# Prolegomena to Heritage Linguistics

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## Executive summary

Linguistics seeks to discover how grammatical knowledge is manifested in the brain, and which components may be universal. Many linguists believe in the universality of grammar, arguing that children receive too little input to develop language's full complexity without some inherent structuring in the brain. (This is sometimes called the "poverty of stimulus" problem.) Language acquisition becomes even more complex when one considers the various degrees of fluency that are achieved. How much language exposure is needed to become a "native" speaker? And what about the role of age? Second-language learners who acquired the language after puberty, regardless of their level, persist in making mistakes that even the youngest of native speakers do not.

In Benmamoun, Montrul, and Polinsky (2010), referred to as BMP below, the focus is on heritage speakers – speakers of a language who interrupted or otherwise incompletely acquired their first language (or one of their first languages, in the case of children exposed to multiple languages from birth). For these speakers, one of the languages eventually becomes the primary language and the other weakens; this finding is at odds with the linguistic assumption that first languages are stable in adult speakers. Usually, the majority language of the country/region becomes the primary language, and the minority (incompletely acquired) language becomes the secondary. Depending on the situation, the heritage speaker might not receive formal education in the heritage language, which then remains rooted in a specific context such as the home and/or immediate community. Despite the fact that heritage speakers are given the same early linguistic exposure as native speakers, the *interruption of their acquisition* limits their grammatical competence, and this problem worsens by attrition as time passes. This group lies between L1 and L2 learners, making them an extremely useful source of linguistic information about acquisition and native competence.

Heritage speakers in the United States are usually immigrants or children of immigrants, with heritage speakers of Spanish constituting the largest heritage population in the country. Heritage speakers are a diverse group, and using them in linguistic analysis is complicated. For example, incorrect self-reporting of language level may occur because they lack metalinguistic awareness, which further complicates the use of grammaticality judgment tests. Typically, we must deploy multiple linguistic diagnostics to study these speakers. It is also important to understand the language of their parents, first generation immigrants, because this is where their exposure to heritage language comes from. If we want to be serious about helping heritage speakers maintain their bilingualism and their bicultural identity, we need to be cognizant of their environment, their language exposure, language attitudes, and language use.

Despite many challenges, the study of heritage language learners offers many benefits. It allows us to develop language policies and build more effective language programs. It lends insight into the cues that lead people to categorize a speaker as native or non-native. It also reveals much about the process of language acquisition generally. For example, studies show that mere exposure to a language during the critical period is not enough to acquire native competence; the quality and quantity of exposure matter as well. (Being bilingual from birth sometimes actually results in a *lower* ability in the heritage language than being monolingual with a second language added later.)

BMP analyze in detail six ways in which heritage speakers diverge from native speakers: phonology, lexical knowledge, morphology, syntax, case marking, and code-switching.
- Phonology is generally an area in which heritage speakers excel, but a "heritage accent" may develop due to incomplete acquisition and attrition. This area has been understudied thus far. The authors suggest several fruitful directions for research.
- Lexical knowledge among heritage speakers is often much weaker than among native speakers; research on which basic lexical categories are most difficult for heritage speakers may help clear up the controversy over whether a noun-verb distinction is a component of Universal Grammar. (Studies so far seem to support the distinction even in these incomplete grammars.)
- orphology, particularly inflectional morphology, is an area in which heritage speakers often have the most trouble. Preliminary research suggests some generalizations: They appear to struggle more with nominal morphology than verbal morphology (although there are differences as well within verbal morphology); agreement, aspect, and mood are much weaker areas in heritage speakers than is tense.
- Syntax is more likely to be completely acquired, but some areas are problematic. Notably, complex syntax such as recursion and higher CP projections tends to be worse in heritage speakers. In languages with pro-drop, heritage speakers often lose that feature, possibly due to the difficulty of establishing syntactic dependencies. This also leads to issues with binding that may be manifested in problems with anaphors. Heritage speakers may also have difficulties with word order, passive constructions, and comprehension of relative clauses. (Some of these may originate from a neglect of the relevant morphology.)
- Case marking is a common problem for heritage speakers. Inherent case may be highly affected, revealing that semantics does not escape weakness. Additionally, fine-grained semantics contrasts (such as definiteness, quantification, and genericity) are difficult for some heritage speakers. (We must note that these generalizations could stem from the influence of English, such that heritage speakers in countries with a different dominant language may exhibit different patterns. Further research in other contexts is required.)
- Code-switching among heritage speakers occurs when two languages (or language varieties) are present in the same discourse segment. Code-switching involves embedding one language within the syntax of another; because it requires knowledge of many syntactic properties, code switching can be used as a tool for gauging heritage speakers' knowledge of their languages.

Although they acknowledge that the data is far from comprehensive, BMP highlight three factors that help shape heritage grammars: incomplete acquisition, attrition, and transfer from the dominant language.

*Incomplete acquisition* (due to insufficient language input during childhood) often produces adult heritage speakers who pattern like child learners with regards to certain language features. *Attrition* is a much more controversial factor in heritage languages, partly because it is unclear at what point acquisition stops, but also because there is so much variation in heritage language. (For example, are there degrees of attrition in which features are present to lesser degrees than in full language?) BMP suggest that attrition may be present when a heritage speaker demonstrates difficulty with a language property that should have been fully acquired by age 4-5 (e.g., relative clauses). Finally, BMP highlight *language transfer*, which occurs when there is interference between the first language and the primary language. This is well documented in second language research, but should also be considered in the analysis of heritage languages.

BMP discuss four ways in which heritage language research can benefit the linguistic community.

First, heritage speakers allow us to investigate the phenomena that researchers have traditionally studied in children's language use, but with test subjects that are more sophisticated and manageable. We can also test more complex theoretical issues, such as the relationship between agreement and case. (For example, should we classify the ergative as an inherent or as a structural case? Preliminary research suggests that structural case is more vulnerable than subject-verb agreement and inherent case, but agreement and structural case do not pattern together and may be disassociated – heritage language research could provide insights into the encoding of temporality and ergativity patterns.)

Second, heritage language studies that compare the grammatical competence of heritage speakers and L2 learners may have significant benefits. Heritage speakers have a distinct advantage when it comes to phonological competence, but no clear advantage in morphosyntactic competence. L2 learners make fewer mistakes in written language than heritage speakers, and tend to perform better in tasks that require metalingistic knowledge of the language.

Besides its value to theoretical linguists, heritage language research can benefit the field of education. Notably, because many heritage speakers sign up for second language classes in their heritage language, educators need to understand how to serve this large group of students. When special heritage tracks are created, they would benefit from materials that are "purpose-built" to address the strengths and weaknesses of heritage learners.

Finally, there are social benefits. On one hand, these accrue to the heritage language communities that wish to teach and maintain their languages and cultures. On the other, heritage speakers can be a resource of communication skills that benefit the nation in our

increasingly globalized world.

# White Paper: Prolegomena to Heritage Linguistics

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## Abstract

Linguistic theory and experimental studies of language development rest heavily on the notion of the adult, perhaps linguistically stable, native speaker. Native speaker competence and performance are typically the result of normal first language acquisition in a predominantly monolingual environment, with optimal and continuous exposure to the language. The question we pose in this article is what happens when access to input and opportunities to use that native language are less than optimal during language development. We present and discuss the case of heritage speakers, i.e., bilingual speakers of an ethnic or immigrant minority language whose first language does not typically reach native-like attainment in adulthood. By examining the linguistic knowledge of these individuals, we question long-held ideas about the stability of language before the so-called critical period for language development, and the nature of the linguistic system as it develops under reduced input conditions. We present an overview of heritage speakers' linguistic system and discuss several competing factors that shape this system in adulthood. We also call attention to the tremendous potential this population offers for linguistic research, the language teaching profession, and for society in general.

**Acknowledgments**

## 1  Introduction

What do we know when we know a language? This question is at the heart of the debate about natural language. The usual answer is that we know a system of sounds (or gestures/signs) that are put together in a systematic fashion to make up meaningful linguistic units which in turn can be, to a large extent, manipulated and combined to form more complex linguistic units, such as phrases, sentences, and extended discourse. The main bone of contention has been about the nature of the system at work and whether the system at the core of our linguistic knowledge (i.e., what enables us to produce and comprehend linguistic stimuli) is specific to language or is a fundamental part of our general cognitive abilities. There is no question that within a speech community, the so-called normal native speakers (those with no linguistic deficits who have been exposed to their native language from childhood) share a linguistic system that enables them to communicate with each other, to process each other's linguistic input, and to transmit the system to the next generation. Moreover, when compared cross-linguistically, linguistic systems display shared properties in the structure of their phoneme inventories, types of prosodic units, phonological processes, morphology, word order, displacement of constituents, use of set expressions, etc. Linguistic research since the 1960's has centered on how that knowledge, or "linguistic competence", develops in native speakers, as well as on the properties of the presumably stable adult system (Chomsky 1959, 1965).

While native speaker competence is the main object of study in theoretical linguistics and developmental psycholinguistics, the precise characterizations of a native speaker and his/her linguistic knowledge remain elusive to this day (Davies 2003, Paikeday1985). Nonetheless, virtually everyone intuitively recognizes a native speaker

upon seeing or hearing one. To begin with, a prototypical (educated) native speaker has a "native" pronunciation and a sizable and comprehensive vocabulary. He or she speaks in grammatical sentences (except for the occasional slip of the tongue), does not omit or misplace morphemes, recognizes ambiguity and/or multiple interpretations and pragmatic implications of words and sentences, and is attuned to his or her sociolinguistic environment (social class, social context, gender, register, etc.). Such a native speaker is readily accepted by members of his/her speech community (which can be as wide as a language when you are the only other speaker of German stranded in Sri Lanka, or as narrow as the jargon of a particular high school). However wide or narrow the boundaries, the use of language to indicate "otherness" or "sameness" is a powerful social tool. This judgment would not be possible without an understanding of natural language design.

How does grammatical knowledge come about? The general idea is that humans are uniquely endowed with the ability for language. Researchers disagree on whether this ability represents a special language faculty or whether it is part of a more general cognitive pre-wiring that allows us to learn how to talk about things past, present, and future. Researchers also disagree as to how this ability came about—was it the result of a slow evolutionary process, or was it the result of an abrupt change, some kind of a linguistic "big bang"? (See Fitch 2010 for an illuminating discussion.) But whatever disagreements linguists may have about the source and the evolution of the capacity for language, they agree that language is unique to humans and that it is spectacularly displayed from birth in such a way that toddlers who cannot feed themselves are quite capable of commenting on the food they want or do not want.

Some components of linguistic systems are fairly robust and have structural underpinnings that are likely to be universal. Again, linguists differ in accounting for such universality. One school of thought, often associated with innateness, attributes this commonality to Universal Grammar, a limited set of pre-wired rules for organizing language that is cognitively available to every human at birth (Chomsky 1965, Pesetsky 1999, Pinker 1994, see also Cook & Newson 2007 for a helpful introduction). The other school of thought relates structural commonalities observed across languages to general principles of human communication or frequency of patterns in the input (Elman et al. 1996, Tomasello 2003, a.o.). Regardless of the explanatory mechanisms behind the similarities of natural language design, the similarities themselves are widely accepted by practicing linguists.

With regard to areas of variation, the idea within the innateness camp is that some types of variation are due to general principles (parameters) whose values are fixed through exposure to the relevant language. Thus, while environment and linguistic input do play a role in shaping the overall system, they do not fully determine it. According to the so-called poverty of stimulus problem (see fn. 16 below), there are many complex and subtle aspects of language that are underdetermined by the input and cannot possibly be learned on the basis of input frequency exclusively (see Crain & Thornton1998, Guasti 2002, O'Grady 1997 for relevant examples).

Regardless of the acquisition model assumed, one must ask how much and what quality of exposure to a language is necessary in order to acquire that language "natively". There seems to be a consensus that native speakers are different from non-native speakers with regard to their mastery of the linguistic system, with degrees of

fluency varying according to the age of initial exposure to the language. Speakers who have been exposed to their language since birth and have used the language continuously since that age seem to have a fully developed system for the production and processing of the phonological, morphological, syntactic and discourse patterns of their languages. In other words, native speakers attain, for lack of a better term, complete acquisition of their native language system, which provides them with the generative capacity to use and process their language in all its richness and complexity.

Adult non-native speakers, on the other hand, though they may display advanced fluency in the second language, tend to exhibit persistent signs of non-target acquisition, particularly in areas of phonology, inflectional morphology, and syntax-pragmatics. Further, signs of non-target acquisition may manifest themselves differently in a speaker's competence vs. performance. For example, non-native speakers may master wh-movement in English when asked to judge sentences in a grammaticality judgment task (White & Genesee 1996), but in spontaneous oral and written production they may still continue to display problems with subject-auxiliary inversion, such as failing to consistently invert the subject and the auxiliary verb in the matrix clause, or displaying a tendency to apply inversion in subordinate clauses with indirect questions, as in the example below:

(1)   Do you know when is my test going to be graded?

An interesting case study is discussed by Lardiere (2007). Patty, the subject of the case study, is a Chinese speaker who has been living in an English-immersion

environment for almost half of her adult life (more than 20 years). Patty exhibited native-like acquisition of English wh-movement constructions and relative clauses, yet produced overt past tense morphology in obligatory contexts with only 34.6% accuracy, a clear sign of fossilization (arrested development).

While many of the errors that second language learners make can be traced back to influence from their native language (otherwise known as L1 transfer), other errors are developmental and common to first and second language learners of different languages. In addition, second language learners also display degrees of convergence on the target grammar that appear to be related to age of first exposure to the second language and degree of language use (Hyltenstam & Abrahamsson 2003), as well as to the relation between the first and the second target language (Birdsong & Molis 2001). In general, post-pubescent second language learners rarely attain complete mastery of the target language, and this outcome sets them apart from native speakers who do attain complete mastery of their language.

A word of caution is in order here. There have been arguments that even native speakers may not attain full mastery of some constructions (Green & Morgan 2005; Dabrowska 1997; 2010). It is also assumed within recent work on exemplar-based approaches to language acquisition (Tomasello 2003, a.o.) that language acquisition is a continuous process (i.e., there may not be a critical period, though we are not sure that this is indeed the claim). The main point in this text is that regardless of whether the terms "complete" vs. "incomplete" acquisition accurately capture the dichotomy between the two types of speakers, the dichotomy exists.

Because a critical difference between the two groups has to do with age of acquisition and amount of exposure to the target language, age as a variable has been taken to determine significantly the extent of ultimate attainment, which is typically characterized as complete in a native speaker but as incomplete in a non-native, second-language speaker. Our goal in this paper is to further question the long-held linguistic assumption about the stability of the first language in adults. As we stressed earlier, several approaches within theoretical linguistics, psycholinguistics, developmental psycholinguistics, second language acquisition and bilingualism rest on the notion of complete and stable native speaker competence, acquired under conditions of continuous exposure and use of the language. Here, we investigate what happens when access to input and opportunities to use the native language are less than optimal during language development. In doing that, we also hope to show that linguistic theory has many reasons to pay attention to the population we introduce here: heritage speakers.

## 2   Heritage Speakers

There is a group of speakers whose linguistic capacity does not easily fit into the dichotomy between "complete" and "incomplete", and who have not received the same degree of attention in the theoretical linguistics literature until recently (Polinsky 1997, 2006, 2008a,b; Montrul 2002, 2004, 2008). In the context of the United States, heritage speakers are early bilingual speakers of ethnic minority languages who have differing degrees of command of their first or family language, ranging from mere receptive competence in the first language to balanced competence in the two languages. A typical profile of a heritage speaker is that of a child who was born outside the parents' home

country or left the home country before the age of eight. At least someone in the family

speaks with the child in the heritage language, but the child is more likely to speak

English or is more comfortable in English; this level of comfort in English increases as

s/he goes through middle and high school, often at the expense of the home language

(Cho et al. 2004).

The terms "heritage language" and "heritage speaker" are fairly new, and they are

still poorly understood outside of the USA, where similar concepts are denoted by the

phrases "minority language/speaker".[1] Although the terms are new, the phenomenon has

probably been with us as long as language contact has existed and migrations have

happened; heritage language development is a common outcome of bilingualism, with

one of the languages becoming much weaker than the other.

As this paper discusses different variants of language, it is important to introduce

some distinctions we will use below. First language (L1) and second language (L2) are

distinguished by the temporal order of acquisition. In case of simultaneous bilinguals, we

can speak of two L1s, although this is not uncontroversial; the critical point is that over

the lifetime of a bilingual, one of the two languages typically wins over and the other

becomes somewhat weaker depending on experience and degree of language use. An old

quote from Einar Haugen comes to mind: "native competence in more than one

language… is an ideal, theoretical model: few, if any, actually achieve this" (Haugen

1987: 14). The second distinction we need is that between the primary and the secondary

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[1] The term 'heritage speaker' originated in Canada (Cummins 2005). The phenomenon
dates back at least as far as the semi-speakers of Gaelic described by Dorian (1979), who
show many of the features we attribute to heritage speakers; earlier examples could
probably be found as well.

languages, which are differentiated by the prevalence of usage. Thus, if an individual learns language A as his/her first language and speaks it predominantly throughout the adult life, that language is both first and primary. If an individual dramatically reduces the use of his/her first language A and switches to using language B, then A is characterized as this person's first/secondary language, and B becomes the second/primary language.

Another important distinction concerns the socio-political status of the language. The majority language is typically the language spoken by an ethno-linguistically dominant group in a country or a region. It has a standard, prestigious, written variety used in government and the media, and it is the language imparted at school. Minority languages are the languages spoken by ethnolinguistic minority groups; they typically have no official status, they have lower prestige, they may not enjoy wider use beyond restricted contexts, and they are not typically taught in schools. Immigrant languages are minority languages; the societally dominant language (e.g., English in the United States) is the majority language.

The next distinction we will be using is that between full language, or a language one has acquired completely (with target-like ultimate attainment), and an incompletely acquired language, which presupposes that certain areas of competence are lacking, for reasons that we will examine below. Within the full language, there is a further distinction between the baseline language (the language that an individual is exposed to as a child) and the standard or norm, if one exists, for the language.

Let us now tie up all these distinctions together. A heritage speaker can be a sequential bilingual: someone who grew up hearing (and possibly speaking) their L1 but

who early on started using L2 as their primary language. A heritage speaker can also be a simultaneous bilingual who is *strongly* dominant in the majority language, the main language of the wider speech community.

The pathways to the weakening of one's language may vary in infinite ways, but what they all have in common is the transition from a first language that happens to be a minority language to a secondary language that is a majority language. This type of asymmetric bilingualism is not typically observed when the first language is a majority language and the second language is a minority language.

The best known and most widely used definition of heritage speakers under a narrow conception of the term is Valdés's (2000): "individuals raised in homes where a language other than English is spoken and who are to some degree bilingual in English and the heritage language." Although the original definition is English-centered, any other majority language can be substituted for English, cf. Rothman (2009). The crucial criterion is that the heritage language was first in the order of acquisition but was not completely acquired because of the individual's switch to another dominant language. The other critical component of this definition has to do with identifying continua of proficiencies, reflecting the tremendous variation in heritage language proficiency observed by several researchers (see Polinsky & Kagan 2007).[2]

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[2] Many heritage speakers narrowly defined also turn to their heritage language as a subject of re-learning. Carreira & Kagan (in press) show that such learners' top priorities include: learning about their cultural and linguistic roots, the ability to communicate better with family and friends in the United States., professional reasons, and purely pragmatic goals, such as fulfilling their college language requirement.

Like regular adult native speakers, heritage speakers are exposed to the heritage language early in childhood (within the critical/sensitive period) and that exposure, particularly in the home and among extended family, may be sustained for a number of years depending on the family and the availability of a speech community. However, heritage speakers are different from native speakers in important respects. First, in addition to the heritage language, these speakers are also exposed to the societally dominant language. While exposure to the dominant language may begin in the home, it is most prominent outside the home, and particularly in school. Thus, while full native speakers are exposed to their first language at home and then receive schooling in it, heritage language speakers do not typically have access to education in their family language. This asymmetry obviously raises the issue of the impact of schooling on later language development, as well as whether the encroachment of the dominant language on the heritage language can shape the nature of the adult grammar of the heritage language.

Furthermore, the exposure to the heritage language is usually different from the exposure to the dominant language. The heritage language may be confined to some specific contexts, typically the home and immediate community (if there is one), and therefore the language content may revolve around themes that are more associated with those contexts (e.g., family relations). By contrast, exposure to the dominant language in heritage speakers tends to be more contextually diverse, particularly when children start attending school and interacting in the dominant language to talk about different topics with different interlocutors (teachers, friends, etc.) and through different media (written texts, internet, popular culture, etc.).

However, it is an empirical question whether mastery of a particular linguistic construction or form should depend on the context of exposure or literacy. For example, *a priori* it should not matter in what context the learners/acquirers have been exposed to agreement, binding, and word order patterns. Whether we utter a full sentence at home or we write one at school, we have to use subject-verb agreement the same way. Presumably the same syntactic constraints would govern the form of these structures regardless of the context of exposure. Therefore, being exposed to the heritage language in the home on a sustained basis for a number of years early in life should enable the heritage language speaker to develop the basic ingredients for native-like competence. Yet, as mentioned earlier, optimal exposure in the heritage language is usually reduced and even interrupted at some point in early to late childhood, before the closure of the critical period at or before puberty. Certain aspects of grammatical competence, most notably inflectional morphology and complex syntax, are highly vulnerable to attrition and incomplete acquisition in this population (Anderson 1999, Benmamoun et al. 2008, Bolonyai 2007, Håkansson 1995, Montrul, Foote & Perpiñán 2008, O'Grady et al. 2001, Polinsky 2008a,b, Bar-Shalom & Zaretsky 2008).

Because heritage speakers vary tremendously in their range of proficiency in their heritage language, some can be quite non-native-like, displaying incomplete knowledge of several structural and pragmatic aspects of their language. In this respect, heritage speakers resemble adult second language learners, who, as we discussed, are often doomed to achieve incomplete mastery of the second language. It is therefore not coincidental that within language teaching circles, heritage speakers are very often placed in classes originally designed for second language learners. The understanding is that

they do not have full mastery of their heritage languages and can continue to learn it like

non-heritage adult second language learners. However, some universities in the United

States offer special tracks in their second language programs specifically geared for

heritage language learners in languages like Arabic, Chinese, Russian, Hindi or Spanish.

The assumption behind a special heritage language track is that this group of learners

usually comes into the classroom with some cultural or linguistic knowledge of the target

language, and therefore they can benefit from advanced and focused instruction that

would presumably accelerate their language (re-)learning process.[3] Some language

teachers, program directors and heritage language practitioners hold the belief that early

language experience brings an added advantage to heritage language learners wishing to

regain command of their native language in a formal environment.

Heritage speakers straddle the boundaries between first and second language

acquisition, which makes them extremely valuable in testing fundamental questions about

the nature of linguistic knowledge, the correlation between age of acquisition and

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[3] There are two other reasons behind this policy. The first reason is that teachers want to
avoid having students with uneven levels of competence in the target language, which is
the case when heritage learners are put together with non-heritage learners who may have
no prior exposure to the target language and its culture. The second reason is that there is
an increase in the push by educational institutions and the government (as evidenced by
the increase in federal funds dedicated to language training, the number of federally
funded National Language Resource Centers, and the increase in the number of teacher
training programs for college language instructors) to improve the second language
proficiency levels of second language learners, particularly for the so-called critical
languages such as Arabic, Chinese, Hindi/Urdu, Korean, etc. The heritage population
seems to provide the best pool of students who have the potential to attain high
proficiency in a relatively short period of time, or so the thinking goes.

linguistic competence, the nature and role of input that contribute or not to native-like

competence, and the interplay between the heritage language and the dominant language.

In other words, by studying this language group and comparing it to native speakers of

majority languages, L1-acquiring children, and adult second language learners, we can

begin to determine what it means to be a native speaker and what conditions are needed

to develop the competence that characterizes one.

### 3   Identifying heritage speakers: A response to variance

As we saw in the previous section, a heritage speaker may be someone born to an

immigrant family in the country of their dominant language (in our examples, the United

States) or someone who arrived in the United States as a young person, early enough to

learn English as a bilingual and not as a foreign language learner—the cut-off age for this

is assumed to be around age four or five (Schwartz 2004, Unsworth 2005, Cho et al.

2004). Thus, the identification of a heritage speaker is partially based on their

biographical information, although this may not always be a good predictor of their

proficiency (Polinsky 1997, 2006). This section will consider further indicators of

heritage speaker-hood.

Another common denominator shared by many (though not all) heritage speakers

has to do with a lack of literacy in the heritage language. Of course this is relevant only

for the subset of languages that have literacy and schooling traditions—a heritage speaker

of Seneca who was growing up on a reservation in the United States in the early twentieth

century had no recourse to literacy. But for heritage speakers of languages such as

Korean, Persian, Arabic, Russian, or Swahili, absent or insufficient schooling outside of

the metropole creates a much greater divide between them and their peers in Korea, Iran, Egypt, Russia, or Kenya, respectively. Moreover, for some languages, for example the colloquial dialects of Arabic, there is no significant written media, and the written language exists exclusively in a formal variety that is significantly different from the spoken varieties (Ferguson 1959, Benmamoun 2000). The effect of literacy has been the subject of intense scrutiny in recent literature, and the bottom line is unsurprising: exposure to literacy helps language development and, possibly, language retention (Cho & Krashen 2000, Oller & Eilers 2002; Bialystok et al. 2005; Kondo-Brown 2009; Delgado 2009, and references therein). Still, there are different ways of providing that exposure, and not all of them may be equally effective. However, just as with biographical data, data on literacy alone are not sufficient to identify heritage speakers.

One might expect that heritage speakers should be able to identify themselves as such, and so it would seem uncontroversial to rely on heritage speakers' self-assessment of their linguistic ability. However, self-reporting requires a substantial degree of linguistic and metalinguistic awareness, which may be greater in speakers who had advanced education in English. Moreover, a large number of people just mark themselves in the middle when they are not certain how to rate.

Heritage speakers capable of metalinguistic judgments often offer an intriguing case of what could be called "misjudgment": those speakers who are quite fluent in the heritage language often assess their own knowledge as low, whereas those who are in fact low-level think they are quite good. Below we present two charts showing a strong inverse correlation between a subject's self-assessment and their speech rate, which, as we will show, is a good linguistic indicator of proficiency. Russian and Korean subjects

were asked to rate their proficiency in their heritage language on a scale from 1 to 5, and

were then shown a short video clip that they had to talk about; based on the productions

about this video clip, we calculated their speech rates. Of course, it is difficult to draw

generalizations from a couple dozen heritage speakers, all of them college students.

Moreover, research on Spanish and Hindi heritage speakers shows the opposite

relationship: the heritage speakers' self-assessment correlates very well with an

independent measure of proficiency developed for these purposes (per cloze tests, which

we will discuss below; Montrul et al. 2010). Nevertheless, reverse metalinguistic

awareness may occur: the more a heritage speaker contemplates his/her L1, the more s/he

is aware of his/her strengths and deficiencies, while those speakers who are quite happy

with themselves may have not given enough thought to the issue of language proficiency.

If this is on the right track, it illuminates a new dimension to the overall notion of

metalinguistic awareness: it is generally assumed that bilinguals have a high degree of

such awareness (Galambos & Hakuta 1988; Campbell & Sais 1995, a.o.)[4] but it may well

be that the threshold of minimal exposure relevant for heritage speakers is not sufficient

for the development of linguistic introspection. The fact that different subgroups of

heritage speakers may differ with regard to their metalinguistic awareness is consistent

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[4] Many studies of metalinguistic awareness in bilinguals are based on observations of or
experimental work with children. We would like to underscore that adult heritage
speakers are linguistically different from children and such differences are not always in
adults' favor. The attrition or reanalysis of the language system that we have observed in
adult heritage speakers (see section 4 below)) may have a negative effect on their
metalinguistic awareness as well.

with the overall variance observed within this group of speakers and calls for further

investigation.
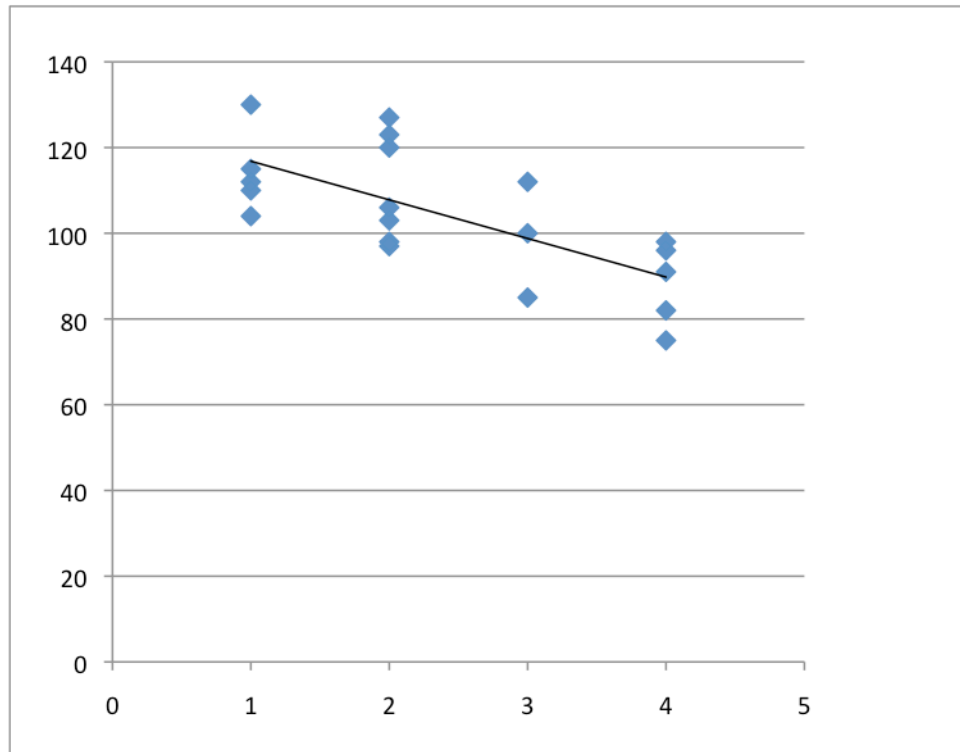


*Figure 1*. Correlations between self-assessment (1-5 scale) and speech rate

(word/min), Korean (20 subjects), r = -.695
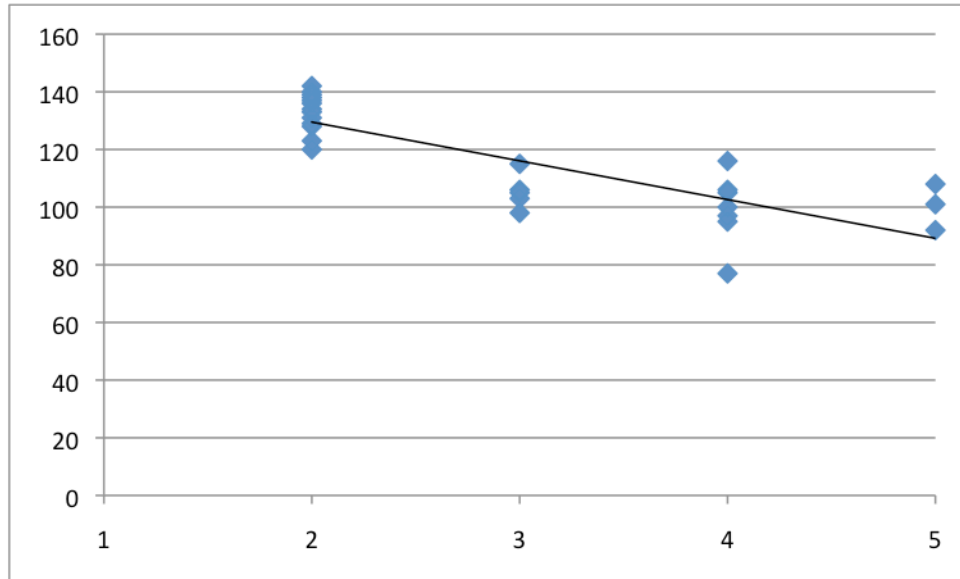
*Figure 2*. Correlations between self-assessment (1-5 scale) and speech rate (word/min), Russian (31 subjects), r = -.82

Assessment by native speakers is an area where heritage speakers are perhaps more easily identified. Anecdotally, most native speakers can identify that someone does not speak exactly like another native speaker in a very short amount of time, somewhere under a minute of hearing them speak. Given that heritage speakers are usually reasonably good at the language's phonology and have strong advantages in that domain (see below), it is critical to understand what cues the native speakers react to. So far, there have been few instrumental studies on the phonetics of heritage languages (we will review those below) and it is to be hoped that the development of such research will bring us closer to understanding what exactly constitutes a 'heritage accent'.

Recent research on heritage languages has focused on identifying purely linguistic diagnostics that would allow us to measure a heritage speaker's knowledge of their home

language, as well as their proximity to the baseline. Although the progress made in this area has been quite modest, several promising diagnostics have emerged.

Speakers of relatively high proficiency can be assessed by ways of well-established cloze tests (Taylor 1953). Different researchers have developed such tests for Spanish, Russian, Italian, German, Hindi, Romanian, and Polish. These tests can be relatively easily constructed, drawing upon similar tests used for the assessment of second language learners. It is often important to compare second language learners and heritage speakers, which again makes cloze tests a useful instrument. Cloze tests recommend themselves by many good properties: are easy to administer and rate, they provide a good platform for comparing groups of speakers and subject pools in different studies, and they seem to provide a good independent measure of proficiency. Some disadvantages have to be noted, though. First, heritage speakers of lower proficiency often have trouble with cloze tests, particularly those that include a reading/writing component (auditory cloze tests may be better in this situation). Second, it is not always clear what component of language competence cloze tests actually target; as a result, one would imaging using a battery of cloze tests, and setting a lower or upper limit on the number of tests becomes a contentious issue.

Another prominent diagnostic seems to be *speech rate*, which we have already brought up in conjunction with self-assessment (see Figures 1, 2 above). The relevance of speech rate on proficiency is attested by a study of gender restructuring in heritage Russian (Polinsky 2008b), which showed that heritage speakers fell into two distinct groups: those who maintained the baseline three-gender system of noun classification (with various adjustments), and those who radically reanalyzed the baseline system as a

two-gender system. Reanalysis of the baseline three-gender system as a two-gender

system was strongly correlated with a lower speech rate (Figure 3). The motivation

behind this correlation is rather straightforward. Lower proficiency speakers have more

difficulty in accessing lexical items, which slows down their speech. As we will show

below, knowledge of lexical items and grammatical knowledge are also correlated. Not

surprisingly, problems in lexical access are accompanied by difficulties in constructing

phrases and clauses; spontaneous speech is punctuated by pauses, repetitions, and false

starts. All of this has an immediate effect on the speech rate.
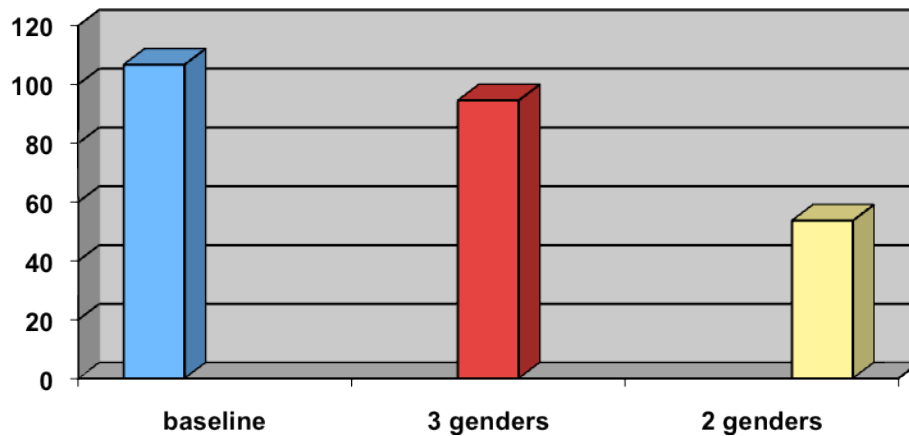


*Figure 3.* Rate of speech (words/min) in baseline controls, speakers who
maintained the three-gender system, and speakers who switched to a two-gender system
for Russian nouns (Polinsky 2008b)

Although correlations such the one as shown in Figure 3 need to be tested with

more grammatical phenomena and different heritage languages, they offer the promise of

relatively simple diagnostics of language proficiency which can be used both in the lab

and in the classroom.

Speech rate may be a promising method of classification, but it may be difficult to determine in the lowest-proficiency heritage speakers, who sometimes are reluctant to produce any language whatsoever. Another diagnostic of proficiency in heritage languages that may be even more powerful is lexical proficiency. Polinsky (1997, 2000, 2006) observed a strong correlation between a speaker's knowledge of lexical items, measured in terms of a basic word list (about two hundred items), and the speaker's control of grammatical phenomena such as agreement, case marking, aspectual and temporal marking, pro-drop, co-reference, and embedding, with grammatical knowledge measured by deviations from the baseline in spontaneous speech. This correlation was replicated in later studies with forced-choice judgments (Polinsky 2005). The correlation is supported by results from several heritage languages, including Russian, Polish, Armenian, Korean, and Lithuanian (see also Godson 2003).

The correlation between level of lexical and grammatical knowledge is not exclusive to heritage language competence; it has also been proposed as a measure of early child language competence (Bates et al. 1994; Thal et al. 1996, 1997; Fenson et al. 2000). If structural attrition and lexical proficiency are correlated, lexical proficiency scores, which are relatively easy to obtain, can serve as a basis for the characterization and ranking of incomplete learners on a continuum (rather than in a discrete group). While the studies mentioned here used an extensive 200-word list, the emerging trend has been to also use standardized tests meant for the assessment of language development, such as the Peabody Picture Vocabulary Test (PPVT), widely employed in the speech and hearing sciences. A more recent and welcome development is the HALA (Hawaii Assessment of Language) test developed by William O'Grady and his collaborators. The

HALA is based on picture naming, thus avoiding the interference of the dominant language; it also taps into lexical and grammatical proficiency (O'Grady 2009).

Another good diagnostic of heritage language proficiency relates to the manner and length of exposure to the baseline. These two characteristics seem interrelated in ways which may not be fully understood yet. With respect to the manner of exposure, it is natural to expect that speakers who grew up surrounded by the baseline language in the metropole, broadly construed, should differ somehow from those who grew up in an immigrant community in the U.S. or any other country where a different language is dominant. The exposure to the language in the metropole is inevitably greater than that in immigrant communities where bilingualism is prevalent, so one would expect a heritage speaker who spent her first five years of life in Korea to have an advantage over an American-born Korean heritage speaker. Au & Oh (2005) found that speaking the majority language before age five seems to put linguistic minority children at a small, but measurable, risk for poorer heritage language skills during adolescence. Likewise, the length of exposure to the baseline should also matter, because the longer the exposure to the baseline, the greater the baseline input to the heritage speaker, cf. Montrul (2002).

Preliminary results show that the effects of context/modality and length of exposure are not easily separable. The only group that seems to have a distinct language advantage is heritage speakers who grew up in the metropole and had exposure to the baseline language at least until the end of the critical period. All other groups are more or less indistinguishable; crucially, exposure to schooling in the heritage language after immigration does not seem to have any serious effect on their proficiency, as shown by

preliminary studies of Korean Sunday schools (Kwon & Polinsky 2005; Lee 2008) and

Chinese Sunday schools (Wang 1996, Xiao 2006, Weger-Guntharp 2006).

Like any other normally developing child, heritage language speakers were

exposed to their heritage language early in life and received input during the critical

period. If the inability to reach native-like attainment by second language learners is

related to late onset of acquisition (usually at or after puberty), clearly heritage speakers

do not have that problem because they presumably received exposure to their native

language since birth. However, as we have seen so far, early language experience is a

necessary but not a sufficient condition for complete language acquisition in heritage

speakers. Amount and quality of exposure during the critical period matter as well.

As in second language acquisition, age effects are also relevant in heritage

language acquisition. While the younger the age at which second language acquisition

begins the more native-like the outcome is likely to be in adults, Montrul (2008) argues

that a different situation obtains in heritage language acquisition: the younger the

exposure to the majority language and reduction of exposure to the minority language the

greater the degree of partial attainment of the minority language by heritage speakers.

This tendency is reflected in the results of Montrul's (2002) study on knowledge of tense

and aspect in Spanish. Those heritage speakers who were exposed to both Spanish and

English since birth were less accurate with the interpretations of preterite and imperfect

tenses in Spanish than those heritage speakers who were exposed to Spanish exclusively

during the pre-school period and began learning English later, in elementary school. In

turn, these two groups were also less target-like than the group of heritage speakers who

moved to the United States between the ages of 8-12. And studies of internationally

adopted children, another special subgroup of heritage speakers, show that the earlier the age of adoption and complete interruption of input in the native language, the more abrupt and severe the loss of the first language (Montrul 2008).

Finally, we would like to turn to grammaticality judgments. Their role in indentifying a particular speaker as "heritage" and in placing such a speaker on a continuum of proficiency that would faithfully reflect the significant variability in heritage populations has been disputed. On the one hand, grammaticality judgments are a well-established tool of linguistic research: linguists have long relied on the comparison of acceptability between two or more minimally different language forms (Chomsky 1965; Schutze 1996; Marantz 2005; Sprouse & Almeida 2010). Theoretical linguists make the choice themselves, via introspection, or ask a small group of like-minded linguists. Experimentally inclined researchers increase the size of their subject pool, do not ask themselves, and try to exclude contentious linguists. A possible shortcoming of the experimental approach is that most subjects are typically undergraduates who have been trained to take various tests and make choices, and thus their responses might be colored by this training. Critics of the introspective, or small-scale approach counter that the population linguists test is not representative of the general users of language (Dabrowska 2010), the empirical evidence is shaky, and the method itself is fraught with multiple errors (see Sprouse & Almeida 2010 for an overview).

Whether one is wildly opposed to grammaticality judgments or favors their use whole-heartedly, it is thought that they work well with linguists, graduate students or trained undergraduates. The critical word here is 'trained': all these groups have been trained to think about the way they speak. Often, heritage speakers are also drawn from

student ranks, but their metalinguistic awareness of the home language or their

confidence in their knowledge do not match their English skills. This creates a significant

complication in trying to elicit grammaticality judgments from these speakers. When

asked to give such judgments, heritage speakers often refuse to do so, or choose both

forms, or simply admit that they do not know what to choose (cf. Polinsky 2006;

Polinsky & Kagan 2007). This does not mean that this method is completely useless with

heritage populations—some researchers have been able to use it to draw interesting

insights (Montrul et al. 2010, Brehmer & Czachor 2010, a.o.). However, if

grammaticality judgments are used, it is helpful to keep in mind the limitations and

inhibitions that heritage speakers may have: lack of exposure, lack of language use, and

linguistic insecurity. All these factors affect their performance on the judgment task and

often make them into extremely reluctant language consultants: they are asked to judge a

language they do not have full ownership of.


## 4   Heritage grammatical system at a glance

*4.1. Phonology/Phonetics*

Although it is traditionally assumed that heritage speakers sound completely

native-like, this assumption does not withstand scrutiny. Several studies of late and early

bilinguals show that native speakers are sometimes judged as non-native after a

prolonged emigration (Major 1992; Schmid 2002; de Leeuw et al. 2010; Hopp & Schmid

submitted). Thus, non-native accent—a heritage accent?—may develop due to low use of

a heritage language and prolonged lack of exposure. This in turn means that native-like

performance is not guaranteed by the acquisition of language from birth: just as in other

areas of language structure, the degree of use and the amount of exposure seem to play a role.

Au et al. (2002), Oh et al. (2003), and Knigthly et al. (2003) showed that very low proficiency Spanish and Korean heritage speakers have pronounced non-native accents in general, suggesting that pronunciation is affected in heritage speakers to some extent. Oh et al. (2003) showed that this was true for phoneme production (VOTs) only for speakers who had limited productive ability in Korean, but not for perception. In Spanish, there was no difference in VOTs of voiceless stops in low proficiency heritage speakers as compared to native speakers (Au et al. 2002).

Studies by Khattab (2002) and Saadah (2010) show that children of Lebanese and Palestinian descents are able to acquire the VOT patterns of their heritage Arabic varieties, though Lebanese heritage speakers' VOT patterns displayed properties that could be attributed to the dominant Yorkshire variety of English that they speak.

In a study documenting phonetic changes in vowel production in Western Armenian heritage speakers in the United States, Godson (2004) found that the heritage speakers retained the 5-vowel system of Western Armenian in production. However, the two front vowels /i/ and /ɛ/ and the central vowel /a/ were not the same as for Western Armenian native speakers. The values for these vowels were closer to English values than those of /o/ and /u/. Therefore, while heritage speakers retain their native phonology, the phonetic values of both vowels and consonants are affected, thus contributing to a 'heritage' accent. Another striking feature of heritage speakers examined by Godson has to do with the leveling of dialectal differences as compared to the baseline. Western Armenian is a language of the Armenian diaspora, associated with a variety of dialects

dispersed in the Middle East. As compared to the baseline, heritage speakers of Western

Armenian all sound much more alike, an informal observation that Godson was able to

support by quantitative measures. To date, the pronunciation of heritage speakers remains

an understudied area, but the few available studies suggest that there are measurable

systematic differences between fluent native speakers and heritage speakers worth

investigating in future research, especially to address theoretical debates on the role of

early input for phonological abilities in bilinguals.

*4.2. Lexical categories*

Since vocabulary knowledge depends of frequency and exposure, it can also be

highly affected in heritage language grammars. As mentioned above, Polinsky (1997,

2006) reports a correlation between lexical knowledge and extent of morphosyntactic

attrition in heritage speakers of Russian. Hulsen (2000) looked at lexical access in

production and comprehension in Dutch heritage speakers in Australia. In particular, she

investigated lexical retrieval of nouns in a picture-naming and a picture-matching task.

Second generation Dutch speakers differed significantly in both speed and accuracy of

lexical retrieval from both first generation speakers and a control group of Dutch

speakers in the Netherlands. Third generation speakers managed to perform the picture-

matching task (comprehension) but were unable to perform the picture-naming task

(production). Cognate status of words and frequency played a role in the speed of lexical

retrieval and access.

Every so often some linguists find examples of languages that seem to have no

noun-verb distinction (see Broschart 1997, Gil 2000 for some recent examples) and other

linguists refute their conjectures, essentially by saying that in certain languages the noun-

verb distinction may be less evident (cf. Lander & Testelets 2006; Arkadiev et al. 2009).

The noun-verb distinction seems to be one of the tenets of Universal Grammar, assumed

to be available in order to posit a difference between nouns and verbs whenever presented

with linguistic data.[5] Examining heritage speakers' knowledge of these basic lexical

categories is important because it can provide additional evidence in support of the noun-

verb distinction, or help refute the distinction as less fundamental than many researchers

think.

Simple lexical decision studies involving heritage speakers seem to give new

evidence to the idea that the noun-verb distinction is not going away any time soon.

Polinsky (2005) and Lee et al. (in preparation) have shown that heritage speakers of

Russian and Korean show a higher accuracy and response rate with verbs than with

nouns. With a Russian auditory task, Polinsky (2005) did not find a lexical class effect in

the baseline controls—possibly because they were at ceiling in the behavioral study. In a

similar task in Korean, there was a verb facilitation effect for native speakers as well as

heritage speakers.

However, Montrul (2009a) observed the opposite for Spanish: heritage speakers

were faster on nouns and slower and less accurate on verbs. This difference may be

symptomatic of a larger difference across heritage languages, but it may also have some

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[5] Although the generalization is clear, the ultimate motivation for the noun-verb

distinction remains elusive. The fundamental noun-verb difference may be due to the

distinct cognitive processes of referring and labeling (nouns) and of predicating, i.e.,

attributing properties to things, which is what verbs are for (Chomsky 1980, Williams

1980; Stowell 1995; Bowers 1993; Baker 2003; Hornstein 2009).

low-level explanations: Montrul's subjects had generally higher proficiency than the

subjects in the Russian or Korean studies.[6]

The three studies cited here show that the basic noun-verb distinction seems to

hold even in incomplete grammars. More importantly, we would like to underscore that

this is just one of many instances where an investigation of heritage grammars may yield

results that are of value to the field of linguistics and that can be helpful in theory

construction. In the next section, we will review other findings that are theoretically

significant and some that raise new challenges to the existing theories of grammar.

*4.3. Morphology*

The sub-module of language that is generally most affected in heritage speakers is

inflectional morphology in languages that exhibit rich morphological systems and regular

and irregular paradigms; as Bar-Shalom & Zaretsky point out, the "[l]oss of language-

specific morphosyntactic structures… is a hallmark of a 'heritage language'" (2008: 281).

In languages, such as Arabic, with root and pattern morphology (McCarthy 1979) other

issues arise that concern the knowledge of the notion of root and the mapping

mechanisms for linking the root and the vocal melody to the template. In research in

progress by Benmamoun, Albirini, Saadah and Montrul on these specific aspects of

morphology, preliminary results uncovered problems with the notion of root (particularly

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[6] If proficiency is indeed the deciding factor here this serves to underscore the methodological point that experimental work on heritage speakers should pay close attention to the tremendous variance among heritage populations; studies of heritage speakers should therefore identify their level based on sociolinguistic, demographic, and linguistic factors (see section 3 for more discussion).

roots that contain glides and geminate consonants). In addition, heritage speakers, as opposed to the native controls and second language learners, deploy the feminine suffixal plural as the default pattern, a finding that Ravid & Farah (1999) reported for child language.

Numerous studies have documented the fragility of nominal and verbal inflectional morphology in several heritage languages. In the nominal domain, heritage speakers exhibit errors with gender agreement in Russian, Spanish and Swedish (Håkansson 1995, Montrul, Foote & Perpiñán 2008a, Polinsky 2008a,c, Gupol 2009, Laleko 2010), definiteness agreement in Swedish and Hungarian (Håkansson 1995, Bolonyai 2007), and case marking in Russian, Korean, and Polish (Polinsky 1997, 2006, 2008b, Song et al. 1997, Laskowski 2009). Similar patterns of erosion are attested in the verbal domain, including agreement in Russian (Polinsky 1997, 2006), lexical aspect in Russian (Pereltsvaig 2005; Polinsky 1997, 2006, 2008a,c, Gupol 2009, Laleko 2010), grammatical aspect in Spanish and Hungarian (Montrul 2002, Fenyvesi 2000, de Groot 2005), mood in Spanish, Russian, and Hungarian (Lynch 1999, Montrul 2007, Silva-Corvalán 1994, Polinsky 1997, 2006, Fenyvesi 2000), and inflected infinitives in Brazilian Portuguese (Rothman 2007).[7]

Morphological deficits in heritage languages are asymmetric; they are more pronounced and pervasive in nominal morphology as compared to verbal morphology (see Bolonyai 2007 for the same observation), and within verbal morphology, they seem to target a subset of categories. To illustrate the nominal-verbal morphological

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[7] While most of these studies have reported error rates varying from 5% to 70% in oral production, a growing number of studies suggest similar problems with the comprehension of morphology.

asymmetries, Hindi heritage speakers make case-marking errors in the range of 23-27%, while their verbal agreement errors are well under 7% (Montrul et al. 2010). Low-proficiency heritage speakers of Russian have an error rate of about 40% in their nominal morphology, and fewer than 20% in their verb agreement morphology. Observations on production in heritage Hungarian (Fenyvesi 2000, de Groot 2005), including the Hungarian of English-dominant bilingual children (Bolonyai 2007) also point to significant attrition of nominal morphology (omission of case affixes and the possessive suffix; overextension of definite forms), and well-preserved verbal morphology, including agreement marking on the verbs. Within verbal agreement, the forms that are slightly affected are those with object agreement (Bolonyai 2007; Fenyvesi 2000). Nevertheless, aspectual and preverbal marking seem to be problematic in heritage Hungarian. In Korean, a survey of 1,000 written sentences produced by heritage learners in college classes showed an error rate of about 25% in the use of the nominative and accusative markers on nouns (omission, replacement by the topic marker, use of the wrong form) and only about 5% in verbal morphology, mainly in the use of the interrogative, imperative, and medial forms (Polinsky et al., in prep.). Albinri et al. (in press) report that Egyptian and Palestinian speakers display native-like command of subject-verb agreement (respectively at 93% and 97% accuracy rates); heritage Hindi shows similarly high maintenance of agreement (Montrul et al. 2010).

Within the verbal morphological complex, there seems to be a further asymmetry among categorical features. Thus, tense marking is unaffected and there are no reports of tense errors in heritage grammars; some researchers specifically state that tense is robust in these grammars (Fenyvesi 2000). In addition to agreement marking, which is generally

affected, heritage speakers make errors in aspectual morphology (Montrul 2002, in press, Polinsky 2006, 2008c, de Groot 2005), as well as the morphology associated with higher functional layers in the syntax, namely, mood, polarity, and possibly negation. However, one significant finding by Albirini et al. (in press) concerns the tendency of heritage speakers to use a participial form instead of an inflected verbal form. Participial forms do inflect for gender and number in Arabic, so it is not clear that knowledge of the inflectional system is the reason for their use, but rather it could be linked to problems isolating the appropriate inflectional paradigm to go with the tense of the sentence.

The data amassed so far are in need of further verification, both for the heritage languages that have been studied and those that are still awaiting research. The emerging asymmetries are intriguing and call for an explanation. A possible explanation for the asymmetry between the nominal and verbal morphology may have to do with differences in the nature of these two morphologies. Some researchers have argued that nominal morphology is post- or extra-syntactic, whereas verbal morphology is directly reflexive of syntactic structure (cf. Bobaljik & Branigan 2006, Bobaljik 2008). If so, it is possible that heritage speakers retain the syntactic ability to form predication relations and recursive structures (the essential properties of Narrow Syntax) but have a reduced capacity for post-syntactic operations, which would account for the asymmetries.

## 4.4. Syntax

Syntactic knowledge appears to be more resilient to incomplete acquisition under reduced input conditions than inflectional morphology. There is a tendency of heritage language grammars to keep the basic, perhaps universal, core structure of language, while

aspects of syntax that involve recursion and higher projections of the CP layer (i.e.,

complex syntax) appear to be much less productive and developed in these speakers. In

the word order domain, Håkansson (1995) shows that Swedish heritage speakers have

native-speaker control of the V2 phenomenon, including native command of structural

(or stylistic) variability with verb placement. Montrul (2005) reports that even low

proficiency Spanish heritage speakers know the syntactic constraints on unaccusativity in

their language. Further, the overt pronominal system seems to be quite resilient to

incomplete acquisition (Polinsky 1997). Montrul, Foote & Perpiñán (2008b) investigated

knowledge of wh-movement, subject verb inversion and *that*-trace effects (illustrated in

(2)) in Spanish heritage speakers. They found that although there were significant

differences between the native and heritage speakers with object and subject extractions,

the heritage speakers were quite accurate with subject-verb inversion and extraction over

a complementizer (*that*-trace effect), even though Spanish and English differ in this

regard. It is possible to extract a subject from an embedded clause in Spanish when there

is a trace in subject position (2a), while English does not allow a wh-trace in subject

position to follow an overt complementizer (2b):


(2)     a. ¿Quién dijo Ana <u>que</u> rompió la taza?

        b. *Who did Ana say <u>that</u> broke the cup?


    Turning to less robust areas of heritage grammars, null pronominals seem to be

significantly affected: heritage languages whose baseline is *pro*-drop are reported to lose

the *pro*-drop feature or to use it in a more limited manner—for example, Hungarian (de

Grot 2005), Hindi (Mahajan 2009), Korean (Choi 2003), Tamil and Kabardian (Polinsky 1997), Spanish (Silva-Corvalán 1994, Montrul 2004), Polish (Dubisz 1997, 2001; Brehmer & Czachor 2010), Arabic (Albirnini et al. in press).[8] Sorace finds a more restricted use of null pronominals in émigré languages (Sorace 2004, Sorace & Serratrice 2009) and attributes this to the attrition of phenomena that lie at the syntax-discourse interface. If this explanation is on the right track, it behooves us to understand what is so unique about null pronominals that they seem to be the only affected area of an interface. One would naturally want to ask what types of interface phenomena are prone to change under contact. Additionally, is only the conceptual/intentional interface affected by attrition? What about the sensory/motor interface?

A simpler, alternative explanation for the loss of *pro*-drop may stem from the observation, which we will expand on below, that heritage speakers have a general difficulty in establishing syntactic dependencies, especially when the dependency is at a distance. A null pronominal is always an element that has to be licensed and identified (Rizzi 1986), thus the licensing and co-indexation with a DP at a distance causes a significant problem in heritage grammars.

Difficulties in creating and maintaining a dependency also arise with respect to binding, which accounts for the difficulties in the interpretations of anaphors in heritage speakers. The difficulty may vary across heritage languages or across proficiency levels, or both; Kim et al. (2009, 2010) show that heritage speakers still retain robust control of the syntactic properties that license local and long distance anaphors in their language.

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[8] Spanish heritage speakers have been reported to control the syntactic properties that license null subjects in these languages (Silva-Corvalán 1994, Montrul 2004).

Polinsky (2006) finds that heritage speakers of Russian often produce the correct anaphors but have significant problems interpreting binding domains. In terms of cross-linguistic differences, note that the Korean anaphor *caki* has distinct logophoric properties, which may help its interpretation, whereas the Russian anaphor *sebja* is clause-bound—these parametric differences may explain the difference in the results. It is hard to draw conclusions on the basis of just two heritage languages; thus, binding, just as many other areas of grammar, is in need of more empirical data.

As we suggested above, heritage speakers seem to have a particular difficulty in establishing dependencies between items, especially if these dependencies are at a distance. As a result, long-distance dependencies such as extraction (relativization, wh-questions) and argument displacement (passives) are vulnerable domains in heritage language grammars. We will first present some research on these areas and then briefly discuss why these dependencies may be difficult for heritage speakers.

Very little is known about the ability of heritage speakers to deal with A-movement and A-bar phenomena. With respect to A-movement, Polinsky (2009) compared English-dominant heritage speakers of Russian to age-matched monolingual Russian controls in a sentence-picture matching task. Subjects matched pictures to active/passive constructions, with verb-initial and verb-medial orders in Russian:

(3)　　a.　morjak　　　spas　　　pirat-a　　　　　　　　　(Active SVO)

　　　　　　　sailor.NOM　saved　　pirate-ACC

　　　　b.　spas　　　　pirat-a　　　morjak　　　　　　　　(Active VOS)

  c. spas  morjak  pirat-a     (Active VSO)

  'The sailor saved the pirate.'

(4)  a. pirat  spas-en  morjak-om  (Passive SVO)

    pirate.NOM saved-PASS  sailor-INSTR

  b. spasen  morjak-om pirat    (Passive VOS)

  c. spasen  pirat morjak-om   (Passive VSO)

  'The pirate is saved by the sailor.'

The results show that heritage speakers have serious problems when the word order is different from SVO, regardless of voice, and also have problems with the passive. At first glance, these results seem parallel to the results obtained for child language and aphasics. There is an extensive literature documenting the challenges of passives in children's comprehension in English (Clark 2003; O'Grady 1997) and in other languages (Demuth & Kline 2006; Pierce, 1992; Sano et al. 2001; Slobin 1997). Language acquisition accounts that follow the structural theories of adult language processing, i.e., that passives and scrambled sentences are derived via movement, explain children's difficulties with these constructions as resulting from their inability to form and maintain syntactic chains (A-chain maturation hypothesis by Borer & Wexler, 1987, 1992) or to transmit theta-roles (Fox & Grodzinsky 1998). Constraint-satisfaction accounts ascribe children's difficulties with passives to the relative rarity of this construction in child-directed speech, the lack of appropriate discourse context (Otsu 1992), and, recently, to a failure to pay attention to grammatical case markers (Murasagi & Kawamura 2004). Aphasia patients are another population where A-dependencies are difficult (Drai &

Grodzinsky 2006). The explanation for aphasic deficits has been linked to the lack of certain functional projections (Friedmann 2006).

Word order alternations represent another area where heritage speakers display some vulnerability. Albirini et al. (in press) report data from Egyptian heritage speakers where the SVO order is predominant, though the language allows for VSO as an alternative option. The prevalence of the SVO order could be due to transfer from English, but it could also be due to the complex syntax of the VSO order. The latter order has been argued to involve movement of the verb past the subject to a higher position within the sentence (Fassi Fehri 1993, Shlonsky 1997, Benmamoun 2000, Aoun et al. 2010), in which case difficulty with the VSO order may reflect problems with establishing dependencies between the various verbal positions along the path of verb movement.

However, when tested in their dominant language, heritage speakers do not show any problems with a similar task, which means that they certainly have A-chains in their dominant language. This in turn casts doubt on the purely syntactic explanation for their problems with passive constructions or raising. If heritage speakers have access to the relevant functional projection, then their dismal performance on passives may stem from the same processing strategies that have been identified in child language speakers: failure to pay attention to the relevant inflectional morphology (cf. Murasugi & Kawamura 2004 for L1) and subsequent shallow processing which relies on some kind of a canonical sentence strategy ('Interpret the first NP as agent and the second NP as patient'), cf. Hayashibe 1975; O'Grady 1997 for first language acquisition.

Heritage speakers also show difficulties in the comprehension of relative clauses (see O'Grady & Lee 2007 for Korean, Polinsky 2010 for Russian), and especially object relatives. Again, one could account for that deficit without relying on the hard to maintain notion that heritage speakers lack relevant syntactic operations; instead, the problems with relative clauses may follow from the neglect of morphology.

Case marking seems a particularly vulnerable area in heritage languages; however, it is unclear whether the problem lies with the syntactic mechanism of case licensing or with morphological, arguably post-syntactic (Bobaljik 2008) case marking; we will return to this issue in the next section. A similar dilemma, syntax or morphology, applies to agreement, which we will also consider below.

*4.5. Semantics*

While most of the existing work on heritage language grammars has centered on the areas of morphology and syntax, there is emerging an indication that certain aspects of semantics are also highly affected in these grammars. One such area is semantically-based or inherent case. Polinsky (1997, 2006) mentions the Russian genitive of negation, which is learned late in first language acquisition and is quite infrequent in general. However, similar erosion has been documented in Spanish (Montrul 2004, Montrul & Bowles 2009, 2010). Spanish does not have the genitive of negation, but it has differential object marking (DOM) with animate specific direct objects and dative subjects with psychological predicates, both instances of inherent case according to recent analyses. Spanish heritage speakers tend to omit these case markers, which happen to be the preposition *a* in both cases. Interestingly, the preposition *a*, which is also the dative marker in prototypical dative constructions, is not omitted with indirect objects.

This suggests that inherent case marking may be more affected than structural case marking.

Another problematic area of emerging interest is the semantics of articles. Montrul & Ionin (2010, in press) have found that Spanish heritage speakers have a strong tendency to use bare nouns with generic reference in subject position (which are ungrammatical in Spanish but grammatical in English), and tend to interpret definite articles in Spanish as specific in generic contexts. Interestingly, these studies show no problems with the semantics of articles in inalienable possession constructions (*Pedro levantó la mano* 'Peter raised his hand'), an intriguing result.

Fine-grained semantic contrasts such as definiteness, quantification and genericity are known to be difficult to first language learners, so it is not too much of a stretch to expect that they would also be difficult for heritage speakers, especially if their dominant language deals with these phenomena differently. An interesting case in point has to do with the generic vs. specific interpretation of nouns appearing with articles or without articles (bare nouns). It is well known that Germanic languages allow bare plurals in generic contexts (*Dogs have tails*), whereas in Romance such bare plurals are generally impossible (*Les chiens ont des queues/\*Chiens ont…*). Some comparisons of bilinguals who combine these two languages have already started (Serratrice et al. 2009; Montrul & Ionin 2010, in press; Kupisch & Pierantozzi 2010; Barton in prep.) but the results are not always conclusive. However, there seems to be a trend towards the over-acceptance of bare plurals in inappropriate contexts, which suggests that simple overt markedness may be implicated.

*4.6. Code-switching*

Code switching consists of the combination of two languages (or language varieties) in one clause or one discourse segment. The aspect of code-switching that has received a great deal of attention involves the embedding of one language within the syntactic frame of another language (Myers-Scotton 1993). However, to use a language as a matrix frame requires knowledge of its syntax (word order, dependency and selectional restrictions, etc.). Thus, code-switching can be an invaluable tool to gauge the knowledge that heritage speakers have of their heritage language. Code-switching data discussed in Albirini et al. (in press) show that heritage speakers use their heritage Arabic varieties (in this instance Egyptian or Palestinian) as matrix languages with English as the embedded language. Functional elements such as determiners, quantifiers and inflectional affixes are from the heritage Arabic variety. Consider the sentence below from a Palestinian heritage speaker:

(5)     kint      ħabba    ʔasaaʕed    es *students*    fi  el *homework* taaʕhum

        was.1SG  liking    help.1SG    the              in the           of theirs

              'I liked to help the students in their homework.'

The word order is clearly Arabic, with correct categorical selection. For example, the auxiliary verb *kint* is followed by a participial form of the root (*hbb*) which is in turn followed by an inflected form of the root (*sʕd*). The English word *homework* is followed by the possessive particle *taaʕ* which takes a genitive clitic that agrees with the English word *students*. Thus agreement is also consistent with Arabic grammar. Also, notice that

the definite articles for *students* and *homework* are *es* and *el* respectively, which is exactly what one would expect in Arabic where the form of the definite article varies according to the initial consonant of the root; if it is a coronal consonant such as *s* the definite articles is realized as a geminate of that consonant; otherwise it is realized as *l*. We therefore see the English borrowings conforming to the syntax and phonology of the heritage language, i.e., the heritage language is used as the matrix language.

The tentative conclusion is that such code-switching shows significant mastery of the syntax of the heritage language. Whether or not code-switching allows us to distinguish heritage speakers from second language speakers is just another open question; we believe that it deserves further investigation (see also section 7).

To conclude this section, we see that, under reduced input conditions, heritage speakers seem to develop core aspects of their family language, but their grammatical systems show a marked tendency toward phonological neutralization, lexical restriction, simplification and over-regularization of complex morphological patterns and restricted word order. It is also possible that many of these effects could also be triggered by transfer from English, the dominant language in most of the empirical studies conducted to date. After all, English has strict SVO order and does not have overt case markers, null subjects, subjunctive morphology, complex plural morphology, gender, or different types of reflexive pronouns. Ideally, studies of the same heritage language with different contact languages should be undertaken to investigate the extent to which transfer from the dominant language influences the degree of divergence and simplification found in

heritage language grammars.[9] However, there are other factors affecting heritage languages that may not be related to the dominant language at all, as we discuss next.

## 5  What determines the shape of heritage grammars?

In the previous section, we presented a catalog of problems, both in comprehension and production that have been observed in heritage languages. Because heritage language research is a very new field, it is inevitable that descriptive generalizations are sketchy and much more empirical work on individual heritage languages and across these languages is needed.

It is hard to draw significant conclusions based on sparse data, but at the risk of sounding presumptuous or precipitous we would still like to consider possible factors that play a role in the shaping of heritage grammars. Three factors we consider are incomplete acquisition, attrition, and transfer from the dominant language. We will examine each of them in turn.

### 5.1. Incomplete acquisition

We mentioned earlier that a typical heritage speaker displaying many of the linguistic characteristics described above is a second generation immigrant: a child born in the host country to immigrant parents or a child who immigrated before the age of 8 years old with their parents, depending on the immigrant group. Crucially, heritage speakers are early bilinguals who learned the second (majority) language in childhood,

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[9] Such comparative studies are in their infancy, but there is already some work on the same heritage (minority) language in contact with different dominant languages, for example, Hungarian (Fenyvesi 2005) or Polish (Drubisz 2001).

either simultaneously with the heritage language, or after a short period of predominant

exposure to and use of the minority language at home. A common pattern in

simultaneous bilinguals is that as the child begins socialization in the majority language,

the amount of input and use in the minority language is reduced. Consequently, the

child's competence in the heritage language begins to lag behind, such that the heritage

language becomes, structurally and functionally, the weaker language. Developmental

delays that start in childhood never eventually catch up, and as the heritage child

becomes an adult the eventual adult grammar does not show ultimate attainment. Even

though complete acquisition is the most natural outcome of monolingual acquisition in

childhood, the same is not necessarily true in bilingual acquisition, where one of the

languages may lag behind in development and end up incompletely acquired. The

clearest indication of incomplete acquisition is when a given language feature causes

problems equally to adult heritage speakers and to child learners at the age of 5 and up

(as this is the age when transfer to the dominant language is most commonly found).

　　　　Montrul (2008) defines an individual's grammar as incomplete when it fails to

reach age-appropriate linguistic levels of proficiency as compared with the grammar of

monolingual or fluent bilingual speakers of the same age, cognitive development, and

social group. A clear example is the acquisition of the subjunctive in Spanish. Blake

(1983) tested monolingual children in Mexico between the ages of 4 and 12 on their use

of the subjunctive in different clauses. He found that between the ages of 5 and 8,

knowledge and use of the subjunctive in these children was in fluctuation: children did

not show categorical knowledge of Spanish subjunctive until after age 10. Heritage

speakers who receive less input at an earlier age and no schooling in the language never

fully acquire all the uses and semantic nuances of the subjunctive in Spanish, as reported in many studies (Martínez Mira 2009, Montrul 2007, Potowski et al. 2009, Silva-Corvalán 1994). Silva-Corvalán (2003) presents a longitudinal study documenting incomplete acquisition of the subjunctive and other verbal forms in bilingual children.

Another example of incomplete acquisition can be found in gender assignment in Russian. Russian has three genders, and gender assignment is tightly linked to declensional class (Corbett 1991: Ch. 3; Zaliznjak 1968). For some nouns, gender assignment easily follows from their declension forms, but for others it is more opaque. A subset of Russian inanimate nouns, those ending in a palatalized consonant ($C^j/C´$) in the nominative singular, are particularly challenging; some of these nouns are masculine (*put´* 'way, path', *meč´* 'sword', *ogon´* 'fire', *plačš´* 'raincoat'), others are feminine (*kost´* 'bone', *sol´* 'salt', *krovat´* 'bed', *ten´* 'shadow'). As the few examples listed here show, both subclasses include highly frequent words, many of which are likely to occur in child-directed speech. Monolingual children make persistent errors in the gender assignment of these nouns, with some errors continuing until age seven (Gvozdev 1961: 343; see also Comrie et al. 1996: 106, 121). Adult heritage speakers also show persistent problems with these nouns (Polinsky 2008b). It is significant that both groups have the same error pattern: feminine nouns are treated as masculine, but not the other way around. This suggests that there may be language-specific pressures restraining the assignment of the feminine to nouns that end in a palatal consonant. Children learning Russian take a long time to acquire all the ingredients of this gender assignment, and some of these ingredients are due to formal instruction in school. Heritage speakers get frozen at the incomplete acquisition stage and show the errors that monolingual children

have a chance to outgrow. Moreover, the lack of schooling in Russian contributes to the fossilization of this incompletely acquired gender subsystem.

Incomplete, partial, or interrupted acquisition (Montrul 2002, 2006, Polinsky 2007, O'Grady et al., in press; Silva-Corvalán 1994, 2003) is a specific case of language loss that differs from L1 attrition in both the time in life when the language is affected, and the extent of the loss. Incomplete acquisition occurs primarily in childhood due to insufficient input to develop the full L1 system. Attrition implies that a grammatical system had a chance to develop completely and remained stable for a while before some grammatical aspects eroded later on, as a heritage speaker was using his/her language less and less. [10] This is the phenomenon we will address next.

*5.2. Attrition*

In the previous section we discussed the elements of language design that take a long time to acquire (possibly due to the tension between competing motivations) and are therefore never fully attained by heritage speakers. A metaphor one could use here is that of dancing: an aspiring dancer can learn to waltz but it would take him/her more time and more exposure to complex tunes to master a tarantella. Contrary to the expectation that learning your first language is like learning to ride a bicycle—once you know it you never fall out of that knowledge—heritage speakers show patterns of attrition.

If an adult speaker stops using their language, due to, for example, emigration or repression (as in the case of the Japanese in the United States during World War WWII),

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[10] To make the conceptual distinction clearer, we present incomplete acquisition and attrition in childhood as two distinct scenarios, but we certainly admit that the two do not have to be mutually exclusive.

it is clear that their language will undergo attrition. Such attrition over the lifespan has been documented by a number of researchers (Schmid 2002; Schmid et al. 2004, a.o.); it has long been considered one of the major driving forces behind obsolescence (Dorian 1981, 1989; Seliger & Vago 1991; Sasse 1991, 1992).

Attrition as a culprit in heritage languages is more contested, with some researchers basically rejecting this possibility and others being more open to it.

The reasons to hesitate are serious. First, it is unclear when acquisition reaches the point of ultimate attainment, and the ongoing debates on the critical (or sensitive) period make the decision even more difficult. The second reason to be cautious in applying the idea of attrition to heritage speakers has to do with the tremendous heterogeneity and variance in that population. And finally, there is a methodological issue: can a linguistic feature be considered attrited if it is still represented in a heritage language, albeit to a lesser degree than in the control population? Or should only categorical differences be counted as evidence of attrition?

All these considerations suggest that we should proceed with caution, and we propose that attrition can be sought in those language properties that are fully acquired by children by age 4-5. If an adult heritage speaker experiences problems with such language properties there is a great likelihood that these properties underwent attrition and became weaker over the speaker's lifespan.

Of course, these considerations have to be somewhat tentative. In order to be certain that attrition occurred one would need longitudinal data on the same individuals observed as children and as heritage speaker adults. However, in the absence of such data, we can rely on the generalizations amassed in the research on first language

acquisition, including bilingual acquisition, and make sure that our observations are based on a substantial subject pool—this way an aberrant speaker, who was late to language acquisition as a child or who was particularly resilient as a heritage adult, would be canceled out by the other members of the cohort.

An intriguing example of attrition comes from the comprehension of relative clauses by low-level heritage adults. Relative clauses are generally acquired around age 4, and for some languages even a bit earlier (Tavakolian 1978; de Villiers et al. 1979; Sheldon 1974; Diessel & Tomasello 2000; Goodluck et al. 2006; Guasti & Cardinaletti 2003, a.o.). In a study which compared the comprehension of subject and object relative clauses by four groups of Russian speakers (monolingual adults/children, heritage adults/children), Polinsky (2008c, 2010) found that the children in both groups performed on par with monolingual adults, almost at ceiling. Heritage adult speakers, however, performed at chance on object relatives and showed a degraded performance on subject relatives. This suggests that the grammar of relative clauses underwent attrition in the language of heritage adults. This result is particularly intriguing given that the child cohort performed so well and that the experimental conditions were structured in such a way that transfer from English was ruled out. The reduced (attrited) adult system reflects well on the seemingly universal preference for subject relatives: heritage speakers of Russian do particularly poorly on object clauses, but still maintain the subject preference in relativization.

Brehmer & Czachor (2010) compared three groups of adult Polish speakers: heritage speakers who were either born in Germany or came to Germany as young children, Polish-German bilinguals who resettled in Germany after age 15, and

monolingual Polish speakers. They found an indication of attrition in the use of the

genitive of negation. This genitive occurs in two main contexts in Polish: as the case of

an object under negation and in lieu of the nominative in negative existential and locative

clauses—cf. the affirmative (6a) and negative (6b) locative:


(6)      a.   książka       była   na stole

              book.NOM   was    on table

              'The book was on the table.'

         b.   książki       nie    było   na stole

              book.GEN    not     was   on table

              'The book was not on the table.'


While the genitive of negation in the object position seems to vary greatly with the

accusative in spoken Polish, the use of the genitive in contexts such as (6b) is quite

robust. It is well preserved by the Polish-German bilinguals in Brehmer & Czachor's

study, but the heritage speakers show gradient attrition: about a quarter of all the cases

where the genitive of negation was required were used or judged wrong. What motivates

this replacement? We hypothesize that it is driven by fundamental differences between

the two cases: the genitive under negation makes a subtle semantic contribution that is

lost to heritage speakers, and they generalize towards a more widely used case. This is

only a conjecture, but Polish offers indirect evidence in its support. Subject idioms with

negation, which would allow the genitive, lose their idiomatic interpretation if the

genitive is replaced by the accusative:

(7) a. nie   ma   dymu/*dym        bez      ognia

       not   be   smoke.GEN/*NOM   without   fire

       'There is no smoke without fire.

   b. krzykiem         ognia/*ogien  nie   ugasisz

       yelling.INSTR      fire.GEN/*ACC  not   extinguish

       'Talk is cheap.'

Assuming that idiom chunks in non-compositional idioms do not have their own meaning, the contrasts observed here can be explained if the case alternation makes a semantic or pragmatic contribution. But this contribution of the genitive under negation is immaterial to a heritage speaker and the nominative wins out. The scenario, where attrition is driven by the loss of fine-grained semantic or pragmatic features, has been proposed for some restructuring in Russian aspect in the speech of higher-proficiency heritage speakers (Laleko 2010) and may also play a role in the reinterpretation of interface phenomena as discussed by Sorace (2004, 2005) and Sorace & Serratrice (2009).

Moving on to teenage heritage speakers, whose competence in their heritage language is less clear, researchers have commented on a general decline in their language ability. Such a decline is sometimes confirmed by heritage speakers' self-assessment; this decline seems to be linked to an increase in the use of the dominant language in communication with peers at school and with siblings. Zhou (2000) reports a decline in the language ability of Vietnamese heritage speakers over two years (from age 14 to age

16), parallel with the increase in their English competence; a similar decline is reported

for Tagalog by Espiritu & Wolf (2001).

*5.3. Dominant language transfer*

An important point of contact between heritage speakers and second language

learners, which does not come up in L1 acquisition, is the interplay between the learner's

first (native) language and the second (target) language. Language transfer, or the nature

of that particular interplay is a foundational issue in second language acquisition

research: to what extent does the first language grammar play a role in shaping the

developing second language grammar? The effects of the native language on the

acquisition of a second language in different levels of linguistic analysis (phonology,

morphology, syntax, semantics, the lexicon) have been extensively documented in second

language acquisition literature over the years (Odlin 1989; White 1989; Gass & Selinker

1992; Schwartz & Sprouse 1996; Jarvis 1998). A similar question arises in other

language contact situations, including pidgin and creole genesis, where phenomena like

lexical borrowings and so-called areal features are the well known cases of linguistic

consequences of language contact. Research on bilingualism and language contact (both

at the social and psycholinguistic level) also suggests that the second language can

encroach into the structure of the native language in systematic ways (Cook 2003,

Pavlenko & Jarvis 2002, Seliger 1996).

In examining the linguistic characteristics of heritage grammars illustrated in

section 4 at all levels of grammatical analysis, the first question that comes to mind is

whether many of the "simplified" characteristics observed in the heritage languages could

be due to transfer from the dominant majority language. One can easily entertain the possibility that nominal and verbal inflectional morphology in Spanish and Russian heritage speakers is eroded because the contact language in most of the heritage speakers tested to date is English, a language which does not mark gender in nouns or have rich tense/aspect and mood morphology. The same explanation goes for overuse of overt subjects and loss of semantically based case in Spanish and Russian, and preference for SVO over topicalizations. The interpretation of definite articles as having only a specific interpretation and not a generic interpretation in Spanish is a clear effect of transfer from English.

At the same time, it is an open question whether most effects of incomplete acquisition attested in heritage speakers are due to L2 transfer. Research also shows that some features of heritage speech that are not present in the heritage language are not due to the influence of the dominant language, such as the simplification of the gender classification system in Russian (from a 3- to a 2-way distinction), but must be due to other factors related to linguistic complexity and how this interacts with the nature of input and the degree of exposure to the input. There are two possible ways to tease apart these alternatives. One is to test heritage speakers of Korean, Russian or Spanish in two different language contact situations. If the contact language plays a role, then different patterns of incomplete acquisition should be observed in the two groups (assuming other characteristics of heritage speakers are controlled). A recent example of this type of work is J.-H. Kim's (2007) study of binding interpretations by Korean heritage speakers in the United States and Korean heritage speakers in China. The study tested knowledge of binding interpretations with local and long-distance anaphors in different syntactic

contexts. In many respects, Chinese and Korean were more similar than Korean and English. Korean heritage speakers in China were expected to be more accurate with long-distance binding than the Korean heritage speakers in the United States.. Kim found that the two groups of Korean speakers still had a marked preference for local binding, regardless of the contact language. If similar findings are replicated with other groups of heritage speakers in different language-contact contexts, then the effect of the L2 may not turn out to be as strong, or at least the only factor involved, in shaping the incomplete grammars of heritage speakers.

Another way to approach this question is by testing heritage speakers whose majority language is either typologically close to their heritage language (Spanish heritage speakers in Italy or Brazil, for example) or morphologically and syntactically more complex (in the sense of McWhorter 2007) than the heritage language (heritage speakers in non-English speaking countries perhaps). But this is a tricky approach because "complexity" or "simplicity" cannot be applied to particular languages but rather to particular linguistic phenomena within a language (i.e., the morphological system, syntactic flexibility, etc.).

In short, we know that many effects attested in heritage language grammars can be directly linked to L2 transfer, but this is not always obvious. What appears to be the dominant language transfer may also be due to universal regression processes or simplification under reduced input conditions (as attested in the case of creole genesis).

## 6  The relevance of heritage languages to theoretical linguistics

Let's step away from heritage languages for a moment and ask ourselves what made first language acquisition so valuable to theoretical linguists of all persuasions. The answer seems to go like this: child language has less irregularity than adult language; it is less encumbered by external linguistic experience, and therefore allows researchers to see how the rules and constraints operating in natural language develop more clearly. When a child over-generalizes, it is not arbitrary, as s/he draws on fundamental principles of natural language design. When a child makes errors, they are also non-arbitrary, which is why monsters like (8) never occur (Crain & Nakayama 1987, Legate & Yang 2002):

(8)      *Is the woman who singing is happy?

In a nutshell, phenomena observed in child language allow us to see linguistic structure more clearly than in adult language. But building theories on child language comes with a cost: children are notoriously difficult to study in an experimental setting and their production data are largely full of noise.

Unlike children, whose attention is short-lived and fickle, adult heritage speakers are a user-friendly population; they are motivated and cooperative, they come to the testing room without a chaperone, and they may even become active participants, not just experimental subjects, in a study testing the limits of their linguistic knowledge. But just like children, heritage speakers offer us an opportunity to study a language unencumbered by too much irregularity that has to be learned over a lifespan, by too many external factors or non-structural confounds. Their language has the minimal

scaffolding that has to be there for language to stand and has minimal design features. To continue with an architectural metaphor, a heritage language has all the structural, material, and functional design values but very few aesthetic values: it is the minimalist architecture as compared to the baroque of a full-fledged language with a literary tradition and a revered norm. A heritage language is what's left after you have stripped away everything that is rote learned, driven by tradition, enforced by the norm, and driven to non-compositionality by many users. This makes it a desirable object of investigation, and we need to learn how to use it better. As long as it remains under the auspices of "applied" areas of linguistic inquiry, theoreticians stand to lose.
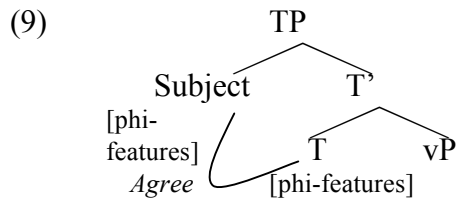
In this section, we would like to highlight just a few areas in which heritage language linguistics has a bearing on linguistic theory. These stem from our own work on the design of heritage languages and naturally reflect our own tastes and theoretical dispositions.

## 6.1 Agreement

Broadly put, agreement is a relation between two elements within a phrase or sentence that involves full or partial matching of features such as number, gender, person, definiteness, (abstract) Case, etc. The instantiations of agreement that have received the lion's share of attention within theoretical syntax include verb-subject agreement, verb-object agreement, agreement within noun phrases (with determiners and adjectives), and agreement on grammatical categories such as complementizers, negation, auxiliaries and modals.

Since at its core agreement involves dependencies, it is relevant to a number of issues within theoretical syntax, particularly the role of configuration and the attendant

structural relations (such as Spec-head, c-command, Agree or government) in

establishing the relation between the agreeing elements. For example, under one version

of current syntactic theory, subject-verb agreement in English relies on the specifier-head

relation between the subject in the specifier of the tense projection and the tense head

which possesses agreement features (Chomsky 1993), as illustrated below:

(9)                         TP
                    Subject        T'
                  [phi-
                  features]          T        vP
                    *Agree*      [phi-features]

On the other hand, agreement in verb-initial languages such as Arabic or Hawaiian

may be due to a government relation between T and the subject, which remains in a lower

projection, probably VP (Koopman & Sportiche 1991). This bifurcation allowed for

accounts for agreement asymmetries that have been uncovered in French participial

construction and Arabic VS *vs*. SV orders (among others). However, recent minimalist

work has advanced the view that agreement involves only one configuration, namely

Agree, which takes place under c-command. A number of facts support this approach,

chief among them being the phenomenon of long distance agreement (Polinsky and

Postdam 2001, Bhatt 2005), where a head establishes an agreement dependency with a

noun phrase that is relatively deeply embedded within the sentence (or a least not a

clause-mate to it). In addition, this approach entails that there should be no syntactic

differences between VS and SV languages with regard to the configuration that is needed

to establish the agreement dependency. If so, syntacticians can no longer rely on the

contrast between spec-head agreement and Agree and may want to opt for an interface

explanation for some agreement phenomena. For example, Benmamoun (2000) argues

that the agreement asymmetry between the SV and VS orders in Standard Arabic is due

to how agreement features, particularly number, are realized in the morpho-phonological

component; Franck et al. (2006) suggests that agreement is checked twice, first in syntax,

and then in the phonological component of grammar.

Another important dichotomy that characterizes the syntactic debates about

agreement is the interpretable *vs*. non-interpretable nature of the formal phi-features we

have mentioned above. Agreement features on heads are considered non-interpretable,

i.e., not critical to the conceptual/semantic interface. That is, a number feature on the verb

does not tell us whether we are dealing with one event or a number of events but only

references the cardinality of the noun the head is in agreement with. On the other hand, a

number feature on a noun is interpretable since it tells us something about the cardinality

of the noun. However, it is not clear how to characterize agreement in null pronominal

languages since there is no other overt noun phrase within the sentence to recover

(identify) the null argument of the verb.

Thus, how agreement manifests itself in heritage languages can be a valuable

testing ground for syntactic theories of agreement. Consider the interpretable/non-

interpretable dichotomy. A number of studies (Fenyvesi 2000, Bolonyai 2007, Montrul

2008, Albirni et al. in press) have shown that heritage speakers perform fairly well on

subject-verb agreement as opposed to agreement within the noun phrase or verb-object

agreement. Notice that distance between the two agreeing elements does not seem critical

to the contrast between subject agreement and agreement within the noun phrases. In both

Arabic and Hungarian, agreement within the noun phrase, which is a single projection

containing the head and the agreement controller, is more vulnerable. This implies that the spec-head relation (which essentially requires that the two elements be within the same phrase) is not what accounts for the resilience of subject agreement.[11]

Why would heritage speakers maintain subject-verb agreement when the features presumably do not play a role at the conceptual-semantic interface?

One possibility is that the features play a role at the PF interface. For example, in some languages such as Hungarian and Arabic, a well-formed word must have inflection. In other words, there are no well-formed bare verbs. By contrast, verb-object agreement is not critical to the phonological well-formedness of verbs, nor is agreement critical to the well-formedness of a noun within the noun phrase. However, this does not explain why heritage speakers do not rely mostly on a default or unmarked form of agreement. Arabic, for example, has a rich agreement system with default forms such as the third person form that occurs in the context of null expletive subjects or clausal subjects. Alternatively, the resilience of subject agreement in pro-drop languages may be due to the semantic load that agreement carries. Unlike agreement in non-null subject languages, agreement in null subject languages is sometimes the main means of recovering the content of the null subject. In some respects, it behaves like an interpretable feature. Of course, this must remain tentative pending analyses of heritage languages that do not have null subjects (such as English, French or Russian), but it may be on the right track and could explain why structural Case, which is non interpretable, is vulnerable (see section 6.2) but subject verb agreement is not.

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[11] It would be important to see how heritage speakers perform on long distance agreement and agreement asymmetries that are sensitive word order, for instance in such languages as Hindi and Arabic.

Nevertheless, even subject-verb agreement breaks down in contexts where the subject is not of the canonical type. It is notable that in both Arabic and Hungarian subject-verb agreement breaks down severely in possessive clauses, as illustrated in (10) for Hungarian (Bolonyai 2007):

(10)     nek-em              van    egy   bicikli-Ø

         DAT-POSS.1SG     is      a       bicycle.NOM

   'I have a bicycle.'

The subject ('bicycle)' does not carry agreement with the first person possessor. Similar facts obtain in Egyptian Arabic (Albirini et al. in press):

(11)     kaanet             ʕindaha     talaTTaʕšar     sana

         was.3SG.FEM   at her          thirteen            year

     'She had thirteen years/she was thirteen years old'

In (11), the copular verb agrees with the possessor rather than the subject (*talaTTaʕšar sana*). Egyptian heritage speakers seem to treat the possessor as subject. This could be due to transfer from English or to the semantic prominence of the possessor (along the thematic hierarchy cline). Another alternative explanation is that the agreement dependency in this context requires more computation than the agreement dependency involving regular subject verb contexts. In this instance, the speaker must rule out the possessor as in order to settle on the other NP as the candidate for subject agreement.

Here, the problem would have to do with processing the complex dependencies within possessive clauses. Evidently, this can only be determined by studying the same patterns in the heritage speech of speakers of languages that display the Hungarian or Arabic patterns of agreement in possessive clauses (for example, heritage speakers of Russian in Israel).

The data available so far does not allow for a definitive answer to why subject-verb agreement is more resilient in canonical contexts. One notable conclusion we can confidently draw, though, is that agreement at the PF interface seems to be resilient. Heritage speakers do not have a lot of difficulty with pairing the verb and its formal feature specification with the correct cell of an agreement paradigm in PF. This is remarkable because in many languages the agreement paradigms are quite complex (in Arabic, the imperfective paradigm involves both prefixation and suffixation with the features of the prefix sometime sensitive to the feature of the suffix. Similarly, in there is an intricate connection between subject and verb agreement and how they are realized at PF). In this respect, heritage speakers are different from L2 learners who tend to display difficulties with agreement paradigms.

## 6.2. Inherent and structural case

The distinction between structural and inherent case (Chomsky 1981) relies on the observation that some relationships in case licensing may be purely structural and do not depend on the thematic relations between the licensing category and the element it licenses, whereas others have to be defined in terms of thematic relations. Nominative and accusative cases are standardly assumed to be structural, assigned "solely in terms of

S-structure configurations" (Chomsky 1995: 114). On the other hand, the genitive or the dative subject case are associated with theta-marking, hence they represent inherent case.

The status of the ergative case has long been a subject of dispute in linguistics, with a number of researchers advocating its status as an inherent case assigned by a *v* head (Woolford 2006, Legate 2008, Aldridge 2008), and others treating it as a structural case (Koopman 2008). In an influential paper discussing various criteria that contribute to the inherent case status, Woolford (2006) suggests that theta marking may not be the necessary or sufficient criterion of inherent case status, but presents other diagnostics of inherent case, the strongest of which has to do with case preservation under raising. Unfortunately, the sole example she presents, from Tongan, is not accepted by all the speakers, and without that particular empirical piece, not much is left to support the inherent case status of the ergative.

Heritage language data may offer novel empirical evidence arguing against the nature of the ergative as an inherent case. The logic of the argument is as follows. We have solid evidence that some cases in nominative-accusative languages are structural (nominative, accusative), whereas others are inherent (dative, genitive). If these cases are treated differently in heritage grammars, one could extrapolate their differential behavior to the ergative system comparing the ergative and the absolutive.

In heritage Russian and heritage Spanish, object marking with the accusative and with '*a* personal' undergo significant attrition (Polinsky 2000, 2006; Montrul & Bowles 2009, 2010). In the meantime, the dative encoding of a sentient subject is retained quite well. In some varieties of heritage Russian, the accusative form is used in lieu of the dative and the accusative of the object is replaced by the nominative (Polinsky 2006);

thus, the sentient subject is marked for case. Heritage Spanish also shows a relatively robust maintenance of dative subjects, especially in pronominal forms, as in the following example:[12]

(12) no **le** gusta las instituciones

not 3sg.DAT like the institutions

'He does not like institutions.'

In the nominal forms, heritage speakers of Spanish judge indirect objects without *a* as the least acceptable; they are more tolerant of the omission of *a* on dative subjects[13] and on animate direct objects (Montrul & Bowles 2009, Montrul et al. 2010). Overall, the data from these two languages suggest that inherent cases in heritage grammars are preserved better/to a stronger degree than structural cases.

Let us now turn to Hindi, which is split ergative: it has ergative marking on transitive subjects in the perfect and nominative-accusative alignment elsewhere. It also has dative subjects marked by *ko*. Hindi presents a particularly interesting case because the marker *ko* is found both with the dative and with the accusative.

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[12] The correct form should be *No le gustan las instituciones*, with the verb agreeing with the postverbal constituent. Heritage speakers consistently make this kind of agreement error, but do not use the wrong clitic form.

[13] The same happens in some Spanish dialects, so the change from a dative subject to a nominative subject is already present in the baseline (Demonte 1995, Fernandez-Soriano 1999, a.o.). This trend in the baseline, which involves the subject position only, may affect the attrition of the dative subject in heritage Spanish.

There are two studies of case production in heritage Hindi: Mahajan 2009, based on the author's observations, and Montrul et al. 2010, with a strong quantitative component (Montrul et al. 2010 also employed a grammaticality judgment task).

According to Mahajan, heritage speakers "never miss the marking on the subject with *ko*", e.g.,

(13)    John-ko    saRak    par    kelaa                milaa

     J-DAT    street    on    banana.MASC    found.MASC

    'John found a banana in the street.'

According to Montrul et al. (2010), the marking on the dative subject is omitted in about 22% of production occurrences, and the marking on the indirect object is left out in about 10%; thus indirect objects are least problematic. In both structural positions, the form represents an inherent case. These data come from a picture description task. In the same picture description task, heritage speakers left out about 38% of the accusative-marking *ko* in contexts such as (14) where it is required as accompanying a specific animate object:

(14)    Mira-ne    Ramesh*(-ko)    dekhaa

     M-ERG        R-ACC        saw.MASC

    'Mira saw Ramesh.'

The use of *ko* in heritage Hindi thus suggests the same trend we noted earlier: structural cases undergo greater erosion in heritage production than inherent cases. What about the ergative *-ne,* shown in example (14) above?

Mahajan (2009) notes that heritage speakers use the "ergative marking very randomly—omit it when [it is] needed with [the] subject of [a] transitive perfect verb but insert it when [they] cannot have it". In the same picture description task that was used to get the data on *ko*, Montrul et al. (2010) show that the ergative is overgeneralized in about 11% of cases (no overgeneralization is found with *ko*, which is subject to omission) and left out in the other 33% of cases. If we compare only the omission and the use of ergative *-ne,* without overgeneralization, the omission rate rises to 37%, much higher than for the dative, and on par with the accusative. This suggests that the ergative patterns with structural case, not with the inherent case.

Some other ergative languages also show that the ergative is replaced while cases like dative and genitive are retained better. Thus, in heritage Avar, spoken by Russian-dominant younger speakers, one finds the ergative replaced by the dative (the correct form should be *dica* in the ergative):

(15)    diye      ručka        rek-ana

       1SG.DAT   pen.ABS  break-PAST

       'I broke the pen.'

This substitution is particularly intriguing because Avar, like many other Nakh-Dagestanian languages, has a rich inventory of other marked cases (many of them

locative); nevertheless, a heritage speaker chooses the marked dative to replace the

likewise marked ergative.

In her description of young people's Dyirbal, which shows many properties

typical of heritage languages, Schmidt (1985: 47-57) shows that the ergative is pretty

much lost in the language, while the dative and comitative, two arguably inherent cases,

are maintained.

Of course more data on ergative heritage languages are needed, but we would like

to emphasize the general promise that heritage languages hold with respect to a difficult

theoretical problem of case licensing.


*6.3.   Agreement and Case*

As pointed out above, research on heritage languages has uncovered an important

contrast between agreement and structural Case. Subject-verb agreement seems to be less

vulnerable than structural Case (as opposed to inherent Case which appears to be more

resilient). For recent debates in theoretical syntax this result is imminently interesting.

Within the Principles and Parameters framework, in particular, the marriage between

Case and agreement has been rocky with occasional break-ups and reunions. Under

earlier versions of the theory, agreement was critical to Case assignment. This was due,

in part, to the fact that in Germanic and Romance languages, non-finite verbs do not carry

subject verb agreement, particularly person, which appears to point to a correlation

between Nominative Case and agreement on the finite verb. However, with the

proliferation of functional syntactic projections since the seminal paper by Pollock

(1989), this relationship has been called into question. Pollock's main concern was the

need for extra space to derive the word order differences between English and French relative to the position of the verb, adverbs, negation and floating quantifiers. To come up with this extra space, Pollock split the traditional Infl projection (Chomsky 1986) into a tense projection and a (subject) agreement projection. Chomsky (1993) added an object agreement projection. Since Nominative Case is associated with finiteness in a number of languages and since tense and agreement occupy different positions in the syntactic representation, the logical conclusion was that agreement is not involved in nominative Case assignment but tense is.

However, if we posit an agreement projection whose head includes non-interpretable features a serious conceptual problem arises. Most other functional projections contain heads whose features are interpretable Other than the convenience of providing extra space for elements to move to derive word order patterns, there did not seem to be any compelling conceptual reason for positing such an agreement projection. This conceptual problem led several researchers to argue against the agreement projection (e.g., Iatridou 1990; Benmamoun 1993; Chomsky 1995). However, in some later minimalist research (Chomsky 2000), the abandoned association between agreement and Case was again resurrected, albeit in more subtle form. For the Case dependency (say between Tense and a DP) to be maintained, they have to be in an Agree relation. Though the association is indirect it is there nonetheless and suffers from the same empirical problems that plagued the earlier agreement-as-a syntactic projection-approach.[14] This approach was superseded by a more recent one, which argues for the dissociation of case

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[14] Languages with sentences where more than one head carries full agreement also present a problem (Carstens 2001).

licensing and agreement, on slightly different grounds. The main idea is that Case features are not present on T but are simply passed down to T from the higher functional head, C; on the contrary, agreement is an inherent feature of T and thus agreement is licensed by the T head (Richards 2007, Zeller 2006, Chomsky 2008, a.o.).

The dissociation of tense and agreement makes empirical sense for a number of languages. For example, in Standard Arabic, tense can occur on negation and agreement on the verb, which demonstrates that the two must be dissociated and cannot be located on the same host (Benmamoun 2000). Subject-verb agreement and case licensing in Scandinavian have long been shown to be separate (Holmberg & Platzack 1995). Empricial arguments for the dissociation of Case and agreement have been found in Bantu (Zeller 2006).

Turning to heritage languages, the differential results on the maintenance of case forms vs. agreement support the conclusion that case licensing and agreement licensing are dissociated. Otherwise, all else being equal, we would expect them to pattern together. Thus the data from heritage languages also favor the approach that severs the connection between agreement and structural Case; these data offer another compelling argument for the emerging model of Case licensing being separate from agreement.

## 6.4. Aspectual categories

A fundamental goal of linguistic theory is to provide an explanatorily adequate model of grammar that could shed light on the properties of the human language faculty, a model capable of accounting not only for the observed cross-linguistic phenomena and native speaker judgments, but, crucially, for the facts of language acquisition. Because heritage language acquisition is a fully systematic and internally rule-governed process,

linguistic theories that exhibit the capacity to capture and account for the facts of heritage language acquisition have the potential for a greater explanatory power than those that do not. Consequently, heritage languages can provide crucial pieces of evidence for theoretical models of language as expressed through various linguistic phenomena.

This approach is undertaken in Laleko (2010), who draws on empirical data from heritage Russian speakers to develop a theoretical model of aspect in Russian. On the basis of experiments targeting production, interpretation, and acceptability of perfective and imperfective aspectual forms by heritage speakers of Russian and baseline speakers in the control group, Laleko (2010) puts forward a model of aspect in Russian that posits multiple layers of aspectual structure. On the lower syntactic level, aspectual distinctions are tied to lexical aspect, i.e., telicity of the verbal predicate. For verbs that are inherently specified as telic or atelic, the default aspectual value at this level is calculated based on the properties of the verb, while in the absence of such specification on the verbal root itself, compositional telicity of the verbal phrase, including the nominal argument, has the potential of contributing to the resulting aspectual value of the VP (Laleko, 2008). On the higher sentential level, the contribution of telicity may be overridden by aspectual markers (operators), such as the habitual and progressive, or by delimiting perfectivizing prefixes such as *po-* and *za-*. The habitual and progressive force the imperfective interpretation of telic events, and the perfectivizing prefixes supply an external boundary to lexically unbounded eventualities. In the absence of sentential aspectual triggers, the default lexical aspect projects directly onto the sentential level.

The highest level of syntactic structure, which interfaces with discourse-pragmatics, is the domain of pragmatically-conditioned aspectual triggers, which are

sensitive to external contextual factors in mediating aspectual meanings. Here, aspectual contrasts reflect such notions as the thematicity of the predicate and the illocutionary force of the utterance. Thus, even in the absence of atelic interpretations of the verbal phrase at the lexical level or imperfective operators at the sentential level, Russian verbs may receive imperfective marking for pragmatic reasons, for instance to indicate that the speaker is merely reporting some fact about a particular event, without regard to its completion, or to implicate that the result of the action denoted by the predicate has been annulled. Availability of such pragmatically-conditioned functions of the imperfective aspect in Russian produces aspectual competition, a situation in which both aspectual forms are grammatically possible. The competition is successfully resolved in favor in the imperfective aspect in the presence of the relevant contextual triggers.

Data from monolingual speakers of Russian presented in Laleko (2010) are fully consistent with the model outlined above. In contrast, evidence from advanced heritage speakers of Russian reveals a significant reduction of the pragmatically-conditioned functions of the imperfective aspect. When compared with baseline controls, heritage speakers exhibit lower acceptability rates for imperfective forms with completed events even in the presence of contextual discourse-pragmatic triggers of imperfectivity. Further, heritage speakers are significantly less accurate in their interpretations of the annulled result implicature. Despite these differences, heritage speakers exhibit no overt grammatical errors with aspectual morphology in production.

In accounting for the observed findings, Laleko (2010) argues that the three levels of aspectual structure are affected selectively in heritage language acquisition. The restructuring of aspect in advanced heritage grammars affects the C-domain: the highest

level of sentential structure, a domain in which syntactic information is mapped onto discourse-pragmatic knowledge. As a result, the privative aspectual opposition of baseline Russian, in which the imperfective aspect is the unmarked member with a wider contextual distribution, undergoes a shift to an opposition of the equipollent type, where the distribution of aspectual forms is determined solely by the grammar. Laleko (2010) refers to this type of reorganization as a covert restructuring of the aspectual system, because the disintegration of the aspectual system within the C-domain is manifested in infelicity, rather than strict ungrammaticality, and highly proficient heritage speakers continue to appear target-like in production even without the complete mastery of the intricate contextual uses of the Russian imperfective, relying on grammatical cues instead.

Laleko's (2010) model of aspect in Russian makes further predictions with respect to the directionality of aspectual restructuring across the sectors of the heritage continuum. While advanced heritage speakers seem to exhibit sensitivity to phenomena mediated in the C-domain (besides aspect, other difficulties in this category include apparent optionality with null and overt subjects and infelicitous use of overt determiners), heritage speakers at the lower level of the proficiency continuum are predicted to diverge from the baseline norm not only on the highest level of aspectual structure interfacing with discourse-pragmatics, but also on the intermediate level of sentential aspect, where grammatical aspectual triggers operate. Thus, we expect that lower proficiency heritage speakers may not be consistently sensitive to sentential aspectual operators, paying more attention to the default lexical aspect of the predicate. Consistent with these predictions, existing production data from low-proficiency heritage

speakers of Russian, such as naturally-occurring examples provided in Polinsky (2006, 2008c), reveal multiple instances of perfective aspectual forms occurring in the presence of imperfectivizing sentential triggers, such as habitual adverbs, when predicates are lexically or compositionally telic. Similarly, speakers in the same proficiency group exhibit loss of some delimiting perfectivizing prefixes (e.g., inceptive *-za*), which provide an external boundary to atelic eventualities in baseline Russian.

In tandem with data from high-proficiency speakers, these findings lend support to a layered model of aspectual structure, in which different components of aspectual information are mediated at distinct levels.

The encoding of temporality is an important area of vast on-going research within theoretical linguistics, and research on the expression of aspectual distinctions in heritage languages provides a unique opportunity for advancing current theories of temporality based on qualitatively new data; this offers promising implications for furthering our understanding of the human language capacity and the organization of linguistic knowledge in the mind.

In examining data from heritage speakers in comparison with data from their bilingual parents, Laleko (2010) further addresses the role of linguistic input in language acquisition and maintenance. She finds that bilingual parents of heritage speakers, while target-like on comprehension tests involving aspectual contrasts at the syntax-pragmatics interface, exhibit patterns of limited occurrence of imperfective forms with telic predicates in production. This finding has two important implications. First, it corroborates the idea that heritage language acquisition and L1 attrition in adulthood are distinct scenarios with different linguistic consequences: while heritage language

acquisition creates conditions for a divergent performance along with a reduced competence, L1 attrition effects in adulthood do not appear to project beyond certain limitations in performance with respect to the same phenomenon. Second, given that the variety of the language spoken by the parents of heritage speakers is the primary (and often only) source of linguistic input in heritage language acquisition, we can raise the question of whether some of the competence deficits in heritage speakers may be a categorical response to a quantitatively diminished and qualitatively reconfigured input. This, in turn, brings us directly to the principally important issue at the intersection of several distinct fields of inquiry in contemporary linguistics – the impact of age and circumstances of language acquisition on the outcome of language acquisition. Heritage language acquisition, which bridges a gap between first and second language acquisition, as well as between language acquisition and language attrition, can offer a unique contribution to the existing theories of language development, particularly in situations of reduced input. The issue of reduced input is of course equally relevant to heritage linguistics and studies of second language acquisition, and in the next section we will offer some considerations on similarities and differences between these two fields.

6.5. *Heritage language development vs. second language acquisition*

Another angle on the study of the grammatical competence of heritage speakers in the last few years has been to investigate the potential similarities and differences between heritage speakers and second language learners, as noted by Lipski (1993). Not only is this comparison theoretically significant for debates on the role of age and input in bilingual language acquisition and regression, as well as the type of implicit knowledge

acquired under less than optimal conditions, but such comparison also has great pedagogical implications for the field of heritage language teaching. The question of whether early language experience confers advantages to heritage speakers, as opposed to second language learners who acquire the language much later in their life, has been at the heart of several studies comparing second language learners and heritage speakers' grammatical knowledge (Au et al. 2002, Montrul 2010, Montrul, Foote & Perpiñán, 2008). Results on phonological competence indicate advantages for heritage speakers, who exhibit more native-like pronunciation than second language learners (Au et al. 2002). Results on morphosyntactic knowledge are mixed, with some studies finding no advantages (Au et al. 2002) and others finding some, depending on proficiency level, type of structure and type of task (Håkansson 1995, Mikulski 2010, Montrul, Foote & Perpiñán 2008, Montrul 2010).

Many of these studies have extended theories and methodologies of second language acquisition to investigate differences and similarities between second language learners and heritage language learners (Montrul 2005). For example, Montrul (in press) looked at a perennial problem in second language acquisition and its theoretical significance: the issue of morphological variability and the source of morphological errors. A recurrent finding is that postpubescent second language learners often omit or use the wrong affix for nominal and verbal inflections in oral production, but less so in written tasks. According to the Missing Surface Inflection Hypothesis (Prévost & White 2000), second language learners have intact abstract representations for this morphology, but errors stem from problems during production only under communicative pressure (a mapping or processing deficit). Montrul (in press) discusses collective findings from

Montrul, Foote and Perpiñán (2008), Montrul (2010) and Montrul & Perpiñán (in press)

showing that variability and instability with gender agreement, tense, aspect and mood

morphology is also characteristic of heritage speakers' grammars. However, because

morphological errors by heritage speakers are more frequent in written than in oral tasks,

unlike the pattern found in second language learners, the Missing Surface Inflection

Hypothesis does not apply to heritage speakers. Montrul concludes that experience with

the language and mode of acquisition (through predominantly written input in second

language acquisition vs. oral input in heritage language acquisition) contribute to how the

language is processed and represented differently in the two types of learners. While

second language learners seem to do better on explicit tasks that maximize metalinguistic

knowledge, heritage speakers seem to do better on implicit tasks that minimize

metalinguistic knowledge. This issue is further developed and confirmed by Bowles (in

press) who used a battery of tests, ranging from more to less metalinguistic. Results

showed that second language learners of Spanish scored highest on a metalinguistic

knowledge test, whereas the heritage language learners scored the lowest on the

metalinguistic knowledge test and highest on the oral narration test (a less metalinguistic

task). Bowles' results confirm that heritage language learners seem to have more implicit

than explicit knowledge of their language by virtue of having acquired the language early

in childhood and in a naturalistic setting.

Keating, Jegerski and VanPatten (in press) investigated this same question with

structures subsumed under the syntax-discourse interface. They asked whether adult

Spanish heritage speakers and adult second language learners of Spanish utilize the same

antecedent assignment strategies as monolingually raised Spanish speakers when

processing overt vs. null subject pronouns and whether early exposure to and use of

Spanish confers advantages to Spanish heritage speakers relative to second language

learners. Spanish speakers raised without English contact, Spanish heritage speakers, and

second language learners of Spanish completed an off-line questionnaire comprised of

complex sentences such as *Juan vio a Carlos mientras pro/él caminaba en la playa* 'John

saw Charles while *pro*/he was walking on the beach'. Comprehension questions probed

participants' preferences regarding the antecedent of null and overt pronouns. The results

indicated that the monolingually raised Spanish speakers showed an antecedent bias, but

the heritage speakers and the second language learners did not. Furthermore, the two

experimental groups differed from the control group in different ways: the heritage

speakers displayed a stronger subject bias for the overt pronoun, whereas the second

language learners did not exhibit any clear antecedent biases. Keating et al.'s results

confirmed that heritage speakers differ from native speakers in their representation of

overt/null subjects in Spanish.

## 7  Broader implications of heritage language research

In addition to all the questions that heritage languages raise for linguistics and

language acquisition, research on heritage speakers can be fruitful for other fields.

Heritage speakers form a significant student group in many colleges and universities.

Many of these students, particularly those at the lower proficiency level, sign up to study

their heritage language in a classroom setting. Some do it because of the sentiment to

maintain a connection with the parents' cultural and, in some cases, religious heritage.

Others do it because some heritage languages are spoken in countries that are prominent

on the international political and economic scene, and students may see career

opportunities in maintaining and deepening their knowledge of their heritage languages[15].

However, many colleges and universities have found themselves unprepared to deal with

this student group. These students usually enroll in the regular foreign language program

and find themselves in the same classroom with non-heritage learners who in many cases

may not have had prior exposure to the target language. This can create problems in the

classroom because the instructors need to find a way to accommodate different learners

with different backgrounds and abilities in relation to the target language.

Following the trend set by Spanish in the United States in the 1970s, some

colleges and universities have also started special tracks for heritage learners, although

the advantages or disadvantages of having different programs have not yet been

evaluated. This effort is the most advanced in the context of Spanish, though other

languages such as Arabic, Chinese, Russian and Vietnamese have also recently witnessed

efforts in that direction. However, proposals of different tracks for L2 learners and

heritage language learners are based on the underlying assumption that L2 learners and

heritage language learners are different linguistically, have different linguistic needs, or

may approach the language learning process in the classroom differently (Bowles, in

press; Montrul, in press). These are all empirical questions that are currently being

addressed in research, and whose answers will benefit tremendously and guide the

justification for and creation of adequate evidence-based language programs.

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[15] There are obviously heritage students who may study the heritage language because
they prefer not to contend with a completely new language. Our experience indicates that
this is not the dominant reason. Maintaining the connection to their cultural heritage and
career opportunities seem to be more important factors (cf. Carreira & Kagan in press).

These emerging programs for heritage language learners, particularly for languages other than Spanish, currently face tremendous challenges fueled by the scarcity of instructional materials grounded in research on the linguistic profile of the heritage learners. Instructors of heritage students usually provide more in-depth and culturally richer materials at an accelerated pace, but the fact as far as we know is that there are no materials that are based on research on the linguistic needs of heritage learners. This is due to the fact that this research is in its infancy. Hopefully, more research on more heritage learners will be carried out so that language instructors who are faced with the difficult task of teaching heritage learners can approach their task with at least a better understanding of this student population.

In addition to an understanding of potential differences and similarities between heritage and non-heritage learners, instructors need to have a keen awareness and appreciation of the vast linguistic diversity that characterize particular groups of heritage language learners. Many heritage speakers enroll in heritage classes where the target language is not their heritage language but a closely related language or dialect. For example, in Standard Arabic classes it is typical to find a heritage speaker of an Arabic dialect, say Egyptian or Iraqi, since the dialects are the heritage languages that they are exposed to in the home. Any student of Arabic knows that there are significant differences at the phonological, lexical, morphological and syntactic levels between standard Arabic and the colloquial dialects, which has given rise to the diglossic situation in the Arabic speaking world. In many ways, learning Standard Arabic is like learning a third language for Arabic heritage speakers of different colloquial varieties. It would be important to see whether non-heritage Arabic learners perform differently from heritage

Arabic learners and in which areas. As far as we know this research has not yet been carried out. The same issues arise for Cantonese speakers who enroll in heritage Chinese courses that teach Mandarin Chinese as the target language. This situation is typical in heritage language programs, which tend to teach the standard variety spoken by a particular subgroup of a given population.

If heritage language learners are placed in special language tracks because they are assumed to be different from non-heritage language learners in terms of the linguistic knowledge of the heritage language they already bring to class, an important research question that arises in this context concerns the issue of transfer: Which language would the heritage learner transfer from, English in the case of heritage learners in the US or the heritage language spoken in the home? The first impression based on preliminary research on Arabic at the University of Illinois seems to indicate that heritage learners do not transfer from their spoken dialects when learning Standard Arabic but rather seem to transfer from English. If this transfer is confirmed by further research, the inevitable question is whether this is because English is psycholinguistically more dominant than the heritage language; even though the latter is closely related to the target language, it is not the most accessible target for transfer. However, the lay impression is also that heritage speakers do better on the acquisition of a third language that is related to the heritage language, which in turn suggests that the heritage grammar is accessible as a source of knowledge. In short, this would be a very valuable topic to research in order to better understand the interplay between the heritage language and the dominant language and also to refine our understanding of the issue and process of language transfer.

The communities where heritage languages are spoken are also increasingly interested in promoting the teaching of their languages as a way to maintain connections between the immigrant generations and their offspring. Furthermore, there is now a prevalent sense that knowing a foreign language well can open additional career opportunities for these children of immigrants and immigrant children. By developing heritage language programs, colleges and universities can provide outreach sources to establish connections with population groups with whom they may not have had any significant contact.

It is unrealistic to expect research in this area to salvage heritage languages from eventual disappearance beyond 3$^{rd}$ and 4$^{th}$ generations of immigrants, because this is, unfortunately, the natural course of immigrant languages and of language change more generally. Nevertheless, we believe that research on this population still offers invaluable social benefits. These include theoretically-informed and methodologically rigorous studies that will educate the interested stake-holders (e.g., educational institutions and the relevant communities) and will form the basis for evidence-based educational practices and language policies.

There is also a whole untested area of psychological issues experienced by heritage speakers. Just a generation or two ago, maintaining one's heritage language was not what was expected or considered important—popular movies such as *Hester Street* or *Zoot Suit*, or even the more recent *My Big Fat Greek Wedding,* provide clear examples. With ambivalence toward "otherness" always being very close to the surface, it is not difficult to imagine that a bilingual child or adolescent becomes so eager to integrate into the target culture that their own language or culture becomes a source of embarrassment,

or just gets ignored (Tse 1998; Cho et al. 2004). Even though bilingualism is much more accepted and celebrated in the current social climate, otherness remains an issue.

Accepting bilingualism is easy and nowadays fashionable; practicing it is hard. Many heritage speakers are happy to be considered bilingual and less happy to put more effort in becoming bilinguals. Moreover, for many of them, especially the ones who excel academically, it is painful to admit that they are less than excellent in their home language, but that's what they often hear. Family members and educators alike are much too eager to emphasize the deficiencies of heritage speakers; constant criticism may create a perception that one's language is never good enough and that is not a great motivation to keep it up. A remark by a heritage speaker is telling: "It is frustrating when I'm speaking to my parents and can't fully comprehend what we're trying to say to each other. I hate it when I eat dinner with my parents [and] they always carry on their own conversation that I can only half understand. Yet, they complain that we don't eat as a family enough. I hate having something to say, but not being able to say it." (Cho et al. 2004: 7).

None of us is an expert on the psychological issues of high- or low-achieving bilinguals, but we hope that this discussion may motivate further research at the boundaries of linguistics and social psychology.

**Conclusions**

Research on heritage languages brings together several related fields of inquiry that are regrettably not in the habit of talking to each other: theoretical linguistics, with its emphasis on universal principles of language structure; experimental linguistics, especially the study of comprehension, which stands to gain quite a bit from working

with not always responsive, but readily available, populations; first language acquisition, which can compare happy and arrested development; and second language acquisition, which allows us to compare heritage languages with both first and second languages.

Although we are only beginning to understand how heritage languages are structured, the emerging patterns point to interesting differences between complete and incomplete first language acquisition, as well as second language acquisition by heritage speakers and foreign language learners. The defining characteristic of heritage speakers is exposure to the heritage language in childhood, typically in the home and heritage community context. From a language acquisition perspective, this means that heritage speakers are usually exposed to the language during the critical period, unlike late L2 learners who also display variability in ultimate attainment but are exposed to the second language after puberty. The standard assumption is that exposure to natural language during the critical period (before puberty) should allow one to develop native-like competence, but, as we have seen, heritage speakers do not develop uniform native-like competence in all modules of the grammar. If there is a continuum of native-like attainment, with L1 speakers on one end and L2 speakers on the other, heritage speakers are in between, as schematically shown in Figure 4.

| *native* | *non-native* | |
|----------|--------------|---|
| **L1 speakers** | heritage speakers | **late L2 speakers** |

*Figure 4*. Hypothetical continuum of native-speaker ability.

On a number of occasions throughout this paper, we emphasized that heritage languages are still unchartered territory, but we would like to conclude on an optimistic note, underscoring how much these languages have to offer linguistic theory. A parallel that immediately comes to mind is with the study of creoles. Some forty years ago, creoles were the domain of specific language study or sociolinguistics, and no respectable linguist worth his/her stripes would go near them. As soon as linguists recognized that creole phenomena speak directly to Plato's problem in language[16], creoles gained visibility in linguistic theorizing. Heritage languages add yet another piece to the puzzle of how a grammar can be acquired under minimal input.

Heritage languages also hold another attraction. Since the 1990s, linguists have become increasingly aware that the study of language should no longer be solely the prerogative of introspective investigation. Instead, language is something that can be measured using standard experimental methods, and modeled on the basis of rigorously established data. Nowhere is this paradigm shift more apparent than in studies of those who can barely produce language: children, aphasics, and aging populations. Several times in this survey article we have mentioned the fact that heritage speakers often have problems with spontaneous production, which calls for the development of new methods

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[16] In the Socratic dialogue *Meno,* Socrates is talking with an uneducated servant and shows that the servant knows the Pythagorean theorem though he has never been explicitly taught any geometry. How could that be possible? Plato suggests that people have innate knowledge of a number of concepts. In relation to language, Plato's Problem amounts to explaining how a child acquires language without explicit instruction and through limited input. In heritage language acquisition (as in creole acquisition), the input is particularly limited, so the shape of the resulting grammar is of special interest.

to discover their linguistic knowledge. Unlike children or patients with speech disorders, heritage speakers are easy to find, they are motivated and cooperative, and they may even become active participants, not just experimental subjects, in the study of the extent of their linguistic knowledge.

Finally, not only do heritage language speakers present us with a wonderful linguistic challenge, they are also an untapped national resource. The globalization of the world's economy and, even more so, the political turbulence of the early twenty-first century have brought new urgency to the need for corporate government and NGO employees fluent in the languages and customs of the countries with which our nation has political and economic ties. The knowledge possessed by heritage speakers puts them years ahead of anyone studying the language from scratch. Thus it only makes sense to give them the opportunity to develop further the abilities they already have. The introduction of heritage language courses reflects the acknowledgment that heritage language speakers are a very special group, and in some sense a severely underutilized national resource; with proper instruction, they are much more likely than any second language learner to achieve near-native linguistic and socio-cultural fluency.

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