# Contrastive Focus and Global Intonation Patterns in Spanish

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Face, Timothy L. 2001. Contrastive Focus and Global Intonation Patterns in Spanish. The Linguistics Association of Korea Journal, 9(2), 1-21. Previous studies of the effects of focus on Spanish intenation have primarily limited themselves to the intenation pattern of the word in focus, This paper shows that there are at least three ways in which the intenation pattern of the remainder of the utterance (i.e., the global intenation pattern) is used to convey focus, Two of these three ways involve the phonetic manipulation of pitch range, while the third involves a phonological marking of intermediate phrases, (University of Minnesota)

#### 1. Introduction

In this paper I examine the ways in which intonation, and specifically global intonation patterns, are used to mark contrastive focus in Spanish, I draw a distinction between broad and narrow focus following Ladd (1980), For Ladd, broad focus is the production of an utterance where no one portion of that utterance is highlighted more than the others, 1) An example is the answer given to the question in the

<sup>1)</sup> By highlighting I mean emphasizing or making more prominent in some way, Highlighting may be accomplished through various mechanisms, such as prosody (e.g., intonation, lengthening), morphology (e.g., a focal morpheme) and syntax (e.g. word order, special syntactic structure), In the present study I will

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exchange in (1),

A: What happened?
 B: John went to the store.

In this exchange the entire answer is of equal communicative importance, with no individual word or constituent being highlighted or emphasized more than the others. Narrow focus, on the other hand, is the production of an utterance in which one portion of that utterance is highlighted more than the others, A distinction is often drawn between contrastive and non-contrastive narrow focus (Chafe 1974, Cruttenden 1986, Face 2000, Taglicht 1982, among many others). In contrastive narrow focus, one element contrasts with one or more other elements, An example is seen in the exchange in (2),

(2) A: Did Mary go to the store? B: No, JOHN went to the store.

In the answer in this exchange, John is in contrastive focus because this is the information highlighted above the other information in the answer and there is a contrast between John in the answer and Mary in the question. In non-contrastive narrow focus the focus is still highlighted, but there is no contrast with any other element. An example is seen in the exchange in (3),

(3) A: Who went to the store?
B: JOHN went to the store.

In the answer in this exchange, John is highlighted above the other

be considering highlighting through intonstion,

words in the utterance as it is of higher communicative interest than the rest of the sentence (indeed, it answers the question), but it does not contrast with any other word,2)

I also draw a distinction between local and global intonation patterns, I define local intonation patterns as those that occur on a word in focus and global intonation patterns as those that occur on the non-focal portions of an utterance containing a word in focus, So, in looking at contrastive focus and global intonation patterns [ am considering how intonation is used in the non-focal portions of an utterance to mark contrastive focus. For example, in the exchange in (3), it is the intonation pattern over the portion of the answer that follows the focal word John that is of interest, And in the exchange in (4), it is the intonation pattern over the portion of the answer that precedes the focal word office that is of interest,

(4) A: Did John go to the store? B: No. John went to the OFFICE.

## 2 Previous Research

The motivation to examine the global intonation patterns used to mark Spanish contrastive focus comes primarily from a lack of previous research on this topic, While da la Mota (1995, 1997), Face (1999, 2000, 2001a, 2001b, 2001c), García-Lecumberri (1995), Hualde (2000), Navarro Tomás (1944), Nibert (2000), Toledo (1989) and Sosa (1999) have all

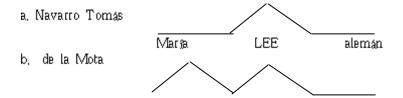
It should be pointed out that it is extremely difficult to define focus and the types of focus that exist, This is an issue that is outside the scope of the present study, and so is left for consideration by pragmaticists, In the present study I will simply adopt the simple definition of contrastive focus given here and consider how it is marked in Spanish by global intonation patterns,

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considered the intonational correlates of Spanish narrow focus, either contrastive or non-contrastive, the vast majority of this work has focused on the local intonation patterns used to mark focus. Only Navarro Tom's (1944) and de la Mota (1995, 1997) dedicate a portion of their work to observing global intonation patterns, though some other scholars have since tried to account for the observed patterns. But even in the cases of Navarro Tomás (1944) and de la Mota (1995, 1997), the discussion of global intonation patterns is limited to mere observation, without a proposed explanation.

Navarro Tomás (1944) reports that there is a low and relatively flat pitch over both the pre-focal and post-focal portions of an utterance containing a focal word, while de la Mota (1995, 1997) observes this intonation pattern only post-focally. Schematic representations of Navarro Tomás's and de la Mota's observations for this low, flat global intonation pattern for marking narrow focus are shown in Figure 1 for the sentence María LEE alemán María READS German', where capital letters indicate focus.

Figure 1, Schematic representations of Navarro Tomes's and de la Mota's observations of a low, flat global intonation pattern for marking narrow focus,



What this limited previous research, and especially the disagreement between the two previous observations, shows above all else is that there is a need for further studies investigating the global intonation patterns used to mark Spanish narrow focus,

#### Experimental Methods

In order to further examine the global intonation patterns used to mark Spanish narrow focus, 1DB question and answer pairs were created, and each answer contained either two or three stressed content words. The same answer responded to three different questions: One question forced a broad focus reading of the entire answer, one forced contrastive focus on the first stressed content word, and one forced contrastive focus on the second stressed content word. Since contrastive focus was on one of the first two stressed content words, this provided the opportunity to examine differences in intonation patterns when the word in contrastive focus was in different positions in the utterance: initial (the first content word of each answer), medial (the second content word of answers containing three content words) and final (the second content word of answers containing only two content words),3) An example of the three question and answer pairs for one particular answer is given in (5), where there are three stressed content words in the answer (and therefore initial (5b) and medial focus (5c) are present since the first content word is in initial position and the second is in medial position), In this example, capital letters indicate contrastive focus,

<sup>3)</sup> By initial, medial and final I refer to the position of a word within the utterance. Initial is the first content word, medial is neither first nor last, and final is the last content word of the utterance, I will also refer to initial focus, medial focus, and final focus, and these terms mean simply a word in focus in initial, medial, and final position, respectively.

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(5) a. A: ¿Qué dijo Ana?

'What did Ana say?'

B: Que le daba nameros pertinentes,

'That she was giving him relevant numbers,'

b, A: ¿Dijo Ana que le pedía números pertinentes?

"Did Ana say that she was asking him for relevant numbers?"

B: No, Que le DABA números pertinentes,

'No, That she was GIVING him relevant numbers,'

c, A: Dijo Ana que le daba documentos pertinentes?

'Did Ana say that she was giving him relevant documents?'

B: No. Que le daba NUMEROS pertinentes,

'No. That she was giving him relevant NUMBERS,"

A corresponding set of questions and answers was included in the experiment where the word pertinents 'relevant' was not included. This placed the second content word in final position, so that with the utterances in (5) and the corresponding shorter set (i.e. without the word pertinents), contrastive focus could be examined in all three positions (initial is illustrated in (5b), medial in (5c), and final would be present in the shortened version of (5c) as that would place the contrastively focused word mimeros 'numbers' in final position within the utterance).

The questions for the experiment were recorded by a male native Spanish speaker from Madrid who was in his mid-twenties. The questions were presented to the subjects by cassette player, and the subjects listened to a question and then read the answer as they would say it in response to the particular question they had just heard. Twenty subjects participated in the experiment, and all were between the ages of 22 and 29. All of the subjects were born and raised in Madrid and were students at the Universidad Autonoma de Madrid at the time the experiment was carried out. While many of the students had participated in study abroad programs, none had spent more than

an academic year abroad, and none had spent time in another Spanish speaking country. In addition, none of the subjects had lived in parts of Spain outside of Madrid. These controls allowed for as faithful a representation as possible of the intonation patterns of Madrid Spanish.

The recording of the subjects was carried out with a Sony MZ-R90 mini-disc recorder and a Sony ECM-MS907 digital microphone. Acoustic analysis of the recordings was performed with the Pitch Works software designed by Scicon Research and Development specifically for intonational studies.

#### 4 Pre-Focal Pitch Range

The first aspect of global intonation that will be considered is pre-focal pitch range. Recall that this is an area in which Navarro Tomás (1944) and de la Mota (1995, 1997) report conflicting findings. Navarro Tomás finds a low and relatively flat pitch in the pre-focal portion of the utterance while de la Mota does not. Table 1 reports the height of the first peak in fundamental frequency (FD) in broad focus utterances and when it is in pre-focal position in utterances containing a word in contrastive focus.

<sup>4)</sup> An anonymous reviewer points out that having an FO peak in broad focus utterances seems to contradict Ladd's (1980) notion that in broad focus utterances no portion of the utterance is highlighted more than the others. This should not be taken to mean that no rise in FO can be present, but rather that this rise does not cause the word bearing the FO rise to be emphasized to a higher degree than the other words in the utterance.

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Table 1. Height of first FD peak by focus type on the second content word and number of content words in the utterance

| Focal Context        | Height of First FD Peak               |                                    |  |  |  |
|----------------------|---------------------------------------|------------------------------------|--|--|--|
|                      | Three Content Words<br>(Medial Focus) | Two Content Words<br>(Final Focus) |  |  |  |
| Broad Focus          | 206 Hz                                | 196 Hz                             |  |  |  |
| Pre-Focal            | 21B Hz                                | 22D Hz                             |  |  |  |
| Probability (ANOVA): | p=,DD6B                               | p<,0001                            |  |  |  |

In those utterances containing three stressed content words, the height of the first FD peak is 206 Hz in broad focus utterances and 218 Hz when in pre-focal position. In those utterances with two stressed content words, the height of the first FD peak is 196 Hz in broad focus utterances and 220 Hz when in pre-focal position. The results of an ANOVA for each of these cases show that there is a statistically significant difference in the height of the FD peak between utterances produced in broad focus and those in which the FD peak in question precedes a word in contrastive focus. However, the FD peak is higher in pre-focal position than it is in broad focus utterances. This is inconsistent with Navarro Tomás's finding of a low and relatively flat pitch pre-focally. It is important to note as well that a low and relatively flat pitch could lead to the absence of a rise in FD, but in pre-focal position there was a visible FD rise present in every utterance.

An example of this higher FD peak in pre-focal position than in broad focus can be seen by comparing Figures 2 and 3, which were produced by the same speaker. Figure 2 shows the pitch track of a broad focus reading of the sentence Que to termins to nana 'That the nanny finished it,' Figure 3 shows the same sentence, but with contrastive focus on the word nana nanny'. In Figure 3, the FD rise associated with the stressed syllable of the word termins finished', in pre-focal position, is 15-20 Hz

higher than the same peak in the broad focus reading in Figure 2,

Figure 2, Broad focus reading of the sentence Que to termins to nana That the nanny finished it

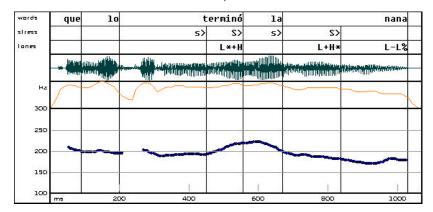
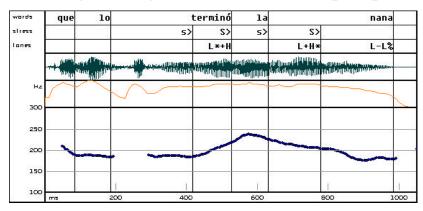


Figure 3. Reading of the sentence Que lo termino la nana That the nanny finished it with contrastive focus on the word nana nanny by the same speaker who produced the broad focus reading in Figure 2



It must be recognized, however, that Navarro Tomás only reports this pre-focal low and relatively flat pitch before one of the two local intonational strategies which he reports for marking focus: specifically, the placement of the FD peak within the stressed syllable rather than after it, as is most common in Spanish, Could it be that there is a lower pitch level pre-focally when this local strategy is used but not when others are used? Table 2 reports the height of the pre-focal FD peak in the present study by the local intonational strategy used to mark contrastive focus, These four local intonational strategies are those reported for Madrid Spanish by Face (2001b,c),

Table 2, Pre-focal FD peak height by local intonational strategy (Face 2001b, 2001c) used to mark contrastive focus in medial position

| ,,                          |                             |
|-----------------------------|-----------------------------|
| Local Intonational Strategy | Height of Pre-Focal FD Peak |
| L*+H                        | 236 Hz                      |
| L+H* H-                     | 227 Hz                      |
| L+H* L-                     | 217 Hz                      |
| L+H*                        | 21 D Hz                     |
|                             |                             |

Probability (ANOVA): p=,1303

This table shows that there is a notable difference in the height of pre-focal FD peaks based on the local intonational strategy used to mark contrastive focus. The lowest average pre-focal FD peak occurs when the L+H\* pitch accent, which causes an FD peak to be located within the stressed syllable of the focal word, is used locally. However, even in this case the average FD peak height is 210 Hz, which is higher than the average height of FD peaks in broad focus utterances as reported in Table 1. These results do not substantiate Navarro Tomás's claim for a pre-focal low and flat pitch, even when the FD peak occurs within the stressed syllable of the focal word. Rather, pre-focal FD peaks are higher than the peaks in the same position in broad focus

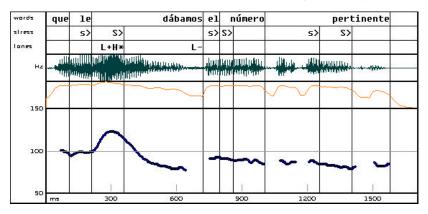
utterances. This can be analyzed as the result of a phonetic process of pre-focal pitch range expansion.

## 5. Post-Focal Pitch Range

As mentioned above, both Navarro Tomás (1944) and de la Mota (1995, 1997) have observed a low and flat pitch in the portion of an utterance following a word in focus. This same pattern is found in some cases in the present study as well. An example of this is shown in Figure 4, which is a pitch track of a reading of the sentence Que le distance el minero pertinente That we were giving him the relevant 'number' with contrastive focus on the word distances giving'.

Figure 4. Reading of the sentence

Que le dibamos el número pertinente with contrastive focus
on the word dibamos and a low FD level post-focally

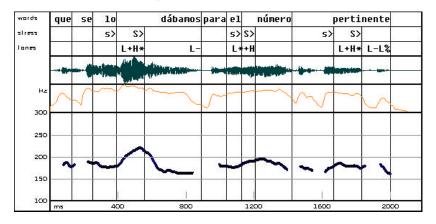


In this figure there is an FD peak within the stressed syllable of the

contrastively focused word differences giving, and from that peak there is a fall in FD to the end of the word. After the focal word, there are no clear rises in FD; rather, a low and relatively flat FD is found, falling only slightly throughout the entire post-focal portion of the utterance.

However, there are other cases in the present study where post-focal FD rises are visible in the pitch track, Figure 5 provides an example, In this figure the word dibamos giving is produced in contrastive focus in the sentence Que se lo dibamos para el número pertinente That we were giving it to him for the relevant 'number'.

Figure 5. Reading of the sentence Que se to dibamos para et número pertinente with contrastive focus on the word dibamos and post-focal FD rises visible



As in Figure 4, there is an FD peak within the stressed syllable of the focal word, and this is followed by a sharp drop in FD, also within the focal word. Figure 5 differs from Figure 4, however, in that there are two clear FD rises post-focally: one associated with each of the two post-focal stressed syllables.

The finding of both the presence and absence of post-focal FD peaks in different cases in the present study requires an examination of the frequency of occurrence of FD rises in different contexts, Table 3 and Table 4 present the occurrences of FD rises in both broad focus utterances and when the position in question (i.e. medial position in Table 3 and final position in Table 4) is post-focal,

Table 3, Presence of an FD peak in medial position by focal context

| FD Peak in       | Focal Co | ontext of | First Cont | ent Word | Total |
|------------------|----------|-----------|------------|----------|-------|
| Medial Position? | ) Broa   | d (%)     | Contr      | astive   |       |
|                  | N        | %         | N          | %        |       |
| Yes              | 317      | BB        | 232        | 65       | 549   |
| No               | 42       | 12        | 124        | 35       | 166   |
| Total:           | 359      | -         | 356        | -        | 715   |

Probability (Chi-Square): p<0001

Table 4, Presence of an FD peak in final position by focal context

| FD Peak in      | Focal Co | ntext of Fi | rst Content | Word    | Total |
|-----------------|----------|-------------|-------------|---------|-------|
| Final Position? | Broad    | 1           | Contra      | isti ve |       |
|                 | N        | %           | N           | %       |       |
| Yes             | 233      | 66          | 126         | 36      | 359   |
| No              | 122      | 34          | 22B         | 64      | 35D   |
| Total:          | 355      | _           | 354         | -       | 709   |

Probability (Chi-Square): p<,DDD1

In Table 3 we see that F0 rises are present in medial position BB% of the time in broad focus utterances, but only 65% of the time post-focally, In Table 4 we see that in final position FD rises are present in broad focus utterances 66% of the time and post-focally 36% of the time. In both of these positions, a Chi-Square test shows that

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the focal context has a statistically significant effect on the occurrence of FD rises, with FD rises being less common post-focally,

A question that arises as a result of these findings is whether the low and relatively flat pitch post-focally, when it is used, is due to the lack of a phonological specification for post-focal pitch accents or whether it is due to an extreme degree of pitch range reduction, Nibert (2000) analyzes it as the lack of post-focal pitch accents, but either analysis is capable, in theory, of accounting for the intonation pattern in question, However, if this low and flat pitch is due to an extreme degree of pitch range reduction, we would expect that there would exist lesser degrees of pitch range reduction as well, If so, then post-focal FO rises should have lower peaks than FO rises in the same position in broad focus utterances. Table 5 presents the results for FO peak height in medial and final position in broad focus utterances and post-focally.

Table 5, Post-focal FD peak height by focus type and position

| Focal Context        | FD Peak Height            |                           |  |  |
|----------------------|---------------------------|---------------------------|--|--|
| -                    | Medial Position           | Final Position            |  |  |
| Broad Focus          | 197 Hz<br>(N=2BB, SE=2,9) | 159 Hz<br>(N=224, SE=2,7) |  |  |
| Post-Focal           | 187 Hz<br>(N=212, SE=3,4) | 156 Hz<br>(N=126, SE=3,6) |  |  |
| Probabiltiy (ANOVA): | p=,D275                   | p=,4089                   |  |  |

In medial position, the average height of FD peaks is 197 Hz in broad focus utterances and 187 Hz post-focally. An ANOVA shows this to be a statistically significant difference, and this supports a pitch range reduction analysis. In final position, the average height of FD peaks is 159 Hz in broad focus utterances and 156 Hz post-focally. This

difference of only 3 Hz is not statistically significant, but does not provide evidence against the pitch reduction analysis.

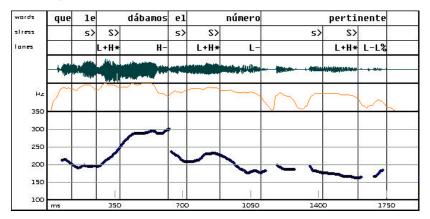
Prieto, Shih and Nibert (1996) and Face (2001b) have shown that there is a process of final lowering in Spanish which causes a substantial lowering of the final FD peak of an utterance, In some cases, in fact, it is so strong that the FD rise is not visible in the pitch track, Since final lowering affects the last FD peak of the utterance, this affects both focal contexts reported in Table 5, and neutralizes the difference in FD peak height in this position, With final lowering explaining final position, the data for medial position prove crucial in that they present evidence in favor of pitch range reduction occurring post-focally. The alternative analysis of no post-focal pitch accents can account for those cases where no FD rises are present, but cannot account for the lower average FD peak height post-focally when peaks are present. Therefore I propose that Spanish has a gradient phonetic process of post-focal pitch range reduction which affects the height of post-focal FD peaks, and in its most extreme cases can flatten the FD rises which should result from the pitch accents associated with the stressed syllables of post-focal words,

## 6. Pre-Focal High Intermediate Phrase Boundary Tone

The third way in which Spanish contrastive focus can be conveyed through the global intonation pattern is a high intermediate phrase boundary tone (H-) which occurs at a major syntactic boundary preceding the word in contrastive focus. An example is given in Figure 6, where in the sentence Que le dibamos el número pertinente That we were giving him the relevant number, the word número number is produced in contrastive focus. At the end of the pre-focal verb d

shamos 'giving' in this utterance, a high intermediate phrase boundary tone is used. This causes the rise in F0 through the stressed syllable to continue until the word boundary.

Figure 5. Reading of the sentence Que le débamos el número pertinente with contrastive focus on the word número



Both Hualde (2000) and Nibert (2000) have reported that a H- can be used to divide a broad focus declarative into two intermediate phrases. Since H- has uses in broad focus utterances, it is important to verify that its use in pre-focal position is indeed due to the upcoming word in contrastive focus. Tables 6 and 7 present the occurrences of H- after the first content word in broad focus declaratives and when the second content word is in contrastive focus.

Table 6. Presence of H- following first content word by focus type of second content word when in medial position

| H- Present After    | Broad | Focus | Contrastiv | e Focus | Total |
|---------------------|-------|-------|------------|---------|-------|
| First Content Word? | N     | %     | N          | %       | _     |
| Yes                 | 63    | 1B    | 131        | 37      | 194   |
| No                  | 296   | B2    | 227        | 63      | 523   |
| Total:              | 359   | -     | 35B        | -       | 717   |

Proabability (Chi-Square): p<,DDD1

Table 7. Presence of H- following first content word by focus type of second content word when in final position,

| H- Present After    | Вгоас | Focus | Contrastiv | e Focus | Total |
|---------------------|-------|-------|------------|---------|-------|
| First Content Word? | N     | %     | N          | %       |       |
| Yes                 | 45    | 13    | 129        | 36      | 174   |
| No                  | 31 D  | B7    | 229        | 64      | 539   |
| Total:              | 355   | -     | 35B        | -       | 713   |

Proabability (Chi-Square): p<0001

Table 6 shows that when the second content word is in utterance-medial position, a H- is used following the first content word in broad focus utterances 18% of the time, When the second content word is in contrastive focus, a H- is used in the same position 37% of the time, Table 7 shows that when the second content word is in utterance-final position, a H- is used following the first content word in broad focus utterances 13% of the time, When the second content word is in contrastive focus, a H- is used following the first content word 36% of the time, The results of a Chi-Square test for each of these tables show that the differences found are statistically significant,

Therefore, while a H- is sometimes used in broad focus declaratives, it is used with significantly greater frequency when a word in the upcoming syntactic phrase is produced in contrastive focus. This may

cause the phrase containing the contrastively focused word to be more prominent since its beginning coincides with the beginning of a prosodic phrase.

#### 7. Conclusions

We have seen three global intonation patterns which are used to mark contrastive focus in Madrid Spanish, Two of these are phonetic pitch range manipulations and the third is the use of a phonological intermediate phrase boundary tone, Pre-focal pitch range expansion causes pre-focal FD peaks to be higher than they would be in broad focus utterances. This has not been observed previously, and it goes against Navarro Tomas's (1944) finding that there is a low and flat pitch pre-focally, A post-focal low and flat pitch has been observed previously by both Navarro Tomas (1944) and de la Mota (1995, 1997), We have seen that in the present study this low and flat post-focal pitch is present in some cases, but absent in others. When post-focal FD rises are present, the average height of the FD peaks is lower than the height of peaks in the same position in broad focus declaratives, This led to the proposal that there is a gradient post-focal pitch range reduction which lowers the height of post-focal FD peaks. When the strongest gradient is employed, post-focal FD peaks are reduced to the extreme of not being visible in a pitch track, This parallels a previously documented pitch range reduction in Spanish: that of final lowering as reported by Prieto et al. (1996) and Face (2001b). The third global intonational marker of contrastive focus found in the present study is a pre-focal H-. This intermediate phrase boundary tone occurs not at the beginning of the word in contrastive focus, but at the beginning of a syntactic phrase containing the contrastively focused word. While this

same intermediate phrase boundary tone has been reported by Hualde (2000) and Nibert (2000) to be present in broad focus declaratives, it is used significantly more frequently pre-focally.

Much work remains to be done on the intonational correlates of Spanish contrastive focus. One thing that future studies must consider is the interaction between the various local and global markers of contrastive focus. While the local markers are largely categorical, the global markers are primarily gradient. It must be determined how these two very different types of intonational markers of contrastive focus are used together. Are certain local markers accompanied by stronger global gradients? Are global markers an optional enhancer of the local marking? Or are local and global markers always used jointly?

Future studies must also examine more developed discourse structures than have been considered in this and previous studies. The use of larger discourse contexts, either controlled or in spontaneous speech, will allow for the examination of different types of semantic and pragmatic nuances that may affect the use of both local and global intonational markers of Spanish focus,

By looking at the interaction of local and global intonational strategies and at more developed discourse structures, future studies will be able to come to a more complete understanding not only of the phonetics and phonology of the intonation of Spanish focus, but also of its relationship with the pragmatic and discourse factors that drive the intonation to communicate focus.

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