L2 Acquisition of Temporal Reference in Spanish and the Interaction of Adverbials, Morphology and Clause Structure[1]

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1. Introduction and background

The expression of temporality is a central conceptual domain of language and thus, it is not surprising that there has been a great deal of emphasis placed on examining the development of the grammatical forms for the expression of tense and aspect. Comrie defines tense as a deictic category that locates an event on a timeline, usually with reference to the time of speaking, and aspect as referring to "the internal temporal constituency of one situation" (1976:5). Early morpheme studies did not focus specifically on the acquisition of tense and aspect, but rather on the development of a series of discrete grammatical morphemes that included auxiliaries, copulas, prepositions, articles and inflections for marking tense, aspect, number and possession (see Brown 1973 and de Villiers and de Villiers 1973 for first language (L1) acquisition and Andersen 1978, Bailey, Madden and Krashen 1974 and Dulay and Burt 1974 for second language (L2) acquisition; also see Bardovi-Harlig 2000 for a review of these early studies).

More recent studies can be divided into two types, the form-oriented studies which analyze the acquisition and distribution of past verbal morphology, and the meaning-oriented studies that examine various linguistic devices learners use to mark temporal relations. The majority of the form-oriented studies confirm that both children and adult learners are sensitive to the inherent semantics of verbs when acquiring and using verbal morphology (Bronckart and Sinclair 1973, Antinucci and Miller 1976, Weist et al. 1984, Andersen 1989, Shirai and Andersen 1995, and Andersen and Shirai 1996 for L1 acquisition; Andersen 1991, Robison 1990 and Bardovi-Harlig 1992 for L2). These studies found that in general, children and L2 learners will tend to use progressive morphology first with activity verbs and perfective past morphology with telic verbs. Furthermore children, at least, will not overgeneralize and mark verbs of state with progressive morphology. In Spanish, which distinguishes both a past imperfective (imperfect) and a perfective (preterite),

1. María *comió* (PRET) una manzana.
2. María *comía* (IMP) una manzana.

there is evidence that the inherent aspect (Aktionsart) of the verb determines the selection of aspectual verbal morphology in native speakers (Lubbers-Quesada 2004 and Lubbers-Quesada 2005), and affects the acquisition of preterite and imperfect in both child L2 (Potowski 2005 and Andersen 1986) and adult L2 learners (Salaberry 1999, 2000, 2002 and 2005, Camps 2002, Lubbers de Quesada 2001, Liskin-Gasparro 2000 and López-Ortega 2000). However, among these studies there is conflicting evidence. Andersen (1991), following the premises of the Aspect Hypothesis, maintains that while preterite morphology emerges first with the telic verbs then gradually spreads to activities and finally

to verbs of state, imperfect morphology follows the opposite path - emerging first with verbs of state and spreading later to verbs of activity and finally to telic verbs. However, Salaberry (1999, 2000, 2002 and 2005a) and Camps (2002) found that learners in early stages of acquisition tend to use the preterite marker for all verbal categories as a kind of default marker. Studies in the acquisition of other Romance languages have found, to differing degrees, some relation between the inherent aspect of verbs and the development of verbal morphology (Bergström 1995 and Kihlstdt 2002 for French, Salaberry 2005b for Portuguese, and Comajoan 2005a for Catalan). Liskin-Gasparro (2000), López-Ortega (2000) and Lubbers de Quesada (2001) found that it is the narrative task that will determine in many ways the selection of verbal morphology in Spanish L2. Comajoan (2005b) deals with a similar problem in Catalan L2.

The less well-known meaning-oriented studies examine how pragmatics (chronological or inverse order), lexical devices (adverbials and connectives) and clause structure interact in the acquisition of temporal-aspectual morphology. Research in this area shows that in early stages of acquisition, learners rely mainly on chronological order, adverbials and connectives for distinguishing temporal relations (Noyau 2002, Bardovi-Harlig 2000, 1992). Recent processing studies, both offline and online, have revealed that learners have a greater tendency to rely on lexical cues, i.e. temporal adverbs, to assign tense rather than verbal morphology (see Sagarra, forthcoming, for a review of these studies). As the morphological system develops to mark past temporality in later stages, the functional load of these pragmatic and lexical devices diminishes (Noyau 2002, Bardovi-Harlig 2000, 1992; Dietrich et al. 1995; Giacalone Ramat and Banfi 1990, cited in Bardovi-Harlig 2000, and Meisel 1987).

Table 1 outlines the specific stages which make use of these linguistic devices:

<div align="center">Stages of Acquisition</div>

Stage 1: Pragmatic means
Scaffolding
Chronological order
Implicit ordering
Stage 2: Lexical Means
Adverbials
Connectives
Calendric devices
Stage 3: Morphological means
Emergence of morphology to mark temporal relations

<div align="right">Adapted from Bardovi-Harlig (2000:12)</div>

Bardovi-Harlig (2000) claims that "(t)he expression of temporality exhibits a sequence from pragmatic to lexical to grammatical devices" (25), and that this "acquisitional sequence is probably universal and independent of the languages involved" (Giacalone Ramat and Banfi 1990, cited in Bardovi-Harlig 2000: 25). Bardovi-Harlig's 1992 study (detailed in Bardovi-Harlig 2000) looked at the issue of whether adverbial use would decrease with greater use of tense-aspect morphology or whether adverbial use would continue and create a redundancy in the interlanguage (Bardovi-Harlig 2000:49). Her study of the journal entries of eight, beginning ESL adults from different language backgrounds, Arabic, Japanese and Korean, revealed that, although there were some individual variations among the learners, in general, "(f)or the majority of the learners in this study, the frequency of time adverbials seems to decrease as the appropriate use of verbal morphology increases" and that "(t)he developing interlanguage seems to adjust the amount of redundancy in the system by decreasing the number of adverbials used" (2000: 60).

Bardovi-Harlig's study may appear to run contrary to some of the basic assumptions in second language acquisition, which is that the interlanguages become increasingly more complex, redundancy withstanding. Indeed, learners have before them a far more complex task than just selecting the correct

verbal morphology and then eliminating the previous lexical device. Furthermore, Berman and Slobin (1994) found important cross linguistic differences among five languages (English, German, Spanish, Hebrew and Turkish) in adults and children's development of narrative structure, specifically that languages differ in respect to morphological types for the marking of tense and aspect, the types of verbs to mark motion, the use of adverbials and connectors, the use of clause types (coordination or subordination), and word order flexibility. Therefore, there is no reason to accept Bardovi-Harlig's findings for all languages without empirical support, above all for languages whose narrative structure may allow for a greater abundance of certain linguistic redundancies. To date, studies in the acquisition of Spanish L2 that examine the development of the expression of temporality in narrative structure from a meaning-oriented perspective have not been carried out. Thus, it is the purpose of this study to examine the expression of past temporal reference in the personal narratives of learners of Spanish as a second language from a meaning-oriented perspective, more specifically, to detect which pragmatic, lexical, morphological and syntactic devices learners use for marking past events.

The specific research questions that guided the analysis were: 1) do L2 Spanish learners follow the path from pragmatic to lexical to grammatical devices in their development of the expression of past temporality? 2) as past verbal morphology develops is there a decrease in the use of adverbials to mark past contexts in oral narratives among learners in the more advanced levels? 3) is there a change in the use of simple adverbs to more complex adverbials (adverbial phrases and clauses) as learners' past morphological systems develop? 4) do learners link temporal adverbials more often with preterite morphology and frequency adverbials more often with imperfect morphology? and 5) as past verbal morphology develops, is there a decrease in the use of main and coordinating clauses and an increase in the occurrence of subordinating clauses?

2. Methodology

The data were taken from the oral narratives of forty participants, thirty English-speaking learners and ten Spanish speakers for control. There were ten informants in each of the four different groups. The learner groups were all foreign language learners enrolled in second or fourth semester basic Spanish courses or upper level Spanish conversation or linguistics courses at a U.S. institution. None of these students had participated in a study abroad program in a Spanish-speaking country. The control group consisted of ten Mexican undergraduate students from a Mexican university.

Each participant was requested to narrate orally the first time they fell in love or the first time they felt special about someone. The thirty English speakers were given the instructions for the task in English and were provided with some basic vocabulary in Spanish related to the topic and asked to narrate in Spanish. The Spanish speakers were provided with the instructions in Spanish but were not given the vocabulary. Learners were told that the study was to compare American and Mexican university students' cultural perspectives on various topics. All narratives were recorded on a digital Sony recorder in a sound-proofed room with only the interviewer (a research assistant) and the participant present. The narratives were subsequently transcribed using conventional orthography. All data were collected and transcribed between November of 2003 and December of 2004. Because semester/year of study is not necessarily an indication of the linguistic competence of the learner, an error analysis was carried out on the forty narratives and the thirty learners were subsequently divided into three groups according to their use of past morphology in obligatory contexts. Ten participants each were grouped into these new levels. This analysis and regrouping revealed that semester/year of study turned out to be a fairly good indicator of linguistic competence at least in terms of correct use of past morphology: seven of the second semester learners fell into the first group, two into the second group and one into the third; nine of the upper level learners formed part of the third group and one of them fell into the second group; the second group was a combination of learners from the three different semester levels. Table 1 reveals the range and median of past morphology in obligatory contexts for each group.

Table 1. Range and median of past morphology in obligatory contexts

	Range of past morphology in obligatory contexts	Median past morphology in obligatory contexts	No. in each group
Group 1 NNS	30-69%	54%	10
Group 2 NNS	70-85%	81%	10
Group 3 NNS	87-100%	96%	10
Group 4 NS	97-100%	99%	10

A two-sample t-test revealed that the differences in the use of past morphology in obligatory contexts among the three learner groups is significant (two-tail p value < .01 for both groups 1 and 2 and for groups 2 and 3, df = 18), but not between group 3 and the native speaker group. In other words, the most advanced group is using past morphology very much like the native speakers.

Subsequently, all past temporal contexts were identified again, but this time not counting contexts that formed part of past temporal adverbial clauses. Also verbal morphology for each context was analyzed and the occurrence of adverbials and the ratio of their use to past contexts were calculated. Next, types of adverbials were identified for both the structure (lexical adverbs, adverbial phrases and adverbial clauses) and aspectual semantics (either temporal or frequency adverbials). Finally, the frequency of main, coordinating and subordinate clauses for all finite verbs was tabulated.

Past temporal contexts were tabulated only when it was clear from the context that the participant was clearly referring to an event in the past (prior to speech time). Example (3) indicates two past temporal contexts although only one is marked with past tense morphology.

3. Esa noche Juan me besa (PRES) y estaba (IMP) muy feliz después.

Following the procedure outlined in Bardovi-Harlig (2000), verbs which formed part of an adverbial clause were not included as past temporal contexts but were taken into account for clause structure. For example, the verb in *cuando llegamos a la casa*, was not included in the tabulation of past temporal contexts because it was counted as an adverbial clause modifying another event; it was however, counted as a subordinate clause.

For the frequency of adverbials I again followed Bardovi-Harlig (2000) classification for adverbials used to mark past temporal reference which included single word references to specific times, *ayer*, *entonces*; adverbial (or prepositional) phrases referring to specific times, *a las 10:00 de la mañana*, *después de la clase*; adverbial clauses referring to a specific event, *cuando fui a la fiesta*, or specific time period, *cuando estaba en la prepa*; time adverbials which function as subjects or complements, *ayer* fue mi cumpleaños; and locatives when they referred to temporal locations no longer frequented by the narrator, *en la prepa* (see Appendix I for the inventory of temporal adverbials identified in the narratives)[2]. Bardovi-Harlig did not consider frequency adverbs in her (1992) study because they refer to aspectual notions and not necessarily to temporal situations. Although native speakers combine adverbials, morphology and clause structure, as well as contextual clues, to express the tense and aspect of a verbal situation, there is a general tendency of native speakers to use more temporal adverbials with preterite morphology and frequency adverbials with imperfect, just as there is a tendency to link preterite with telic verbs and imperfect with stative verbs. Therefore, I include these types of adverbials in a separate analysis in order to ascertain if the learners in this study follow a similar tendency. Frequency adverbials, both simple and phrasal, included adverbials such as, *muchas veces*, *siempre*, *con frecuencia*, *todas las noches*; and simultaneous or comparative adverbials, *mientras*, *entre mas* (see Appendix II for the inventory of aspectual adverbials identified in the narratives.)

Because subordination is an important linguistic device that distinguishes more complex narrative structure, (a linguistic requisite for inverting the chronological order of sequential events and

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[2] All adverbials, including non-native adverbials such as *sobre dos años pasado lit.* 'over two years ago', appear in the inventory.

backgrounding certain events), an analysis was carried out in order to ascertain whether or not these groups of learners used more subordinate clauses with greater use of past morphology. However, it is beyond the scope of the present study to examine the complex interaction among morphology, subordination, reverse ordering, foregrounding and backgrounding in narrative structure among learners which is, indeed, an avenue for future research.

3. Results and discussion

3.1. General results

The learners in the first and second groups limit the use of past morphology to preterite, imperfect and simple present. Although group 3 and the native speaker group also use these forms principally, they also make use of a wider range of verbal forms to mark past temporal situations (present perfect, past perfect, past progressive, imperfect subjunctive, etc.). Because one of the specific purposes of this study is to see the relation between past verbal morphology and adverbial use in past temporal contexts, I will discuss only the combined use of all past morphology for the four groups involved except for the analysis of temporal and aspectual adverbials with preterite and imperfect.

Table 2. Percentage of use of past morphology for past reference.

Past temporal reference	Group 1 NNS	Group 2 NNS	Group 3 NNS	Group 4 NS
N clauses	209	216	289	648
% past tense	52	81	96	99
% other	48	19	4	1

Table 2 summarizes the results of the tabulations of all finite clauses minus those tabulated as adverbial clauses. Group 1 used past morphology about half of the time to refer to past situations and for the other 48%, other forms were used including present tense, infinitives, invented forms or even English. Group 2 used past morphology 81% of the time and group 3 used past morphology much in the same manner as the native speaker group, 96% and 99% respectively. The following section discusses the results of the analysis of adverbials in these narratives.

3.2 Results of adverbial analysis

Again, following the study outlined in Bardovi-Harlig (1992, cited in Bardovi-Harlig 2000) for English, in order to calculate the adverb-to-verb ratio, the number of total adverbs used to refer to past reference was divided by the total number of past temporal contexts. For example, the beginning group used 64 adverbials among 209 past temporal contexts for a ratio of 64/209 or 0.31. Table 3 shows these results. It can be observed that there is very little difference in the ratio of adverbial use among the four groups.

Table 3. Frequency of adverbs and adverb-to-verb ratio by group.

|	Group 1 NNS	Group 2 NNS	Group 3 NNS	Group 4 NS
N Adverbs	64	74	86	250
Adverb-to-verb ratio	0.31	0.34	0.30	0.39

Because these results conflict with those of Bardovi-Harlig, who found that as past morphology increased, adverbial use to mark past context decreased, I thought it important to distinguish adverbial use with past marked verbs and present tense. The assumption is if adverbials are used instead of past

morphology in the early stages, then perhaps a greater number of adverbials are used with past temporal situation which are morphologically marked with the present. Thus, the adverb-to-verb ratio was calculated by dividing the number of adverbs used to modify past tense verbs by the total number of adverbs used. For example, the beginning group used 64 adverbials and among these, 47 were used to modify past tense verbs for a ratio of 47/64 or 0.73. In Table 4 the results of this calculation can be seen.

Table 4. Frequency of adverbs and adverb-to-verb ratio (past and present/other).

	Group 1 NNS	Group 2 NNS	Group 3 NNS	Group 4 NS
Adverb-to-past verb ratio	.73	.86	.99	.99
Adverb-to-pres/ other verb ratio	.27	.14	.01	.01

Here there is a difference among groups in the use of adverbials to mark past contexts and the kind of temporal morphology used. However, it is not what we would expect from the Bardovi-Harlig study, it is quite the opposite. All groups use more adverbials with past tense verbs than present or other verbs to refer to past contexts. In addition, the learners in group 1, who mark the least number of past contexts with past verbal morphology, use the fewest adverbials to indicate past context. Graph 1 shows this contrast most clearly. It appears that as past verbal morphology increases, adverbial use increases as well. In fact for the native speaker control group, 99% of adverbials are used to modify past verbs. For the most advanced group this use is the same with 99% of adverbials linked to past morphology.
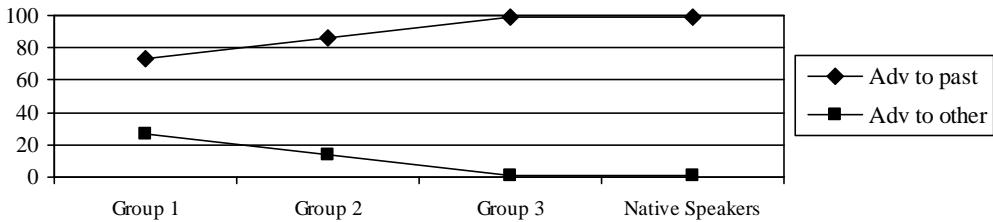
Graph 1. Frequency of adverbs and adverb-to-verb ratio (past and present/other).

The following graph shows the results of the analysis of adverbial forms, simple adverb, adverbial phrase or adverbial clause used to express past temporal reference. Here it is evident that although all structures are used by all groups, the lower level groups prefer adverbial phrases, whereas the more advanced third group and native speakers tend to produce more adverbial clauses. Therefore, although we see that all groups use more adverbials with past tense morphology, the kinds of adverbials used increase in complexity with greater competency in the use of past morphology.
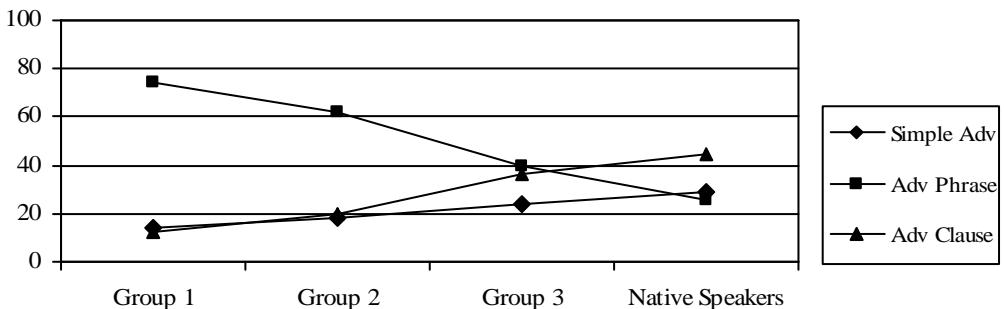
Graph 2. Adverbial types by group

3.3. Comparison of temporal and frequency adverbial use

In this section, I present the results of the analysis of temporal and frequency adverbials in order to see if these learners follow the same general tendencies of native speakers and use more temporal adverbials with preterite morphology and frequency adverbials with imperfect. Table 5 presents these results. All groups use more temporal adverbs than frequency ones to mark past contexts. This is not surprising given the nature of the task required of the participants, to narrate an event or events in the past. For group 1 there were only two tokens of frequency adverbs, making it difficult to draw any conclusions. In general, however, none of the learner groups make as much use of frequency adverbials as the native speakers and when they do, they tend to use simple adverbs and phrases, whereas the native speakers use more adverbial clauses.

Table 5. Use of temporal and frequency adverbials

| Past temporal reference	Group 1 NNS	Group 2 NNS	Group 3 NNS	Group 4 NS
Temporal Adverbs	.97	.89	.91	.64
Aspectual Adverbs	.03	.11	.09	.36
Total N	74	88	108	390

Table 6 summarizes the results of the use of temporal and frequency adverbials with preterite and imperfect verbal morphology. All six groups use temporal adverbials more often with preterite verbs than with verbs marked with the imperfect, ranging between 57% use among the native speakers to 68% for the learners in group 2. A two sample t-test revealed that there was no significant difference in the way the four groups use temporal adverbials with preterite morphology (the $P(T<=t)$ two-tail for groups 1 and 2 was 0.368836, for groups 2 and 3 was 0.599366 and for group 3 and the native speakers was 0.325122 with a df=18 among all groups).

Slight differences among the six groups are seen in the matching of frequency adverbials with past verbal morphology. In group 1, only two learners used one frequency adverb each, thus no conclusions can be drawn regarding use among these learners. Group 2 uses frequency adverbials to modify imperfect verbs only half of the time and the learners in group 3, like the native speaker group, tend to link frequency adverbs more often with verbs marked with the imperfect (70 and 67% respectively), although the t-test revealed that there was no statistically significant difference among the groups for their use of frequency adverbs with imperfect morphology (no p value was calculated between groups 1 and 2 for imperfect morphology because there were too few cells; the $P(T<=t)$ two-tail for groups 2 and 3 was 0.867471 with a df=11).

Table 6. Temporal and frequency adverbials with preterite and imperfect morphology

Past Ref.	Group 1 NNS			Group 2 NNS			Group 3 NNS			Group 4 NS		
	Pret	Imp	Other	Pret	Imp	Other	Pret	Imp	Other	Pret	Imp	Other
Temp	.60	.11	.29	.68	.21	.11	.64	.35	.01	.57	.18	.25
Freq	.50	.50	-	.40	.50	.10	.30	.70	-	.28	.67	.05

Graphs 4 and 5 show the preferences among all the groups for combining adverbial types and verbal morphology. Graph 4 demonstrates the linking of temporal adverbials with both past tense markers. For all groups, temporal adverbials are more strongly associated with preterite.

164
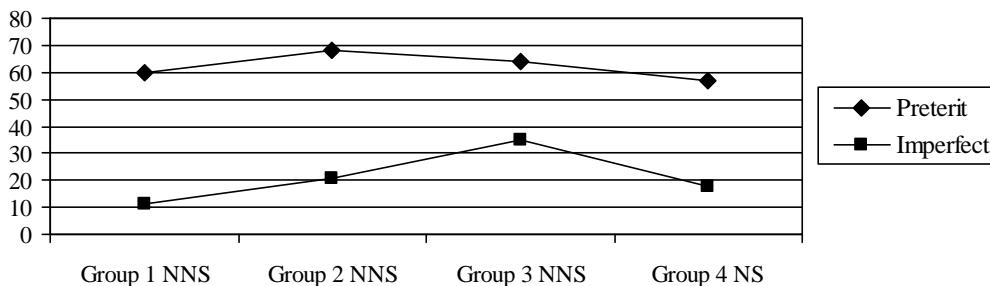
Graph 4. Preterite and imperfect morphology with temporal adverbials by group

Graph 5 reveals that the pattern of linking frequency adverbials with verbal morphology is more complex. We do not see a strong association of linking frequency adverbs with imperfect for the lower level groups. However, for the most advanced group and the native speakers, the association of frequency adverbs with imperfect patterns like that of temporal adverbs with preterite; these two groups link frequency adverbials with the imperfect. The lower-level groups do not associate temporal or frequency adverbials with either perfective or imperfective morphology. This may be because the aspectual distinction between preterite and imperfect is still not meaningful for them. Their L1 does not make this aspectual distinction morphologically in the same way, but rather lexically through the use of adverbials and phrases such as *used to*+verb or *would*+verb.[3] Thus, they use the same strategy in their L2 and expect the meaning of the adverbial to make clear whether the event they are narrating is terminated, ongoing or simultaneous. Although they are using verbal morphology to mark past tense, they are not at the level where they can use morphology to mark aspect. Therefore, they fall back on the L1 strategy and mark aspectual distinctions lexically. In short, for these learners the past verbal morphology makes clear the "pastness" of the event, and the adverbial makes clear what Comrie (1976) calls the "internal temporal constituency" of the event.
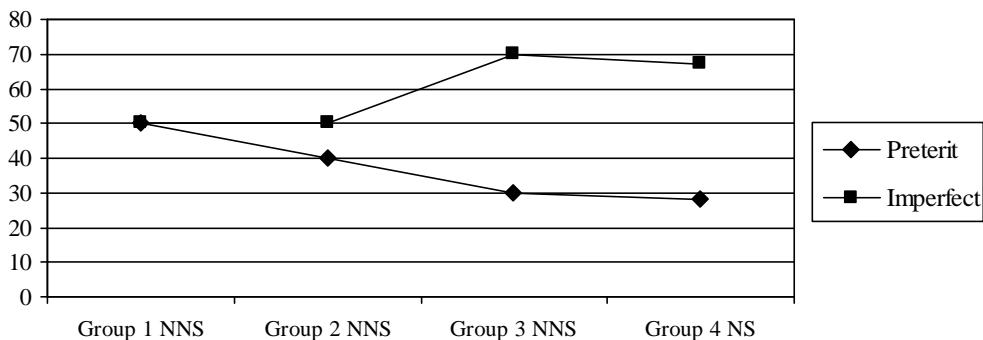

Graph 5. Preterite and imperfect morphology with aspectual adverbials by group

3.4. Analysis of clause types

The analysis of clause structure was included in order to answer the research question: As past verbal morphology develops, is there a decrease in the use of main and coordinating clauses and an increase in the occurrence of subordinating clauses? Bardovi-Harlig (1992) found that beginning learners of English relied mostly on main and coordinating clauses to relate sequences of events in chronological order. Subordination, one of the requisite structures for enabling inverse ordering of events and backgrounding is not evidenced in learners' speech until later. Would the same developmental pattern be seen for Spanish L2? What the analysis shows is that there is not a great deal

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[3] Learners' textbooks will often suggest that the Spanish imperfect is equivalent to the English past continuous, but contexts where this would be true are few (see Salaberry 2000).

of change across levels for the production of main clauses (see Graph 6 below). All levels of learners and native speakers make use of main clauses between 29 and 38% of the time in their narratives. However, there is a slightly greater decrease in the production of coordinating clauses from groups 1 and 2 (50 and 49% respectively), and groups 3 and the native speakers (36 and 29% respectively). For subordination, we also see a gradual increase from the lower level groups to the more advanced group and the native speakers, whose production ranged from 11 and 22% respectively in groups 1 and 2, to 30 and 33% in group 3 and the native speaker group. Therefore, although the increase in the use of subordination is not linked to inverse ordering and morphological marking, there is evidence that more advanced groups make use of more complex sentence structure, as well as increased past tense marking.
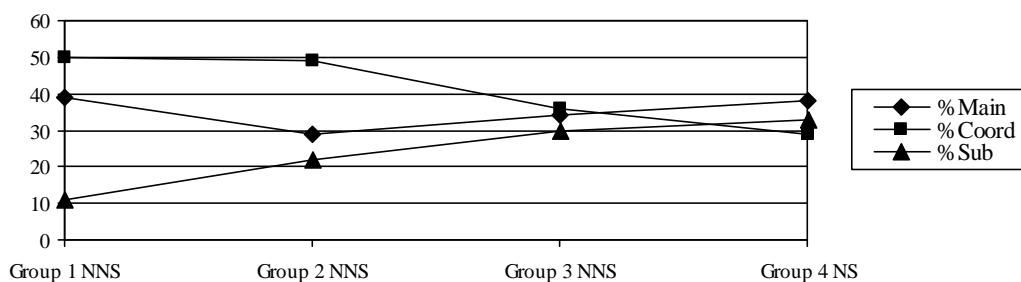
Graph 6. Clause structure by group

In sum, the results of the analyses carried out reveal that the use of past verbal morphology to mark past temporal relations increases with years of study; however contrary to what Bardovi-Harlig (1992) found for L2 English learners, the adverb-to-verb ratio for all past temporal reference does not decline with increased proficiency, but remains fairly stable. However, the adverb-to-verb ratio for only past tense verbs increases as proficiency develops, demonstrating that past morphology does not replace adverbial use but rather develops to combine with these lexical devices. Furthermore, it was found that there is no important change in the use of adverbial phrases across all groups, but there is an overall increase in the use of adverbial clauses to mark past temporal situations. The increased production of subordinate clauses allows for the greater elaboration of events and the possibility of establishing a wider range of temporal relations among several events or episodes, thus rendering a far more complex narrative structure. Indeed, the data show that between the lower level groups and the more advanced and native speakers, there is a shift from the use of adverbials to mark the chronological sequencing of events to the expression of inverse ordering and simultaneous events. Further studies need to be carried out in order to determine if this increased use of past tense morphology is related to subordination and inverse ordering.

Finally, it was seen that preterite dominates in clauses modified by temporal adverbs for all groups, apparently revealing agreement between the morphology and the inherent semantics of the adverbials, but then we saw that preterite also dominates in clauses modified by frequency adverbs in narratives among the lower proficiency groups. It is not until the more advanced levels that learners associate imperfect morphology with the imperfective aspect of the modifying adverbial.

4. Concluding remarks

Why is it then that we see an increase in the use of adverbials to modify temporal events when in fact, other studies found the opposite? In the Bardovi-Harlig 1992 study, the subjects were beginning learners. A follow-up study of these participants may well have revealed a more complex structure where the learners "redundantly" combined both adverbials and morphology to express temporal relationships. In fact, Sagarra and Dussias (2001), in an online processing task for Spanish L2, found that intermediate learners processed redundant grammatical forms more quickly when past temporal adverbs agreed in tense with preterite verbs than when these adverbs were paired with present

morphology. On the other hand, Sagarra (forthcoming) found that beginning learners were not able to process redundant morphological cues; learners spent the same amount of time reading preterite verbs that agree with a preceding past temporal adverb as they did reading present verbs that disagree with a previous past temporal adverb. Thus, at least in the beginning stages, lexical cues are the only indicators for tense and/or aspect, and for later learners, adverbials and redundant morphology actually may combine to enhance processing. This redundancy is evidenced in production as well.

Another explanation for the discrepancies of the present study with others may be the type of narrative task. In the Bardovi-Harlig study, the data analyzed were taken from diary entries; it may be that both chronological order and adverbial use are typical organizing principles of narrative structure in general, not found as often in other types of discourse. On the other hand, there may be transfer effects from the L1; without the aspectual distinction available in the morphology (between preterite and imperfect, for example), English depends more on adverbials to mark this distinction.

4. *When I was a kid*, I *always* rode my bike down this path. (imperfective reading of *rode*)
5. *Yesterday*, I rode my bike to the beach and back. (perfective reading of *rode*)

It may be that the lower level learners transfer these features of their L1 onto the production of their L2. Furthermore, as Sagarra (forthcoming) points out, early learners only attend to morphology in the absence of temporal lexical cues. Thus, as learners become more proficient in the language, they learn to depend on the verbal morphology in Spanish to signal this distinction. Nonetheless, they do not drop the modifying adverbials, but rather use them to express more complex relations among events. Temporal adverbials not only function as clause-linking devices, but also to express the type of temporal relation between events. Although Spanish uses morphology to express tense and aspect, Sebastián and Slobin (1994) point out that there may be instances in which the verb tenses are insufficient to establish the type of temporal relation. Moreover, Bardovi-Harlig (2000) mentions that although lexical devices may be the sole means of marking temporal relations in beginning stages, this doesn't mean they are necessarily absent in later stages.

Furthermore, Sebastián and Slobin (1994) point out that, in comparison with other languages, Spanish shows a greater frequency of use of relative clauses in narrative discourse. It may be that this feature extends over into the use of adverbial clauses as well. As learners acquire a wider variety of adverbials, they are able to use them in more complex ways, not just to mark the sequential chaining of events but to establish a greater range of temporal relations among several events or episodes. As proficiency develops, the verbal form takes on a greater burden of transmitting the aspectual reading and the adverbial not only agrees with the morphology in terms of temporal and aspectual meanings, but establishes the relationship among multiple events.

The results presented here reveal that the acquisition of temporal reference in Spanish, especially for narrating events, is a far more complex task than just selecting the correct verbal morphology; it is an intricate process of developing and manipulating lexical, semantic, morphological and syntactic devices. This process brings to light again how the expression of meaning moves from lexical and pragmatic to morphological and syntactic means, not by substituting one device for another, but rather by incorporating elements of each stage into the next in increasingly more complex ways.

5. Appendices
5.1. *Appendix I. Inventory of temporal adverbials from narratives*

al principio/final	después de + NP	luego
al siguiente día/a la siguiente semana)	después de que + S	NP + pasado/a (el año pasado/la semana pasada, etc.)
		*NP + pasado (dos semanas pasado)
antes	durante + NP (durante la noche)	NP+S (el semestre que llegó mi novia)
antes de + NP	entonces	(por/para) tres horas, etc.
antes de que + S	en + time (en la tarde, en 1995, etc.)	por fin

aquella/esa vez	en + locative (en la prepa, etc.)	primero
como + time (como tres meses)	hace (tres años, etc.)	*sobre + time (+pasado/a) (*sobre dos años pasado)
cuando + past clause	hasta + NP (hasta aquella vez)	un día, una noche, etc.
desde + NP/ADV (desde esa vez/entonces	hasta + S	un tiempo en mi vida
desde + S	la primera (segunda, etc.) vez	ya
después	la primera (segunda) vez + S	ya para entonces/ese tiempo

5.2. Appendix II. Inventory of frequency adverbials from narratives

a veces	mientras
algunas veces	muchas veces
cada vez	por ratos
con frecuencia	siempre
diariamente	todo el tiempo
durante los veranos/las noches	jamás

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