Assessing Differences and Similarities between Instructed Heritage Language Learners and L2 Learners in Their Knowledge of Spanish Tense-Aspect and Mood (TAM) Morphology

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Abstract
The acquisition of the aspectual difference between the preterit and imperfect in the past tense and the acquisition of the contrast between subjunctive and indicative mood are classic problem areas in second language (L2) acquisition of Spanish by English-speaking learners (Collentine, 1995, 1998, 2003; Salaberry, 1999; Slabakova & Montrul, 2002; Terrell, Baycroft & Perrone, 1987). Similarly, Spanish heritage speakers in the U.S exhibit simplification of the preterit/imperfect contrast and incomplete acquisition/attrition of subjunctive morphology (Merino, 1983; Montrul, 2002, 2007; Potowski, Jegerski & Morgan-Short, 2009; Silva-Corvalán, 1994). This raises the question of whether the linguistic knowledge of a developing L2 learner is similar to incomplete L1 acquisition in heritage language (HL) learners. Because heritage speakers are exposed to the heritage language from infancy whereas L2 learners begin exposure much later, Au et al. (2002, 2008) have claimed that heritage speakers are linguistically superior to L2 learners only in phonology but not in morphosyntax. The present study reexamines this claim by focusing on the interpretation of tense, aspect and mood (TAM) morphology in 60 instructed HL learners and 60 L2 learners ranging from low to advanced proficiency in Spanish. Results of four written tasks showed differences between the groups both in tense and aspect and in mood morphology, depending on proficiency levels. Implications of these findings for heritage language instruction are discussed.

1. Introduction

More and more post-secondary institutions are creating special courses and programs for heritage language (HL) learners. Yet, it is also common to find HL learners in foreign language classes designed for adult students who have not been exposed to the target language at home and who are, thus, taking the language as a foreign or second language (L2 learners). Mixing HL learners and L2 learners in the same classroom poses serious pedagogical challenges for many practitioners because, by virtue of having different linguistic and cultural backgrounds, HL learners and L2 learners may also have quite different pedagogical needs (Carreira, 2004; Kagan & Dillon, 2003; Lynch, 2003; Potowski, 2002).

In terms of linguistic knowledge, it appears that many HL learners come to the classroom with some advantages, at least in the areas of language comprehension, vocabulary, phonological decoding, and pronunciation. But in terms of structural aspects of the language, most notably syntax, morphology and semantics, L2 learners and HL learners appear to exhibit similar gaps (Lipski, 1993). The question that arises, and which this study pursues empirically, is whether L2

learners and HL learners differ in their command of specific structural properties of the language. According to theories of first language, second language, and bilingual acquisition, learning a language early in childhood (in a monolingual or in a bilingual setting) is different from learning a language around or beyond puberty (Bley-Vroman, 1990; DeKeyser, 2000; Long 1990, 2007; Paradis, 2004; Ullman, 2001). For these researchers, the potentially innate cognitive and linguistic learning mechanisms deployed early in life are different from those utilized for language learning in adolescence or adulthood due to maturational effects. Other researchers attribute the difference to the types of input and linguistic experience received by children learning a language as opposed to those received by adults (Bialystok & Hakuta, 1999). Taken together, these researchers point to the following key differences between the two groups of learners: HL learners have been exposed to the language at home in a naturalistic setting from a young age, whereas L2 learners typically begin exposure to the L2 at or around puberty and most often in an instructed setting These differences have led to the hypothesis that the type of linguistic knowledge possessed by these two types of learners may be different. However, this hypothesis needs to be pursued empirically. In order to better address the practical issues that may arise in a classroom context, it is first important to find out whether and how L2 learners and HL learners differ in specific areas of grammatical knowledge.

The question of whether early language experience creates an advantage for HL learners was recently addressed by cognitive psychologists Au, Knightly, Jun and Oh (2002), Knightly, Jun, Oh and Au (2003), and Au, Knightly, Jun, Oh and Romo (2008), who studied Korean and Spanish heritage speakers and L2 learners of very low proficiency in these languages. Au and collaborators found that early language experience *definitely* confers an advantage to heritage speakers in pronunciation and some aspects of phonology, but failed to find advantages for morphosyntax.[1] However, their results and conclusions are at odds with research that has found qualitative and quantitative differences between heritage speakers and L2 learners in aspects of syntax and lexical semantics (Håkkanson, 1995; Montrul, 2005, 2006). Although claims about potential advantages in one linguistic area but not in others support the modularity and selectivity of linguistic knowledge, the distinction between morphosyntax vs. phonology presented by Au and collaborators is too coarse-grained. For example, Au et al.'s (2002) and Knightly et al.'s (2003) studies of Spanish heritage speakers tested gender agreement on noun phrases, verbal agreement, aspect, mood, pronouns, clitics, case marking, and negation in a 66-item aural grammaticality judgment task; However, given the number of grammatical structures tested, the task devoted h very few items to each structure. But the fact is that morphology and syntax are complex and comprehensive areas of linguistic knowledge. Even in L1 acquisition, these same grammatical domains have different developmental schedules and present different degrees of difficulty to children. For example, tense and agreement are mastered much earlier than mood, and sometimes they are produced by children before the meaning distinctions they convey are entirely understood (Johnson, de Villiers & Seymour, 2005). Similarly, grammatical aspect emerges in a gradual fashion depending on the lexical semantics of the verb (Jacobsen, 1986). So, the question becomes: do heritage speakers have advantages over L2 learners in some areas of morphosyntax but not in others? We believe that a valid answer requires that specific

grammatical areas be investigated in greater depth than Au et al.'s grammaticality judgment tasks allowed.

The purpose of this study is to compare and contrast the linguistic abilities of instructed L2 learners of Spanish and HL learners whose written proficiency in Spanish is comparable. In particular, this study revisits the questions of whether early input and language use confer an advantage on HL learners by investigating morphological recognition and semantic interpretation of tense/aspect and mood morphology in Spanish, one of the grammatical areas included in Au et al.'s comprehensive study of Spanish morphosyntax. Au et al. tested L2 learners and heritage speakers or overhearers via aural grammaticality judgments and oral production, but here we are interested in morphological recognition and semantic interpretations in written tasks.While inflectional morphology is quite frequent in the input, the morphological and semantic/pragmatic distinction between the preterit and the imperfect in the past (tense-aspect) and the distinction between indicative and subjunctive (mood) pose different degrees of difficulty for adult English-speaking L2 learners in both oral production and written tasks. In monolingual and bilingual child language acquisition, tense and aspect is acquired and mastered earlier than mood morphology, depending on semantic and pragmatic contexts (Montrul, 2004, chap. 3). Likewise, child and adult Spanish heritage speakers have been shown to control tense-aspect more robustly than subjunctive morphology in oral and written production (Merino, 1983; Montrul, 2009, in press; Silva-Corvalán, 1994).

Unlike Au and collaborators' work, which only focused on L2 learners and heritage speakers of very low proficiency, this study also includes speakers ranging from low to advanced proficiency in Spanish within each group. If differences between L2 learners and heritage speakers are found at the low proficiency level, for example, do these differences disappear with increased proficiency? Alternatively, if differences between the two groups of learners are not evident at the low proficiency level, do these emerge with increased proficiency? If they do, then this may suggest that instruction may be more beneficial for one type of language learner than the other.

The next section introduces the linguistic background on Spanish grammatical aspect and mood, followed in section 3 by a selective review of how this inflectional morphology is acquired by monolingual children, L2 learners, and heritage speakers. Section 4 presents the methods and results of four related tasks administered to all the participants in the present study: two morphology recognition tasks and two written sentence conjunction judgment tasks. To anticipate the main findings, the results show significant differences between the native speakers, the L2 learners, and the HL learners, with a steady developmental trend across proficiency levels in the two experimental groups. The low-intermediate proficiency HL learners were overall more accurate than the L2 learners at distinguishing the semantic interpretations of tense-aspect, but the opposite obtained with the subjunctive: the advanced L2 learners were overall more accurate than the advanced HL learners. The results of this study have important pedagogical implications regarding the amount of exposure and the quantity and quality of instructed and naturalistic input needed to develop competent knowledge of tense-aspect and mood morphology in Spanish.

2. Tense, Aspect and Mood in Spanish

Grammatical Aspect

Aspect is a semantic universal expressed in the grammar and it encodes different ways of seeing a situation (Comrie, 1976). Aspect is marked with inflectional morphology on the verb (grammatical aspect) and also by the meaning of verbs and predicates (lexical aspect). Grammatical aspect distinguishes between *perfective* and *imperfective* forms. Perfective means that the event is conceived as bounded or completed. Imperfective denotes uncompleted or progressive events and is unbounded. Spanish distinguishes between the preterit (perfective) and the imperfect (imperfective) in the past, signaled with inflectional past tense morphology on the verb. Both preterit and imperfect forms can in principle appear with the four classes of verb lexical aspect proposed by Vendler (1967): accomplishments, achievements, activities, and states, as shown in (1)–(4). Accomplishment and achievement predicates encode an endpoint and are termed the *telic* classes. By contrast, activities and states have no endpoint and are termed *atelic*. Accomplishments, achievements and activities are eventive (or dynamic) predicates, whereas state verbs are stative. Due to the clash of semantic features (atelic and perfective), achievements in the imperfect (example 4) can sound odd in Spanish if no appropriate context is provided.

(1)   Juan *estuvo/estaba*   enfermo.   STATE
        Juan was-pret/was-imperf ill
        "Juan was ill."

(2)   Patricio *trabajó/trabajaba*   en un banco.   ACTIVITY
        Patricio worked-pret/worked-imperf in a bank
        "Patricio worked in a bank."

(3)   Pedro *pintaba/pintó*   la pared.   ACCOMPLISHMENT
        Pedro painted-pret/painted-imperf the wall
        "Pedro painted the wall."

(4)   María *salió/?salía*   de vacaciones.   ACHIEVEMENT
        Maria went-pret/went-imperf of vacations
        "Maria went on vacation."

Simplifying significantly for the sake of clarity, the choice of preterit or imperfect depends on discourse context. The preterit typically denotes completion and is used when one wants to express a completed action or event in the past, as in (5). The imperfect typically denotes incompletion, taking a variety of other meanings, such as intention (6), progressive (7), habitual (8), and generic (9).[2]

(5)   El año pasado *visité*   Europa.   completed event
        the year past I visited (pret) Europe.
        "Last year I visited Europe."

(6)   Juan *vendía*   la casa pero la sacó del mercado.   intention
        Juan sold (imperf) the house but it took off the market
        "Juan was selling the house but he took it off the market."

(7)   Marisa *caminaba*   por el pasillo cuando saludó a Marcos.   progressive
        Marisa walked (imperf) in the hallway when she said hit o Marcos
        Marisa was walking in the hallway when she said hi to Marcos."

(8)   Cuando *era*   niña me *gustaba* jugar con muñecas.   habitual
        when I was (imperf) a little girl I liked to play with dolls
        "When I was a little girl, I liked to play with dolls."

(9)   Los dinosaurios *ponían* huevos.   generic
        the dinosaurs laid (imperf) eggs
        "Dinosaurs laid eggs."

Mood
Spanish also expresses modality grammatically on the verb, by means of mood morphology (i.e., indicative, subjunctive, imperative). Syntactically, subjunctive morphology in Spanish appears almost exclusively in embedded sentences (nominal, adjectival and adverbial clauses). A problem for the acquisition of mood morphology and the meanings that this grammatical category entail is that these meanings cannot be easily accessed by just observing simple contrasts between utterances and the context. Rather, many uses of mood morphology rest on presupposition, and the possible meanings must be constructed from complex pragmatic inferences. As a result, the acquisition of mood morphology and its semantic and pragmatic implications represents a formidable challenge for language learners in general, including L1-acquiring children, L2 adults, and not surprisingly, heritage speakers.

A traditional approach to mood relates mood choice to the *realis/irrealis* opposition. Accordingly, the indicative is used when the proposition is true of the actual world (*realis*), whereas the subjunctive is selected when the proposition is not true of the actual world (*irrealis*). This view is only partially accurate, because the syntactic, semantic and pragmatic rules that govern the selection of subjunctive in Spanish (and in other languages) are quite complex and far from straightforward (Quer, 1998). Explaining in more detail and testing the complexity of Spanish subjunctive is beyond the scope of this study. For the purposes of this article, and for comparability to previous research in bilingualism, we only mention two basic properties of Spanish subjunctive, and focus on the cases that will be tested in the study. The first one is that subjunctive occurs primarily in embedded contexts and is lexically selected by the verb or impersonal expression of the main clause. In many such cases, when subjunctive is lexically selected, its use is obligatory, as the examples (10)–(12) show. Note that some verbs, such as *querer* (to want) in (10) select subjunctive complements, but others, such as *creer* (to believe) in (11) select indicative complements:

(10)   Quiero que *vengas/*vienes.*   SUBJUNCTIVE
         I want that you come-subj/*come-indic
        "I want you to come."

(11)   Es importante que *tengas/*tienes* cuidado   SUBJUNCTIVE
        it is important that you have-subj/*have-indic care
        "It is important that you be careful."

(12)   Creo que **sea/es* verdad.*   INDICATIVE
        I believe that it *is-subj/is-indic true
        "I believe it is true."

In other cases, subjunctive morphology is optional and determined by pragmatic principles, such
as negation (cf. ex (12) *No creo que sea verdad* "I don't believe it is true"), and presupposition,
as in the examples (13) with relative clauses and (14) with the purpose connector *de manera que*
"such that." In these examples, the indicative mood indicates presupposition, or the fact that the
speaker knows the outcome of the assertion. On the other hand, the subjunctive does not assert
the outcome (indicative = presupposition, subjunctive = no presupposition).

(13)   Busco   un estudiante que *habla/hable*   japonés.
        I am looking for a student   that speak-indic/speak-subj Japanese
        "I am looking for a student that speaks Japanese."

(14)   El profesor siempre explica este teorema de manera que todos los estudiantes lo
        entienden/entiendan.
        the professor always explains the theorem so that all the students it
        understand-indic/understand-subj
        "The professor always explains the theorem in such a way that all the students
        understand/would understand it."

With temporal clauses introduced with *cuando* "when", the use of the indicative in (15) implies a

habitual event, while the subjunctive in (16) expresses a future, conditional meaning:

(15)   Cuando *llego*   de trabajar me siento a tomar un café.
         when I come back-indic from work I sit down and have coffee
        "When I come back from work, I sit down and have coffee."

(16)   Cuando *llegue*   de trabajar me sentaré a tomar un café.
         when I come back-subj from work I will sit down and have coffee
        "When I come back from work, I will sit down and have coffee."

In grammatical theory (Chomsky, 1995), a distinction is made between lexical categories and functional categories. Lexical categories refer to verbs, nouns, adjectives, adverbs, and some prepositions. Functional categories correspond to inflectional morphology and closed class words with grammatical meaning like determiners, complementizers, person, number, gender, tense, aspect, mood, etc. Functional categories, such as Tense Phrase (TP), Aspect Phrase (AspP) and Mood Phrase (MoodP) (Cinque, 1999; Giorgi & Pianesi, 1997; Poletto, 2000), are represented above the verb in a syntactic tree and separated from the lexical verb. This means that the TAM morphology only forms a unit with the lexical verb once they enter into the syntactic numeration. Then, the lexical verb moves up to these categories to check the syntactic and semantic formal features of these categories through overt inflectional morphology. Under this theoretical approach, acquiring or having knowledge of tense-aspect and mood morphology entails much more than just being able to produce correct morphology in oral production or being able to write it. It also entails knowing its syntactic distribution (i.e., that subjunctive mood typically occurs in specific syntactic contexts) and comprehending associated semantic and pragmatic entailments. The semantics and pragmatic values of this morphology depend on the feature composition of their respective functional categories.

However, different languages may vary with respect to the realization of particular functional categories in the clausal structure, or with respect to the feature values or feature strength of a given functional category. Spanish is assumed to project AspP and MoodP because it overtly grammaticalizes both the perfective/imperfective opposition and the indicative/subjunctive opposition with inflectional morphology. When AspP has the feature [+perfective] preterit morphology is mapped; when it has the feature [- perfective] imperfect morphology is mapped. English also has AspP, but according to Giorgi and Pianesi (1997), it only has a [+ perfective] feature and lacks the [- perfective] feature (in other words, English does not have imperfect morphology like Spanish). Because English does not grammaticalize mood, the functional category MoodP is assumed not to be instantiated in this language by some linguists (e.g. Giorgi & Pianesi, 1997). Hence, in learning the Spanish AspP, English speaking learners must learn that Spanish AspP has both [+ perfective] and [-perfective] features, which are realized overtly with preterit and imperfect morphology. If English is assumed not to have MoodP, then once English speaking learners learn subjunctive morphology and its syntactic and semantic distribution in Spanish, they must project a new category.

3. The Acquisition of Spanish TAM in L1, L2 and HL Learners
Tense-Aspect
Studies of L1 acquisition report that by the age of 3 years, monolingual Spanish-speaking children of both peninsular and Latin American varieties have productive knowledge of the preterit/imperfect distinction in the past (see review in Montrul, 2004, chap. 3). In spontaneous production, the preterit emerges before the imperfect, the latter being semantically more complex since it encodes a variety of meanings (as we have illustrated in (5) through (9)). With respect to the lexical class of the predicate, the preterit (perfective) emerges and is controlled first with accomplishments and achievements, both telic predicates (examples 3 and 4), while imperfect (imperfective) appears first with states and activities, the atelic classes (examples 1 and 2).

Extension of preterit to atelic classes and imperfect to telic classes in production is a later development. This correspondence between grammatical and lexical aspect has been the main source of evidence for the Lexical Aspect Hypothesis or the Primacy of Aspect Hypothesis (see Andersen & Shirai, 1996 for overview), according to which when children begin to use tense morphology, they use it to express aspect and not tense. As for comprehension of grammatical aspect, Hodgson (2005) found that 3-4 year-old children show little comprehension of the semantic entailments of the preterit and imperfect, 5-6 year olds do better with the preterit, and 7-8 year olds are as accurate as adults with both forms. Similar to the developmental trend in production, Hodgson found that children had more difficulty comprehending the semantic entailments of imperfect morphology than the entailments of preterit morphology. Thus, acquisition of the imperfect comes after acquisition of the preterit in both production and comprehension. Although children start to produce the morphology early, they do not actually master the semantics of these tenses until about age 7-8.

Like the study of L1 acquisition of aspect, the study of aspect in L2 acquisition has been influenced by the idea that past tense morphology emerges in a systematic fashion, expressed in the Lexical Aspect Hypothesis (Andersen, 1986). The hypothesis states that, in early stages of acquisition, verbal morphology encodes only inherent aspectual distinctions (i.e., it does not encode tense or grammatical aspect), suggesting that Tense is defective in L2 acquisition as well as in L1 acquisition. Andersen proposed a sequence of eight developmental stages for the naturalistic acquisition of L2 Spanish. Initially, L2 learners rely on the present, which in Spanish has imperfective value. The preterit (the perfective marker) appears first and spreads from punctual verbs (i.e., achievement predicates in stage 2) to stative verbs by stage 8. The imperfect appears after the preterit at stage 3 and spreads from stative verbs to telic verbs from stage 5 onwards, starting with accomplishments and finally spreading to achievements. The preterit with stative verbs and the imperfect with achievement verbs are the last combinations to be acquired.

Since its inception, the Lexical Aspect Hypothesis has generated and continues to generate an important body of research in a variety of second languages (for comprehensive overviews see Bardovi-Harlig, 1999 and Salaberry & Shirai, 2002). Much research on the acquisition of preterit and imperfect tenses in Spanish has focused exclusively on investigating the acquisition of tense/aspect morphology in the context of lexical aspect (see Salaberry, 2000, among many others). All these early studies have investigated the link between emergence and loss of overt preterit/imperfect morphology and lexical aspect, using production data, but have not offered consistent evidence in support of Andersen's stages. But if Aspect is instantiated as a functional category, the acquisition of functional categories involves much more than producing overt morphology. It also entails mastering formal features and understanding the different interpretations associated with these two aspectual forms in Spanish. Montrul and Slabakova (2002, 2003) investigated the adult L2 acquisition of morphological and semantic properties of preterit and imperfect by English-speaking learners of different proficiency levels, and developed tasks aimed at eliciting judgments on meaning interpretations. Montrul and Slabakova (2002) were able to establish that the acquisition of tense-aspect morphology preceded the acquisition of the aspectual semantic entailments, but that lower level L2 learners had significant problems

mastering the preterit/imperfect contrast with stative verbs. Subsequently, Montrul and Slabakova (2003) showed that the subtle semantic contrasts between preterit and imperfect were eventually acquirable at a near-native level in instructed learners.

Studies of adult early bilinguals have reported that tense-aspect is a vulnerable area in Spanish heritage speakers (Montrul, 2002, 2007; Silva-Corvalán, 1994). While heritage speakers retain the preterit-imperfect distinction in the past, Silva-Corvalán (1994) showed that the meanings and forms are often confused in spontaneous oral production, especially with stative and achievement verbs. The imperfect is often used in place of the preterit, as in (17) when the context describes a one-time event in the past, or the preterit in place of the imperfect, as in example (18), which illustrates a habitual context.

(17)   *Yo fui el único hombre que *tenían* (Imperf) (correct form *tuvieron*)
        "I was the only son they had."

(18)   *En la casa mi mamá era la única que *habló* (Pret) español y las demás *hablaron* (Pret)
        en inglés. (correct forms *hablaba, hablaban*)
        "At home my mom was the only one who spoke Spanish and the other ones only spoke
        English."

Similar findings of misuse in production and non-native like interpretations in two written tasks are reported by Montrul (2002). The patterns of errors found in adult early bilinguals are similar to the patterns of errors documented in studies of monolingual L1 Spanish-speaking children during linguistic development.

Finally, Montrul (2004) compared results from heritage speakers and advanced L2 learners on the use of preterit and imperfect following the methodology in Montrul (2002) and Montrul and Slabakova (2003). The results showed that both the L2 learners and the heritage speakers had difficulty with stative verbs in the preterit, and that stative verbs in the imperfect were also problematic for the L2 speakers. Although both L2 learners and heritage speakers appeared to have similar problems, it is hard to assess how similar the groups were because this study did not include heritage speakers and L2 learners of different proficiency levels.

Mood
The subjunctive is one of the most difficult and protracted aspects of the grammar of Spanish to be acquired in L1 and L2 acquisition and bilingualism. It is prone to fossilization in L2 acquisition and incomplete acquisition or loss in bilingualism. Due to the syntactic, semantic and pragmatic complexity of this grammatical category, native-like mastery of this form requires several years of both qualitatively and quantitatively rich input.

The L1 acquisition literature states that subjunctive morphology also emerges before the age of 3 years with commands and other temporal and purpose expressions (*cuando* "when", *para que* "so that") (See review in Montrul, 2004, chap. 3). However, the full spectrum of uses and

subtleties of subjunctive knowledge, including relative clauses, temporal clauses, and other complement expressions, are not acquired until much later, well after the age of 8 years both in production and comprehension (Blake, 1983; Pérez-Leroux, 1998).

Many of the existing L2 acquisition studies have focused on how beginning to intermediate learners of Spanish use subjunctive morphology in spontaneous or elicited oral production, showing that L2 learners have great difficulty producing subjunctive forms. For example, Terrell, Barcroft and Perrone (1987) found that first-year Spanish learners were 90% accurate on a written task but only about 12% accurate in oral production. In another study, Leow (1995) found that proficiency determined to what extent L2 learners would pay attention to subjunctive in the input. Collentine (1995) argues that beginner and intermediate learners have problems with the morphological realization of subjunctive because they do not yet control the syntax of subjunctive, in other words, because subjunctive is mostly used in subordinate sentences. In oral production, these learners tend to produce simple sentences, parataxis and coordinated structures. Collentine (1998, 2003) was able to corroborate that instruction in syntax improved beginner and intermediate learners' production of subjunctive morphology.

More recently, a series of studies have examined the semantic interpretations of subjunctive morphology in different syntactic contexts, including negation and relative clauses (Borgonovo, Bruhn de Garavito & Prévost, 2005; Borgonovo & Prévost, 2003, 2005; Bruhn-Garavito, 1997). Focusing on very advanced to near-native speakers of French and English background, these three studies show that very advanced L2 learners successfully acquire the subtle semantic implications of mood selection in Spanish, but because these studies were not cross-sectional or developmental, they are unable to address *when* during the acquisition process this ability emerges. In short, we have a few studies on the oral production abilities of very early learners and others on the semantic judgments of very advanced learners. Oral production is too difficult for beginner to intermediate learners, and semantic interpretations might come more easily to advanced and near-native speakers. To our knowledge, there are no studies that look at the emergence of subjunctive and its morphological and semantic development across the proficiency spectrum.

Not surprisingly, subjunctive morphology is highly affected not only in second language learners, but in heritage speakers as well. Some low proficiency speakers do not produce subjunctive forms (Montrul, 2007; Silva-Corvalán, 1994) Many heritage speakers tend to use only the indicative in non-obligatory and in variable contexts, as the following examples from Silva-Corvalán (1994, p. 42) show:

(19)   *I hope que no me *toca* (PI) la misma problema.[3]   (= toque PS)
        "I hope I don't run into the same problem."

(20)   Quizás *vengo* mañana (= venga (PS)).
        "Maybe I come tomorrow."

In a small-scale study with intermediate and advanced proficiency Spanish heritage speakers, Montrul (2007) found a high rate of errors with present subjunctive in written tasks and little discrimination between the semantic implicatures of indicative and subjunctive morphology in variable contexts. Thus, problems with subjunctive in adult heritage speakers appear to extend to both production and comprehension as well, indicating a competence problem.

To date, the only study comparing L2 learners and heritage speakers on knowledge of subjunctive is Potowski, Jegerski and Morgan-Short (2009). Because both L2 learners and HL learners have problems with subjunctive, this study sought to compare the effects of processing instruction (VanPatten, 2004) and traditional output-based instruction, targeting the interpretation and production of the past subjunctive with indefinite referents. The results showed that after receiving the same types of instruction, the L2 group made greater gains than did the heritage language group. Potowski et al. (2009) concluded that heritage speakers can benefit from focused grammar instruction, but further research is needed.

To summarize, all the studies reviewed above reveal that full acquisition of tense-aspect and mood morphology takes a while and is prone to developmental delay, loss and even fossilization in both L2 learners and heritage speakers. But there are few studies that have directly compared these two groups of learners on similar measures in order to tell whether their developmental paths and ultimate attainment are similar or dissimilar.

The Study
In order to investigate whether heritage speakers and L2 learners have similar knowledge of tense-aspect and mood morphology, this study focuses on the acquisition of the morphology of preterit/imperfect and indicative/subjunctive and their semantic implications in L2 learners and heritage language learners of different proficiency levels. This study seeks to determine whether L2 learners and heritage speakers can recognize tense-aspect and mood morphology and whether they are aware of their semantic implications.

Method
Participants
The data reported in this article are part of a larger ongoing study comparing L2 learners and heritage speakers in different grammatical areas of Spanish (vocabulary, phonology, syntax, morphology). More than 140 L2 learners of Spanish and Spanish heritage speakers have participated in the large-scale study. They all completed a linguistic background questionnaire and a short written Spanish proficiency test. For this article, the results of 60 L2 learners and 60 HL learners maximally matched for proficiency on a written test were analyzed. The L2 learners were 11 males and 49 females between the age of 18 and 27 ($M = 22.7$). They were all native speakers of English raised in English-speaking families and had started acquiring Spanish as a foreign language around or after puberty (age range 12-25, $M = 13.35$). At the time of the data collection, most of them were enrolled in Spanish language classes at a major public research institution in the United States. Many of the advanced-level speakers were teaching assistants in

the Spanish language program. Sixty-five percent (39 L2 learners) had had some sort of short study abroad experience or had traveled for more than two weeks to a Spanish-speaking country.

The HL learner group consisted of 60 Spanish-English bilinguals of different proficiency in Spanish (20 males, 40 females between the ages of 18 and 30, $M = 22.3$ years). Because heritage language learners form a heterogeneous group, several factors were taken into account so as to reduce the variability in this group as much as possible. At least one of the parents of the heritage speakers had to be a first-generation immigrant, native speaker of Spanish. Furthermore, all heritage speakers had to be born and schooled in the United States and had to have been exposed to English before the age of 6 (preschool). Heritage speakers who immigrated in childhood and may have received schooling in their country of origin were specifically excluded. Studies have shown that bilingual individuals with this profile have better command of the family language than simultaneous or near simultaneous bilinguals, who in turn are more similar to L2 learners (Montrul, 2002, 2008). Like the L2 learners, all heritage speakers were graduate and undergraduate students at the same major public research university in the United States and were taking Spanish language classes. Most of the heritage speakers were enrolled in the same classes as the L2 learners and had academic literacy in Spanish. There were also a couple of Spanish teaching assistants in this group.

Fifty percent of the heritage speakers reported that Spanish was their mother language, 33.3% reported English, and the remaining 15.6% reported both languages. As for language used at home in childhood, 47% reported use of both Spanish and English, and 43% reported only Spanish, and 10%, mostly English. Eighty-five percent of the participants reported that both parents were from Mexico; for the other 15%, one parent was from Mexico and the other one was born in the US. All the heritage speakers had siblings, but only 20% of the participants reported speaking Spanish with their siblings, 42% spoke only English, and 38% spoke both languages. Despite the fact that all heritage speakers continued to speak some Spanish throughout their lives, they rated their Spanish abilities as between 2-5 ($M = 3.9$) on a self-rating scale with a minimum value of 1 and a maximum value of 5 (native speaker command), whereas they rated their English between 4-5 ($M = 4.88$).A group of 23 Spanish native speakers born and raised in Spanish-speaking countries (mostly from Mexico, some from Argentina, Venezuela, Spain) formed the control group. The mean age for this group was 29.41 (range 21-57).[4]

All subjects, including the native speaker controls, took a short Spanish proficiency test (vocabulary part of an old Modern Language Association test and a cloze part of a Diploma de Español como Lengua Extranjera test), the same test used in several other recent studies of L2 learners and heritage speakers (Montrul, 2010; Montrul, Foote & Perpiñán, 2008). The test consisted of a total of 50 items. Reliability statistics computed on the written proficiency test using Cronbach's alpha turned out to be quite high for both the heritage speakers ($r = .88$) and the L2 learners ($r = .87$).[5] Table 1 displays the mean accuracy scores per group. All the native speakers scored above 90% (scores range 45-50), while the L2 learners and the HL learners scored around 70%. Overall scores on the proficiency test for the L2 learners ($M = 35.7$) and the HL learners ($M = 35.36$) were compared with an independent samples *t*-test. Results indicated

that the two groups did not differ from each other, $t(118) = 0.20$, $p = 0.19$. Within each group, those learners scoring between 40-50 were classified as advanced, those scoring between 30-39 as intermediate, and those scoring below 30 as low proficiency.

Table 1
Written Proficiency Scores (max. 50)

Group	N	Mean	Standard deviation	range
native speakers	23	48.6	1	47-50
HL learners	60	35.36	8.5	15-49
advanced	23	43.78	2.53	40-49
intermediate	21	34.76	2.58	30-39
low	16	24.06	4.58	15-29
L2 learners	60	35.7	9.64	16-50
advanced	23	45.91	2.42	41-50
intermediate	21	34.09	2.5	30-38
low	16	23.12	4.09	16-29

Tasks
Following the methodology employed by Montrul (2002) and Montrul and Slabakova (2003) with tense-aspect and Montrul (2007) with subjunctive, two elicited written morphology recognition tasks and two sentence conjunction judgment tasks were specifically designed to test receptive and interpretative knowledge of tense-aspect and mood morphology.

The purpose of the two morphology recognition tasks, one for tense-aspect and one for mood, (see Appendices A and B) was to see whether the learners recognized the appropriate inflectional morphology in required contexts. The written morphology recognition task for aspect was a short passage narrating a story in the past. Participants had to read the passage and choose the correct form of the verb from two options (preterit or imperfect) based on the context of the story. While examples (1)–(4) showed variable uses of preterit and imperfect (i.e., both are grammatically correct, although they imply a semantic difference), the passage had 30 blanks (15 with verbs in the preterit and 15 in the imperfect) exemplifying obligatory contexts for each past tense form. That is, only one tense was correct in each blank. The morphology recognition task testing the indicative-subjunctive contrast followed a similar format. It was a one page letter from a patient to his doctor discussing advice and opinion. The passage contained 20 blanks: 10 requiring subjunctive and 10 requiring indicative. All uses of subjunctive in this task were obligatory; that is, the subjunctive and the indicative were subcategorized by the verb or subordinating expression. These tasks allowed us to test whether the L2 learners and the heritage language learners confused verbal forms (preterit and imperfect, subjunctive and indicative), or whether they overgeneralized one form to the other (e.g., preterit to imperfect and indicative to subjunctive) regardless of context.

While the morphology recognition tasks targeted written recognition and were used as a sort of pre-test, the purpose of the sentence conjunction tasks was to investigate semantic implications and entailments of tense-aspect and mood morphology.

The sentence conjunction judgment task testing aspect was a shortened version of the original test developed by Montrul and Slabakova (2003) and Slabakova and Montrul (2002) for L2 acquisition and used by Montrul (2002) with Spanish heritage speakers. The task consisted of 15 minimal pairs (5 with stative predicates, 5 with accomplishments, 5 with achievements), such as the examples given below. The 30 sentences were presented in randomized order, and the participants had to judge whether each sentence was logical or contradictory by choosing a number on the scale (2 = logical, -2 = contradictory).

Example with a stative predicate

La clase era a las 10:00 pero empezó a las 10:30.   IMPERFECT (logical)
    -2   2   0   1   2
La clase fue a las 10:00 pero empezó a las 10:30.   PRETERIT (contradictory)
    -2   2   0   1   2
"The class was at 10:00 but started at 10:30."

Example with an accomplishment predicate

Los González vendían la casa pero nadie la compró.   IMPERFECT (logical)
    -2   2   0   1   2
Los González vendieron la casa pero nadie la compró.   PRETERIT (contradictory)
    -2   2   0   1   2
"The González sold the house but nobody bought it."

Example with an achievement predicate

Juan alcanzaba la cima pero un fuerte viento se lo impidió.   IMPERFECT (logical)
    -2   2   0   1   2
Juan alcanzó la cima pero un fuerte viento se lo impidió.   PRETERIT (contradictory)
    -2   2   0   1   2
"Juan reached the summit but a strong wind prevented him from reaching it."

All sentences in the imperfect were logical, while those in the preterit were contradictory. The task also included 30 filler items (logical and contradictory sentences in the present) to counterbalance the types of sentences and responses.

The sentence conjunction judgment task testing mood (indicative vs. subjunctive) was similar in format to the task testing tense and aspect. The aim of this task was to test variable uses of

subjunctive depending on context and presupposition, especially the case of relative clauses. But to broaden the scope of the test, temporal clauses with *cuando* "when" were included.

Subjunctive with *cuando* is one of the first uses to be acquired. As a third structure, we introduced another expression that depends on presupposition, *de manera que* "such that". Admittedly, this expression was the least likely to be known by the heritage speakers because it is not very frequent in spoken Spanish, but it was included to discriminate levels of familiarity with subjunctive expression and levels of proficiency. Therefore, the test included three main conditions. The first condition (5 minimal pairs) tested temporal clauses with *cuando* "when" in habitual contexts. Therefore, the indicative was logical, but the subjunctive expressing a future meaning was not. These sentences were ungrammatical because the verb of the main clause was left in the present instead of the future. Although the future tense is typically taught before the subjunctive is introduced in language classes, the main reason for not using the future tense in these sentences was that the differences between the two sentences would rest on the mood and on the tense, and the goal of this study was to test the mood variable only.

Example with Cuando
   Cada año, Ana se alegra cuando le aumentan el sueldo.   INDICATIVE (logical)
       -2   2   0   1   2
   *Cada año, Ana se alegra cuando le aumenten el sueldo.   SUBJUNCTIVE (contradictory)
       -2   2   0   1   2
   "Every year, Ana is happy when her salary is raised."

The second condition tested relative clauses. In these sentences, the subjunctive made the combinations logical (no presupposition), while the indicative made them contradictory (presupposition).

Example with a relative clause
   *Necesito un libro de cuentos para niños que tiene ilustraciones de Miró, pero no sé si hay
   uno.   INDICATIVE (contradictory)
       -2   2   0   1   2
   Necesito un libro de cuentos para niños que tenga ilustraciones de Miró pero no sé si hay uno.
                                                               SUBJUNCTIVE (logical)
       -2   2   0   1   2
   "I need a children's book that has illustrations by Miró, but I don't know if there is one."

The third condition tested the purpose expression *de manera que* "such that", and these sentences were also logical with the subjunctive (no-presupposition) and contradictory with the indicative (presupposition). There were also 30 filler items in this task.

Example with de manera que

    *El profesor siempre explica ese teorema de manera que todos los estudiantes lo entienden, pero unos pocos estudiantes no lo entienden.   INDICATIVE (contradictory)
      -2   2   0   1   2

    El profesor siempre explica ese teorema de manera que todos los estudiantes lo entiendan, pero unos pocos unos estudiantes no lo entienden.   SUBJUNCTIVE (logical)
      -2   2   0   1   2

    "The professor always explains this theorem in such a way that all students understand it but some students don't understand it."

Procedure

All participants were tested individually by a research assistant in two one- to one-and-a-half hour long testing sessions. The order of the tasks was randomized. In addition to the tests reported here, all participants also completed other oral and written tests related to other studies reported elsewhere. All participants were paid for their participation.

Hypotheses

If early language experience does not confer an advantage for heritage language learners in aspects of morphosyntax as Au et al. (2002, 2008) claimed, then there will be no overall differences between L2 learners and heritage language learners in recognition, accuracy and mean ratings on semantic interpretations of TAM morphology.

However, because not all constructions and contexts for tense-aspect and mood are acquired at the same time, we expect the two groups to be more accurate with tense-aspect than with indicative/subjunctive because grammatical aspect emerges earlier than mood in acquisition.

We also expect differences among the two task subconditions within groups. If the acquisition of tense and aspect follows a universal developmental path as the existing literature indicates, L2 learners and heritage speakers are expected to be more accurate at rejecting sentences in the preterit than at accepting sentences in the imperfect, because the imperfect emerges after the preterit. With respect to the specific predicates investigated, the two groups are expected to be more accurate at interpreting the preterit/imperfect contrast with accomplishments than with achievements and states. Specifically, the two groups of learners are expected to be less accepting of achievement predicates in the imperfect and of stative verbs in the preterit, since these two are non-prototypical combinations that are acquired later in acquisition. Finally, because stative verbs are neutral in English and can have a perfective or an imperfective value depending on context, the preterit-imperfect contrast with stative verbs may be more problematic for the L2 learners than for the heritage speakers because they may have received less input in Spanish and at a later age than the HL learners.

Subjunctive with *cuando* and with relative clauses is taught in L2 classrooms. At least for L2 learners, it is expected that they will be more accurate at recognizing subjunctive/indicative contrasts with *cuando* and with relative clauses than with *de manera que*. It is unclear whether *de manera que* is actually taught, but L2 learners at higher proficiency levels may be familiar with this construction.

Even though subjunctive with *cuando* and relative clauses is very frequent in spoken Spanish, heritage speakers in general have been reported to exhibit loss or incomplete acquisition of subjunctive (Silva-Corvalán, 1994, 2003). Even instructed heritage language learners seem to have great difficulty recognizing subjunctive and indicative forms (Montrul, 2007; Potowski et al., 2009). It is an open question, but one that we attempt to answer in this study, whether heritage speakers in an instructed setting will follow the same developmental stages as instructed L2 learners.

Results

The Morphology Recognition Tasks

The morphology recognition task is a highly metalinguistic task that requires learners to choose one form of the verb for each blank provided. This type of discrete point task is very common in L2 classrooms. In the present study, correct responses were assigned 1 point, incorrect responses 0. Mean accuracy scores per participant presented in Table 2 were submitted to statistical analysis. Throughout the study, two main statistical analyses were conducted. The first analysis compared the native speakers ($n = 23$), the heritage language learners ($n = 60$) and the L2 learners ($n = 60$) to establish whether the experimental groups differed from the control group and whether they differed from each other. The second analysis compared the L2 learners and the HL learners by proficiency levels, with the native speaker control group excluded: advanced HL learners ($n = 23$) vs. advanced L2 learners ($n = 23$), intermediate HL learners ($n = 21$) vs. intermediate L2 learners ($n = 21$), and low proficiency HL learners ($n = 16$) vs. low proficiency L2 learners ($n = 16$). The goal of this analysis was to see whether differences between the two groups varied based proficiency level.

Table 2
Mean Percentage Accuracy Scores in the Morphology Recognition Tasks

Group	N	Tense-Aspect Task				Mood Task			
		preterit		imperfect		indicative		subjunctive	
		M	SD	*M*	SD	*M*	SD	*M*	SD
Native speakers	23	95.9	5.6	96.5	4.9	99.1	2.8	97.4	4.4
HL learners	60	89.2	12.6	73.1	18.3	92.3	16.5	64.8	29.1
advanced	23	90.3	11.1	84.2	13	97.4	4.4	85.6	14
intermediate	21	92.2	8.7	69.9	19.3	94.7	9.8	60.9	30.4
low	16	83.5	17.2	61.3	15	81.8	27.3	40	21.6
L2 learners	60	89.3	11.7	88.9	12.7	92.8	12.5	78.3	26.6
advanced	23	95.6	5.1	95.4	7.8	96.5	11.1	94.3	9.4
intermediate	21	86.7	13.4	85.7	12.6	83.8	13.5	74.7	2.3
low	16	83.5	12.4	83.9	15.1	99.4	2.5	60	33.8

In the tense and aspect task, all the native speakers performed above 95% accuracy, the L2 learners above 88% and the HL learners above 73%. The results of two one-way ANOVAs revealed a significant difference between the native speakers and the two experimental groups with preterit ($F(2, 142) = 3.36$, $p = 0.03$) and with imperfect ($F(2, 142) = 28.3$, $p < 0.01$), suggesting that the two experimental groups do not possess native-like recognition of this morphology in a written passage. Tukey post-hoc tests showed no differences between the L2 learners and the HL learners with preterit ($p = 0.97$), but the L2 learners were significantly more accurate than the HL learners with imperfect ($p < 0.01$). For the proficiency level analysis, a factorial ANOVA with tense (preterit, imperfect), group (HL learners, L2 learners) and proficiency level (low, intermediate, advanced) was conducted. The results indicated a significant main effect for tense, with preterit better than imperfect ($F(1, 114) = 30.5$, $p < 0.01$), a significant main effect for group (L2 learners better than HL learners) ($F(1, 114) = 20.7$, $p < 0.01$), a significant main effect by level ($F(2, 114) = 18.3$, $p < 0.01$) (with advanced learners performing better than intermediate and low proficiency learners, and intermediate learners performing better than low proficiency learners), and a marginally significant tense by group by level interaction ($F(1,141) = 3.2$, $p = 0.04$). In essence, the L2 learners were more targetlike than the HL learners with the imperfect across proficiency levels.

The indicative-subjunctive task revealed no differences between the native speakers and the experimental groups with indicative ($F(1,142)= 2.2$, $p = 0.1$) but highly significant differences with accuracy on subjunctive ($F(1,142)= 13.8$, $p < 0.01$). As in the aspect task, the L2 learners were again statistically more accurate than the heritage language learners (Tukey, $p = 0.013$). The group by proficiency level analysis indicated a significant main effect for mood ($F(1, 114) = 82.2$, $p < 0.01$), with higher accuracy on indicative than on subjunctive, a significant main effect

for group (*F*(1, 114) = 11.4, *p* < 0.001), with L2 learners being more accurate than HL learners, a significant main effect by level (*F*(2, 114) = 33.1, *p* < 0.01), and significant mood by group (*F*(1,141) = 5.8, *p* = 0.17) and mood by level interactions (*F*(1,141) = 14.2, *p* < 0.01). As in the aspect task, the L2 learners were overall more targetlike than the HL learners with subjunctive across proficiency levels. Except the low proficiency HL learners who performed around chance with subjunctive (40%-60%), all other groups showed basic recognition, if far from native-like, of the relevant morphology.

The Sentence Conjunction Judgment Tasks
By focusing on meaning and interpretation, the Sentence Conjunction Judgment Tasks seek to tap more intuitive knowledge of tense-aspect and mood morphology. Two main analyses were performed. The first one looked at whether each group made a significant distinction between the two morphological forms. If the difference was significant, we interpreted this finding as evidence that at least some members in the group make a semantic distinction between the two morphological forms. The other analysis compared the groups overall and by proficiency levels with each morphology variable.

Tense-Aspect
In the sentence conjunction judgment task for tense-aspect, the experimental groups were expected to be more accurate at recognizing that sentences in the preterit were contradictory than at accepting logical sentences with the imperfect. We also predicted differences by lexical class, since the emergence and acquisition of preterit and imperfect in Spanish is highly conditioned by lexical aspect. Figures 1-3 present the overall group results. (Means and standard deviations appear in Table A in Appendix C).

The two experimental groups distinguished overall between preterit and imperfect on this task (independent samples *t*-test *t*(119) = -15.3, *p* < 0.01), but since the maximum scores were 2 and - 2, the strength of rejection of preterit (*M* =-1.17, *SD* = 6..4) was stronger than that of imperfect (*M* =.45, *SD* = 8..4). Figure 1 displays the results of accomplishment verbs in sentences such as *Los González vendían/vendieron la casa pero nadie la compró*. With mean ratings on the opposite sides of the rating scale, the three groups distinguished statistically between preterit and imperfect (native speakers *t*(22) = -17.7, p < 0.01; HL learners *t*(59) = -9.8, *p* < 0.01; L2 learners *t*(59) = -9.6, *p* < 0.01). There were differences between the native speakers and the two experimental groups with preterit (*F*(2,142) = 6.8, *p* = 0.001) and with imperfect (*F*(2,142) = 6.4, *p* = 0.002), but the two experimental groups were no different from each other on preterit or imperfect (Tukey, ns).
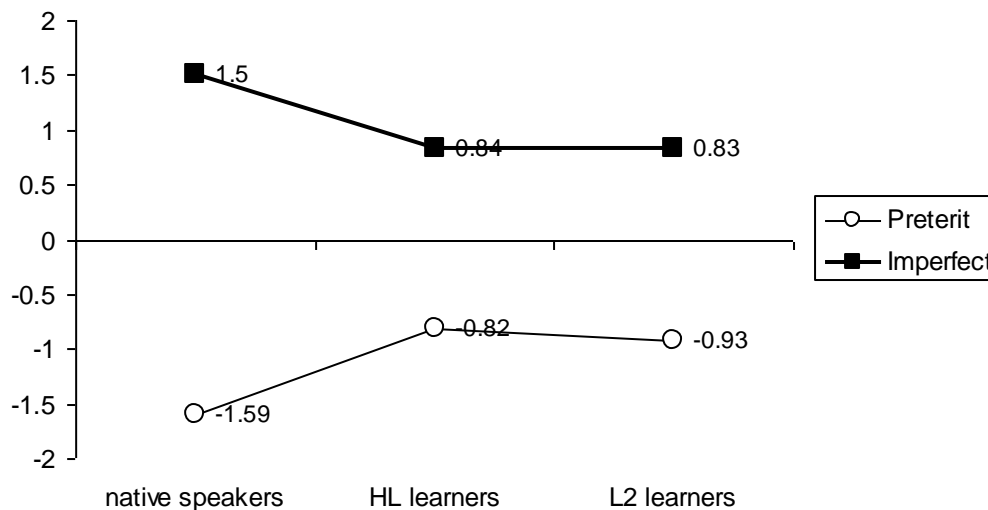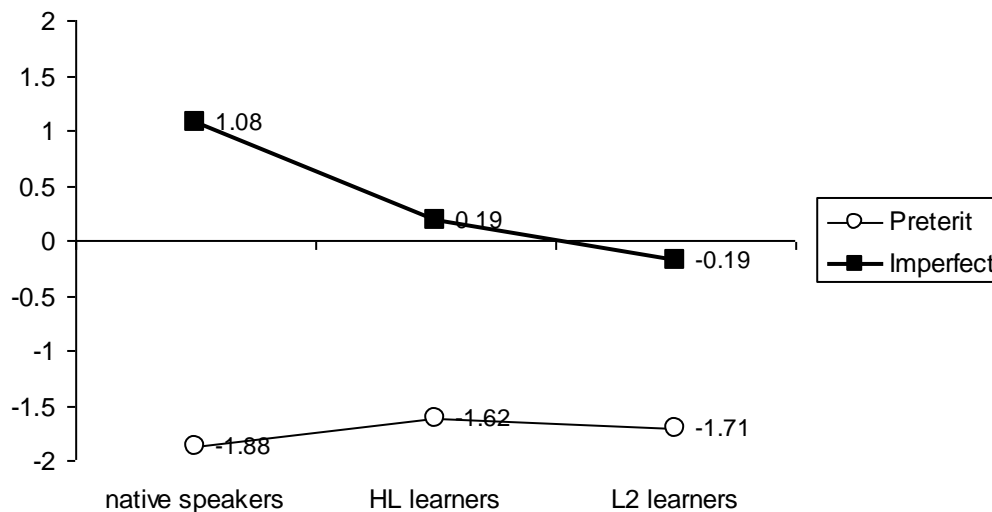
Figure 1. Sentence conjunction judgment task. Mean ratings on preterit and imperfect with accomplishment predicates.

Figure 2 shows the mean ratings on achievement predicates, such as in *Juan alcanzaba/alcanzó la cima pero un fuerte viento se lo impidió*. Since achievements are telic and punctual, they are typically common with preterit and less so with imperfect, unless a specific context is provided. Achievements in the imperfect are also acquired later in development than accomplishments with the two verbal forms, for example. Although all groups distinguished statistically between preterit and imperfect with these predicates (native speakers $t(22) = -19.4$, $p < 0.01$; HL learners $t(59) = -13.2$, $p < 0.01$; L2 learners $t(59) = -8.2$, $p < 0.01$), the strength of acceptance of imperfect was quite low, especially for the learner groups.

The three groups did not differ from each other in their ratings on preterit ($F(2, 142) = 2.1$, $p = 0.14$), but they differed significantly in their ratings on imperfect ($F(2, 142) = 12.6$, $p < 0.01$). The native speakers differed significantly from the two learners groups (Tukey, $p < 0.01$), but the L2 learners and the HL learners did not differ from each other (Tukey, ns), even though the HL learners' overall ratings were on the positive side of the scale, whereas the L2 learners' ratings were on the negative side of the scale.

Figure 2. Sentence conjunction judgment task. Mean ratings on preterit and imperfect with achievement predicates.

Figure 3 presents the results of state predicates, as in *La clase era/fue a las 10:00 pero empezó a las 10:30*. These were also hypothesized to be more problematic for the learners for two main reasons: 1) English stative verbs are neutral as to the perfective/imperfective distinction, and 2) stative verbs in the preterit are also among the later stages of tense-aspect development. As with accomplishments and achievements, all groups distinguished between preterit and imperfect (native speakers $t(22) = -59.9$, $p < 0.01$; HL learners $t(59) = -14.4$, $p < 0.01$; L2 learners $t(59) = -5.6$, $p < 0.01$). At the group level, there were differences between the native speakers and the two experimental groups with the preterit ($F(2, 142) = 15.2$, $p < 0.01$) and with the imperfect ($F(2, 142) = 44.2$, $p < 0.01$). However, the HL learners were significantly more native-like with stative verbs in the imperfect than the L2 learners (Tukey, $p < 0.01$).
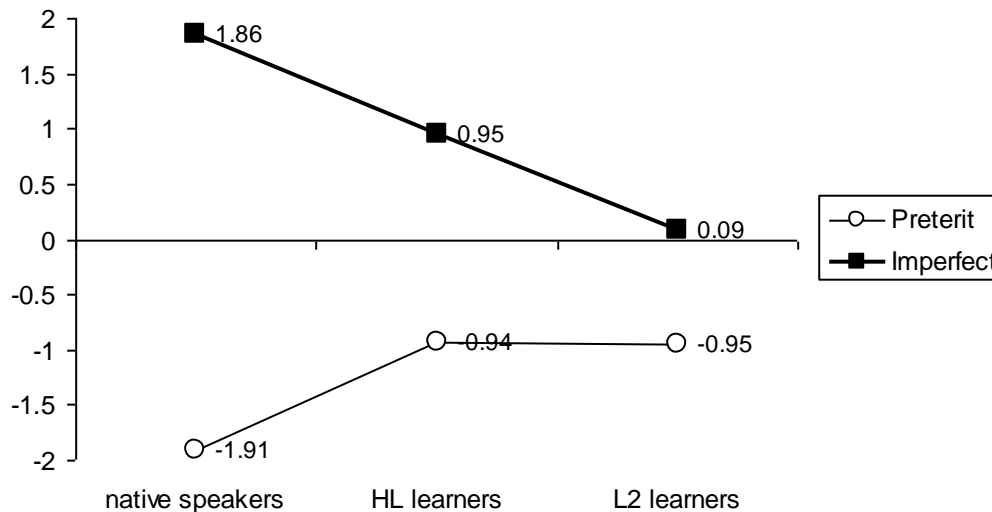
Figure 3. Sentence conjunction judgment task. Mean ratings on preterit and imperfect with stative predicates.

To summarize the results thus far, the L2 learners and the HL learners distinguished between preterit and imperfect in this task with the three predicates, but their ratings were significantly different and less determinate than those of the native speakers, suggesting that the two experimental groups have indeterminate knowledge of the semantics of tense-aspect morphology in Spanish. There were no differences overall between the L2 learners and the HL learners, except with stative verbs in the imperfect, with which the HL learners were more native-like than the L2 learners.

We now turn to a closer comparison between the two learner groups by proficiency levels in order to trace the developmental path the two groups follow with tense-aspect on the one hand and mood on the other. These results appear in Figures 4, 5 and 6 (the native speakers are displayed in the graphs for visual reference only).

The results of accomplishment predicates by proficiency level are displayed in Figure 4. A factorial ANOVA with tense (preterit, imperfect) as the within variable and group (HL learners, L2 learners) and level (low, intermediate, advanced) as the between variables yielded a main effect for tense ($F(1, 114) = 270.7$, $p < 0.01$) and a tense by level interaction ($F(2, 114) = 39.2$, $p < 0.01$).
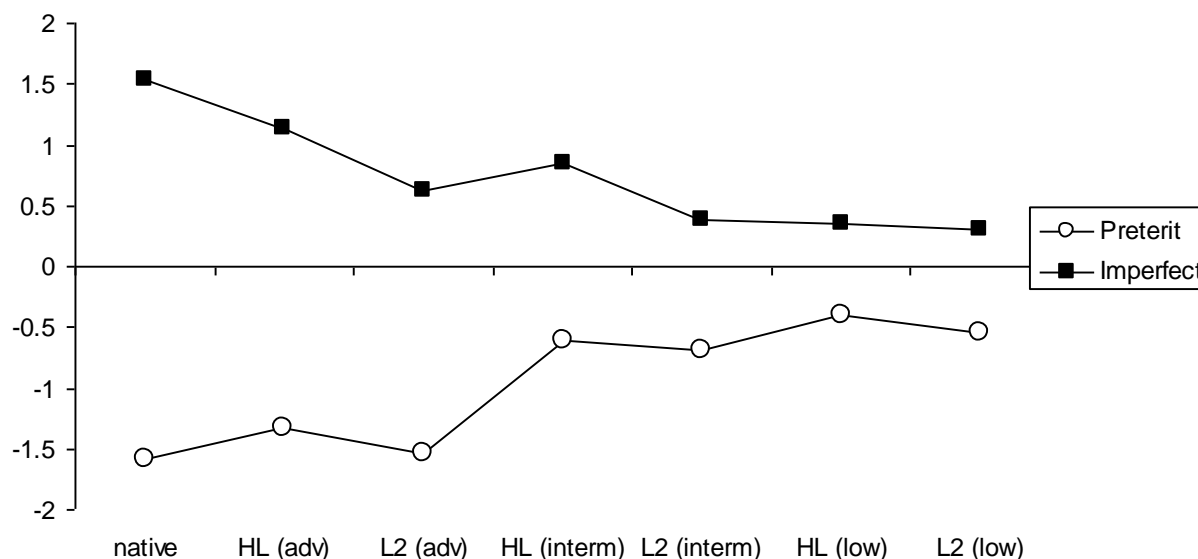
Figure 4. Sentence conjunction judgment task. Mean ratings on preterit and imperfect with accomplishment predicates by proficiency levels.

The results with achievement predicates (Figure 5) showed significant main effects for tense ($F(1,114) = 330.2$, $p < 0.01$) for group ($F(1,114) = 8.1$, $p = 0.005$) and proficiency level ($F(1,114) = 4.1$, $p = 0.019$), as well as a significant group by tense by level interaction ($F(2,114) = 12.4$, $p = 0.01$). There were no differences between the advanced and low proficiency groups with the preterit, and no difference between HL learners and L2 learners within those proficiency levels. However, the results of achievements in the imperfect are quite different. A one-way ANOVA and Tukey post-hoc test comparing the means of all the groups on imperfect revealed no significant differences between the low and intermediate L2 learners (Tukey, ns), but the low and intermediate HL learners were more targetlike than the low and intermediate L2 learners (Tukey, $p < 0.01$). At the advanced level, the L2 learners and the HL learners did not differ from each other (Tukey, ns). Finally, while the HL learners at all proficiency levels and the advanced L2 learners distinguished semantically between preterit and imperfect, the low and intermediate proficiency L2 learners did not (low $t(15) = -0.05$, $p = 0.9$; intermediate $t(20) = -1.68$, $p = 0.1$).
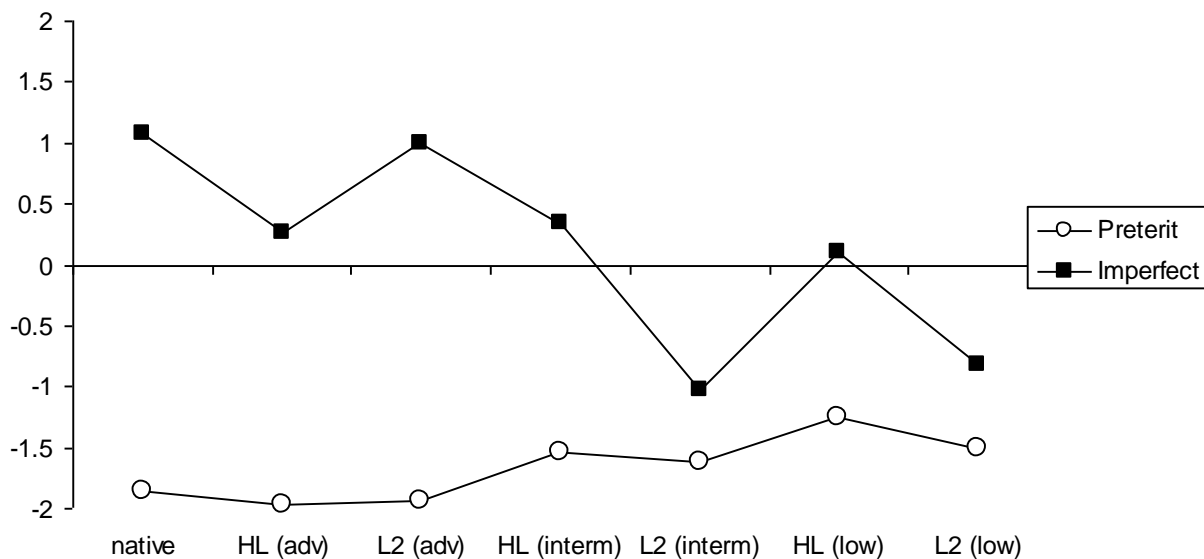
Figure 5. Sentence conjunction judgment task. Mean ratings on preterit and imperfect with achievement predicates by proficiency level.

Figure 6 displays the results of stative verbs, which showed significant differences between the HL learners and the L2 learners in the overall group analysis, especially with the imperfect ($F(1,114) = 10.1$, $p = 0.01$). In the proficiency analysis, there was a group by tense by level interaction ($F(2, 114) = 6.03$, $p = 0.003$). According to Tukey post hoc tests, the low and intermediate proficiency L2 and HL learners did not differ statistically from each other, nor did the two advanced groups. There were differences between the advanced proficiency level and the other two levels, however (Tukey, $p < 0.01$). In the imperfect, the low and intermediate proficiency L2 learners were significantly less accurate than the advanced L2 learners and all the heritage speakers, also at the $p < 0.01$ level. As with achievements, the low and intermediate proficiency L2 learners did not discriminate semantically between preterit and imperfect (low L2 learners $t(15) = 0.5$, $p = 0.9$, intermediate L2 learners $t(20) = 1.6$, $p = 0.1$) while all the HL learners did.
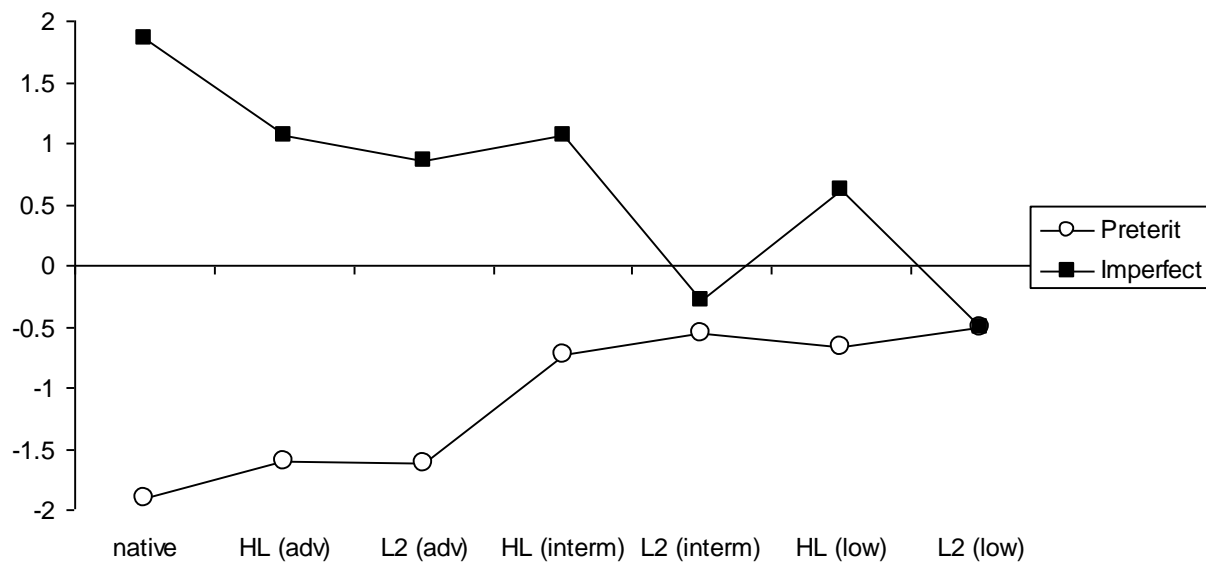
Figure 6. Sentence conjunction judgment task. Mean ratings on preterit and imperfect with stative predicates by proficiency level.

Even though the results of the morphology recognition task showed that the L2 learners were overall more accurate than the HL learners at identifying correct imperfect morphology, the results of the sentence conjunction judgment task showed the opposite: the HL learners were better at discriminating preterit and imperfect semantically in minimal pairs than the L2 learners, especially with achievements and states. Differences between the L2 learners and the HL learners, with an advantage for the HL learners, were most evident at the low and intermediate proficiency levels but not at the advanced level. We now seek to determine whether similar response patterns hold for the interpretation of mood.

Mood
For the sentence conjunction judgment task testing the indicative-subjunctive contrast, we expected better accuracy with indicative than with subjunctive overall. Among the three types of clauses tested, we also expected better semantic discrimination with temporal clauses with *cuando* (when), followed by relative clauses, and lastly adverbial clauses with *de manera que*. In temporal clauses with *cuando*, sentences with subjunctive were illogical, and their indicative counterparts were logical. With the two other clauses, the subjunctive was logical, and the indicative was illogical. If L2 learners and HL learners do not distinguish between the semantic and pragmatic entailments of mood, then they should judge the two verbal forms alike, and we should find no statistical differences between the indicative and subjunctive forms. Figure 7 presents the results of temporal clauses with *cuando*, one of the first uses of subjunctive typically learned in L1 and L2 acquisition.
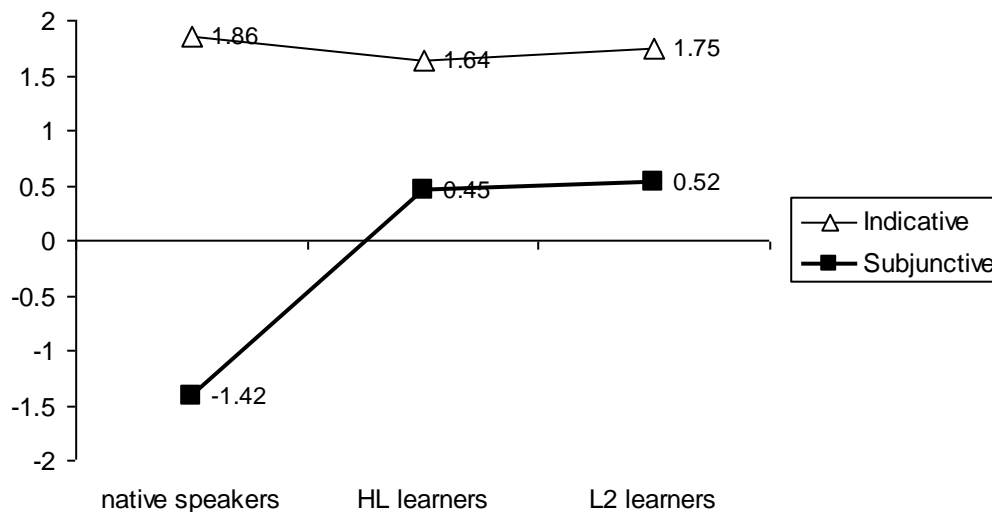
Figure 7. Sentence conjunction judgment task. Mean ratings on indicative and subjunctive with temporal clauses with *cuando*.

The statistical analysis revealed that the three groups did not differ from each other on their ratings of indicative ($F(2,142) = 2.2$, $p = 0.11$), but they did differ significantly on subjunctive (($2,142) = 22$, $p < 0.01$). Although the difference between subjunctive and indicative was significant at the $p < 0.01$ level for all the groups, the pattern of ratings of the two learner groups was clearly different from the native speakers' pattern (Tukey, $p < 0.01$): both learner groups rated subjunctive and indicative acceptable, while the native speakers rated subjunctive unacceptable. The HL learners and the L2 learners did not differ from each other (Tukey, ns).

Figure 8 presents the ratings for relative clauses. Here, the indicative was illogical, and the subjunctive was logical. Once again, all groups distinguished between indicative and subjunctive at the $p < 0.05$ level. However, the pattern of responses of the native speakers, who rated subjunctive acceptable and indicative unacceptable, was very different from the pattern of responses of the two learner groups, who showed a tendency toward acceptance of both subjunctive and indicative. There were differences between the groups with indicative ($F(2,142) = 24.3$, $p < 0.01$) and with subjunctive ($F(2,142) = 6.1$, $p = 0.003$), and in both cases the L2 learners and the HL learners differed from each other (Turkey, $p < 0.01$). Unlike the general patterns observed with tense-aspect, the ratings of the L2 learners for mood were more "targetlike" than the ratings of the heritage speakers.
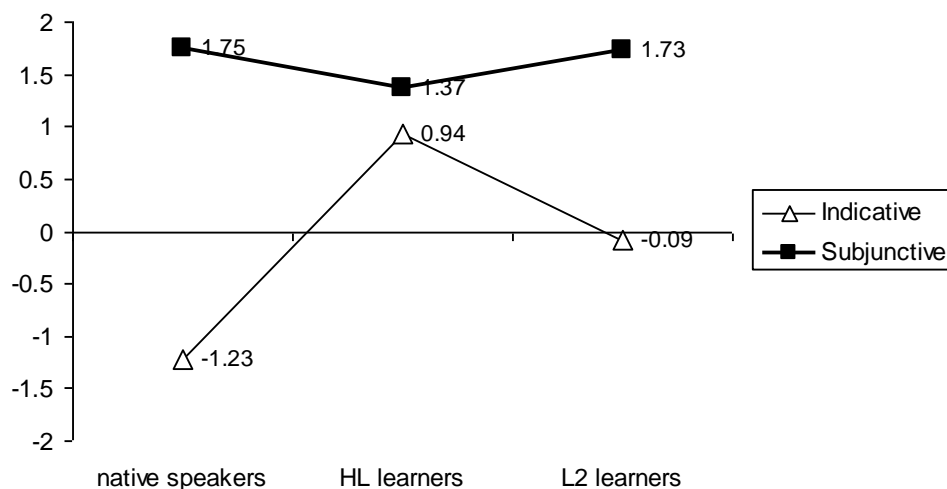
Figure 8. Sentence conjunction judgment task. Mean ratings on indicative and subjunctive with relative clauses.

Figure 9 shows the results of adverbial clauses with *de manera que* (so). For the native speakers and the L2 learners, there was a significant difference at the $p < 0.05$ level between the ratings of the subjunctive and the indicative in *de manera que* clauses, but the ratings were not different for the HL learners. There were differences between the three groups with indicative ($F(2,142) = 5.8$, $p = 0.04$) and with subjunctive ($F(2,142) = 11.3$, $p < 0.01$). In both cases, the L2 learners and the HL learners' ratings differed from each other (Tukey, $p < 0.05$). The L2 learners and the native speakers did not differ from each other on indicative, although both differed from the HL learners (Tukey, $p < 0.05$). The L2 learners also differed from the HL learners with subjunctive (Tukey, $p = 0.023$).
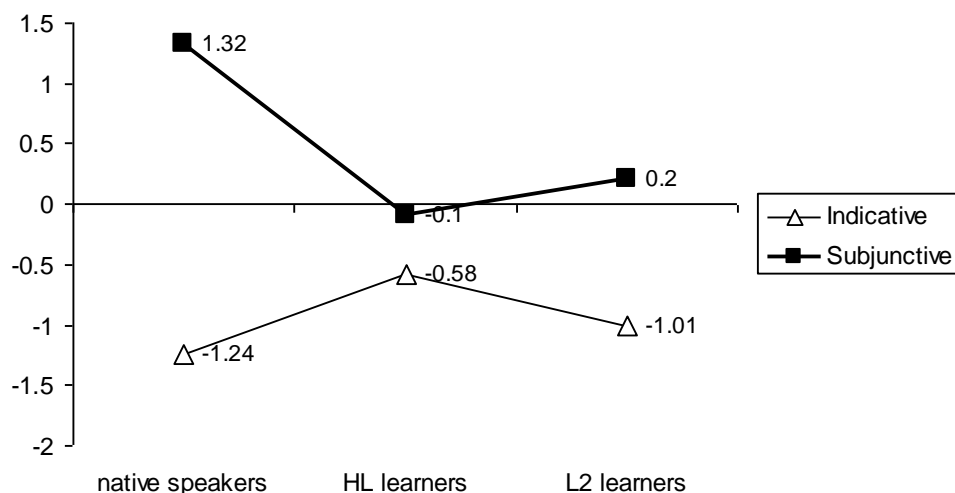
Figure 9. Sentence conjunction judgment task. Mean ratings on indicative and subjunctive with resultative clauses with *de manera que*.

Figures 10-12 show the results by proficiency level. Factorial ANOVAs with each type of clause showed significant main effects for mood (indicative $F(1,114) = 787$, $p < 0.01$; subjunctive $F(1,114) = 10.07$, $p = 0.02$), group (HL learners $F(1,114) = 15.5$, $p < 0.01$; L2 learners $F(1,114) = 4.1$, $p = 0.04$), proficiency level ($F(1,114) = 19.6$, $p < 0.01$) and a mood by group ($F(1,114) = 9.5$, $p = 0.03$) and mood by proficiency level interaction ($F(1,114) = 14.6$, $p < 0.01$; $F(1,114)$. Tukey HSD ($p < 0.05$) comparisons indicated that the low and intermediate proficiency levels did not differ from each other but were significantly less accurate than the advanced levels.

None of the groups differed on their ratings of *cuando* clauses with indicative, but they did differ on *cuando* clauses with subjunctive ($F(6,142) = 20.5$, $p < 0.01$). These results are shown in Figure 10. Tukey post hoc analysis indicated that the low and intermediate proficiency L2 learners and HL learners did not differ from each other, but they all differed from the advanced L2 and HL learners at the $p < 0.05$ level. The mean ratings of the advanced L2 learners and HL learners did not differ from each other (Tukey, ns).
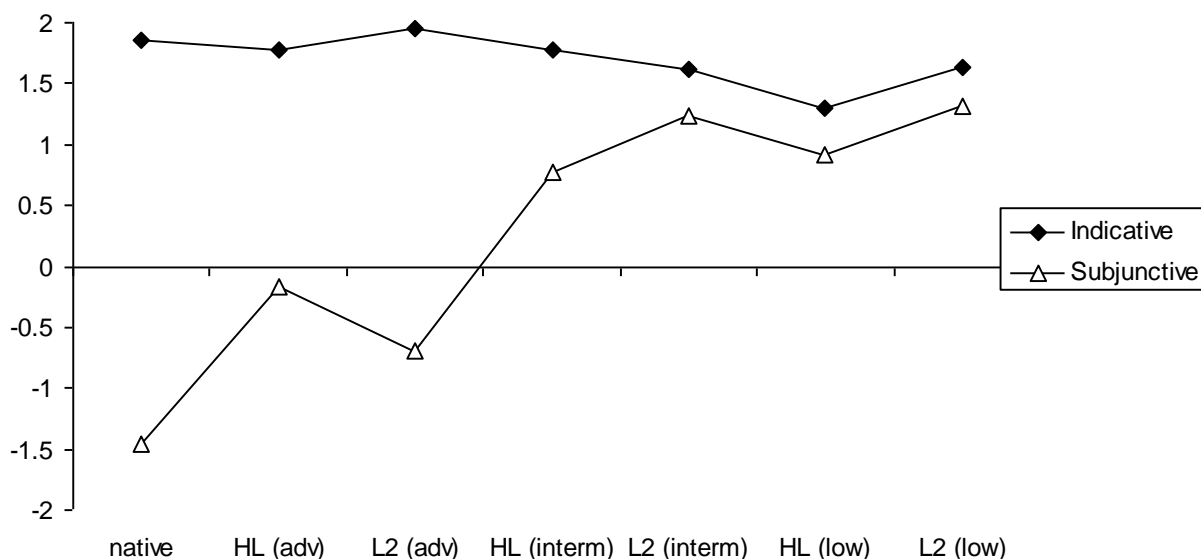

Figure 10. Sentence conjunction judgment task. Mean ratings on indicative and subjunctive with temporal clauses with *cuando* by proficiency level.

Figure 11 displays the mean ratings for relative clauses. Group differences emerged with the indicative ($F(1,114) = 25.3$, $p < 0.01$) and with the subjunctive ($F(1,114) = 4.5$, $p < 0.01$). With the indicative, the intermediate and low proficiency groups were no different from each other, but they were less accurate than the advanced L2 and HL groups. There were differences between the HL and L2 learners at the advanced level as well (Tukey, $p < 0.01$): the L2 learners

were more targetlike than the HL learners. With subjunctive relative clauses, the ratings of the low proficiency HL learners were statistically different from those of the low proficiency L2 learners (Tukey, $p = 0.03$), but there were no other differences between any of the other groups. With indicative relative clauses, the low and intermediate proficiency L2 and HL learners did not differ from each other but differed from the advanced L2 learners (Tukey, $p < 0.01$). Also, the mean ratings for indicative and subjunctive were not statistically different for these groups. The advanced HL learners, who performed at the level of the intermediate HL learners, were also different from the advanced L2 learners (Tukey, $p < 0.01$).
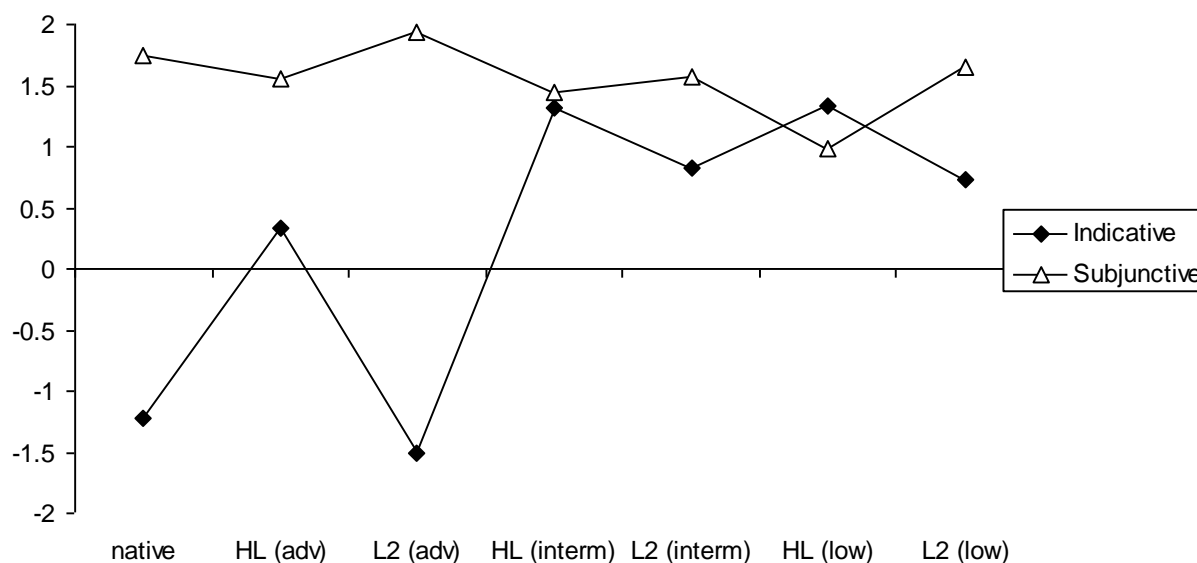

Figure 11. Sentence conjunction judgment task. Mean ratings on indicative and subjunctive with relative clauses by proficiency level.

Finally, the results with adverbial clauses with *de manera que* showed differences between the groups with both indicative ($F(1,114) = 5.4$, $p < 0.01$) and subjunctive ($F(1,114) = 9.1$, $p < 0.01$). With sentences in the indicative, the intermediate HL learners were statistically less targetlike than all the other groups. With subjunctive sentences, there were no differences between the low and intermediate proficiency L2 and HL learners (who also did not discriminate between indicative and subjunctive in their ratings) (Tukey, ns). Once again, the advanced L2 learners were more native-like than the advanced HL learners with subjunctive clauses with *de manera que* (Tukey, $p < 0.01$).
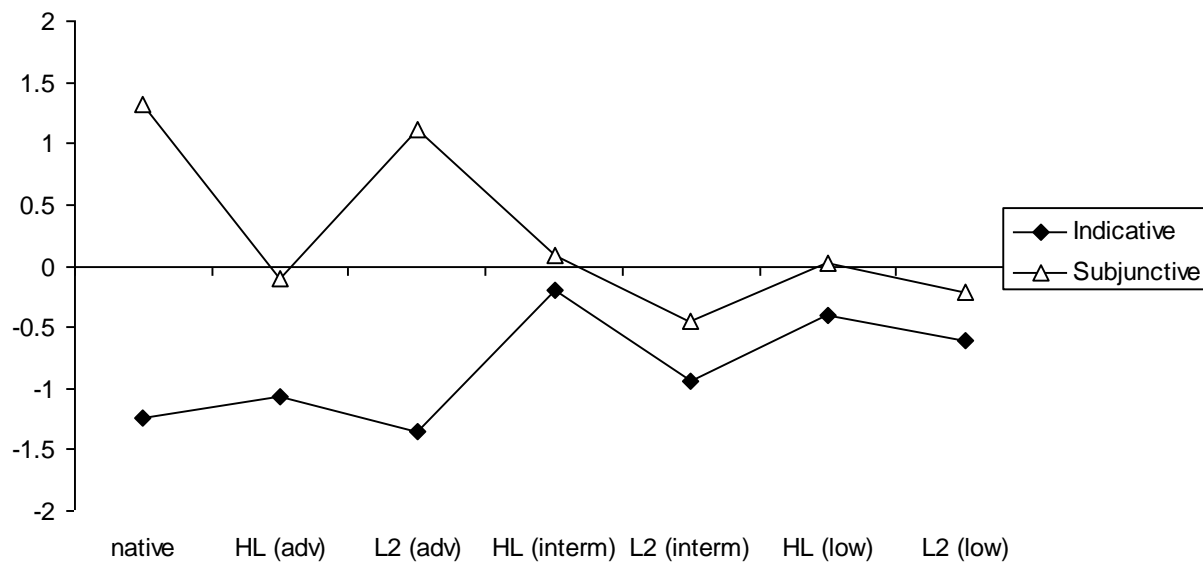
Figure 12. Sentence conjunction judgment task. Mean ratings on indicative and subjunctive with adverbial clauses with *de manera que* by proficiency level.

To summarize, unlike the results of the sentence conjunction judgment task for aspect, which showed an advantage for HL learners over L2 learners at the low and intermediate proficiency levels, the results of the sentence conjunction judgment task showed no discrimination between subjunctive and indicative by the low and intermediate proficiency level learners and no differences between L2 and HL learners at this level. Differences between the two learner groups emerged at the advanced level, where we see that the L2 learners are more targetlike than the HL learners with the semantic discrimination of subjunctive.

Discussion
Although both instructed L2 learners and HL learners have been shown to experience difficulty with the acquisition of tense-aspect and mood morphology, the aim of this study was to investigate Au et al.'s (2002, 2008) recent claim that L2 learners and HL speakers do not differ in their knowledge and command of morphosyntax, including tense-aspect and mood. Findings such as these made them suggest that early language experience does not confer the same advantage in morphosyntax as it does in phonetics/phonology.

We examined this claim in the recognition and semantic implications of preterit/imperfect and indicative/subjunctive contrasts with different predicates and constructions in four written tasks. We also included L2 and HL learners from low to advanced proficiency in Spanish. Our overall results can be summarized as follows. Although L2 learners and HL learners appear to have acquired (or, in the case of the low and intermediate proficiency learners, to be on the way to acquiring) the functional morphology related to Aspect P and Mood P to some extent, both L2

and HL learners differ from native speakers with full command of the language. However, when the two learner groups were compared with each other, differences emerged in the two tasks. The L2 learners were overall more accurate than the HL learners across proficiency levels in the two morphology recognition tasks, which tested recognition of tense-aspect and mood morphology in obligatory contexts. By contrast, the results of the two sentence conjunction judgment tasks showed group by proficiency effects. The low and intermediate proficiency HL learners were more discriminating of the preterit/imperfect contrast with achievement and stative predicates than the L2 learners, but the differences between the two groups disappeared at the advanced level. By contrast, advanced L2 learners were more targetlike at discriminating between subjunctive and indicative than advanced HL learners. Low and intermediate proficiency HL learners and L2 learners, who did not discriminate between subjunctive and indicative in this task, were found not to differ from each other. The results of both tasks are consistent with developmental schedules reported in the literature on L1, L2, and bilingual acquisition of tense-aspect and mood. Moreover, contrary to Au et al.'s conclusion, they also suggest that early language experience also brings advantages in *some*, but by no means all, aspects of morphosyntax.

Let us start with the developmental trend of the sentence conjunction judgment task for aspect. In general, in L1, L2 and bilingual acquisition, preterit-imperfect is acquired and mastered before indicative-subjunctive (See review in Montrul, 2004, chap. 3). Hodgson (2005) showed that monolingual Spanish-speaking children display comprehension of the semantic entailments of preterit and imperfect by age 7-8 but not earlier. Blake (1983) showed that the nuances of subjunctive meanings and uses are not acquired until age 13 in monolingual Spanish. Studies of L1 attrition in children (Merino, 1983; Silva-Corvalán, 2003) and adults (Montrul, in press; Silva-Corvalán, 1994) also suggest that the subjunctive, being acquired and mastered later than preterit/imperfect or sometimes incompletely acquired, is actually lost in many heritage speakers, whereas the preterit/imperfect contrast may be simplified or neutralized in some contexts but not actually lost from the grammar. For example, Merino (1983) showed that Mexican-American children in kindergarten produced past tense morphology with 87% accuracy and subjunctive with 70% accuracy. Two years later, the same children's accuracy in production dropped to 74% for past tense and 55% for subjunctive, since some children already did not produce any subjunctive forms. If we compare these trends with the results obtained in our study, they are very similar. In general, accuracy on the two tense-aspect tasks was higher than on the two subjunctive tasks for the two groups of learners, suggesting that grammatical aspect is also mastered earlier and with higher accuracy than mood in L2 acquisition and heritage language acquisition. Although the fact that English does not lexicalize mood in a functional category might play a role in this developmental pattern, the protracted acquisition of subjunctive may also be conditioned by the complex interplay of syntactic, semantic and pragmatic factors involved in its distribution. Otherwise, subjunctive would not be such a late acquired feature in L1 acquisition.

If the general trends reported in L1 and L2 acquisition also hold for HL acquisition, we also expect L2 learners and HL learners to have more difficulty with imperfect than with preterit in

the two tasks. Because we tested different predicates in the sentence conjunction judgment task, we expected to find a developmental sequence here as well: higher accuracy with both preterit and imperfect with accomplishment predicates and lower accuracy with achievements and states. This is because non-prototypical combinations like achievements in the imperfect and statives in the preterit are among the last combinations to be acquired according to the hypothesized developmental stages proposed by Andersen (1991). Our hypotheses were borne out. Although the L2 learners were equally accurate with preterit and imperfect in the morphology recognition task, the HL learners were more accurate on preterit than on imperfect at all proficiency levels. In the sentence conjunction judgment task, ratings for preterit were much stronger than for imperfect for the two groups**.** As predicted, both heritage speakers and L2 learners had difficulty with achievements in the imperfect. The L2 learners also had problems with statives in the imperfect, contrary to what we predicted**,** but this may be because they have not yet learned the imperfect completely and have incorrectly overgeneralized the preterit to stative contexts. Since the low proficiency HLs did not have as many problems with the imperfect as the low proficiency L2 learners did in this task, the HL learners appear to have better overall command of the semantics of aspect than the L2 learners, although L2 learners appeared to have better command of the inflectional morphology, as shown in their higher performance on the morphology recognition task.

The hypotheses for mood were also borne out by the results overall. As predicted, accuracy with indicative was higher than for subjunctive in the morphology recognition task for the two groups, even though the L2 learners were overall more accurate than the HL learners. The sentence conjunction judgment task showed that the L2 learners and the HL learners did not have very determinate intuitions about the entailments of the indicative and the subjunctive forms, as compared with the results of the native speakers. In general, all learners were more discriminating with *cuando* and with relative clauses than with *de manera que* clauses. However, the HL learners were overall less accurate than the L2 learners with subjunctive, especially at the advanced level.

Unlike Au et al. (2002, 2008), we found some differences between L2 learners and HL learners, but these differences do not always entail an advantage for HL learners. Under the assumption that early exposure to the language brings advantages to language acquisition, HL learners were predicted to be better than L2 learners. This was not the case across the board. The HL learners appear to be better than the L2 learners with grammatical aspect but not with mood. Furthermore, there was a task effect, given that the advantage of HL learners over L2 learners only showed up in the sentence conjunction judgment task for tense-aspect but not in the same task testing mood. The L2 learners were overall more accurate than the HL learners in the two morphology recognition tasks. We believe that there are various factors that play a role in these results.

When Au et al. (2002, 2008) made claims about the acquisition of morphosyntax, they treated morphosyntax as a very general module of the grammar and tested a variety of structures. However, as we indicated earlier, there are various subcomponents of morphosyntax, different structures and systems with different syntactic and morphological behavior. Acquiring an object

clitic system is quite different from acquiring gender agreement in nouns, for instance. Furthermore, different grammatical areas within morphosyntax (agreement, clitics, tense, mood, etc.) have different acquisition schedules, and there are particular developmental orders within each grammatical area as well. Clitics, agreement, and grammatical aspect are acquired early (by age 4 at least in production); mood (subjunctive, conditional), relative clauses, and other complex structures that require complex syntax and semantics are acquired after age 4. Thus, it is likely that if early experience does provide an edge to HL learners over L2 learners, who started their L2 acquisition after puberty, that edge is only likely to hold for early acquired structures, like tense-aspect, but not for mood, which is a later acquisition.

Our HL learners began acquisition of English before age 5, that is, very close to the age at which later-acquired structures start to develop. While most of them may have already acquired the preterit-imperfect contrast by that age, subjunctive may have just been emerging when their exposure to Spanish input decreased. Since subjunctive is used in many contexts that require complex syntax (embedding), and complex syntax is a feature of later language development, our HL learners might not have received enough input in Spanish in a variety of contexts (including in writing) to fully learn all the uses and semantic/pragmatic nuances associated with subjunctive morphology.

But language learning experience is also important when it comes to modality. HL learners were exposed to Spanish early in life and primarily at home. They received aural input (spoken Spanish and perhaps some texts read aloud to them) in a naturalistic setting. Although the HL learners tested were literate in Spanish when they took the tests because they were taking Spanish classes at the university, none of the HL learners tested reported having had elementary schooling in Spanish. One of the roles of school is to teach children how to read and write, and to make them aware of the functions of language. The standard variety of the language taught at school also exposes children to many verbal forms and structures that may be less common in spoken language. If Blake (1983) found that the full spectrum of subjunctive uses are not controlled until monolingually-raised Spanish-speakers reach age 13, then this suggests that a great deal of subjunctive acquisition takes place during the elementary school period, and this is when input in the HL tends to decrease significantly for HL learners. However, subjunctive with *cuando* and with relative clauses is very common in spoken Spanish, and its acquisition may not depend as much on literacy development as the acquisition of other structures, such as *de manera que*, does.

By contrast, L2 learners typically start acquiring Spanish in high school, around puberty, and they are mostly exposed to written input from the onset of acquisition, through textbooks and other print materials. Subjunctive is introduced early in L2 classrooms, around the second or third year of high school instruction (in the second semester of college instruction), and research shows that L2 learners are very inaccurate with subjunctive at this early stage (Terrell, Baycroft & Perrone, 1987). From that point on, L2 learners continue to receive training in verbal paradigms and discrete point written tasks like the morphology recognition tasks used in this study. HL learners may not have had as many hours of instruction in Spanish since they probably

started with higher-level classes than the L2 learners. It is, therefore, not surprising that the L2 learners were overall more accurate than the HL learners in the morphology recognition tasks with tense-aspect and with mood, not because they have more solid "intuitive" knowledge of this morphology, but probably because they have more experience manipulating explicit, metalinguistic knowledge of this type than HL learners. HL learners know how to use the language but do not necessarily have metalinguistic command of the "labels" for different language structures because their academic experience with the language is different. Similarly, the fact that advanced L2 learners were more accurate with indicative-subjunctive discrimination overall than HL learners may have to do with "hyperliteracy." Most (but not all) of the advanced L2 learners were graduate student teaching assistants in Spanish, while only a couple of the advanced HL learners were graduate student teaching assistants. Thus, it seems that the advantage of L2 learners over HL learners has to do with different language exposure and experience based on their age of acquisition. It has to do with context of acquisition, input modality, and literacy (and perhaps explicit instruction).

Even if L2 learners and HL learners show incomplete acquisition of some of the same grammatical areas, teachers need to be aware that the context of acquisition plays a role in determining the nature of the resulting linguistic knowledge (implicit vs. explicit). Therefore, L2 and HL learners may perform differently on different tasks and tests, depending on whether they are oral or written, and whether they are designed to tap implicit, intuitive knowledge or explicit, declarative knowledge. The implication of these findings for L2 and HL classrooms is that a variety of types of tasks need to be used to assess learners' knowledge. Given that oral production tasks may underestimate the grammatical knowledge of L2 learners (White, Valenzuela, Kozlowska-Macgregor & Leung, 2004), it is also obvious that certain types of written tasks may equally underestimate the grammatical knowledge of HL learners (Montrul, Foote & Perpiñán, 2008). HL language learners may do better on tasks that tap implicit knowledge of their HL, while L2 learners certainly do better on tasks that require less automatic and more controlled knowledge (Ellis, 2005). If the aim of HL instruction is to help HL learners develop fluid and spontaneous use of their HL, then their knowledge should be assessed with tasks that minimize the need to rely on metalinguistic knowledge. For classrooms that serve the two types of learners, then, a variety of tasks need to be used to suit both L2 and HL learners. But if the aim of HL instruction is also to help heritage speakers become fully competent in the four skills of the heritage language, then teachers should incorporate a variety of written tasks that help learners to develop their metalinguistic knowledge.[6] The results of this study indicate that metalinguistic knowledge plays a significant role in the development of certain morphosyntactic aspects of the language, specifically with mood, as previously reported by Collentine (1998, 2003) for L2 learners and Potowski et al. (2009) for both HL learners and L2 learners. Further research is certainly needed to assess more directly the effects of explicit instruction on both instructed HL and L2 learners and the magnitude of gains made in overall proficiency.

In conclusion, although both instructed L2 and HL learners may display incomplete knowledge of tense-aspect and mood morphology, there are differences between the two groups depending

on linguistic structure, proficiency, and age and mode of acquisition. HL learners are more targetlike than L2 learners with early acquired aspects of language, in this case grammatical aspect (see also Montrul, 2010 for clitics; Montrul, Foote & Perpiñán 2008 for gender; and Håkansson, 1995 for word order in Swedish). But HL learners are not necessarily more native-like than L2 learners with structures acquired during later language development, in this case mood (see also O'Grady, Lee & Choo, 2001 with Korean relative clauses). HL learners tend to be more accurate than L2 learners in linguistic tasks that minimize metalinguistic knowledge, in this case the sentence conjunction judgment task (see also Montrul, Foote & Perpiñán, 2008 for other tasks). By contrast, L2 learners seem to perform more accurately on written tasks and tasks that tap metalinguistic knowledge, in this case the morphology recognition task.

Acknowledgement

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Appendix A

Morphology Recognition Task Tense-Aspect

Instrucciones. Seleccione la forma correcta del verbo en el pasado

El jefe le (1) *daba/dio* el dinero a la empleada para depositarlo en el banco. La empleada (2) *trabajó/trabajaba* para la compañía pero no (3) *estuvo/estaba* contenta con su trabajo y (4) *quiso/quería* otro trabajo. La mujer (5) *necesitó/necesitaba* salir del pueblo. (6) *Hizo/Hacía* las maletas y (7) *ponía/puso* el dinero en una bolsa. Luego (8) *salió/salía* del pueblo en coche pero (9) *tuvo/tenía* miedo de las autoridades. Al rato (10) *buscó/buscaba* un lugar para descansar. (11) *Llovió/Llovía* mucho. De pronto (12) *llegó/llegaba* al Motel Bates. Por suerte (13) *tuvieron/tenían* habitaciones libres. En el hotel la mujer (14) *conoció/conocía* a Norman que (15) *era/fue* un hombre muy tímido. Mientras (16) *hablaron/hablaban* ella (17) *firmó/firmaba* su nombre y (18) *tomó/tomaba* las llaves de su habitación. Hacía rato que la mujer (19) *sintió/sentía* hambre pero primero (20) *subió/subía* a su habitación y (21) *decidía/decidió* ducharse antes de salir a cenar. Norman (22) *decía/dijo* que (23) *vivía/vivió* solo con su madre pero en realidad su madre (24) *estuvo/estaba* muerta. Norman (25) *estuvo/estaba* un poco loco y (26) *tuvo/tenía* dos personalidades. (27) *Se disfrazó/Se disfrazaba* de su madre, (28) *entró/entraba* al cuarto de la muchacha y (29) *quiso/quería* matarla a puñaladas mientras ella (30) se *duchó/se duchaba*.

Appendix B

Morphology Recognition Task Mood

Instrucciones. Seleccione la forma correcta del verbo

Doctor Raúl:

Ud. sabe que yo (1) *consumo / consume* más de diez cigarrillos al día. Ud. sabe que (2) *fumo / fume* lo mismo ahora que hace quince años. Y por eso no creo que mi mala salud en estos momentos (3) *es / sea* una consecuencia del tabaco.   ¿Qué (4) *cree / crea* Ud.?

Cuando me levanto por las mañanas, yo (5) *toso / tosa* sin parar durante una hora. Es posible que (6) *tengo / tenga* tos porque por las mañanas siempre hace más frío? Mi segundo síntoma: cuando (7) *subo / suba* las escaleras de mi casa, (8) *me agito / me agite* muchísimo. Es posible que yo (9) *me canso / me canse* simplemente porque ya soy viejo? En tercer lugar, últimamente no (10) *tengo / tenga* mucho hambre. Mi esposa quiere que yo (11) *como / coma* todo el tiempo; y a ella le molesta que (12) no *me alimento /me alimente* bien. Supongo que no (13) *tengo / tenga* apetito porque (14) *fumo* / *fume* demasiado.

Me preocupa que mis pulmones no (15) *están / estén* en buenas condiciones y que me (16) *cuesta/cueste* respirar. Ya sé que no (17) *soy / sea* una persona atlética y saludable. Pero me gustaría cambiar. Entiendo que es importante que (18) *dejo/ deje* de fumar, que (19) *empiezo / empiece* a comer más saludable y que (20) *hago/ haga* más ejercicio físico. Necesito hacer algo para mejorar mi salud.

Muchas gracias de antemano.

Carlos González

Appendix C

Sentence Conjunction Judgment Tasks – Means and Standard Deviations

Table A
Mean Ratings on Preterit and Imperfect in Sentence Conjunction Judgment Task

Group	Accomplishments				Achievements				Stative verbs			
	preterit		imperfect		preterit		imperfect		Preterit		imperfect	
	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD
NS	-1.59	.54	1.53	.43	-1.88	.36	1.08	.66	-1.91	.23	1.86	.23
HL learners	-.82	.87	.83	.89	-1.62	.61	.19	.88	-.94	.80	.95	.81
advanced	-1.32	.64	1.14	.90	-1.96	.13	.26	.75	-1.6	.47	1.06	.90
intermediate	-.60	.98	.85	.90	-1.53	.68	.35	.82	-.73	.74	1.07	.78
low	-.40	.69	.35	.67	-1.25	.69	-.10	1.08	-.27	.53	.62	.64
L2 learners	-.98	.90	.84	.91	-1.71	.47	-.19	1.27	-.95	.85	.09	.92
advanced	-1.54	.58	1.62	.62	-1.93	.17	1.0	.72	-1.62	.44	.85	.70
intermediate	-.69	.88	.39	.77	-1.62	.60	-1.02	.92	-.56	.76	-.29	.74
low	-.55	.91	.31	.63	-1.50	.46	-.82	.93	-.51	.81	.67	.16

Table B
Mean Ratings on Indicative and Subjunctive in Sentence Conjunction Judgment Task

Group	Temporal Clauses				Relative Clauses				Resultative Clauses			
	indicative		subjunctive		indicative		subjunctive		Indicative		subjunctive	
	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD
NS	1.86	.25	-1.42	.82	-1.23	.93	1.75	.37	-1.24	.79	1.32	.77
HL learners												
advanced	1.77	.41	-.17	1.33	.33	1.41	1.56	.59	-1.06	.74	-.11	1.32
intermediate	1.77	.34	.78	1.08	1.31	.72	1.45	.66	-.19	1.15	.08	1.11
low	1.3	.62	.92	.80	1.33	.78	.98	1.12	-.41	.56	.02	.81
L2 learners												
advanced	1.95	.17	-.69	1.29	-1.50	.90	1.93	.20	-1.35	.75	1.11	1.17
intermediate	1.61	.56	1.23	1.05	.82	1.08	1.57	.53	-.94	.99	-.45	1.21
low	1.63	.49	1.32	.72	.73	1.53	1.65	.39	-.61	.72	-.22	.73

Notes

1. Au and collaborators call these heritage speakers *overhearers*, stressing the fact that they were exposed to the family language since birth, even when they did not use the language actively. As a result, these college students possessed very low proficiency in the language at the time of testing and were enrolled in beginner-intermediate second language classes. In this article, I will refer to Au et al.'s subjects as *heritage speakers*.

2. In addition to the imperfect, Spanish also expresses progressive in the past with the imperfect progressive (*Julia estaba cantando* "Julia was singing") and the preterit progressive (e.g., *Julia estuvo cantando* "Julia was singing"). The imperfect progressive is closer to the past progressive in English. The preterit progressive implies action in progress and completed in the past: *María estuvo cantando en este bar el año pasado* "Maria was singing in this bar last year."

3. PI = present indicative, PS = present subjunctive. These abbreviations are from Silva-Corvalán (1994), and so are the examples.

4. We decided to keep the native speakers from countries other than Mexico in the control group because there were not statistical differences by country of origin or dialect in their performance on the measures used.

5. Valdés (1995) has questioned the validity of tests like ACTFL oral interview (designed and normed with L2 learners) to establish proficiency levels in the Spanish heritage speaker population, finding them unreliable. We agree with her concerns about this particular test. However, written proficiency tests appear to be more reliable than oral tests to compare these two populations, as we show in the text. Furthermore, the test scores for heritage speakers on this proficiency test correlated very highly with accuracy on the morphology recognition tasks testing tense, aspect, mood and gender agreement (Montrul, in press).

6. As Melissa Bowles (personal communication) correctly pointed out, studies like those of Ellis (2005) would list tasks like the sentence conjunction judgment task used in this study as an untimed grammaticality judgment task (GJT), which is claimed to tap explicit knowledge. Of course, Ellis' work has focused only on L2 learners who, given time, tend to fall back on explicit knowledge. In untimed GJTs, they cannot do that, and so those tests are proposed to tap implicit knowledge. We suspect that HL learners probably rely on implicit knowledge in both cases, since they don't have explicit knowledge to rely on.