportunities for Language Science

Language science is, among other things, interested in understanding how various elements of a speaker's mental grammar and their processing abilities develop over the lifetime. While the previous section laid out how heritage speakers differ from other types of bilinguals, in this section, the focus shifts to highlight how these differences create the foundation for an important role for heritage studies in the broader endeavor of understanding language development. I will view the results in Fuchs (2021) in the context of studies involving the processing of grammatical gender and spoken word recognition, in order to illustrate how precisely those elements of heritage language acquisition that set heritage speakers apart in the ways discussed in Section 3 allow us to disentangle, on the one hand, proficiency from nativeness as determining the processing of grammatical gender agreement (Section 4.1) and, on the other, to disentangle experience with a language from effects of general cognitive development as shaping speed of spoken word recognition (Section 4.2).

4.1. Proficiency vs 'nativeness' in adulthood

A common theme in the literature on adult L2 language acquisition is concerned with the ways in which adult L2 learners diverge in their speech production and comprehension from control speakers of the same language and what might be the

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root cause of these differences. Opportunities for heritage linguistics in this domain are rooted in the critical ways in which the heritage language acquisition trajectory is 'between' that of control speakers and L2 learners (recall that control speakers are the first-generation immigrants in the US, who typically grew up functionally monolingual in the homeland; while they may fall on the bilingualism spectrum, their onset of bilingualism is much later than it is for heritage speakers; see also discussion in Section 5). To reiterate the points made above, recall that heritage speakers share with control speakers an early and naturalistic language acquisition process. Unlike L2 learners, these groups acquire their first language as children, by intake of the speech of their caregivers. However, heritage speakers share with L2 learners a non-convergent acquisition process: as adults, heritage speakers fall on a spectrum of proficiency in their heritage language, much like L2 learners. Control speakers, on the other hand, have a convergent acquisition process, meaning that in adulthood they are fully proficient in the language they acquired in childhood. To demonstrate how these distinctions between heritage speakers and the other populations allow us to tease apart the various factors that lead to L2 learners' linguistic abilities, I will consider the case study of the processing of grammatical gender in noun phrases in Spanish.

It is commonly accepted that a listener makes predictions about the latter parts of a sentence as an utterance unfolds, using information such as case, verbal argument structure, syntactic category, and real-world knowledge, among others (see Kaan, 2014 for an overview of relevant findings in the literature on both control speakers and L2 learners). The literature on *facilitative use of grammatical gender* capitalizes on these robust findings regarding prediction during online processing and shifts the focus to within the noun phrase, focusing on the notion that in Spanish (as well as many other languages, including Italian, French, German, and Dutch), words that occur before a noun provide certain cues to properties of the upcoming noun that may allow a listener to make predictions and therefore identify that noun quicker in real time.

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To illustrate, consider two scenarios from a typical study in this domain. In one scenario —a 'match' condition— a participant sees two images on the screen that correspond to nouns of the same grammatical gender (ex. *la mesa* [the table] and *la pluma* [the feather]). The participant hears the prompt "¿Dónde está la mesa?" In this scenario, it is not until the noun *mesa* begins to unfold in the auditory prompt that the participant has enough information to know that they are being asked to look at the image of the table. This contrasts with the second scenario, or a 'mismatch' condition. In this scenario, the images on the screen correspond to nouns of different grammatical genders (ex. *la mesa* and *el cuchillo* [the knife]). Again, the participant hears "¿Dónde está la mesa?" This time, however, as soon as the participant hears "la", they —in principle— have enough information to look at the table on the screen: the article "la" is feminine, and only one of the images on the screen corresponds to a feminine noun, so a participant may at this point be able to anticipate which noun will be next in the sentence and therefore what they should look at on the screen.

Using eye-tracking to monitor eye movements, several studies have found that control speakers of Spanish are indeed able to use grammatical gender information on definite articles in Spanish in this way (Lew-Williams & Fernald, 2007, 2010; Grüter et al., 2012; Dussias et al., 2013; Fuchs, 2021). In fact, it has also been shown that relatively young Spanish-speaking children can do the same (Lew-Williams & Fernald, 2007). These findings have been replicated for control speakers of other languages as well (ex. Van Heugten & Shi, [2009] and Melançon & Shi, [2015] for French-speaking children). However, investigations of whether adult L2 learners of Spanish can also use grammatical gender to anticipate the subsequent noun have found mixed results: Lew-Williams & Fernald (2010) and Grüter et al. (2012) found that L2 learners could not use grammatical gender information on the

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article to anticipate the subsequent noun, but Dussias et al. (2013) found that high proficiency speakers could.[4]

The question then is, what leads to the difference between the control populations and the L2 learners? What aspect of their language system or language learning underlies the surface differences we see in their ability to access and deploy grammatical gender information in real time?

Proposals for what drives these differences can be grouped into two main categories. One of them ties the results of these studies to proficiency (Dussias et al., 2013; Kaan, 2014). The idea is relatively intuitive: L2 learners, in using their second language, are producing or comprehending a language they are not proficient in. As such, they are not able to attend to all the details of the sentence, and so certain finer-grained elements of the grammar may be sacrificed in favor of at least getting the more global parts of the utterance correct. In the case of the line of research discussed here, this implies that in their non-dominant language they do not attend to such granular details as the gender information on the pre-nominal article.

An alternative hypothesis that arises in this domain is that L2 learners' non-monolingual-like performance may be tied not to their proficiency but rather to their 'nativeness'. The distinction between proficiency and nativeness is nuanced, but important. Proficiency refers to an outcome of the language process, the handle that the speaker has on a given language at a given point in time, as can be assessed by various methods of proficiency assessment (see Section 5). For L2 learners (and heritage speakers), proficiency can change over time, for example with classroom instruction. Nativeness, on the other hand, refers to the nature of the language

[4] However, two factors make it a bit difficult to draw broader conclusions from this finding. First, their experimental design was notably different from that of the other studies in this line of research (Lew-Williams & Fernald 2007, 2010; Grüter et al. 2012; Fuchs 2021). Second, they also found that the low proficiency group showed the opposite effect of what had been found elsewhere in the literature: the participants in Dussias et al. (2013) were slower on mismatch conditions than on match conditions for masculine target nouns.

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acquisition process and is immutable. A 'native' speaker of a language is someone who learned the given language naturalistically from the speech stream (cf. discussion in Kupisch & Rothman, [2018]). In other words, a native speaker is someone who learned the language primarily as a child, at home, by listening to their parents speak to them and around them. The reason that nativeness may play a role in being able to access and deploy gender information in real time has to do with the kind of information available to the language learner. As discussed in Section 3.1, the typical L2 learner of Spanish learns a language in a classroom with a textbook, which carries a lot of metalinguistic information, including, for instance, spaces between words. In contrast, native speakers (control speakers and heritage speakers) learn a language from listening to their caregivers' speech, which is continuous and lacks metalinguistic information such as word or phrase boundaries. One outcome of this early and naturalistic acquisition process is that children initially treat article+noun sequences as unanalyzed chunks, and only later in their acquisition process do they realize that these chunks are made up of two separate words (Pine & Lieven, 1997; Tomasello, 2000, among others; see Ticio Quesada, 2018 for evidence that this is also the case for Spanish-English bilingual children). This led Grüter et al. (2012), building on Lew-Williams & Fernald (2010), to hypothesize that children learning Spanish from the speech stream associate articles (and the information contained in them) with subsequent nouns more closely than do L2 learners, whose association of the two elements to each other may be blocked by the metalinguistic factors available during their language learning.

These two proposals —proficiency vs nativeness— make similar predictions for the groups investigated to date: both predict that L1 children and control adults will be able to use grammatical gender to anticipate the subsequent noun, and both expect L2 learners to not be able to do so.[5] This is where heritage Spanish presents

[5] Dussias et al. (2013) offer their results in support of the proficiency hypothesis, given that their high proficiency L1-English L2-Spanish group did not perform significantly differently on the experimental task than did the control group. However, see footnote 4 above for challenges in interpreting these results.

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an exciting opportunity for the language scienist: adult heritage speakers' native acquisition but non-convergent outcome allows us to adjudicate between the competing hypotheses. Under the proficiency hypothesis, heritage speakers are grouped with L2 learners —they are not fully proficient in Spanish, and therefore this hypothesis predicts they should be unable to access and deploy grammatical gender features in real time. Under the nativeness hypothesis, heritage speakers are grouped with control adults and children, in that they acquired Spanish in childhood naturalistically, through the speech stream, and therefore may have been able to form a close association between the article and the subsequent noun. This hypothesis therefore predicts that heritage speakers should be able to use grammatical gender to anticipate nouns during language processing; this is in line with a similar advantage that Montrul et al. (2014) suggest for heritage speakers in processing article+noun sequences based on the results of their offline task.

In fact, a recent study concluded that heritage speakers of Spanish can use grammatical gender to facilitate lexical retrieval (Fuchs, 2021). This has implications both within heritage linguistics and in the broader debate introduced above. Within heritage linguistics, it is an important finding that grammatical gender information on articles is something that heritage speakers can access in real time. It is not the case that they cannot attend to grammatical gender information in real time, so this is not necessarily what leads to their non-control-like production or comprehension of agreement; instead, these findings lend further support to the idea that their mental representation of the syntax of gender and/or the agreement process may be structurally different from that of control speakers (Scontras et al., 2018). Within the context of the debate described above, the results suggest native (i.e. early and naturalistic) acquisition may play an important role in the ability to process grammatical gender agreement in the nominal domain in this way, in line with hypotheses put forth by Grüter et al. (2012) and Montrul et al (2014). Admittedly, Fuchs (2021) did not include an L2 learner group for direct comparison, and future work may pursue this in order to provide further evidence for this claim.

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What this case study illustrates is the potential for heritage languages to serve as a powerful test case for hypotheses designed to explain differences between control speakers of a language and L2 learners of that language. With native acquisition but non-convergent outcomes, heritage speakers are like control speakers in their early language acquisition, but they are like L2 learners in terms of falling on a proficiency spectrum in adulthood. Especially given the depth of the literature on control speakers and L2 learners of Spanish, heritage Spanish can offer the language scientist an opportunity to tease apart competing hypotheses regarding the development of certain linguistic abilities, illustrated here through the example of the processing of grammatical gender agreement in the noun phrase.

4.2. Cognitive development vs language input in childhood

In the mismatch conditions in Fuchs (2021), gender information on the article could be leveraged to anticipate the upcoming noun, allowing the listener to retrieve that noun from the mental lexicon faster. But in the match conditions, where both nouns were of the same gender, gender information was not a useful cue in determining what the target noun was. Instead, participants had to wait until the onset of the lexical item in the auditory input and use the unfolding of the sounds of the word to guide them to the target item. In fact, we engage in this process —called spoken word recognition— daily when we perceive speech and need to recognize and understand each word we hear. Spoken word recognition is the process of how we use incremental information in the speech stream to recognize and select the correct word in our mental lexicon. This process involves the activation of many candidates that compete with each other over time; as more phonological information becomes available in the speech stream, candidate words that do not match the input are suppressed, until finally enough information is available to uniquely identify the target (McLelland & Elman, 1986; Hannagan et al., 2013). For illustration, consider what is involved in the recognition of the word *camiseta* [t-shirt] when it is spoken

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(i.e. no written information is available). The word unfolds incrementally. The initial information is simply *ca-*, which activates many candidates that match this sequence, such as *cama* [bed] and *cabeza* [head]. As the speech unfolds further to reveal *cam-*, the candidate *cabeza* is ruled out and therefore suppressed, but *cama* and *camiseta* (and many others) are still active and competing. With the unfolding of *cami-*, *cama* is also ruled, and this proceeds as the speech unfolds further and *camiseta* is the only candidate left (this may happen before we hear the last phoneme in the word, if earlier information is sufficient to rule out all other possibilities). This is a remarkably complex process, packed into a very short amount of time —a matter of a few hundred milliseconds per word. And yet the ease with which we do this in adulthood is the result of a much longer period of development —eye-tracking studies show that children are slower than adults, and that their spoken word recognition is still increasing to adult-like speeds throughout childhood and even adolescence (McMurray et al., 2018; Rigler at al., 2015; McMurray et al., 2019).

The outstanding question in this line of research is what drives this increase in speed over time, from childhood to adulthood. Under one hypothesis, the driving factor is input —the more experience the child has with the language and its words, the faster they can recognize them over time. The alternative hypothesis is that the development of spoken word recognition is tied to general cognitive development, which is thought to be critical to language acquisition in general. In other words, as the brain and various cognitive systems mature with age, the child is able to do more, faster, including spoken word recognition.[6]

This is where heritage speakers (particularly sequential bilinguals) come in. It is difficult to disentangle these two factors when studying strictly monolingual populations, since cognitive development and the accumulation of input to the language proceed hand-in-hand. But this is not the case for heritage speakers: their

[6] These hypotheses are being tested in research conducted by Bob McMurray as part of the Growing Words project at the University of Iowa. More information is available at https://growingwords.lab.uiowa.edu/.

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cognitive systems undergo typical development in childhood and adulthood, but their input to the heritage language has been reduced since the onset of schooling (although to varying degrees, depending on their linguistics environment and how prevalent an individual's heritage language is in different contexts).

The adult Spanish heritage speakers in Fuchs (2021) were slower in their spoken word recognition than the control Spanish-speaking group (it should be noted that this difference was on the order of less than 100ms —significant and robust from the perspective of an eye-tracking study, but not noticeable to the casual observer). This tentatively suggests that input does matter: possibly less day-to-day practice with recognizing Spanish words impacts spoken word recognition for heritage speakers. Consider also that in this respect the heritage speakers in Fuchs (2021) were reminiscent of the control child Spanish-speakers in Lew-Williams & Fernald (2007), who were also significantly slower than controls. Like heritage speakers, children have accumulated less experience with the language over their lifetime (although for children this is a matter of shorter time, rather than the quantity of input during the relevant period).

But this is only the start of the conversation, as the findings open further questions. It is not clear, for instance, whether the heritage speakers had enough input as children to attain control-like speed of spoken word recognition but then a lack of input led to difficulty in maintaining such speed, or whether the shift in input at the onset of school age entailed that the child heritage speakers never reached control-like spoken word recognition in Spanish, which then persisted into adulthood. There are a few possible avenues for pursuing these questions. One might be a longitudinal study of heritage speakers in early elementary school, tracking their spoken word recognition over time, precisely in the years in which their input and their dominance are undergoing a fundamental shift in favor of the majority

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language.[7] Another strategy might be to observe heritage speakers' spoken word recognition in Spanish immediately before and after an immersive language experience such as a study abroad program in a Spanish-speaking country. While this would not directly address the question of what level of speed they may have attained in childhood, it would lend insight into the immediacy of the effect of reduction or increase in input on this linguistic ability, in turn informing the question of whether slower spoken word recognition (as in Fuchs, 2021) may be the result of more recent changes in linguistic environment or whether it is more likely to be the outcome of a persistent effect from childhood.

Both here and in the previous section, heritage language studies can make substantial contributions to big-picture questions regarding the development of certain linguistic abilities: facilitative use of grammatical gender (Section 4.1) and spoken word recognition (Section 4.2). It is precisely the elements of the acquisition trajectory of a heritage language distinguishing heritage speakers from controls and other bilinguals that also set the stage for heritage studies as a fertile testing ground for teasing apart the factors involved in language development. The fact that heritage speakers acquire a language early and naturalistically but with a non-convergent outcome gives us the potential to disentangle: a) nativeness from proficiency, and b) cognitive development from experience with a given language.

5. Variation and Replicability

At this point it is important to bring variation back into the discussion. Although I introduced it in Section 2, I largely glossed over it in the discussion of opportunities for the contributions of heritage linguistics to big-picture questions in language development. But this variation is an inherent part of the heritage speaker

[7] Work currently being pursued by Ethan Kutlu.

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population, and it does present critical challenges in the pursuit of sound psycholinguistic studies on heritage languages and heritage language processing. In this section, this variation and its implications come back into the discussion, along with some strategies on how to tackle these issues through transparent reporting of objective measures of language exposure and proficiency.

At issue is replicability, or more broadly the ability to put the findings of a single heritage study within the broader context of findings of similar studies. It is not unusual for studies of heritage speakers to arrive at conflicting results. Consider, for instance, the question of whether child heritage speakers of Spanish produce more or less errors over time in their production of gender agreement in early school age. The findings in this domain are decidedly mixed. Sanchez-Sadek et al. (1975) and Anderson (1999) report an increase in gender agreement errors in their participants' production, whereas Mueller-Gathercole (2002) and Montrul & Potowski (2007) report that older heritage speaker children show a decrease in the frequency of gender agreement errors relative to their younger counterparts. Meanwhile, Cuza & Pérez Tattam (2015) do not find any difference between younger and older children in this domain.

The conflicting findings may at first glance be hard to make sense of, but a closer look at the populations of interest is helpful in illuminating some deeper differences. Two studies reported an increase in error production over time. Sanchez-Sadek et al. (1975) tested children who attended schools in Los Angeles County, California. The authors relied on the children's teachers to label them as "dominant Spanish monolingual" or "dominant Spanish/English bilingual" and to assign them to descriptive categories indicating fluency level (see Sanchez-Sadek et al., 1975, Table 1). The authors did not specify whether children were sequential or simultaneous bilinguals. Anderson (1999) observed the language development of two sequential bilinguals who moved from Puerto Rico to "a large urban area in the United States" (Anderson, 1999, p. 393) when the older child was 3 years and 6 months old and the

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younger child was 1 year and 6 months old— it can be deduced from the author's descriptions that the children were sequential bilinguals.

In one of the studies that found a decrease in the frequency of gender errors in child production, Mueller-Gathercole (2002) tested 294 bilingual 2nd and 5th graders in Miami, Florida. She categorized them according to language group ("monolingual Spanish", "two-way bilinguals", and "English immersion bilinguals") and according to the language spoken at home ("only Spanish at home", "English and Spanish at home" and "only English at home"). The author does not provide information regarding the linguistic environment at school. On the other hand, Montrul & Potowski's (2007) study was conducted at a dual immersion school in Chicago, Illinois, where "official policy states that 80% of the day is taught in Spanish in preschool through second grade, 60% of the day during third through fifth grades, and 50% in seventh and eighth grades" (Montrul & Potowski, 2007, p. 310). Their 38 participants included 22 sequential bilinguals (age of acquisition of English after age 4) and 16 simultaneous bilinguals. The authors provide descriptive statistics from parental reports of home language usage to supplement this information.

Finally, Cuza & Pérez Tattam (2015) —who did not find a difference in production of gender agreement errors over time— included 32 Spanish-English bilingual children "born and raised in the United States, except for one child who was born in Mexico and immigrated to the US at the age of three" (Cuza & Pérez Tattam, 2015, p. 6). These children attended English-only schools, and their exposure to Spanish versus English was assessed via reports from their parents, who with two exceptions all immigrated to the United States from Mexico in adulthood.

While the small number of studies prevents a true meta-analysis, an overview of the groups involved in the studies suggests that one should proceed with caution when comparing the findings. Consider variation in (or lack of information on) whether participants were simultaneous or sequential bilinguals, how and when

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Spanish is used at home, and what kind of exposure to Spanish they might have at school. These factors shape the nature and the amount of input that the heritage speakers have to their Spanish grammar and may therefore affect the outcome of interest in these studies: the frequency of errors in gender agreement.

It is important to bear in mind that the variation in the participants in the studies discussed above reflects at least to some degree the variation in the heritage speaker population overall. The population is not homogenous, and therefore the findings in studies targeting subgroups of heritage speakers are likely to not be homogenous either. One of the challenges in experimental work in heritage linguistics is making sense of sometimes conflicting findings such as those illustrated above; similarly, it is important but sometimes difficult to identify which studies to compare one's own work to, based on similarities or differences in test groups. To this end, I echo de Bruin (2019) and Surrain & Luk (2019), who highlight the importance of robust and transparent reporting of language background for bilinguals in general, and this is especially the case for heritage bilinguals, as has been underscored here.

In their systematic overview of bilingualism studies published between 2005 and 2015, Surrain & Luk (2019) found that, of these studies, 46% labeled the bilingual group by specifying the two languages spoken by the participants, but 31% of the studies referred to the bilingual group as simply 'bilingual', without any further information. Only about 10% of the studies included not just these labels but also information regarding some combination of language dominance, learning status, or history of acquisition. As the example of the studies on gender agreement errors in heritage speaker children illustrates, this kind of background information may be critical to a nuanced understanding of the phenomena of interest in heritage speakers, and care should be taken by heritage linguists to provide this information.

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However, as de Bruin (2019) demonstrates, even collecting this information in a consistent and reliable manner can be challenging. The author illustrates her point through the case of the seemingly clear cut 'age of acquisition', which participants in heritage studies are often asked to self-report for their acquisition of the majority language to indicate the onset of bilingualism. But de Bruin (2019) convincingly argues that this singular data point can be unreliable. "Some participants may base age of acquisition estimations on when they were first exposed to a language [...] while others may start counting from the age of formal classroom learning. [...] for some groups of participants, onset of active language use may be the easiest moment to estimate" (de Bruin, 2019, p. 5). For heritage studies, this number is particularly important. The age at which acquisition of the majority language begins is thought to potentially affect various aspects of heritage speakers' acquisition trajectory for the heritage language (Bylund, 2009; Flores, 2010, 2015, among others). It is also often the case that this number can serve as an inclusion criterion for a study, and researchers vary in what they consider to be the cut-off point for inclusion —it is typically around 5 years old, but see Ortega (2019) for issues in inconsistencies across heritage language studies in this respect.

The issue can at least partly be remedied through carefully written questionnaires that are designed to target the complexity of the multi- or bi-lingual experience. I join de Bruin (2019) in recommending the Language Experience and Proficiency Questionnaire (LEAP-Q) (Marian et al., 2007; Kaushanskaya et al., 2020). Through a series of questions targeting specific contexts in which a bilingual might encounter one or both of their languages, the LEAP-Q allows a more nuanced understanding of the participant's language practices. One of the strengths of this questionnaire is that it asks the participant to self-report multiple numbers that all factor into the fuzzy notion of onset of acquisition, teasing apart when an individual was first exposed to a language from when they first became 'fluent' in it, when they started reading in it, and when they became 'fluent' in reading in the language. This

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addresses several of the concerns that can arise when participants self-report only a single estimate of the onset of exposure to their second language, as discussed above.

Given the potential for variation in the linguistic environment of a heritage speaker (recall the discussion in Section 2), it is important to assess and report not just the onset of bilingualism but also the relative amount of input in the two languages that the heritage speaker is exposed to (Polinsky; 2018a). Recall that this can vary based on factors related to the home environment (parents' language(s), number of siblings) but also the broader community (in some parts of the US, Spanish is broadly available in written and oral form in the public domain, whereas this may be less common for other (heritage) languages such as Polish or German). I point the reader to de Bruin (2019) for more detailed discussion of a few questionnaires targeting other aspects of language background and exposure to more than one language, but here I would like to draw the reader's attention to two other available methods. For child language exposure, the Bilingualism Input-Output Survey (BIOS) —a subpart of the Bilingual English Spanish Assessment (Peña et al., 2014)— is designed for clinical research and provides a way of reporting on which language children hear and use at home and at school on an hourly basis. The BIOS includes a parental survey (the authors claim it takes 10-15 minutes for the parent to complete) and a slightly shorter teacher survey (5-10 minutes), both of which allow the researcher granular insight into the environment that shapes the bilingual's language input and use. For adults, a very recent development is the leveraging of social network analysis (Lev-Ari, 2017) to evaluate the languages that a bilingual deploys on a daily basis to talk to the individuals they encounter most frequently in their daily life (Kutlu, 2021). The number of people that an individual interacts with has previously been shown to have an effect on an individual's phonological perception, as well as how they perceive non-standard varieties of English (see discussion in Kutlu, 2020).

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A further challenge for heritage linguistics studies is assessing participants' proficiency in the heritage language. Surrain & Luk's, (2019) systematic overview showed that 77% of bilingualism studies reported participants' proficiency levels, but less than half reported an objective proficiency measure. Mere use of labels such as 'high proficiency' and 'low proficiency' make comparison of results across studies difficult, as studies may use different criteria to establish these categories (Lehtonen et al. 2018). Furthermore, some language proficiency questionnaires (including the LEAP-Q), ask participants to self-report their proficiency. Interpreting these self-reports is notoriously tricky, as they may be dependent on cultural background (cf. a study by Tomoschuk et al. [2019] that compared self-reported vs objective proficiency measures of Chinese-English and Spanish-English bilinguals) or —particularly in the case of heritage speakers— may be indicative less of proficiency and rather more of the degree to which an individual identifies with a cultural or ethnic group (Kang & Kim, 2012).

But objective measures of proficiency are also elusive. A major limitation in this respect is the aforementioned nature of heritage speakers' exposure to their heritage language. While L2 learners and control speakers have experience with written forms of Spanish and can be assessed via proficiency tests more akin to classroom pencil-and-paper methods, most heritage speakers do not have such experiences with Spanish. Using these classroom-oriented or otherwise formal language proficiency assessments will put the heritage speakers at a disadvantage. Of course, this may not be a concern for a researcher interested in classroom effects on heritage speakers' written and formal language skills, but a linguist is interested in assessing the heritage speakers' linguistic knowledge independent of written abilities. For an objective measure of language proficiency, I join de Bruin (2019) in recommending an oral picture-naming task. Lexical proficiency has been shown to correlate with syntactic proficiency, including in first language acquisition and heritage language acquisition (Polinsky, 1997, 2006; Godson, 2003). Moreover, as discussed above, heritage speakers have been shown to perform well in oral picture-

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naming tasks as compared to written tasks targeting similar knowledge (Montrul et al., 2008). In Fuchs (2021), I created an oral picture-naming task for the purposes of the study to suit other elements of the experimental design. Standardized options are also available: de Bruin (2019) suggests, among others, the MINT (Multilingual Naming Test) (Gollan et al., 2012) as one that has been validated for Spanish, as well as English, Mandarin, and Hebrew.

As heritage linguists, we often find ourselves at a crossroad. As we work toward transparent and replicable studies that inform big-picture questions in language development, we may recognize the need for objective proficiency assessment and as-objective-as-possible reports of language background (de Bruin, [2019] recommends up to four objective proficiency measures for a robust assessment of proficiency). But we also recognize the trade-off we may face in recruitment and data collection. Each of these assessments, surveys, and reports takes time. Including all of them leads to longer study durations and —since study durations are often included in recruitment materials— may impact our ability to recruit participants to meet the necessary sample size. In areas where the participant pool is already limited, this is particularly risky. Furthermore, more time spent in testing can lead to participant fatigue, which can in turn affect experimental results. So how do we strike the right balance between thoroughness and time efficiency? There is no one-size-fits-all answer, and each researcher should determine what their priorities should be with respect to the goals of their study. In my recent work, I have resolved this by including both an oral picture-naming task and a questionnaire that targets language history and language exposure. The former can be quick to administer —in Fuchs (2021), the average time to complete the task for 42 pictures was 1 min 40 seconds for the control group and 3 minutes 10 seconds for the heritage group. As for the latter, I have developed an abbreviated version of the

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LEAP-Q.[8] The full-length LEAP-Q is available online in many languages (including in versions adjusted to Mexican Spanish and Peninsular Spanish), and the authors provide a Qualtrics-ready file as well.[9]

It should be noted that these language background and proficiency tools should not be thought of as exclusively applied to heritage groups in heritage language studies. It is now relatively well established within the heritage linguistics literature that the comparison group for heritage studies ought to be first-generation immigrants —those who learned the language in the homeland and immigrated (in this case to the US) in adulthood (typically no earlier than at age 18). This population is, after all, the input to the heritage speakers' grammar; in other words, heritage speakers learn Spanish from the first-generation immigrants, not the speakers still in the homeland (see Chapter 1 Section 2.2 in Polinsky, 2018b for further discussion). These first-generation immigrants, while historically often referred to in heritage studies as 'monolingual' groups, are in fact not monolingual: they are typically L2 learners of English. Depending, among other things, on the recency of their immigration and their previous English language education, they may be more or less proficient in English, but they do in most cases fall somewhere on the bilingualism spectrum (see Luk & Bialystok, [2013] for the importance of treating bilingualism as gradient rather than categorical). And as several studies have shown, first generation immigrants may experience changes to their first language as a result of this bilingualism (Higby & Obler, 2016). This is one of the main considerations that has led the field of heritage linguistics to largely move away from referring to the comparison group in heritage studies as the 'monolingual group' (or for that matter the 'native' group, although there are independent reasons not to use this term in the context, cf. footnote 1), and instead prefer the terms 'control group' or 'baseline group', as has been done here. Given this, the challenge of collecting information on

[8] Available in Appendix B.3 of Fuchs, 2020.
[9] Available at https://bilingualism.northwestern.edu/leapq/.

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and reporting the language exposure of participants in heritage studies should also extend to the control groups in these studies; the recommendations made within this section are applicable to these groups as well.

6. Conclusion

If the challenges involved in working with such a diverse population are met with systematic and transparent reporting of language background and proficiency, we stand to gain a deeper insight into questions regarding language acquisition and bilingualism, which in turn may contribute to Spanish-language teaching methodology and pedagogy. The contributions to the fields of linguistics of bilingualism and language development were discussed above: early naturalistic language acquisition with an outcome of variable proficiency in adulthood not only sets heritage speakers apart from other bilinguals and but also creates opportunities for disentangling factors involved in language development that are otherwise confounded. Above we saw this by viewing the results of Fuchs (2021) through two lenses: first in the case of facilitative use of grammatical gender and whether the ability to do so is tied to nativeness or proficiency, and second in the case of speed of spoken word recognition and whether the previously observed increase in speed of spoken word recognition through childhood and adolescence is driven by an accumulation of language input or general cognitive development.

Seen in a broader context, studies like Fuchs (2021) join a recent push for heritage studies to employ experimental methodologies that measure implicit linguistic knowledge through tasks that, for instance, do not depend on literacy skills (Bayram et al., 2020). In implementing such methodologies, we take out the factors that may otherwise create disadvantages for heritage speakers, allowing for a more nuanced understanding of their linguistic abilities. This is good for linguistics, and it is good for heritage speakers. Insight into what heritage speakers can do when limiting

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factors are removed from the experimental setting complement our understanding of heritage speakers' performance in more classroom-oriented tasks. An enriched grasp of heritage speakers' language skills can in turn inform heritage language instructors' teaching methods, ultimately providing more tailored support for heritage speakers to achieve their language-related goals.

Works Cited

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(3),* 332–350.

Anderson, R. T. (1999). Loss of gender agreement in L1 attrition: preliminary results. *Bilingual Research Journal, 23(4)*, 389–408.

Armon-Lotem, S., & Meir, N. (2019). The nature of exposure and input in early bilingualism. In A. De Houwer & L. Ortega (Eds.), *The Cambridge handbook of bilingualism* (pp. 193–212). New York, NY: Cambridge University Press.

Bayram, F., Rothman, J., Pisa, G., & Slabakova, R. (2020). Current trends and emerging methodologies in charting heritage language bilingual grammars. *Psyarxiv*. https://doi.org/10.31234/osf.io/pa83g

Bialystok, E., Luk, G., Peets, K. F., & Yang, S. (2010). Receptive vocabulary differences in monolingual and bilingual children. *Bilingualism: Language and Cognition*, *13*(4), 525–531. https://doi.org/10.1017/S1366728909990423

Benmamoun, E., Montrul, S., & Polinsky, M. (2013). Heritage languages and their speakers: Opportunities and challenges for linguistics. *Theoretical Linguistics*, 39(3), 129-181.

Bylund, E. (2009). Maturational constraints and first language attrition. *Language Learning 59*, 687-715.

Heritage Spanish in the US: How Heritage Languages Can Contribute to Disentangling Factors Driving Language Development
Estudios del Observatorio/Observatorio Studies. 070-04/2021EN
ISSN: 2688-2949 (online) 2688-2965 (impreso) doi: 10.15427/OR070-04/2021EN

Cuza, A., & Pérez-Tattam, R. (2015). Grammatical gender selection and phrasal word order in child heritage Spanish: A feature re-assembly approach. *Bilingualism: Language and Cognition, 19(1)*, 1-19.

de Bruin, A. (2019). Not all bilinguals are the same: A call for more detailed assessments and descriptions of bilingual experiences. *Behavioral Sciences*, *9(3)*. https://doi.org/10.3390/bs9030033

Dussias, P. E., Valdés Kroff, J. R., Guzzardo Tamargo, R. E., & Gerfen, C. (2013). When gender and looking go hand in hand. *Studies in Second Language Acquisition, 35(2)*, 353–387.

Flores, C. (2010). The effect of age on language attrition: Evidence from bilingual returnees. *Bilingualism: Language and Cognition 13*, 533-546.

Flores, C. (2015). Losing a language in childhood: A longitudinal case study on language attrition. *Journal of Child Language 42*, 562-590.

Fuchs, Z. (2020). *Gender in the nominal domain: contributions from bilingualism and eye-tracking*. [PhD thesis, Harvard University.]

Fuchs, Z. (2021). Facilitative use of grammatical gender in Heritage Spanish. *Linguistic Approaches to Bilingualism*. http://doi.org/10.1075/lab.20024.fuc

Godson, L. (2003). *Phonetics of language attrition: Vowel production and articulatory setting in the speech of Western Armenian heritage speakers*. [PhD thesis, University of California, San Diego.]

Gollan, T. H., Weissberger, G. H., Runnqvist, E., Montoya, R. I., & Cera, C. M. (2012). Self-ratings of spoken language dominance: A Multilingual Naming Test (MINT) and preliminary norms for young and aging Spanish-English bilinguals. *Bilingualism: Language and Cognition, 15(3)*, 594–615. https://doi.org/10.1017/S1366728911000332

Grosjean, F. (1989). Neurolinguists, beware! The bilingual is not two monolinguals in one person. *Brain and Language, 36,* 3–15. https://doi.org/10.1016/0093-934X(89)90048-5

Grosjean, F. (1997). The bilingual individual. *Interpreting: International Journal of Research and Practice in Interpreting*, 2, 163–87.

Grosjean, F. (2010). *Bilingual: Life and reality*. Cambridge, MA: Harvard University Press.

ISSN: 2688-2949 (online) 2688-2965 (impreso) doi: 10.15427/OR070-04/2021EN

Grosjean, F. (2015). Bicultural bilinguals. *International Journal of Bilingualism*, *19(5)*, 572–586. https://doi.org/10.1177/1367006914526297

Grüter, T., Lew-Williams, C., & Fernald, A. (2012). Grammatical gender in L2: A production or a real-time processing problem? *Second Language Research*, *28(2)*, 191–215.

Hammer, C., Davison, M., Lawrence, F., & Miccio, A. (2009). The effect of maternal language on bilingual children's vocabulary andemergent literacy development during Head Start and kindergarten. *Scientific Studies of Reading, 13*, 99–121.

Hannagan, Thomas, Magnuson, James S, & Grainger, Jonathan. (2013). Spoken word recognition without a TRACE. *Frontiers in Psychology*, *4(563)*, 563.

Higby, E., & Obler, L. K. (2016). Length of residence. *Linguistic Approaches to Bilingualism, 6*, 43–63. https://doi.org/10.1075/lab.15001.hig

Kaan, E. (2014). Predictive sentence processing in L2 and L1. *Linguistic Approaches to Bilingualism, 4(2)*, 257–282. https://doi.org/10.1075/lab.4.2.05kaa

Kang, H.-S. & Kim, I.-S. (2012). Perceived and actual competence and ethnic identity in heritage language learning: a case of Korean-American college students. *International Journal of Bilingual Education and Bilingualism*, *15(3)*, 279–294.

Kaushanskaya, M., Blumenfeld, H. K., & Marian, V. (2020). The Language Experience and Proficiency Questionnaire (LEAP-Q): Ten years later. *Bilingualism, 23(5)*, 945-950.

Kempe, V. & Brooks, P. J. (2001). The role of diminutives in Russian gender learning: Can child-directed speech facilitate the acquisition of inflectional morphology. *Language Learning, 51(2)*, 221–256.

Kroll, J. F., Bobb, S. C., & Hoshino, N. (2014). Two languages in mind: Bilingualism as a tool to investigate language, cognition, and the brain. *Current Directions in Psychological Science, 23,* 159–163. https://doi.org/10.1177/0963721414528511

Kupisch, T., & Rothman, J. (2018). Terminology matters! Why difference is not incompleteness and how early child bilinguals are heritage speakers. *International Journal of Bilingualism*, *22*, 564–582. https://doi.org/10.1177/1367006916654355

ISSN: 2688-2949 (online) 2688-2965 (impreso) doi: 10.15427/OR070-04/2021EN

Kutlu, E. (2020). *Perception in context: The effect of multilingualism and race on accentendness judgments*. [PhD thesis, University of Florida.]

Kutlu, E. (2021, 2 March). *Perception in context: How multilingualism is a door to new horizons but a gatekeeper for some*. Linguistics Colloquium. University of Iowa, Iowa City, United States.

Lehtonen, M., Soveri, A., Laine, A., Järvenpää, J., de Bruin, A., & Antfolk, J. (2018). Is bilingualism associated with enhanced executive functioning in adults? A meta-analytic review. *Psychological Bulletin 144*, 394–425.

Lev-Ari, S. (2017). Talking to fewer people leads to having more malleable linguistic representations. *PloS one*, *12(8).*

Lew-Williams, C. & Fernald, A. (2007). Young children learning spanish make rapid use of grammatical gender in spoken word recognition. *Psychological Science*, *18(3)*, 193–198.

Lew-Williams, C. & Fernald, A. (2010). Real-time processing of gender-marked articles by native and non-native Spanish speakers. *Journal of Memory and Language, 63(4)*, 447–464.

Luk, G. & Bialystok, E. (2013). Bilingualism is not a categorical variable: Interaction between language proficiency and usage. *Journal of Cognitive Psychology*, *25*, 605–621. https://doi.org/10.1080/20445911.2013.795574

Marian V., Blumenfeld, H.K., & Kaushanskaya, M. (2007). The Language Experience and Proficiency Questionnaire (LEAP-Q): Assessing language profiles in bilinguals and multilinguals. Journal of Speech Language and Hearing Research, *50 (4)*, 940-967

Marrero, V., Aguirre, C., & Albala, M. (2007). The acquisition of diminutives in Spanish. In I. Savickienė & W. Dressler (Eds.), *The acquisition of diminutives: A crosslinguistic perspective* (pp. 155–184). Amsterdam: John Benjamins.

McClelland, James L, & Elman, Jeffrey L. (1986). The TRACE model of speech perception. *Cognitive Psychology, 18(1)*, 1-86.

McMurray, B., Danelz, A., Rigler, H., & Seedorff, M. (2018). Speech Categorization Develops Slowly Through Adolescence. *Developmental Psychology*, *54(8)*, 1472-1491.

ISSN: 2688-2949 (online) 2688-2965 (impreso) doi: 10.15427/OR070-04/2021EN

McMurray, B., Klein-Packard, J., & Tomblin, J. B. (2019). A real-time mechanism underlying lexical deficits in developmental language disorder: Between-word inhibition. *Cognition*, *191*, 104000.

Melançon, A., & Shi, R. (2015). Representations of abstract gender feature agreement in French-learning young children. *Journal of Child Language*, *42*,1379-1393.

Montrul, S., Davidson, J., de la Fuente, I., & Foote, R. (2014). Early language experience facilitates the processing of gender agreement in Spanish heritage speakers. *Bilingualism: Language and Cognition*, 17(01), 118–138.

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)*, 503–553.

Montrul, S. & Potowski, K. (2007). Command of gender agreement in school-age Spanish-English Bilingual Children. *The International Journal of Bilingualism*, *11(3)*, 301–328.

Mueller Gathercole, V. C. (2002). Grammatical Gender in Bilingual and Monolingual Children: A Spanish Morphosyntactic Distinction. In R. Oller & R. Eilers (Eds.), *Language and Literacy in Bilingual Children* (pp. 207–219). Clevedon: Multilingual Matters.

Ortega, L. (2020). The study of heritage language development from a bilingualism and social justice perspective. *Language Learning*, *70(S1)*, 15–53. https://doi.org/10.1111/lang.12347

Pascual y Cabo, D., & Rothman, J. (2012). The (il)logical problem of heritage speaker bilingualism and incomplete acquisition. *Applied Linguistics*, *33*, 450–455. https://doi.org/10.1093/applin/ams037

Peña, E.D., Guttiérez-Clellen, V. F., Iglesias, A., Goldstein, B., & Bedore, L. M. (2014). *Bilingual English Spanish Assessment*. San Rafael, CA: A-R Clinical Publ.

Pine, J.M., & Lieven, E.V.M. (1997). Slot and frame patterns and the development of the determiner category. In *Applied Psycholinguists, 18*.

Polinsky, M. (1997). Cross-linguistic parallels in language loss. *Southwest Journal of Linguistics*, *14(1-2)*, 87–123.

Polinsky, M. (2006). Incomplete acquisition: American Russian. *Journal of Slavic Linguistics*, *14(2)*, 191–262.

ISSN: 2688-2949 (online) 2688-2965 (impreso) doi: 10.15427/OR070-04/2021EN

Polinsky, M. (2018a). Bilingual children and adult heritage speakers: The range of comparison. *International Journal of Bilingualism*, *22*, 547–563. https://doi.org/10.1177/1367006916656048

Polinsky, M. (2018b). *Heritage languages and their speakers*. New York, NY: Cambridge University Press.

Polinsky, M., & Scontras, G. (2020). Understanding heritage languages. *Bilingualism: Language and Cognition*, 1–17.

Rigler, Hannah, Farris-Trimble, Ashley, Greiner, Lea, Walker, Jessica, Tomblin, J. Bruce, & McMurray, Bob. (2015). The Slow Developmental Time Course of Real-Time Spoken Word Recognition. *Developmental Psychology*, *51(12)*, 1690-1703.

Sanchez-Sadek, C., Kiraithe, J., & Villarreal, H. (1975). *The Acquisition of the Concept of Grammatical Gender in Monolingual and Bilingual Speakers of Spanish*.

Savickienė, I. & Dressler, W., Eds. (2007). *The Acquisition of Diminutives: A Crosslinguistic Perspective*. Amsterdam: John Benjamins.

Schwartz, B. D. (2004). Why child L2 acquisition? In J. Van Kampen & S. Baauw (Eds.), *Proceedings of Generative Approaches to Language Acquisition* (pp. 47–66). Utrecht, the Netherlands: LOT Occasional Series.

Scontras, G., Polinsky, M., & Fuchs, Z. (2018). In support of representational economy: Agreement in heritage Spanish. *Glossa: a journal of general linguistics*, *3(1)*, 1.

Scontras, G., & Putnam, M. T. (2020). Lesser-studied heritage languages: An appeal to the dyad. *Heritage Language Journal*, *17*(2), 152–155.

Seva, N., Kempe, V., Brooks, P. J., Mironova, N., & Pershukova, A. (2007). Crosslinguistic evidence for the diminutive advantage: gender agreement in Russian and Serbian children. *Journal of Child Language*, *34*, 111–131.

Smithson, L., Paradis, J., & Nicoladis, E. (2014). Bilingualism and receptive vocabulary achievement: Could sociocultural context make a difference? *Bilingualism*, *17(4)*, 810–821. https://doi.org/10.1017/S1366728913000813

Surrain, S. & Luk, G. (2019). Describing bilinguals: A systematic review of labels and descriptions used in the literature between 2005–2015. *Bilingualism: Language & Cognition* 22, 401–415.

Heritage Spanish in the US: How Heritage Languages Can Contribute to Disentangling Factors Driving Language Development
Estudios del Observatorio/Observatorio Studies. 070-04/2021EN
ISSN: 2688-2949 (online) 2688-2965 (impreso) doi: 10.15427/OR070-04/2021EN

Thordardottir, E. (2011). The relationship between bilingual exposure and vocabulary development. *The International Journal of Bilingualism*, *15*, 426–445.

Ticio Quesada, E. (2018). *The emergence of nominal expressions in Spanish-English early bilinguals: Economy and bilingual first language acquisition*. Amsterdam: John Benjamins.

Tomasello, M. (2000). The item-based nature of children's early syntactic development. *Trends in Cognitive Sciences, 4(4)*, 156–163. https://doi.org/10.1016/S1364-6613(00)01462-5

Tomoschuk, B., Ferreira, V. S., & Gollan, T. H. (2019). When a seven is not a seven: Self-ratings of bilingual language proficiency differ between and within language populations. *Bilingualism*, *22(3)*, 516-536.

Unsworth, S. (2005). *Child L2, adult L2, child L1 differences and similarities. A study on the acquisition of object scrambling in Dutch*. [PhD thesis, Netherlands Graduate School of Linguistics.]

Unsworth, S. (2016). Quantity and quality of language input in bilingual language development. *Bilingualism across the Lifespan: Factors Moderating Language Proficiency.*, 103–121. https://doi.org/10.1037/14939-007

Valdés, G. (2000). Introduction. In *Spanish for native speakers* (pp. 1–32). New York, NY: Harcourt College.

Van Heugten, M., & Shi, R. (2009). French-learning toddlers use gender information on determiners during word recognition. Developmental Science, *12(3)*, 419-425.

Heritage Spanish in the US: How Heritage Languages Can Contribute to Disentangling Factors Driving Language Development
Estudios del Observatorio/Observatorio Studies. 070-04/2021EN
ISSN: 2688-2949 (online) 2688-2965 (impreso) doi: 10.15427/OR070-04/2021EN

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Heritage Spanish in the US: How Heritage Languages Can Contribute to Disentangling Factors Driving Language Development
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ISSN: 2688-2949 (online) 2688-2965 (impreso) doi: 10.15427/OR070-04/2021EN

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24. Daniel Martínez, Austin Mueller, Rosana Hernández Nieto, y Francisco Moreno Fernández (dir.). *Mapa hispano de los Estados Unidos 2016 / Hispanic Map of the United States* (En español: 024-10/2016SP; in English: 024-10/2016EN). Octubre/October 2016
25. Igone Arteagoitia, Marleny Perdomo, Carolyn Fidelman. *Desarrollo de la lectoescritura en español en alumnos bilingües. / Development of Spanish Literacy Skills among Bilingual Students* (En español: 025-11/2016SP; in English: 025-11/2016EN). Noviembre/November 2016
26. Winston R. Groman. *El canon literario hispánico en las universidades estadounidenses / The Hispanic Literary Canon in U.S. Universities* (En español: 026-12/2016SP; in English: 026-12/2016EN). Diciembre/December 2016

27. Clara González Tosat. *La radio en español en los Estados Unidos / Spanish-Language Radio in the United States* (En español: 027-01/2017SP; in English: 027-01/2017EN). Enero/January 2017
28. Tamara Cabrera. *El sector de la traducción y la interpretación en los Estados Unidos / The Translating and Interpreting Industry in the United States* (En español: 028-02/2017SP; in English: 028-02/2017EN). Febrero/February 2017
29. Rosana Hernández-Nieto. Francisco Moreno-Fernández (eds.). *Reshaping Hispanic Cultures. 2016 Instituto Cervantes Symposium on Recent Scholarship. Vol. I. Literature and Hispanism* (En español: 029-03/2017SP). Marzo 2017
30. Rosana Hernández-Nieto y Francisco Moreno-Fernández (eds.). *Reshaping Hispanic Cultures. 2016 Instituto Cervantes Symposium on Recent Scholarship. Vol. II. Language Teaching* (En español: 030-04/2017SP). Abril 2017
31. Francisco Moreno-Fernández. *Variedades del español y evaluación. Opiniones lingüísticas de los anglohablantes / Varieties of Spanish and Assessment. Linguistic Opinions from English-speakers* (En español: 031-05/2017SP; in English: 031-05/2017EN). Mayo/May 2017
32. María Luisa Parra. *Recursos para la enseñanza de español como lengua heredada / Resources Teaching Spanish as a Heritage Language* (En español: 032-06/2017SP; in English: 032-06/2017EN). Junio/June 2017

ISSN: 2688-2949 (online) 2688-2965 (impreso) doi: 10.15427/OR070-04/2021EN

33. Rosana Hernández-Nieto. *La legislación lingüística en los Estados Unidos / Language Legislation in the U.S.* (En español: 033-09/2017SP; in English: 033-09/2017EN). Septiembre/September 2017
34. Francisco Moreno-Fernández. *Geografía léxica del español estadounidense. A propósito del anglicismo / Lexical Geography of U.S. Spanish. About Anglicism* (En español: 034-10/2017SP; in English: 034-10/2017EN). Octubre/October 2017
35. Rosana Hernández-Nieto, Marcus C. Guitérrez, y Francisco Moreno-Fernández (dir). *Mapa hispano de los Estados Unidos 2017 / Hispanic Map of the United States* (En español: 035-11/2017SP; in English: 035-11/2017EN). Noviembre/November 2017
36. Esther Gimeno Ugalde. *El giro ibérico: panorama de los estudios ibéricos en los Estados Unidos / The Iberian Turn: an overview on Iberian Studies in the United States.* (En español: 036-12/2017SP; in English: 036-12/2017EN). Diciembre/December 2017
37. Francisco Moreno Fernández. *Diccionario de anglicismos del español estadounidense* (En español: 037-01/2018SP). Enero/January 2018
38. Rosalina Alcalde Campos. *De inmigrantes a profesionales. Las migraciones contemporáneas españolas hacia los Estados Unidos / From Immigrants to Professionals: Contemporary Spanish Migration to the United States.* (En español: 038-02/2018SP; in English: 038-02/2018EN). Febrero/February 2018
39. Rosana Hernández Nieto, Francisco Moreno-Fernández (dir.). *Reshaping Hispanic Cultures. 2017 Instituto Cervantes Symposium on Recent Scholarship. Vol. I. Literatura e hispanismo* (En español: 039-03/2018SP). Marzo/March 2018
40. Rosana Hernández Nieto, Francisco Moreno-Fernández (dir.). *Reshaping Hispanic Cultures. 2017 Instituto Cervantes Symposium on Recent Scholarship. Vol. II. Spanish Teaching / Enseñanza de español* (En español: 040-04/2018SP). Abril 2018
41. Andrés Enrique-Arias, *Evolución de los posgrados de español en las universidades estadounidenses / The Evolution of Graduate Studies in Spanish in American Universities* (En español: 041-05/2018SP; in English: 041-05/2018EN). Mayo/May 2018
42. Luis Javier Pentón Herrera, *Estudiantes indígenas de América Latina en los Estados Unidos / Indigenous Students from Latin America in the United States* (En español: 042-08/2018SP; in English: 042-08/2018EN). Augusto/August 2018
43. Francisco Moreno Fernández (ed.). *El español de los Estados Unidos a debate. U.S. Spanish in the Spotlight* (En español: 043-09/2018SP; in English: 043-09/2018EN). Septiembre/September 2018
44. Rosana Hernández y Francisco Moreno Fernández (dir.). *Mapa hispano de los Estados Unidos 2018 / Hispanic Map of the United States 2018.* (En español: 044-10/2018SP; in English: 044-10/2018EN). Octubre/October 2018

Heritage Spanish in the US: How Heritage Languages Can Contribute to Disentangling Factors Driving Language Development
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ISSN: 2688-2949 (online) 2688-2965 (impreso) doi: 10.15427/OR070-04/2021EN

45. Esther Gimeno Ugalde. *Panorama de los Estudios Catalanes en los Estados Unidos / Catalan Studies in the United Studies* (En español: 045-11/2018SP; in English: 045-11/2018EN). Noviembre/November 2018
46. Silvia Betti. *Apuntes sobre paisaje lingüístico. Un paseo por algunas ciudades estadounidenses / Notes on Linguistic Landscape: A Look at Several U.S. Cities.* (En español: 046-12/2018SP; in English: 046-12/2018EN). Diciembre/December 2018
47. Rosana Hernández. *Legislación lingüística en los Estados Unidos. Análisis nacional / Language Legislation in the U.S. A Nationwide Analysis.* (En español: 047-01-2019SP; in English: 047-01/2019EN). Enero/January 2019
48. Kate Seltzer y Ofelia García. *Mantenimiento del bilingüismo en estudiantes latinos/as de las escuelas de Nueva York. El proyecto CUNY-NYSIEB / Sustaining Latinx Bilingualism in New York's Schools: The CUNY-NYSIEB Project.* (En español: 048-02/2019SP; in English: 048-02/2019EN). Febrero/February 2019
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50. Rosana Hernández y Francisco Moreno-Fernández (eds.). *Reshaping Hispanic Cultures. 2018 Instituto Cervantes Symposium on Recent Scholarship. Vol. I. Literature.* (En español: 050-04/2019SP) Abril/April 2019.
51. Rosana Hernández y Francisco Moreno-Fernández (eds.). *Reshaping Hispanic Cultures. 2018 Instituto Cervantes Symposium on Recent Scholarship. Vol. II. Linguistics, Communication and Sociology in the Hispanic World.* (En español: 051-05/2019SP) Mayo/May 2019.
52. Clara González Tosat. *Cibermedios hispanos en los Estados Unidos 2019: evolución, calidad e impacto. / Hispanic Digital Newspapers in the U.S., 2019: evolution, quality, and impact.* (En español: 052-06/2019SP; in English 052-06/2019EN) Junio/June 2019.

Estudios del Observatorio/Observatorio Studies

53. José María Albalad Aiguabella. *Periodismo hispano en los Estados Unidos: análisis de cuatro modelos referentes. / Hispanic journalism in the United States: analysis of four key models.* (En español: 053-09/2019SP; in English: 053-09/2019EN) Septiembre/September 2019.
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Heritage Spanish in the US: How Heritage Languages Can Contribute to Disentangling Factors Driving Language Development
Estudios del Observatorio/Observatorio Studies. 070-04/2021EN
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55. Marta Mateo, Cristina Lacomba y Natalie Ramírez (eds.). *De España a Estados Unidos: el legado transatlántico de Joaquín Rodrigo. / From Spain to the United States: Joaquín Rodrigo's Transatlantic Legacy.* (En español: 055-11/2019SP; in English: 055-11/2019EN) Noviembre/November 2019.
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57. Daniel Moreno-Moreno. *Lo híbrido hecho carne. El legado de un pensador hispano-americano: Jorge/George Santayana. / The Hybrid Made Flesh. The Legacy of a Hispanic-American Thinker: Jorge/George Santayana.* (En español: 057-01/2020SP; in English: 057-01/2020EN) Enero/January 2020.
58. Rolena Adorno y José M. del Pino. *George Ticknor (1791-1871), su contribución al hispanismo, y una amistad especial. / George Ticknor (1791-1871), his Contributions to Hispanism, and a Special Friendship.* (En español: 058-02/2020SP; in English: 058-02/2020EN) Febrero/February 2020.
59. Mónica Álvarez Estévez. *Entre dos orillas: la inmigración gallega en Nueva York. Morriña e identidades transnacionales. / Between Two Shores: Galician Immigration to New York. Morriña and transnational identities.* (En español: 059-03/2020SP; in English: 059-03/2020EN) Marzo/March 2020.
60. Marta Mateo, María Bovea y Natalie Ramírez (eds.). *Reshaping Hispanic Cultures: 2019 Instituto Cervantes Symposium on Recent Scholarship. Vol. I. Identity, Language & Teaching.* (060-04/2020SP) Abril 2020.
61. Marta Mateo, María Bovea y Natalie Ramírez (eds.). *Reshaping Hispanic Cultures: 2019 Instituto Cervantes Symposium on Recent Scholarship. Vol. II. Art and Literature*. (061-05/2020SP) Mayo 2020.
62. Godoy Peñas, Juan A. *Are you Black or Latino? Ser afro-latino en los Estados Unidos. / Are You Black or Latino? Being Latino in the United States.* (En español: 062-06/2020SP; in English: 062-06/2020EN) Junio/June 2020.
63. Eduardo Viñuela*. El pop en español en EE.UU.: Un espacio para la articulación de la identidad latina / Pop in Spanish in the U.S.: A Space to Articulate the Latino Identity.* (En español: 063-09/2020SP; in English: 063-09/2020EN) Septiembre/September 2020.
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65. Cristina Lacomba. *Hispanos y/o latinos en Estados Unidos: La construcción social de una identidad / Hispanics and/or Latinos in the United States: The Social Construction of an Identity.* (En español: 065- 11/2020SP; in English: 065-11/2020EN) Noviembre/November 2020.

66. Lucía Guerra. *Translaciones literarias. Difusión y procesos de traducción de la obra de María Luisa Bombal en los Estados Unidos / Literary Shifts. María Luisa Bombal: Circulation and Translation Processes in the United States.* (En español: 066-12/2020SP; in English: 066-12/2020EN) Diciembre/ December 2020.

67. Leyla Rouhi. *Translaciones literarias. Sobre* La Celestina *y sus traducciones al inglés / Literary Shifts. On* La Celestina *and English Translations.* (En español: 067-01/2021SP; in English: 067-01/2021EN) Enero/ January 2021.

68. Miriam Perandones Lozano. *La recepción del hispanismo musical en Nueva York en el cambio de siglo XIX-XX y el* boom *del teatro lírico español a través de Enrique Granados y Quinito Valverde / Reception of Musical Hispanism in New York at the Turn of the 20th Century and the* Boom *in Spanish Lyric Theatre through the Work of Enrique Granados and Quinito Valverde.* (En español: 068-02/2021SP; in English: 068-02/2021EN) Febrero/ February 2021.

69. Raquel Chang-Rodríguez. *Luis Jerónimo de Oré y su* Relación *(c. 1619): el testimonio de un peruano en La Florida española / Luis Jerónimo de Oré and his* Relación (*c. 1619): A Peruvian's Account of Spanish Florida*. (En español: 069-03/2021SP; in English: 069-03/2021EN) Marzo/ March 2021.

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