

A Diachronic Analysis of Frequency Adverbials: Variation in Peninsular and Latin American Spanish¹

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1. Introduction

This article is a variationist study of the position of adverbial expressions in Peninsular and Latin American Spanish. The term “adverbial expression” refers to a very heterogeneous group of grammatical categories, like adverbs, prepositional phrases and nominal phrases. This group is also characterized by various syntactic and semantic properties (see Kovacci (1999) for a detailed discussion). In this paper, we focus on the ordering exhibited by a particular class, frequency adverbials, following previous research by Mayoral Hernández (2004a, 2004b) and Mayoral Hernández & Alcázar (2007). Specifically, his manually annotated corpus has been extended by means of computational tools to include sociolinguistic factors in a new diachronic study designed to ascertain whether the position of adverbials is shifting as part of a general process of language change.

To this end, we extracted data from *Corpus de Referencia del Español Actual* (CREA), the largest corpus of Spanish available online, and from *Corpus Diacrónico del Español* (CORDE). Our investigation follows modern trends that incorporate technological advances to the study of language by means of corpora (Marcos Marín, 1995; Biber, Davies, Jones, & Tracy-Ventura, 2006; Baayen, in press; Alcázar, 2008). The paper also benefits from an interdisciplinary approach that combines traditional sociolinguistic analysis with computational linguistics (Gries, 2003; Levy, 2008). In this line, we developed computational tools to automatically annotate relevant information contained in CREA and CORDE. Finally, our study employs statistical methods to test the significance of linguistic hypotheses (Tagliamonte, 2006).

Although previous analyses propose that a difference in position correlates with a difference in meaning (e.g. Cinque (1999) and other generative approaches), we will contend that a purely semantic or syntactic analysis yields unsatisfactory predictions. In fact, we defend the idea that the distribution of adverbials is sensitive to speaker preferences and universal constraints, as proposed in the psycholinguistic literature (Wasow & Arnold, 2003; Lohse et al., 2004). Here we will adopt a variationist approach in which the interaction of different factors determines the position of adverbials.

The variationist approach assumes that variation arises from a combination of different factors. These factors, or independent variables, are often of a diverse nature. Thus, it is desirable to combine in the same model variables that pertain to various levels of representation: phonological, semantic, pragmatic, syntactic, etc. As a result, sometimes it becomes irrelevant to try and elucidate if a specific grammatical phenomenon should be better described as syntactic, morphological, phonetic, semantic, etc; but rather, it emphasizes the necessity of describing every language process as a result of the interaction of cognitive, mental and purely grammatical constraints (Hawkins, 1994, 1999, 2000, 2001).

In this paper, we will examine how three sociolinguistic and diachronic factors can influence the ordering of adverbials, in particular *gender*, *language variety* and *century*. Abundant research has proven that these three variables play a center role in many grammatical phenomena (e.g., Silva-

¹ Thanks to the audiences at HLS 2006, LSRL 36, HLS 2008, WSS4 and HILSA workshops for useful comments and suggestions. We are especially indebted to Carmen Silva-Corvalán for extensive comments on an earlier version of this paper. We also thank Clancy Clements, Lotfi Sahayi and Scott Schwenter for helpful discussions. All errors are our own.

Corvalán, 2001; Lavandera, 1975; Lapesa, 1942; Rivero, 1997; Aranovich, 2003), as we will see in the following sections.

The outline of the paper is as follows. Section 2 describes the adverbial alternation in Spanish. Section 3 introduces a quantitative analysis of three factors that affect adverbial ordering: gender, language variety and century. Section 4 details the sequence of steps followed to extend the manually annotated corpus using computational tools. Section 5 provides the results of our experiment. Section 6 discusses the results and implications of the analysis for linguistic research. Finally, section 7 presents the conclusions of our paper.

2. Adverbial alternation

Frequency adverbials like *frecuentemente* “frequently” can either precede or follow the verb. The following examples are actual written samples of Spanish that we extracted from the online corpus CREA. Each sentence illustrates one of the four positions considered in our study.

- (1) Preverbal 1: Before [co-occurring XP]

Frecuentemente [los miembros de las comunidades] reciben cursos de protección ambiental
 “Frequently the members of the communities receive courses on environmental protection”

- (2) Preverbal 2: after [co-occurring XP]

[Los agentes del SIN] ***frecuentemente*** realizan redadas en empresas...
 “The SIN agents frequently carry out raids on companies...”

- (3) Postverbal 1: before [co-occurring XP(s)]

la actividad del citado empresario trasciende ***frecuentemente*** [el mero aspecto comercial]
 “the activity of the aforementioned businessman frequently transcends the merely commercial aspect”

- (4) Postverbal 2: after [co-occurring XP(s)]

La situación ha sido [muy tensa] ***frecuentemente***
 “The situation has frequently been very tense”

In these sentences, the frequency adverbial could have been expressed in any of the other positions without an apparent change in meaning.

However, the literature dealing with Spanish adverbs mentions that preverbal and postverbal adverbials have different interpretations that can be also observed in a different syntactic behavior. In her exhaustive description of Spanish adverbials, Kovacci (1999) assigns different properties to preverbal and postverbal positions. In particular, she explains that postverbal adverbials (i) modify the verb, having a circumstantial use, (ii) imply the text without the adverb and (iii) can be paraphrased using a sentence introduced by *como* “how” or *cuando* “when”. By way of example, a sentence like (5a), containing the postverbal adverb *frecuentemente* “frequently”, should entail the same sentence with no adverb, as in (5b), and it should be possible to paraphrase it by using a sentence headed by the complementizers *como* “how” or *cuando* “when”, as in (5c).

- (5) a. *mis amigos comen patatas frecuentemente*

“my friends frequently eat potatoes”

- b. *mis amigos comen patatas*

“my friends eat potatoes”

- c. *es frecuentemente cuando/como mis amigos comen patatas*

“It’s frequently when my friends eat potatoes”

Kovacci assumes that frequency adverbials show different properties when they occur in preverbal position: (i) they modify the sentence, (ii) do not imply the sentence without the adverb and (iii) cannot be paraphrased by a clause with *cuando* “when” or *como* “how”. But this does not seem to be the case.

A sentence with a preverbal adverbial like (6a) also entails the same sentence without the adverb, as in (6b), and also admits paraphrases with *cuando* “when” or *como* “how”, as in (6c). The grammaticality of sentences (6b) and (6c) seems to indicate that the difference between preverbal and postverbal frequency adverbials, if any, might not be derived exclusively from purely semantic or syntactic properties.

- (6) a. *frecuentemente mis amigos comen patatas*
 “my friends frequently eat potatoes”
 b. *mis amigos comen patatas*
 “my friends eat potatoes”
 c. *es frecuentemente cuando/como mis amigos comen patatas*
 “It’s frequently when my friends eat potatoes”

The previous examples show that a change in the position of the adverb does not necessarily entail a change in meaning. Even if there were preferred interpretations associated with different positions, psycholinguistic research has shown that the avoidance of meaning ambiguities is not a factor that triggers ordering alternations in language production (Hawkins, 2000; Wasow & Arnold, 2003). A purely syntactic or semantic theory cannot account for the wide variation in grammaticality judgments existing with respect to preferred orders. Nevertheless, we acknowledge that in certain contexts, like the ones studied by Kovacci containing quantifiers, it is possible to find semantic differences between preverbal and postverbal adverbials, or at least a predisposition to interpret adverbial scope in the way Kovacci indicates. Here we will defend that adverbial position is related to stylistic preferences and sociolinguistic forces.

Previous research has shown that several factors influence the position of frequency adverbials. Using a variationist approach, Mayoral Hernández (2004a, 2004b) showed that “weight”, “subject position” and “verb type” can determine the final collocation of adverbials in the sentence. Based on Hawkins’s research, Mayoral Hernández demonstrated that weight, counted as number of words, is a predictive factor for the collocation of adverbial expressions: heavier adverbials, i.e., constituents with a higher number of words, will tend to appear in sentence final position more frequently. As Hawkins explains, the concept of weight can only be relative, since the different weights of the constituents in the sentence will interact to make lighter elements precede heavier ones.

The presence of overt subjects in the sentence, or their absence, has also effects on the position of adverbials. In particular, frequency adverbials and subjects often occur in complementary distribution.

The third factor studied by Mayoral Hernández (2004b) is the type of verb. When comparing transitive, copulative, unergative and unaccusative verbs, he found that unaccusative verbs are associated with a higher percentage of preverbal adverbials. This is partially due to a higher percentage of postverbal subjects in unaccusatives.

In the following section we will add three more factors to Mayoral Hernández’s previous work.

3. Statistical analysis

Our research expands that of Mayoral Hernández & Alcázar (2007) by testing whether sociolinguistic and diachronic factors also affect the position of frequency adverbials. Here we address three novel research questions in the domain of the adverbial alternation: (i) do women and men show the same syntactic distribution? (ii) are there differences between Latin American and Peninsular varieties? (iii) is adverbial position undergoing a syntactic change?

The three relevant independent variables to analyze are gender, language variety and century. The rest of this section deals with the three hypotheses associated to each factor.

3.1. First hypothesis: Gender

Gender has been studied as a possible source of sociolinguistic variation for a variety of grammatical phenomena (Labov, 1966; for Spanish, see Silva-Corvalán, 2001 and references therein).

For instance, Lavandera (1975) analyzes the use of imperfect indicative and simple conditional tenses in the main clause of conditional sentences in Buenos Aires. Table 1 shows that women and men have different preferences for tense in the apodosis of conditional sentences. Men prefer the conditional form in *-ría*, while women prefer the imperfect form in *-ba*.

	N Total	-ría		-ba	
Total speakers	33	19	55%	14	45%
Women	19	8	35%	11	65%
Men	14	11	79%	3	21%

Table 1: *Conditional vs. imperfect in apodosis by gender*
(Lavandera, 1975 cf. Silva-Corvalán, 1989)

Considering the gender differences reported in the literature, our first hypothesis states that gender will influence the position of adverbials. According to this hypothesis, women and men will show a different syntactic distribution. Gender is a dichotomous variable with two values: (i) male and (ii) female.

3.2. *Second hypothesis: Language variety*

Numerous dialectology studies have shown salient differences in the phonology and syntax of Peninsular and Latin American Spanish (Silva-Corvalán, 1997; Morales, 1986; Ranson, 1991).

Table 2 presents the relevant distribution of subject expression as seen in three varieties of Spanish. Peninsular Spanish, represented by Ranson's (1991) analysis of Andalusian Spanish, shows a higher tendency to omit subjects in third person when compared with American varieties (Los Angeles and Puerto Rico). Note that all these three varieties of Spanish share the aspiration or omission of final /s/, so the higher percentage of subjects is not explained by a need to disambiguate the lack of distinctive verbal morphology. Overall, table 2 shows that, when varieties with similar processes of consonant reduction are compared, there are still significant differences pertaining to language variety.

	Los Angeles	Puerto Rico	Andalusia
Yo	42%	47%	50%
Él/Ella	31%	37%	10%
Nosotros/as	18%	19%	19%
Ellos/as	18%	18%	9%

Table 2: *Subject expression across Spanish varieties*
(Silva-Corvalán, 1997; Morales, 1986; and Ranson, 1991, respectively)

In view of the differences between Peninsular and Latin American Spanish, the second hypothesis predicts that adverbial position will also be influenced by this factor.

The factor *language variety* is a dichotomous variable with two values: (i) Peninsular and (ii) Latin American. The variable *Peninsular* represents documents from Spain. The variable *Latin American* represents 21 countries: all Latin American countries and the USA.

The original study by Mayoral Hernández (2004a, 2004b) randomly searched the CREA corpus for sentences containing frequency adverbials. Accordingly, the data sample did not result in a homogenous distribution of tokens by country. In effect, texts from Spain are overrepresented (897 n = 56.2%) while Mexico is the Latin American country with most tokens (211 n = 13.2%). This is due to the preponderance of texts from Spain in CREA. Evidently, Latin American Spanish is not a uniform variety. A simple look at the literature dealing with Spanish dialectology will show that neither Latin American nor Peninsular Spanish are homogenous (Moreno Fernández, 1993; Fontanella de Weinberg, 1992; Lipski 1994). Future research will incorporate additional tokens from Latin American varieties to further explore regional variation.

Having said that, the division that we adopt here can be defended on methodological, historical, geographical and grammatical grounds. First of all, we are only dealing with written Spanish as it appears in books and press —a formal and educated style. Written Spanish should not be affected by the multiplicity of phonetic phenomena documented across different varieties of spoken Spanish. Furthermore, even though some degree of lexical divergence is naturally expected, our research does not deal with lexical variation, since very specific adverbs have been selected and controlled.

From a historical and geographical point of view, the wide distance between America and Europe and the contact with native American languages have led to innovations in America, similar to language contact situations in Spain with Basque and other Romance languages. This phenomenon is comparable to the divergence among, for example, British, American and Australian English.

Certain features set apart Peninsular Spanish from Latin American varieties. For example, there are no cases of “ceceo” in Latin America, or of “voseo” in Spain (Moreno Fernández, 1993; Fontanella de Weinberg, 1992). Many European languages, including Peninsular Spanish, English, French and Italian for example, seem to be evolving towards an extended use of complex forms (present perfect) and the disappearance of simple forms (past simple), while American languages, including American English and American Spanish, are evolving towards an extended use of simple forms (past simple)².

3.3. Third hypothesis: Century

It goes without saying that languages change over time and that these changes can expand gradually generation after generation. With particular reference to Spanish, the evolution from early Ibero-Romance to present day Spanish is well documented (Lapesa 1942, Rivero 1997, Aranovich 2003, Castillo 2002, Fontana 1993, inter alia). By means of illustration, consider Old Spanish clitic pronouns. With the exception of the sentence initial position, clitic pronouns could virtually appear anywhere else in the sentence. For instance, in (7) we see the object pronoun take a preverbal position, yet it is separated from the verb by the subject and an adverbial.

- (7) *Si lo el rey por bien toviere, mándeme quemar.* (Rivero 1997)
 if it the king for good had, order.me burn
 ‘If the king saw it fitting, let him have me burnt.’

For the purpose at hand, this hypothesis predicts diachronic changes in adverb placement. In our corpus, century is a dichotomous variable with these two values: (i) Old Spanish (OSp, CORDE: 1500 -1800) and (ii) Modern Spanish (MSp, CREA)

4. Methodology

The present research extends the variationist study on frequency adverbials developed by Mayoral Hernández (2004a, 2004b), further extended in Mayoral Hernández & Alcázar (2007). Our corpus contains 1,597 sentences from the online corpus CREA. Each sentence contains one of three frequency adverbials that were selected to represent different weights (different number of words): (a) *frecuentemente* “frequently”, (b) *en muchas ocasiones* “on many occasions” and (c) *en más de una ocasión* “on more than one occasion”.

The information relative to country provided by CREA was automatically annotated as our independent variable Language variety, taking advantage of one of the functionalities of a series of computer programs written in Python and specifically designed to work with CREA and CORDE. We grouped together all the Latin American countries in our corpus under the factor Latin American varieties, while data from Spain was coded as Peninsular varieties.

The gender variable required manual annotation as either male or female. In cases of multiple authorship, we required that all authors belong in the same gender category to call for the label male or female. The mixed cases we coded as mixed and not included in this analysis.

² This observation was pointed out in personal communications with Carmen Silva-Corvalán.

For the diachronic analysis, we added 412 tokens from Corpus Diacrónico del Español (CORDE), which increased the final corpus to 2,009 tokens. The new sentences contain all the occurrences of the adverbial *frecuentemente* “frequently” in CORDE. We did not find enough tokens that included any of the other adverbial expressions in the historical corpus. Accordingly, it is not possible for us to conduct meaningful statistics with them.

We present the results in crosstabulation tables and apply the Pearson’s chi-square test to determine statistical significance. We have adopted the standard probability value as the threshold for significance, and therefore any $p < 0.05$ will be considered statistically significant.

5. Results

In this section, we provide the results obtained in our analysis, paying special attention to possible interactions between them. The first two factors present the results for Modern Spanish. The last factor provides a diachronic comparison for Old Spanish.

5.1. Results: Gender

Table 3 shows that gender is statistically significant ($p = 0.001$). Women favor postverbal adverbials (62.5%), while men prefer preverbal positions (45.2%). The reader will observe that the total number of tokens in this table is only 657, rather than the 1597 sentences that constitute the entire corpus. This is due to an idiosyncratic characteristic of the author annotation in CREA, which contains this information for books only ($n = 657$), as opposed to magazine and newspaper articles.

			Gender		Total
			Female	Male	
Position of adverbials	Postverbal Position	Count	195	156	351
		% within gender	62.5%	45.2%	53.4%
	Preverbal Position	Count	117	189	306
		% within gender	37.5%	54.8%	46.6%
Total		Count	312	345	657
		% within gender	100.0%	100.0%	100.0%

Table 3: *Position of adverbials by gender* ($\chi^2 = 19.667$)

5.2. Results: Language variety

This independent variable proved to be significant as well ($p = 0.001$). As table 4 indicates, Peninsular varieties favor postverbal adverbials while Latin American varieties show no clear preference. All the sentences included in our corpus ($n = 1597$) contain information relative to what we refer to as language variety, which is indicated as “country” in CREA notation.

			Language Variety (LV)		Total
			Peninsular	Latin American	
Position of adverbials	Postverbal Position	Count	542	354	896
		% within LV	60.4%	50.6%	56.1%
	Preverbal Position	Count	355	346	701
		% within LV	39.6%	49.4%	43.9%
Total		Count	897	700	1597
		% within LV	100.0%	100.0%	100.0%

Table 4: *Position of adverbials by language variety* ($\chi^2 = 15.497$)

5.3. Results: Century

In our study Old Spanish comprises a period that expands three centuries (1500-1799). All the historical data were recoded together, since no statistically significant differences were found among them ($p = .115$). The results in table 5 indicate that this factor is not statistically significant overall ($p = 0.801$), since adverb placement in Modern Spanish (MSp) and Old Spanish (OSp) is similar.

			Century		Total
			OSp	MSp	
Position of adverbials	Postverbal Position	Count	234	896	1130
		% within century	56.8%	56.1%	56.2%
	Preverbal Position	Count	178	701	879
		% within century	43.2%	43.9%	43.8%
Total		Count	412	1597	2009
		% within century	100.0%	100.0%	100.0%

Table 5: *Position of adverbial by century* ($\chi^2 = .064$)

This factor does turn significant ($p < 0.0001$), nonetheless, when OSp is compared to MSp in Latin American texts written by male writers (see table 6).

			Century		Total
			OSp	MSp	
Position of adverbials	Postverbal Position	Count	234	50	284
		% within century	56.8%	34.0%	50.8%
	Preverbal Position	Count	178	97	275
		% within century	43.2%	66.0%	49.2%
Total		Count	412	147	559
		% within century	100.0%	100.0%	100.0%

Table 6: *Position of adverbial by century in Latin America, with male authors* ($\chi^2 = 22.500$)

The comparison of all texts in OSp with *all cases* of MSp in *Spain* returned no significant difference ($p = 0.215$), as table 7 indicates.

			Century		Total
			OSp	MSp	
Position of adverbials	Postverbal Position	Count	234	542	776
		% within century	56.8%	60.4%	59.3%
	Preverbal Position	Count	178	355	533
		% within century	43.2%	39.6%	40.7%
Total		Count	412	897	1309
		% within century	100.0%	100.0%	100.0%

Table 7: *Position of adverbial by century in Spain* ($\chi^2 = 1.539$)

Moreover, it is noteworthy that OSp and MSp texts written in *Spain* by *male* writers show a similar distribution ($p = 0.448$), with a clear preference for postverbal adverbials (table 8).

			Century		Total
			OSp	MSp	
Position of adverbials	Postverbal Position	Count	234	106	340
		% within century	56.8%	53.5%	55.7%
	Preverbal Position	Count	178	92	270
		% within century	43.2%	46.5%	44.3%
Total		Count	412	198	610
		% within century	100.0%	100.0%	100.0%

Table 8: *Position of adverbial by century in Spain, with male authors* ($\chi^2 = .576$)

5.4. Results: Gender by Language variety

The results presented thus far may be influenced by interactions among the different variables. It is important to control for these potential interactions to avoid unreliable results. In this section, we have separated the gender data for the two language varieties that we study in this article: Peninsular and Latin American Spanish.

Table 9 shows gender information for Peninsular Spanish only ($n = 343$). This table indicates that both men and women prefer postverbal positions: 62.8% and 53.5%, respectively. The difference between the two groups is not statistically significant ($p = 0.088$). However, men show a strong tendency for preverbal positions. In fact, men have a more balanced distribution between preverbal and postverbal adverbials.

			Gender		Total
			Female	Male	
Position of adverbials	Postverbal Position	Count	91	106	197
		% within gender	62.8%	53.5%	57.4%
	Preverbal Position	Count	54	92	146
		% within gender	37.2%	46.5%	42.6%
Total		Count	145	198	343
		% within gender	100.0%	100.0%	100.0%

Table 9: *Position of adverbials by gender in Peninsular Spanish* ($\chi^2 = 2.913$)

The results obtained for Peninsular Spanish contrasts with the overall gender results obtained before, which were significant. At this point, we predict that the overall gender significance obtained for gender is due to the influence of the Latin American data. In effect, table 10 reveals that gender significantly influences adverbial ordering in Latin American varieties ($p = 0.001$).

			Gender		Total
			Female	Male	
Position of adverbials	Postverbal Position	Count	104	50	154
		% within gender	62.3%	34.0%	49.0%
	Preverbal Position	Count	63	97	160
		% within gender	37.7%	66.0%	51.0%
Total		Count	167	147	314
		% within gender	100.0%	100.0%	100.0%

Table 10: *Position of adverbials by gender in Latin American Spanish* ($\chi^2 = 24.988$)

Thus, the overall significance obtained in the general gender table results from the higher percentage of preverbal positions used by Latin American men. Although it is important to remember that Spanish men also show a higher percentage of preverbal adverbials when compared to women.

6. Review of the results

As far as gender is concerned, our research initially showed its significance overall ($p < 0.0001$). However, once we controlled the results by Language Variety, we observed that gender in Spain is not significant yet ($p = 0.088$), while gender in Latin America is significant ($p < 0.0001$). Therefore, the Latin American data caused the overall significance of gender. In particular, women seem to behave uniformly across language varieties, preferring postverbal positions. Spanish men pattern together with women, since they all prefer postverbal adverbials. In contrast, Latin American men favor preverbal positions.

Regarding language variety, the results initially showed that it is statistically significant overall ($p < 0.0001$). However, this factor depends on gender. If Latin American men are excluded from the analysis, this variable loses statistical significance ($p = 0.297$), as table 11 illustrates.

			Language Variety (LV)		Total
			Peninsular	Latin American	
Position of adverbials	Postverbal Position	Count	197	104	301
		% within LV	57.4%	62.3%	59.0%
	Preverbal Position	Count	146	63	209
		% within LV	42.6%	37.7%	41.0%
Total		Count	343	167	510
		% within LV	100.0%	100.0%	100.0%

Table 11: *Position of adverbials by language variety, excluding Latin American men* ($\chi^2 = 1.088$)

The diachronic analysis shows no significant difference between Old Spanish and Modern Spanish, as far as adverb position is concerned ($p = 0.801$). Nevertheless, after controlling language variety and gender, we found a statistically significant difference between OSp and MSp texts written by Latin American men ($p < 0.0001$). This trend might be pointing towards a possible evolution of Spanish, if one considers the tendency for men to innovate (Silva Corvalán 2001) and for women to be more conservative in formal styles (Labov 1966). This is evident in Latin America and a tendency in Spain. The preference of Latin American men for preverbal positions could run parallel to developments in the history of other languages. It is widely known that languages like French or English have an almost obligatory position for adverbs, which precedes the main verb. Spanish might as well be slowly evolving towards preverbal positions. Something similar happened to the position of adjectives in Spanish, which evolved from a preference for prenominal to postnominal (File-Muriel 2006). Nonetheless, the hypothesis that we entertain here for adverbs would require additional research.

7. Conclusion

The current analysis has proven that the variable position of frequency adverbials is not only a structural phenomenon (Mayoral Hernández 2004a, 2004b). On the contrary, the syntactic distribution of adverbials is influenced by sociolinguistic and stylistic factors (Aranovich 2003, Castillo 2002). Our study shows that the preference of Latin American men for preverbal adverbials is an innovation, which is also observed as a tendency in Spanish males (Silva-Corvalán 2001). Our diachronic study might point towards a possible evolution of adverbials to preverbal positions. Finally, the use of computational tools for text processing dramatically reduces coding time by extracting and coding relevant information automatically.

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Selected Proceedings of the 4th Workshop on Spanish Sociolinguistics

edited by Maurice Westmoreland
and Juan Antonio Thomas

Cascadilla Proceedings Project Somerville, MA 2008

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or:

Mayoral Hernández, Roberto and Asier Alcázar. 2008. A Diachronic Analysis of Frequency Adverbials: Variation in Peninsular and Latin American Spanish. In *Selected Proceedings of the 4th Workshop on Spanish Sociolinguistics*, ed. Maurice Westmoreland and Juan Antonio Thomas, 81-90. Somerville, MA: Cascadilla Proceedings Project. www.lingref.com, document #1758.