The Dissertation Committee for Hye-Yoon Chung Certifies that this is the approved version of the following dissertation:

TWO TYPES OF FOCUS IN CASTILIAN SPANISH

Committee:

Chiyo Nishida, Supervisor

Frederick Hensey

Orlando Kelm

Rafael Salaberry

David Beaver

TWO TYPES OF FOCUS IN CASTILIAN SPANISH

by

Hye-Yoon Chung, B.A.; M.A.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

December 2012

Acknowledgements

First of all I would like to thank my supervisor, Dr. Chiyo Nishida, for her constant moral and academic support over the past years. She has never given up on me and been my mentor as well as my role model since the day 1 I arrived at the University of Texas at Austin. I also gratefully acknowledge the guidance and advice of my committee members: Dr. David Beaver, Dr. Frederick Hensey, Dr. Orlando Kelm, and Dr. Rafael Salaberry. I am also thankful to the staff and faculty members at my department, the Department of Spanish and Portuguese at the University of Texas at Austin, for their financial support throughout all my graduate years. Special thanks to Ms. Laura Rodriguez who has always received me with a big smile and been ready to help me out for numerous administrative matters, to Dr. Jacqueline Toribio who provided me practical advice for my future career, and to Dr. Delia Montesinos for her professional as well as personal support.

In addition, I am grateful to many former and current faculties for their academic guidance and assistance. To begin, Dr. Marta Ortega-Llebaria at the department of Spanish and Portuguese opened up the field of phonetics and phonology to me. Dr. Knud Lambrecht at the Department of French and Italian introduced a concept of *focus* from the very beginning of my graduate years. I cannot drop the names of two statisticians: Dr. Brandon Vaughn at the Department of Education and Dr. Michael Mahometa at the Division of Statistics and Scientific Computation, the former of whom introduced a way of statistical thinking and the latter of whom guided me whenever I was stuck with statistical problems in my research.

Also, I am grateful for my long time colleagues at the University of Texas and my close friends in Austin: Erin Redmond, Lori Czerwionka, Daniel Olson, Noelia Cooke, Memoria James, Aaron Jones, Chun-Mei Chen, Kwangok Song, Soohyun Jung, and Gloria Cisneros. Finally, I would like to thank the faculty members at my undergraduate university, Korea University, Dr. Seokhoon You, Dr. Hyungnam Noh, Dr. Youngok Ahn, Dr. Jaehak Lee and Dr. Sangkee Song.

Last, and furthest from the least, an indescribable appreciation to my family who has never stopped supporting me and waited patiently till I have completed my dissertation.

TWO TYPES OF FOCUS IN CASTILIAN SPANISH

Publication No. _____

Hye-Yoon Chung, Ph. D.

The University of Texas at Austin, 2012

Supervisor: Chiyo Nishida

Abstract

This dissertation proposes an experimental study of *focus* in Spanish, investigating, in particular, if two types of *focus* – *Contrastive focus* and *Non-contrastive focus* – are syntactically and prosodically distinguished. The evidence that the conceptual distinction between the *focus* subtypes can be represented linguistically has been found in languages (Drubig 2003, É. Kiss 1998, Gundel & Fretheim 2001, Zubizarreta 1998 to name a few). As for Spanish, Zubizarreta (1998) argued that the two types of *focus* most noticeably differ syntactically. While *Non-contrastive Focus* should appear at utterance-final position, *Contrastive Focus* may appear in-situ. Nevertheless, not all the studies seem to accept Zubizarreta's (1998) syntax-oriented distinction between the two *focus* types. A few studies suggest that not only *Contrastive Focus* but also *Non-Contrastive Focus* can indeed occur sentence-internally (Cabrera Abreu & García Lecumberri 2003, Kim & Avelino 2003, Toledo 1989)[1]. Inspired by a handful of studies and motivated by empirical data gathered for the pilot study, the current study sets out to investigate Zubizarreta's (1998) syntax-oriented claim on the distinction between the *focus* subtypes. *Focus* in Spanish is known to be prosodically marked by its particular intonational

[1] Similar to the current study, *wh* questions was used to elicit utterances containing *Non-contrastive Focus* (NF) (Cabrera Abreu & García Lecumberri 2003, Kim & Avelino 2003, Toledo 1989). But unlike our study, any minimal context was provided.

contour- higher pitch and the early peak, and secondarily longer duration and/or higher intensity, compared to unfocused elements in a given utterance (Cabrera Abreu & García Lecumberri 2003, Domínguez 2004a & b, Face 2000, 2001, 2002b, Hualde 2003, 2005, Kim & Avelino 2003, de la Mota 1995, 1997, Navarro Tomás 1918, Nibert 2000, Quilis 1971, Sosa 1998, Toledo 1989, Zubizarreta 1998). We assume that the distinction between the two types of *focus* would also be made using the existing cues, as suggested by a handful of studies on *focus* types (Cabrera Abreu & García Lecumberri 2003, Kim & Avelino 2003, Zubizarreta, 1998).

The findings of our experiments clearly indicate that Spanish speakers consistently use different phonetic and phonological cues such as duration and pitch in order to make a distinction between the two types of *focus*. These findings give clear evidence that the pragmatically defined notion of *focus* (Lambrecht 1994) is indeed further divided into two types in Castilian Spanish, somewhat similar to the distinction made in English (Selkirk 1984, 1995).

Table of Contents

CHAPTER ONE
INTRODUCTION

This dissertation deals with *focus* in Spanish, in particular, two subtypes of *focus*, called *Contrastive Focus* and *Non-contrastive Focus*[2] (cf. Gutiérrez-Bravo 2005). The specific objective of the present study is to examine whether or not in Castilian Spanish, the cognitively motivated distinction of two *focus* subtypes are actually marked linguistically, via experimental studies.

In this chapter I first present the definition of *focus* adopted for the current study as well as the criteria used to bifurcate *focus* conceptually. Subsequently, I will conduct a literature review on issues surrounding *focus* in Spanish. Then, I will introduce two linguistic theories on which the current study is based, and finally close the chapter by describing the organization of the rest of the dissertation.

1.1. *Focus*: Definition

To begin, it is necessary to clarify the definition of *focus* and restrict the scope of the current study. In this study, I adopt Lambrecht's (1994)[3] definition of *focus,* according to which it refers to the "information center of the sentence". In the strong functional linguistic view, the raison d'être of every utterance produced by a speaker of every human language is its function as a tool of communication so as to deliver particular information. Such information may well contain something new or not-presupposed, that is, *focus*. In this sense, *focus* is universal to all human languages. The ways to express *focus*, however, are language-specific. Some languages such as English assign a special kind of intonation to the *focus* element (Selkirk 1984, 1995), others such

[2] Note that the latter type of *focus* is called *Informational Focus* in the literature.

[3] Lambrecht (1994: 213) consider *focus* as "the semantic component of a pragmatically structured proposition whereby the assertion differs from the presupposition".

as Korean or Japanese add a morphological marker to the *focused* word (Kuno 1972, Kuroda 1972). Yet other languages like Spanish (Zubizarreta 1998), Russian (Van Valin 1999), Hungarian (É. Kiss 1988, Kenesei 2006) may place *focus* element at a particular position in a sentence. From these cross-linguistic representations of *focus*, I propose that *focus* should be dealt with at an autonomous level of linguistic studies, Information Structure, rather than being treated as a marginal linguistic subpart in other theoretical linguistic fields such as Syntax or Phonetics, following Lambrecht (1994).

While the above definition should be understood universally in all languages, the way to represent it varies in languages. Lambrecht proposes the necessity of distinguishing the two aspects of *focus*, by calling the former *focus denotation* – 'de re' and the latter *focus expression* –'de dicto'. In effect, languages can use more than one linguistic device to mark *focus*. The most known correspondence between *focus denotation* and *focus expression* is characterized prosodically, as in English. Based on this close relation between *focus* and *accent* is proposed the so-called 'Focus-to-Accent' theory by Bolinger (1972) and the Prague School (See Ladd 1996). However, *focus* can be represented via different linguistic devices. For example, Spanish may change constituent order to make the *focus* element stand out or assign an extraordinary high pitch to *focus* element, either singly or jointly (Domínguez 2004a, de la Mota 1995, Zubizarreta 1998). Korean may attach a bound-morpheme *–ka* to the focused word, which is always followed by a phonetic phrasing boundary (Jun 2005). In Hungarian, there are two potential positions relevant to *focus* within an utterance: *focus* may appear at the preverbal position or *in-situ* (É. Kiss 1998, p. 249). No matter how many linguistic devices are used either singly or jointly, or which linguistic devices are used, what is common across all languages is that *focus,* the most important information within any given utterance, appears prominent in terms of language-specific devices in a given language. The fact that there is more than one way to express *focus* in one language inspired the hypothesis that there may be more than one type of *focus*. In Spanish the majority of *focus* elements appear sentence-finally, but it is not uncommon to have *focus*

in non-final positions in spoken language (Zubizarreta 1998, Domínguez 2004). In Korean, although *'-ka'* is considered as a default *focal* marker, *'-nun'* can also be used to mark *focus* in some cases (Lee 1999). Languages with rigid word order such as English or French use a prosodic prominence with distinctive pitch height or duration, but may choose to use a cleft-construction to mark *focus* (Lambrecht 1988, 1994, Selkirk 2002). From this cross-linguistic evidence, people – at least some scholars- are convinced that there are several subtypes of *focus* (Drubig 2003, Gundel & Fretheim 2001, É. Kiss 1998; Zubizarreta 1998 to name a few).

Whether there exists more than one type of *focus* in all languages is still under debate (Rooth 1985, 1996, Szendröi 2001, Vallduví 1992). Furthermore, the criteria that determine the subdivision of *focus* are varied among scholars (Dik *et al*. 1980, Gundel 1999, Lambrecht 1994, Rochement 1986, Vallduví 1992)[4]. Among many ways to subdivide *focus*, we will only concentrate on two major types, which are generally accepted in the literature (Domínguez 2004, É. Kiss 1998, Gutiérrez-Bravo 2005, Halliday 1967, Kenesei 2006, Rochemont 1986, Zubizarreta 1998): "Non-contrastive Focus" (or "Informational Focus") and "Contrastive Focus". One diagnostic way to distinguish these two types is the question-answer paradigm (É. Kiss 1998, Gundel 1999, Kenesei 2006, Roberts 1998, Rochemont 1986, Zimmermann 2007). First, look at the following examples:

(1.1) **Non-contrastive (or Informational) Focus :**

A: ¿Qué comió Mario? *What did Mario eat?*

B: (Mario comió) UNA MANZANA. (*Mario ate*) *an apple.*

↑

Non-contrastive Focus

The set of alternatives in the mind of speaker B: OPEN

: {EAT <Mario, apple>, EAT <Mario, cookie>, EAT <Mario, orange>, EAT <Mario, pizza>…}

[4] See Chapter 5.3 of Casielles-Suárez (1997) for a good summary of various subdivisions of focus.

(1.2) **Contrastive (or Corrective) Focus :**

A: Mario comió una naranja, ¿no? *Mario ate an orange, right?*

B: No, (Mario comió) UNA MANZANA.*No, (Mario ate) an apple.*

↑

Contrastive Focus

The set of alternatives in the mind of speaker B: CLOSED

: {EAT <Mario, apple>, EAT <Mario, orange>}

Non-contrastive Focus is typically recognized as the answer to the relevant *wh*-question in the particular context in the literature. In the given example (1.1) the constituent *una manzana* 'an apple' as the answer of *wh*-question contains *Non-contrastive Focus*. *Non-contrastive Focus* simply corresponds to the information that is new and contrasts with the old information or with the sentence-topics (Gutiérrez-Bravo 2005). Semantically speaking, *Non-contrastive Focus* presupposes the open or unrestricted set of alternatives (Krifka 2007). The expression of *Non-contrastive Focus* typically appears at sentence-final position (Zubizarreta 1998). It is also assumed to get a nuclear stress (Chomsky & Halle 1968, Zubizarreta 1998). In this case, the purpose of the speaker (B)'s utterance is to assert and highlight the new information to the hearer (A) who does not have any expectation about the newly introduced information in her mind.

In contrast, *Contrastive Focus* refers to the new information to the context, where the speaker assumes that the hearer does have more or less concrete expectation about the new information (Rochemont 1986). In the above example (1.2), the constituent *una manzana* 'an apple' as the corrective answer of the question containing false information contains *Contrastive Focus* (Zimmermann 2007). *Contrastive Focus* can correspond to the answer to a selective question such as *¿Qué comió Mario, una manzana o una naranja?* 'What did Mario eat, an apple or an orange?' (Krifka 2001). The primary function of *Contrastive Focus* is to single out certain specific entity among the set of possible alternatives and identify it (Gutiérrez-Bravo 2005). Semantically speaking, *Contrastive Focus* presupposes the closed or limited set of alternatives (Krifka 2007). In

certain languages the expression of *Contrastive Focus* can be placed in-situ, i.e., seemingly at any position within a sentence, according to Zubizarreta (1998). In addition, *Contrastive Focus* gets either an emphatic stress or a nuclear stress (Zubizarreta 1998). In the above dialogue, the purpose of the speaker (B)'s utterance is not only to highlight the new information but also to make a correct selection among a set of alterative candidates, contrasting with other members of the set.

1.2. Representation of *Focus* in Spanish

As mentioned earlier, *focus* in Spanish is realized both syntactically and prosodically (Domínguez 2004a&b, Fant 1984, Gutiérrez-Bravo 2007, Silva-Corvalán 1983, Toledo 1989, Zubizarreta 1998). Until not long ago, however, a great deal of work had been done studying the syntax of *focus* (Bolinger 1945, 1954, Contreras 1976, Gutiérrez-Bravo 2002a&b, 2007, Ocampo 1993, 1995, Ordóñez 1997, Reyes 1985, Torrego 1984, Zubizarreta 1998), whereas the prosodic aspects of *focus* have been mostly neglected in the literature of Spanish. It is only recent that attention has been paid to the prosodic side of *focus* in Spanish. Before it was either dealt with mainly in the impressionistic perspective or often treated merely as a secondary aspect. The new attention to the prosodic approach to *focus* in Spanish has been motivated by the recent development of speech analysis technologies such as Praat (Boersma & Weenick 2009 as the most recently updated version) and by the effect of establishing a conventional system such as ToBI for transcribing the intonation and prosodic structure of different languages under the framework of Autosegmental-Metrical Theory (Beckman *et al.* 2002, Ladd 1996, Pierrehumbert 1980). As a result of the effort of investigating the prosodic components of *focus,* it has often been claimed that suprasegmental properties involved in Spanish *focus* are pitch, duration, and intensity, among others, showing higher pitch, greater pitch expansion, earlier peak realization, the presence of deep pitch lowering base (L) after *focus* (Calhoun 2003, Hualde 2005, Nibert 2000) and lengthening (de la Mota

1997, Face,2000, 2001) and/or greater intensity or loudness (Navarro Tomás 1918, Quilis 1971). As Face (2002b) pointed out, there has been no single and consistent *focus* marking cue, except for (higher) pitch. Note that pitch itself can be further specified in more detail. For example, Face (2000) found several pitch-related mechanisms involving *Contrastive Focus* (CF) in Spanish: early peak with a higher peak, High or Low edge tones (H-, L-) after *focus*, and/or early peak. He made it clear that these intonation patterns may not be used at the same time to mark *Contrastive Focus*. This shows that a more refined research design is still needed to figure out whether this selective involvement of various pitch-related mechanisms is indeed valid.

As for the types of *focus* in Spanish, there is far less research done in the past. Only a handful of scholars have attempted to address the issue of the *focus* subtypes (de la Mota 1995, Zubizarreta 1998). Zubizarreta (1998) is one of few who acknowledged the existence of subtypes of *focus* in Spanish and attempted to account for them within the minimalist framework. Her main claim, which has been supported by Domínguez (2004) and many others, can be summarized as follows: *Non-contrastive Focus* and *Contrastive Focus* show clear differences both syntactically and prosodically. Given the close relationship between the order of constituents and their alignment with nuclear stress occurring in the sentence-final position (Jackendoff 1972, Chomsky 1976 & 1993), *Non-contrastive Focus* must appear in the final position, whereas *Contrastive Focus* may appear in different sentential positions (Zubizarreta 1998). Prosodically, *Contrastive Focus* is marked by 'emphatic stress' while *Non-contrastive Focus* (NF) is marked by 'nuclear stress'. Since word order is assumed to play a main role of distinguishing the two types of *focus*, many phoneticians or phonologists did not see the necessity to investigate any prosodic differences between the two types of *focus*. For these researchers, the nuclear stress on the sentence final position used to draw attention for the independent prosodic precondition, irrespective of the informational status (Beckman *et al.* 2002). According to such a view, since in Spanish the sentence position would be occupied by the nuclear stress by definition, any prosodic difference between *Contrastive*

Focus and *Non-contrastive Focus* at this position would be neutralized, and therefore, not detectable. Consequently, there would be no motivation of further research of this sort (Face 2002b, Domínguez 2004).

Zubizarreta's claim (1998) having been widely accepted, many works in prosody have recognized the subtypes of *focus* and have distinguished the two types of *focus*. Since both *Non-contrastive Focus* and "nuclear accent" appear only sentence-finally, according to Zubizarreta (1998), they are often treated as the same phenomenon and any study regarding *Non-contrastive Focus* has been incorporated into the rubric of "nuclear accent", typically placed immediately before a pause and characterized with an early pitch alignment (L+H*) (Face 2000, Hualde 2005, Sosa 1999). *Contrastive Focus,* on the other hand, has been paid fairly constant attention in the perspective of phonetics and phonology.

The fact that Spanish *Contrastive Focus* can appear *in-situ* therefore at anywhere in an utterance makes reminiscent of the *focus* marking in English. In fact, many recent works in Spanish prosody are in debt of the long tradition of English *focus. Contrastive Focus* is characterized as a considerably higher pitch, more abruptly rising pitch (=early peak), longer duration, and greater loudness, while leaving the post-focal elements in the utterance underrepresented with noticeably reduced pitch range (Face 2001, Hualde 2005, de la Mota 1995, 1997).

Nevertheless, not all the studies seem to accept Zubizarreta's (1998) syntax-oriented distinction between the two *focus* types. A few studies suggest that not only *Contrastive Focus* but also *Non-Contrastive Focus* can indeed occur sentence-internally (Cabrera Abreu & García Lecumberri 2003, Kim & Avelino 2003, Toledo 1989)[5]. Although the main interests of these studies, except for Kim & Avelino's (2003), were not in the specification of *focus* types, *per se*, the common finding of these studies was that there was little difference in word order between the two types of *focus.* In other

[5] Similar to the current study, *wh*-questions was used to elicit utterances containing *Non-contrastive Focus* (NF) (Cabrera Abreu & García Lecumberri 2003, Kim & Avelino 2003, Toledo 1989). But unlike our study, any minimal context was provided.

word, these few studies have insinuated that people do not necessarily make syntactic distinctions between the two types of *focus*. This fact was also confirmed by the pilot study I conducted before the current study (Chung 2006). There are two possible reasons why this discrepancy between these studies and Zubizarreta's resulted. First, either one or the other assumption regarding the non-final occurrence of *Non-contrastive Focus* (NF) is wrong and there must have been a flaw during the process of data collection. Second, simple question-answer congruence is not a bulletproof diagnostic tool to discuss an interdisciplinary and therefore complex notion such as *focus* and *focus* types. A more comprehensive context is needed to elicit either types of *focus* appropriately. In fact, Kim & Avelino (2003) criticized Zubizarreta's (1998) claim that she relies on an impressionistic observation of the intonational and syntactic properties of the two types of *focus*. Although they (Kim & Avelino 2003) did not succeed in finding systematic prosodic differences between the two types of *focus*[6], their study gave evidence to cast doubt on the validity of Zubizarreta's (1998) well-accepted claim for the syntactically defined classification of the two *focus* types. The current studies will be developed to seek the answers to the following research questions:

I. Assuming that there are two conceptually different types of *focus* in Spanish as well as other languages, are they distinguishable syntactically via different sentential positioning, as proposed by Zubizzareta (1998) and de la Mota (1995)?

II. If not, are they prosodically distinctive with syntactic conditions being equal?

If neither the first answer nor the second answer is positive, we may have to conclude that the subtypification of *focus* is not real at some linguistic level.

[6] There seemed some minor durational differences found, at best.

1.3. Reflections on *Focus* in the Literature

This section presents various issues related to *focus* in the literature. There are two theoretical frameworks on which the current study is grounded: Information Structure (Lambrecht, 1994) and Intonational Phonology (Pierrehumbert 1980, and many others). We owe the first theory for the definition of the main topic of study, *focus*. The greatest contribution of this study to the development of the current one is that it clearly distinguishes the denotation of *focus* and its *representation* in a specific language: the former belongs to the area of Information Structure and the latter to the Grammar containing syntax and prosody. Adopting the core idea of this theory, we are going to explain the denotation of the two types of *focus* and their representation. The second theory concerns the methodology of the current study. Using the preexisting measuring units introduced by the studies of Intonation Phonology, we are going to investigate the prosodic differences between the two types of *focus*.

1.3.1. *Focus denotation* versus *Focus expression*

The most important issue with regard to *focus* is the necessary of distinguishing *focus denotation* –'*de re*'- and *focus expression* –'*de dicto*'- its denotation and its representation. The former should be a universal definition cross-linguistically, whereas the latter would be more language-specific. The relationship between the *focus denotation* as a function and the *focus expression* as a form can be reestablished more generally as the association between Information Structure and Grammar.

There are many models that deal with the association between Informational Structure and Grammar in the literature (Büring & Gutiérrez-Bravo 2002, Calhoun 2006, Choi 1999, Dominguez 2004a&b, Erteschik-Shir 1993, Fant 1984, Gutiérrez-Bravo 2002b, 2007, Keller & Alexopoulou 2001, Silva-Corvalán 1983, Steedman 2001, Szendröi 2001, Tomlin 1997, Vallduví 1992, Zubizarreta 1998). Among these models we can recognize three positions depending on the strength of the association. According to the strongest functional position, many syntactic or phonological phenomena are

triggered by diverse aspects of Information Structure.[7] For example, syntactic variations such as right periphery, topicalization, or focus movement are motivated by *focus* or *topic* (Lambrecht 1994 for several Romance languages, and Contreras 1976 for Spanish). Prosodic features such as pitch, duration, intensity are claimed to differentiate the weight of information (Lambrecht 1994, Selkirk 2002, Steedman 2000). It is also argued that another prosodic feature, boundary tone, is used to show the informational meaning (Bolinger 1961, Calhoun 2006, Chafe 1976, Daneš 1966, Halliday 1967, Hualde 2005). Moreover, it is well-known that some languages such as Japanese, Korean or Yoruba have a couple of morphemes to mark specific informational meaning (Kuroda 1972 for Japanese, Wee 2001 for Korean, Beaver, D., via personal communication, April 25, 2012 for Yoruba).

The second position on the association between Information Structure and Grammar is rather weaker position than the first one. This view admits the possibility of imperfect association between the two, but making clear that no syntactic or phonological reflexes are reserved only for Information Structure. This is common among many minimalists such as Rizzi (1997) and Féry (2007) among others. According to them, any syntactic movement is triggered due to the need for feature checking and the resultant position of movement is exploited for the purposes of Information Structure (Rizzi 1997, Fanselow 2007).

The third position is to reject any kind of association between Information Structure and Grammar. If there seems any, they are considered 'stylistic', 'optional' or purely accidental (Chomsky 1972, Fanselow 2007). This position can be found in three theoretical models in the literature. The model holds that Syntax comes before Pragmatics. Once syntax is established, prosody such as the notion of 'nuclear stress' comes in. In case that there is a mismatch between *focus* and nuclear stress, an additional syntactic adjustment rule changes the constituent order. This is the model of many

[7] See Sasse (1987) for the cross-linguistic representation of thetic sentences, and Van Valín (1999) for typological difference between Interaction of Focus Structure and Syntax, for example.

generativists such as Chomsky (1972) and Zubizaretta (1998). The second theoretical model assumes a causal chain. Each syntactic structure –whether it has a canonical word order or inverted, is associated with the set of possible focus markings (Büring 2006).

If it is the case that there is an apparent association between Information Structure and Grammar, how is *focus* represented in Spanish? Among many potential mechanisms we can think of, we can choose two dimensions of Grammar: Syntax and Prosody. The syntactic reflex of *focus* in Spanish is typically right periphery. In other word, focal elements appear at the end of an utterance. This syntactic mechanism is incorporated with prosodic prominence at this position. This prosodic prominence is called 'nuclear accent' (Büring 2006, Domínguez 2004a&b, Kim & Avelino 2003, Rooth 1992, Selkirk 1984, 1995, 2002, Silva-Corvalán 1983, Sosa, 1991, 1999, Steedman 2000, Toledo 1989, Zubizarreta 1998). The concrete prosodic characteristics of the 'nuclear accent' are not clear except for its peculiar timing of peak commonly found in the literature. *Focus* and 'nuclear accent' should not be considered identical, because *focus* does not always appear at the end of a sentence.

To give an example, the so-called 'focus movement' phenomenon, as the name suggests, shows the case that *focus* may appear at the beginning of the sentence (Casielles-Suárez 1996, 1997, and 1998). In addition, some *focus* types with 'emphatic stress' may appear in situ, i.e., at the middle of the sentence (Kim & Avelino 2003, Zubizarreta 1998). Does this, in fact, prove that *focus* is not uniform phenomenon? There are at least a few languages other than Spanish that seem to support this idea (Dik *at al.* 1980, Drubig 2003, Drubig & Schaffar 2001, Gundel 1999, Gussenhoven 2006).

In this study, we provide evidence through a series of experiments that Spanish marks the two subtypes of *focus* linguistically, somewhat similarly to English, supporting a handful of previous studies (Kim & Avelino 2003, Navarro Tomás 1918, Selkirk 1984, 1995, 2002).

1.3.2. *Focus* versus *Accent*

For a long time the term *focus* itself was mistaken with the terms such as *accent* or *stress*, especially in non-phonetic or non-phonological fields (See Ladd, 1996). It is only recently that the mapping between *focus* and *accent* or *stress* was taken for granted until a few pioneers with more sensitive ears and keener insights started to call attention to 'not-so-straightforward' relation between *focus* and *accent* or *stress* (Jackendoff 1972, Prince 1981b, Selkirk 1995, Ward 1988 among others). In recent days, a number of scholars attempt to examine the relationship between *accent*, which is an abstract phonological feature, and *focus*. There are two principal stances taken by these scholars: the 'highlighting-based' view vs. the 'structure-based' view (See Ladd 1996 for the summary of the two views). The highlighting-based view is closely related to the 'strong' functionalist view, mentioned above (Nespor & Vogel 1986, Steedman 2000). According to this view, *accents* signal directly *focus* or discourse salience while providing 'highlighting' function (Ladd 1996, p.167). This view is effective to account for *Narrow Focus* or the positional flexibility of *focus*. In contrast, the structure-based view takes a weaker stance on the relationship between *stress* and *focus* (Culicover & Rochemont 1983, Gussenhaven 2006, Krifka 2007, Ladd 1996, Selkrik 1984, 1995, Rooth 1985, 1992, Steedman 2000). According to this view, the distribution of accents within focal constituents is determined by language-specific structural factors. This relatively flexible view seems effective to account for many recurring mismatches between *accent* and *focus* in various languages. One example of those mismatches is 'focus projection'. This phenomenon refers to the case where more than one word falls under the scope of *focus* (*Broad Focus*), only the final word in the *focal* scope gets the actual accent by default[8], possibly causing the ambiguity with *Narrow Focus* on the final word on the same focal scope. In this study we support the "structure-based view" considering the obvious limitation of the other view.

[8] See Selkirk (1984, 1995) for "restricted view" of Focus Projection; Gussenhoven(1999) for "extended view" of Focus Projection.

Focus is directly or indirectly associated with prosodic prominence in languages including Spanish (Ladd 1996). The word under the scope of *focus* would sound more prominent than the rest of the sentence. Such prominence is called pitch-accent or accent (Sluijter & van Heuven 1996). There is another kind of prominence which is determined word-internally and is called a lexical stress. In "stress-languages" such as English, Spanish, Catalan or Portuguese, certain syllable(s) in a word are more prominent than the rest within the same word (Beckman & Edwards 1994, Jun 2005). The two levels of prominence have often been considered closely related or inseparable in many studies on stress-languages. In a typical experimental study on *focus,* for example, a researcher would look into the stressed syllable within the pitch-accented word (Navarro Tomás,1918, 1944 and thereafter in the case of Modern Spanish at least), based on the commonly agreed claim that[9] stressed syllables serve as "anchoring points" for intonational events such as *focus* in Spanish (Hualde 2005: 241-242). In the so-called "stress-languages" such as English or Spanish[10], the stressed syllable tend to have slightly a longer duration, higher pitch, and louder intensity than its surrounding unstressed syllables (Hualde 2005: 240-241, Fromkin *et al.* 2007: 242). As a matter of fact, many scholars have regarded lexical stress and pitch accent as the same by arguing that the phonetic correlates of lexical stress are identical with those of pitch accent.

Among the three stress-related properties, pitch has been paid most attention to and considered as the strongest phonetic correlate of both the lexical stress and the pitch accent in the past fifty years (Bolinger 1961, Contreras 1964, Gili Gaya 1981, Llisterri *et al.* 2003, Quilis 1971, 1981 to name a few). Recently, it has been argued that not only the height of the pitch but also the position of the highest pitch of *focused* word in Spanish

[9] Most typically, a stressed syllable will signal the starting point of pitch contour regarding a certain intonational event such as *focus* (Hualde 2005: 243)

[10] In effect, in "syllable-timed" languages including Spanish, the durational contrast between stressed vowel and unstressed vowel appears to be much dull compared to other "stress-timed" languages such as English or Portuguese (Quilis and Esguva 1993, Hualde 2005: 241, Jun 2005: 432).

plays a critical role in marking *focus* (Beckman *et al.* 2002, Estebas-Vilaplana & Prieto 2008, Face 2001, 2002a & 2002b, Face & Prieto 2007, de la Mota 1995 & 1997).

As for duration, its role in the representation of *focus* has been arguably underestimated. Eefting (1991) observed that all the segments in the accented version of a word are pronounced longer than in the unaccented version, whereas Beckman & Edwards (1994) and Ortega-Llebaria and Prieto (2007) did not find a consistent duration effect on the accentual difference. Some scholars like Navarro Tomás (1918: §21), Quilis (1971), de la Mota (1995, 1997), Face (2000), Kim & Avelino (2003), Hualde (2005) assign a secondary role to duration with regard to *focus*-marking in Spanish, whereas others (Beckman *et al.,* 2002, Estebas-Vilaplana & Prieto 2008, Face 2001, 2002a, 2002b, Face & Prieto 2007, de la Mota 1995, 1997) barely pay attention to this feature.

Finally, intensity or loudness has received the least attention among the three stress-or-accent-related properties[11]. Only few scholars took notice of its effect on *focus* particularly for Spanish (Navarro Tomás 1918, Quilis 1971), however, they did not find any significant correlation between intensity and *focus*. Recently, Ortega-Llebaria & Prieto (2007) found the greater overall intensity patterns on the accented syllables compared to unaccented ones "due to the larger amplitude of vocal fold vibration related to greater speaker effort" (Sluijter & van Heuven 1996: 2472).

Why do such conflicting results exist in the literature? Beckman and Edwards (1994) ascribe such conflict to the well-spread misunderstanding that the pitch excursion is a direct acoustic correlate of the *stress*, mistakenly identified with accent in the experimental literature. This is pointed out by Ortega-Llebaria (2006), Ortega-Llebaria and Prieto (2007), Ortega-Llebaria *et al.* (2010). These studies revisit the issue of the relationship between lexical stress and pitch accent[12] in Spanish and Catalan by casting

[11] As for other languages, Kochanski *et al.* (2005) can be one of the few who have observed, in British and Irish English, that loudness and duration function as more decisive cues than pitch, to mark prominence.

[12] Note that in their terms, lexical stress refers to the prominence assigned to a particular syllable in a word and pitch accent to the prominence assigned to a particular word in a sentence (Ortega-Llebaria 2006: footnote 1).

doubt on the identification of the phonetic correlates of lexical stress and those of pitch accent. The authors contend that a lexical *stress* should be "disentangled" from a pitch *accent* in Spanish, in the same way in which Navarro Tomás (1918: §22) clearly separates *stress* , i.e., "acento de intensidad" in his terms, from *accent*, i.e., "tono" in his terms. According to these authors, the disentanglement between *stress* and *accent* becomes clear when the stressed syllable of a particular word appears in unaccented environments, that is, outside the scope of *focus*. Similar observations are found in studies on other languages (Dogil and William 1999 for German; Kastrikani 2003 for Greek; Manolescu *et al.* 2009 for Romanian; Sluijter *et al.* 1997, Sluijter & van Heuven 1996 for Dutch). Even if the syllables within a given word might lose any pitch-related properties in unaccented or unfocused contexts, the difference between the stressed syllable and the unstressed one would maintain in terms of other cues like duration and spectral tilt [13] (Ortega-Llebaria 2006, Ortega-Llebaria & Prieto 2007, Ortega-Llebaria *et al.* 2010). When a given word appears in an accented context or under the scope of *focus,* duration and intensity along with pitch as the strongest cue would distinguish the stressed syllable and the unstressed one in Spanish, which is much in line with the conclusions of most *focus*-related studies in the literature on Spanish. This suggests that duration and spectral tilt serve as reliable acoustic cues for stress.

Ortega-Llebaria (2006) and Ortega-Llebaria & Prieto (2007) further sought the phonetic cues for the accentual differences and discovered that that none of the aforementioned cues except for pitch serves as the constant indicator of the accentual differences in the presence of lexical stress. The authors found that the lexically stressed syllables under unaccented or unfocused environment differ from the stressed syllables under an accented or focused context ONLY in pitch itself and intensity. Based on all these findings, Ortega-Llebaria and her colleagues concluded that the phonetic cues for the lexical stress are not the same as those for the pitch accent. The former includes

[13] It refers to intensity at higher regions and even vowel quality rather than pitch which only functions in certain environments.

duration and spectral tilt, whereas the latter includes the pitch and intensity. Note that their conclusion (Ortega-Llebaria & Prieto 2007) accords only partially with Navarro Tomás' (1964) original argument, according to which Spanish lexical stress and the Spanish accent are independent from each other and are cued by different prosodic properties, overall intensity and pitch, respectively.

According to Ortega-Llebaria and Prieto (2007), there are three levels of syllabic prominence: a) unstressed, b) stressed but not accented, and c) stressed and accented. That is, the unstressed syllables may never be pitch-accented even when they are within with the scope of *focus*, while the lexically stressed syllable may get pitch-accented within the scope of *focus* or may not get accented outside the *focus* scope. For the current study, we would specify the last level (stressed and accented) further depending on the *focus* type: c-i) stressed and non-contrastively accented versus c-ii) stressed and contrastively accented for the stressed syllable under the scope of *Contrastive Focus.* What we need to investigate is to find which acoustic cues would function as the indicators of the accent (or *focus*) *type* difference. For this, we first compare the stressed syllables under one type of accent or *focus* and the stressed syllables under the other type and then the difference between the unstressed syllables under two types of accent or *focus.* Since the current study is only interested in the accentual difference depending on the type of *focus*, we will not cross-examine the syllables with and without stress.

1.4. Organization of the dissertation

Chapter 2 describes the two experiments used in this study. Chapter 3 reports and discusses the findings of the first experiment. Topics such as constituent order, pronominalization, and argument omission are addressed. Chapter 4 presents prosodic differences between the two types of *focus*, with regard to durational aspects and pitch-related aspects. Finally, Chapter 5 presents conclusion and some implications.

CHAPTER TWO
THE EXPERIMENTS

The objective of this chapter is to introduce the experimental designs and to describe various analytical methods used. Two experiments were conducted in order to analyze the syntactic and prosodic differences between the two types of *focus*. The organization of the chapter is as follows: The findings from a pilot study conducted before performing the full-scale study are summarized in section 2.1. The pilot study had been carried out to verify the validity of the study, and it was reflected in the experimental design of the actual study. In the section 2.2, the full-scale study is described. The information about the participants, the information session, and the test materials for the study is found in the subsections 2.2.1 through 2.2.3. The two tasks carried out were Ranking Task and Recoding or Read-Aloud Task, and they are explained in 2.2.4. The last subsection 2.2.5 introduced concrete objects in the data that were measured as in 2.2.5.1, specific measurements used for an acoustic analysis as in 2.2.5.2, and statistical tools conducted to test the hypotheses in the study in 2.2.5.3. Finally, section 2.3 summarizes the chapter.

2.1 Pilot Study

The main goal of this pilot study conducted before a full-scale experiment was to make a preliminary diagnosis of the syntactic and prosodic patterns regarding the two types of *focus*.

Two female native speakers of Castilian Spanish from the central regions of Spain volunteered to participate in the pilot study. There were three main issues in the preliminary experiments with regard to *focus* itself and the types of *focus*: a) the use of complete sentences vs. fragmented sentences, b) the word order variability, and c) the acoustic analysis of prosodic prominence. As for the first issue, we found that the use of fragmented sentences was 'mostly' preferred to that of complete sentences by both

participants when there appeared clear *focus* elements in a given utterance regardless of the type of *focus*. To give an example, when a *Non-contrastive Focus*-triggering question like *¿Quién llama al niño?* 'Who is calling the boy?' was asked, the typical answer tended to be just *Marta* 'Marta'. Also the participants often pronominalized the redundant information and placed the most important information at the end of the sentence as in *Lo llama Marta* 'Marta is calling him'. The similar patterns of answers occurred in sentences with *Contrastive Focus*. Nevertheless, it seemed to be slightly less frequent to omit the redundant information in the cases of the latter type of *focus* than in those of the former type. That is, when questions containing *Contrastive Focus* like *Jorge llama al niño, ¿verdad?* 'Jorge is calling the boy, isn't he?' were asked, the use of complete sentences such as (No.) *Marta llama al niño* 'No. (It is) Marta (who) is calling the boy' would be more frequent than in those with *Non-contrastive Focus*.

As for the second issue, we found that in certain extralinguistic environment, the preference of fragmented sentences over complete sentences disappeared, regardless of *focus* type. That is to say, the pilot study showed that the fragmented sentences were 'not always' preferred to complete sentences. In a formal situation, such as a mock interview of the US citizenship interview performed in the pilot study, the use of fragmented sentences was remarkably reduced whereas complete sentences were prevalent for both types of *focus*. The fact that complete sentences may not always sound "stilted[14]" to the ears of native speakers of spoken language could be a positive sign for those who are concerned about, or even detest in some cases, the "unnatural" characteristic of experimental or laboratory speech (Laan 1997, Face 2003a). The pilot study also suggested that speakers seemed to use complete sentences instead of elliptical sentences, due to the formality pertinent to a particular discourse context, not because they were forced to do it by the researcher as done in many read-aloud experiments in the literature (Cabrera Abreu & García Lecumberri 2003, Face 2000, Kim & Avelino 2003 to name a

[14] Fromkin *et al.* (2007: 202-204) state in their introductory book to Linguistics that due to the telegraphic characteristic of much discourse - let alone our language itself-, often "verb phrases are not specifically mentioned, entire clauses are left out, direct objects disappear, pronouns abound."

few). Taking a hint from this second finding, I created a discourse context where the speakers would tend to use complete sentences as frequently as fragmented sentences. The purpose of this experimental design is to bridge the gap between the unnaturalness of experimental speech and the succinctness of spontaneous speech.

As for the word order, the pilot study also revealed that there was virtually no difference in syntactic aspects between the two types of *focus*[15]. We checked whether there would be any difference with regard to sentence-internal word order in the cases of complete sentences, and pronominalization or sentence-internal ellipsis patterns in the cases of fragmented sentences depending on the type of *focus*.

In the acoustic analysis of the data, duration was a significant factor in distinguishing *Contrastive Focus* and *Non-contrastive Focus*. The *Contrastively focused* elements were longer than the *Non-contrastively focused* elements. Contrary to the general assumption by Zubizarreta (1998:44-45) and others, according to which *Contrastive Focus* would bear "emphatic stress" with an extraordinarily higher pitch accent[16] this pilot study did not show any significant pitch-related difference between the two types of *focus*. This result was somewhat unexpected; and thus it called for a much refined experimental design and thorough examination of the speech data to verify whether such a discrepancy was due to the loose design of the pilot study itself or there indeed is no intonational difference at all between the two types of *focus*.

Finally, the findings from the pilot study suggested the experimental design for the full-scale study required a slight modification. It was essential to simplify the entire testing process in order to maximize the efficacy of the experiments. Although it is customary to repeat the same carrier sentences over and over in phonetic or phonological studies, I found that it would be impractical to do so for the current study. By definition, *focus,* the target concept of the current study, should be understood always in a broader

[15] The preliminary results indicated any difference discovered was minor enough to ignore.

[16] Kim and Avelino (2003) labeled this extraordinarily higher pitch accent using the following ToBI notation (^H*).

context rather than in an isolated environment such as word unit. However, as larger-sized target items (entire discourse contexts) rather than smaller ones (words or sentence units in an isolated forms) were being used, the participants became exhausted toward the end of the pilot study session. For both theoretical and practical reasons, I managed to make the entire process of testing discourse contexts as simple as possible and to create two more sets of discourse contexts with minor changes instead of repeating the same discourse context more than once in the full-scale study. In addition, the findings from the pilot study strongly implied the need for clarifying the target concept of the current study, *focus,* to participants, I arranged a mandatory information session, before participating in the actual experiments, to make sure that the participants would not only be able to identify *focus* in general as the target concept of the study but also capable to distinguish between *Non-Contrastive Focus* and *Contrastive Focus* in a given context.

2.2 The Current Study

2.2.1 Participants

Nine native speakers of Madrid Spanish served as participants in the production studies; five of them were female and four were male. All participants were born and grew up for the most part in Madrid, and came to the United States less than three years ago for various job-related reasons.

All of them spoke Castilian Spanish as their sole native language up to puberty and none had studied English or any other foreign language before the age of 8. This was one of the requirements, because it was a necessary to avoid any L2 (second language) interference on their L1 (first language) pronunciation (Yeni-Komshian *et al.* 2000)[17].

[17] Yeni-Komshian *et al.* (2000), while observing the pronunciation proficiency of the first language (Korean) and the second language (English) of 240 Korean bilinguals who had immigrated to the US between the ages of 1 and 23 years, discovered that there is interaction and/or interference between their L1 and L2 regardless their age of arrival (AOA). This results in that not only their L2 pronunciation proficiency but also L1 pronunciation would be impaired and sound less perfect than the monolingual people's pronunciation. This is quite an alarming finding, as the authors suggested (Yeni-Komshian *et al.* 2000:145), in that it could potentially overturn the well-known *Critical Period Hypothesis*, proposed by Lenneberg (1967), according to which any learner of any number of languages could show as perfect the

The average age of the participants was 30, ranging from 25-36 years old. None of the speakers had any known speech or hearing impairment at the time of the recording. All participants were paid at the end of the recording sessions.

2.2.2 Information Session

Since all participants had little or no knowledge about *Information Structure*, each of them had a quick informational session in which they were explained several fundamental pragmatic notions relevant to the current study, such as *focus, contrast, contrastive focus*, and *non-contrastive focus.* At the end of the session they took a sample test to see whether they understood these concepts. All participants were capable of identifying *focus* and distinguishing the two types of *focus*.

2.2.3 Test Materials

2.2.3.1 Carrier Sentences

Each target sentence with *focus* was expected to consist of three content constituents, e.g. subject + verb + direct object, where subject and direct object were lexical or nonpronominal. Three meaningful sentences, composed of carefully chosen words, served as target units of interest as shown in (2.1)- (2-3).

(2.1) La madre llama al niño.
'The mother is calling[18] the boy.'

(2.2) Las abuelas animan a la viuda.
'The old ladies are cheering a widow up.'

(2.3) Los ladrones roban dinero.
'The robbers are stealing money.'

---

proficiency level of pronunciation of all those languages as monolinguals of each language, as long as she was exposed to the languages before her puberty.

[18] The present tense of a verb in Spanish can correspond to the simple present or present progressive in English, depending on the urgency of the context.

In formulating these sentences, attention was paid to two important points. First we need content words with a paroxyton stress pattern, i.e., the lexical stress on the next-to-last syllable as in [19]*di-NE-ro* 'money', *LLA-ma* '(he/she/it) calls or is calling', *la-DRO-nes* 'robbers', and so on. The reason for choosing such words was to minimize any confounding effect due to the word-internal position of the lexical stress. If a word with a oxytone stress pattern with the lexical stress on the last one of the word as in *lla-MÓ*'(he/she/it) called', *ciu-DAD* 'city', *pro-fe-SOR* '(male) professor', etc. appears at a syntactic or intonational boundary such as at the end of the sentence or before a pause, the lexical stress of the given word will not be fully represented ("undershoot") or the peak of the given lexical stress will be shifted to the right and realized earlier than usual ("early peak"). Such phenomenon is called as "tonal crowding" and has been noted by many researchers of experimental phonetics and phonology (Nibert 2000, Prieto *et al.* 1995 & Prieto 2003, Face 2003b for Spanish; and Arvaniti *et al.* 1998, 2000 for Greek).
Second, we also controlled the constituent segmental units of a word carefully. Nasals such as /n/, /m/, and /ñ/ are often considered as the [20]best indicator of [21]Fundamental Frequency (F0) which is essential to the intonational analysis, since they do not obstruct the F0 pattern of their surrounding vowels (Hertz *et al.* 2004). Nevertheless, it was not always successful to find words that only consist of nasal units as in *niño* 'boy', *año* 'year', *anima* '(he/she) cheers up', and so on in a natural language while constructing carrier sentences at the initial stage of the current research. In that case, the [22]voiced stops like /b/, /d/, /g/ or other sonorant sounds like /l/, /r/ or /ř/ were chosen as next best

[19] To help a better understanding, the stressed syllables were written in the upper case here.

[20] And voiceless consonants like /p/, /t/, /k/, /s/, and the like would be the worst choice, since they disrupt the F0 pattern completely. Such disruption will make the F0 curve completely disconnected in the spectrogram window, because there is no vibration of vocal folds to produce voiceless sounds.

[21] The Fundamental Frequency, or F0, is defined as the rate of vibration of the vocal cords and is measured in Hertz (1 Hertz corresponds to 1 cycle per second) (See Nooteboom 1997).

[22] Voiced stops as well as other voiced sounds will be represented as "small localized dips" in the F0 curve (Hualde 2005). This fact will be taken into consideration when the intonation of the data is analyzed in Chapter 5.

choice. All the above fine tuning was necessary to make sure that the only factor that might vary would be the types of *focus*, exclusively.

2.2.3.2 Classification of Focus

2.2.3.2.1. Criterion I: *contrast* (CF vs. NF)

The foremost criterion in distinguishing the types of *focus* is whether or not the given focused element also bears some notion of *contrast.* As mentioned in Chapter 1, when *focus* appears contrastive, we name it *Contrastive Focus* (or CF, hereafter, as needed); when it does not appear contrastive, we call it *Non-contrastive Focus* (or NF, hereafter, as needed). In order to be in line with the tradition of *focus*-related studies in the experimental phonology (Cabrera Abreu & García Lecumberri 2003, Face 2000, 2001, 2002a, 2002b, 2003a, Fant 1984, Kim & Avelino 2003, de la Mota 1995, 1997, Navarro Tomás 1944, Zubizarreta 1998 to cite a few for Spanish), the current study chose to use simple question-answer congruence. To minimize the unnaturalness of the experimental or laboratory speech, however, I made sure that each question-answer pair be embedded in a bigger discourse context rather than appearing in isolation without any appropriate context, which has been done in many previous studies of the similar kind. This way, participants would be expected to process the target sentences more naturally as if they were uttering them in a real conversation.

Each type of *focus* was hinted by a different type of interrogative sentence in Spanish: To trigger the use of *Non-contrastive Focus, wh*-questions such as *¿Quién llama al niño?* 'Who is calling the boy?' were constructed, whereas utterances containing incorrect information, which would implicitly elicit correction from the interlocutor, by using of *Contrastive Focus* as in (2.4) and (2.5) below, respectively.

(2.4) **Non-contrastive Focus (NF)** triggering question-answer congruence

A: *¿Quién llama al niño?*

'Who is calling the boy?'

B: **MARTA llama al niño**[23].

'MARTA is (the one who's) calling the boy.'

(2.5) **Contrastive Focus (CF)** triggering question-answer congruence

A: *Jorge llama al niño. ¿Por qué será?*

'Jorge is calling the boy. What could it be?'

B: *No, abuela.* **MARTA llama al niño[24].**

'No, grandma. MARTA is (the one who's) calling the boy.'

As noted in (2.4) and (2.5), the response sentences for the aforementioned questions would look the same, except for one difference. To answer *Contrastive Focus*-triggering questions, speakers would have to express dissent to their interlocutor first by saying "no", before offering the correct information. In actual running speech, such functional word and the following corrective sentence could appear within the same intonational phrase (ip) as in *No, Marta llama al niño,* or could be broken into two separate groups as in *No. Marta llama al niño.* Although the real-time differences between the two choices seems minimal, this trivial difference would not be an ideal setting to look into intonational differences between any two identical utterances, whose only difference is the type of *focus*[25]. To prevent any unwanted discrepancy, I inserted an additional word, for example, a vocative like *abuela* in *No, abuela. Marta llama al niño* 'No, grandma. Marta is calling the boy' to make sure that the second sentence would form its own

[23] For the sake of clarity, the constituent that falls under the domain of *focus* was written in the upper case in this section (2.2.3.2). Be aware that it does not necessarily match with the prosodic prominence of the given constituent.

[24] In an isolated or minimal context such as (2.5), one might point out that the sentence *No, abuela. Jorge llama a la niña.*'No, grandma. Jorge is calling the girl' is also a possible response to the given tag question *Jorge llama al niño, ¿verdad?* 'Jorge is calling the boy, right?' However, such possibility is eliminated by the discourse context, if the given question-answer congruence appears in a discourse context described sufficiently.

[25] For one thing, it could cause a potential *tonal clash* between the functional word "No" and the onset of the first word of the following sentence "Ma" , which may result in some effects on peak delay or syllable duration of "Ma" (as well as "No"). See Prieto *et al.*(1995: 440-443) for more detailed argument for *Stress-clash effects*).

intonational phrase (ip). Although the two resultant sentences elicited by two question types appear the same as in *Marta llama al niño*, they would be classified differently at the time of analyzing. One would be categorized as an utterance containing CF and the other as one with NF as shown in (2.4) and (2.5). Hinted by the question type as a cue, the participants were expected to be able to distinguish between the two types of Focus (CF vs. NF) in the experiments, because they had the information session and a few additional sample tasks.

2.2.3.2.2. Criterion II: scope of *focus* ($F_{SUBJECT}$, F_{VERB}, F_{OBJECT}, $F_{PREDICATE}$, and F_{BROAD})

Each of the two *focus* types is broken down into further five subtypes depending on the constituent on which *focus* falls. *Focus* may fall on a single constituent, which is typically composed of one functional form like a determiner or a clitic, plus one content word like a noun or a verb. When *focus* falls on the subject, the given focus type is named Subject Focus ($F_{SUBJECT}$, hereafter). For example, the utterance *MARTA llama al niño* 'Marta is calling the boy', as an answer to questions like *¿Quién llama al niño?* 'Who is calling the boy?', which elicits *Non-contrastive Focus* in responses, or questions like *Jorge llama al niño, ¿verdad?* 'Jorge is calling the boy, right?', which triggers *Contrastive Focus,* is considered to have Subject Focus ($F_{SUBJECT}$), since *focus* falls on the subject of the sentence, *Marta.* By design the responsive sentences for the aforementioned questions would be the same. But one would be classified as an utterance containing *Non-contrastive Subject Focus* ($NF_{SUBJECT}$) and the other would be classified as one containing *Contrastive Subject Focus* ($CF_{SUBJECT}$) according to their corresponding trigger questions as shown in (2.6) and (2.7), which are same as (2.4) and (2.5) but further specified by the position of *focal* scope.

(2.6) **Non-Contrastive Subject Focus ($NF_{SUBJECT}$)** triggering question-answer congruence

A: *¿Quién llama al niño?*

'Who is calling the boy?'

B: **MARTA llama al niño**.

'MARTA is (the one who is) calling the boy.'

(2.7) **Contrastive Subject Focus ($CF_{SUBJECT}$)** triggering question-answer congruence

A: *Jorge llama al niño, ¿verdad?*

'Jorge is calling the boy, right?'

B: *No, abuela.* **MARTA llama al niño.**

'No, grandma. MARTA is (the one who is) calling the boy.'

Recall that each utterance used in the current study consisted of only three constituents, namely, subject + verb + direct object such as *Marta llama al niño* 'Marta is calling the boy'. Therefore, there would be two additional narrow *focus* scopes: when the scope of *focus* falls on a single verb, it is considered to have Verb Focus (F_{VERB}) and when the scope of *focus* falls on a direct object at the end of sentence, it is named as Object Focus (F_{OBJECT}). The typical example of each case is shown in (2.8)-(2.11).

(2.8) **Non-Contrastive Verb Focus (NF_{VERB})** triggering question-answer congruence

A: *¿Qué le hace Marta al niño?*

'What is Marta doing to the boy?'

B: **Marta LLAMA al niño**.

'Marta is CALLING the boy.'

(2.9) **Contrastive Verb Focus (CF_{VERB})** triggering question-answer congruence

A: *Marta lava al niño, ¿verdad?*

'Marta is washing the boy, right?'

B: *No, abuela.* **Marta LLAMA al niño.**

'No, grandma. Marta is CALLING the boy.'

(2.10) **Non-Contrastive Object Focus (NF_{OBJECT})** triggering question-answer congruence

A: *¿A quién llama Marta?*

'Who(m) is Marta calling?'

B: **Marta llama AL NIÑO**.

'Marta is calling THE BOY'

(2.11) **Contrastive Object Focus (CF_{OBJECT})** triggering question-answer congruence

A: *Marta llama a la profesora, ¿verdad?*

'Marta is calling the professor, right?'

B: *No, abuela.* **Marta llama AL NIÑO.**

'No, grandma. Marta is calling THE BOY'

While the focal scope of $F_{SUBJECT}$, F_{VERB} or F_{OBJECT} is a single constituent and therefore very narrow, there are also cases in which the focal scope exceeds a single constituent and extends to the entire predicate phrase as shown in (2.12) and (2.13) or even the entire sentence as shown in (2.14) and (2.15) below. Following the literature[26],

[26] *Predicate Focus* was named by Lambrecht (1994: section 5.2), who attempted to capture the correlation between the formal semantic-syntactic categories "argument", "predicate" and "sentence" and certain types of communicative functions such as the function of "identifying" a referent, "commenting" on a given topic, and of "reporting" an event or "presenting" a new discourse referent. Note the difference in classifying the focus types in Lambrecht and in the current study. According to Lambrecht (1994), our *Verb Focus* would belong to his category of *Predicate Focus*, since the communicative functions of both types of focus ("commenting" on a given topic) are the same. Nevertheless, they differ in whether the following argument –sentential object- is already salient in the given discourse context or not, which may appear an important factor to our study. Therefore, we feel the need to make a distinction. In addition, we'd like to mention that Lambrecht's (ibid.) "sentence focus" corresponds to our *Broad Focus,* which is a term more frequently used in the literature (since Selkirk 1984, among many others)In effect we recognize that the term of *Broad Focus* may sound a little misleading, since not only the scope size of this focus type but also that of *Predicate Focus* are broad(er) than the scope size of other narrow(est) focus types such as *Subject Focus, Verb Focus,* and *Object Focus.*

we call these broader types of *focus, Predicate Focus* ($F_{PREDICATE}$, hereafter) and *Broad Focus* (F_{BROAD}, hereafter), respectively.

(2.12) **Non-Contrastive Predicate Focus ($NF_{PREDICATE}$)** triggering question-answer congruence

A: *¿Qué hace Marta?*
'What is Marta doing?'

B: **Marta LLAMA AL NIÑO**.
'Marta IS CALLING THE BOY.'

(2.13) **Contrastive Predicate Focus ($CF_{PREDICATE}$)** triggering question-answer congruence

A: *Marta lava el coche, ¿verdad?*
'Marta is washing the car, right?'

B: *No, abuela.* **Marta LLAMA AL NIÑO**.
'No, grandma. Marta IS CALLING THE BOY.'

(2.14) **Non-Contrastive Broad Focus (NF_{BROAD})** triggering question-answer congruence

A: *¿Qué pasa?*
'What's up?'

B: **MARTA LLAMA AL NIÑO**.
'MARTA IS CALLING THE BOY.'

(2.15) **Contrastive Broad Focus (CF_{BROAD})** triggering question-answer congruence

A: (*Dices que) Jorge lava el coche, ¿verdad?*
'(You're saying that) JORGE IS WASHING HIS CAR, right?'

B: *No, abuela.* **MARTA LLAMA AL NIÑO.**
'No, grandma. MARTA IS CALLING THE BOY.'

The participants were expected to be able to tell the location and the size of *focus* in the given utterance using the knowledge obtained in the information session and to do a few additional sample tasks.

In sum, there are 10 different kinds of focused items at issue in each set of scenarios: $CF_{SUBJECT}$, CF_{VERB}, CF_{OBJECT}, $CF_{PREDICATE}$, and CF_{BROAD} for contrastive types of focus vs. $NF_{SUBJECT}$, NF_{VERB}, NF_{OBJECT}, $NF_{PREDICATE}$, and NF_{BROAD} for non-contrastive types of *focus*. Figures 2.1 and 2.2 show the 10 simple question-answer pairs used to elicit each kind of focused items. As mentioned earlier, the elicited target utterance – '*Marta llama al niño'* in the examples of Figs 2.1 and 2.2, which corresponded to the answer part in question-answer congruence – was designed to remain the same across the slightly different discourse contexts in the given scenario.

Questions	Answers:	
with **Non-Contrastive Focus**:	***Marta llama al niño.***	
1a. ¿Quién llama al niño?	[_____]	Subject Focus ($NF_{SUBJECT}$)
2a. ¿Qué le hace al niño Marta?	[_____]	Verb Focus (NF_{VERB})
3a. ¿A quién llama Marta?	[_____]	Object Focus(NF_{OBJECT})
4a. ¿Qué hace Marta?	[_____]	Predicate Focus ($NF_{PREDICATE}$)
5a. ¿Qué pasa?	[_____]	Broad Focus (NF_{BROAD})

Figure 2.1. Five subtypes of Non-Contrastive Focus (NF) according to the position and size of *focus*

Questions	Answers:	
with **Contrastive Focus**	*(No.)* ***Marta llama al niño.***	
1b. Jorge llama al niño, ¿verdad?	[____]	Subject Focus ($CF_{SUBJECT}$)
2b. Marta lava al niño, ¿verdad?	[____]	Verb Focus (CF_{VERB})
3b. Marta llama a la profesora, ¿verdad?	[_____]	Object Focus (CF_{OBJECT})
4b. Marta lava el coche, ¿verdad?	[_____]	Predicate Focus ($CF_{PREDICATE}$)
5b. Jorge lava el coche, ¿verdad?	[_____]	Broad Focus (CF_{BROAD})

Figure 2.2 Five subtypes of Contrastive Focus (CF) according to the position and size of *focus*

2.2.3.3 Discourse Context and the Scripts

As mentioned in Section 2.1, one of the goals in this study is to overcome the "unnaturalness" of the experimental speech as much as possible. Since the topic of the current study *focus* is defined as an interdisciplinary concept, the results from the experiments performed in this study should comply with the standards of experimental phonetics as well as with those of pragmatics and syntax. To meet this goal to some extent, I decided that it would be a good idea to weave a discourse context, for example, composed of a dialogue into which the *focus*-triggering question-answer congruence presented in Figures 2.1 and 2.2 would fit well. There is another condition to mull over at the time of creating a discourse context. As mentioned in the section 2.1, one of the findings from the pilot study was that even in spoken language sometimes complete sentences could be as prevalent as fragmented sentences depending on the extralinguistic factors such as the formality of the situation where the dialogue takes place. The context used for the experiment was carefully designed so that the preference of complete sentences could be maximized and at the time the contrast of the two types of *focus* could stand out well in the given context.

The plot of the entire context is as follows: each discourse context used consisted of a script of a virtual dialogue that might happen between a little 'surly'[27] girl and her grandmother with a minor "hearing impairment," who would often misunderstand what had been said. Besides, the latter was portrayed as a person who would not be shy about making a presumably wrong assumption based on the misunderstood fact or about double-checking every little fact, which would irritate her potential interlocutors.

The concrete topic of their conversation was a soap opera –*telenovela* in Spanish— that was assumed to be on TV at the time of their conversation. The grandmother, due to her hearing impairment or some other reason like having misplaced her glasses, would only

[27] We set up this circumstance of a virtual dialogue between a 'surly' girl and her grandmother with 'hearing impairment' to maximize differences in the types of *focus* due to *contrast* (CF vs. NF). In the instructions given to the participants, however, only the description of the grandmother was explicit. On the other hand, the 'sully' personality of the little girl was suggested implicitly throughout the context itself.

partially understand about what had been spoken on TV. She would, then, while hoping for clarification, ask her granddaughter a specific question about the soap opera. At this time the grandmother would seek information by using a *wh*-question which would elicit an utterance containing *Non-Contrastive Focus* (NF) as mentioned in the previous subsection. At first, the little girl would answer her questions rather calmly. Already accustomed to her grandmother's longtime hearing problem, she would try to deliver information as "clearly" as possible, by using complete sentences and by slowing down if needed. The little girl's answer would correspond to the first target unit of study, that is, an utterance containing *Non-Contrastive Focus* (NF).Note that this part was given or missing in the script according to the task types. For the ranking task, for instance, the corresponding part was missing so that the participant could fill it out with the most appropriate utterance. In the recording session, however, this part was filled with one of the most plausible answers chosen from the results of the ranking task.

In continuation, the grandmother, double-checking, would repeat what she thought her granddaughter said. Her restatement was most likely to be wrong due to her hearing problem. Note that this was prompted by a *tag*-question to elicit an utterance, now, containing *Contrastive Focus* (CF). Irritated, the little girl once again enunciated slowly, loudly, or even angrily, what she had just said to her grandmother, which contains *Contrastive Focus* (CF).

In this way each script was designed to include both types of *focus* at once while the order of presentation was fixed. Always the utterance of *NF* appeared first and then CF followed it. Furthermore, the scope of each *focus* maintain identical by location and by size within a script. For example, if $NF_{SUBJECT}$ appeared in a script, $CF_{SUBJECT}$ followed it in the same script. In the same manner, if $NF_{PREDICATE}$ appeared in a script, $CF_{PREDICATE}$ was expected to appear later and so on. There were a total of 5 scripts per discourse context. The five scripts shared a very similar structure and content except for a few minor differences in the interactions between the two interlocutors in the discourse context.

As suggested in the pilot study, there seemed to be a couple of difficulties in using a bigger unit such as the entire discourse context in the current study rather than repeating smaller units like a list of sentences, words, or segmental units, often done in experimental studies. First, it might be easy for participants to become tired after finishing just the first discourse context, because it is complicated. Second, it might not be a good idea to present the same discourse context more than once, because the participants would easily remember the context and would begin to pay less attention to the context. Since understanding *focus* in a given context rather than merely repeating sentences in isolation was the prerequisite of the current study, if we repeat the same discourse context, the production data of the participants would be nothing but the extended version of mechanical repetition, which could bring us back to the issue of "unnaturalness". To resolve these problems, I decided to construct only two other sets of scenarios but still talking about a soap opera on TV. And the potential variability among speakers and scenarios was ignored due to the lack of the repetition in the sense of prosodic experiments. Each of three carrier sentences presented in the subsection 2.2.3.1 was utilized for each of the three scenarios.

In sum, the stimuli used for the experiments and procedures contained three sets of scenarios based on three different imaginary soap-opera scenes on TV at the time of speech. Each set consisted of five different discourse contexts which correlated with the location of *focus* within a given utterance and the size of *focus*. Although the target utterance with *focus* remained the same among different discourse contexts within the given set of scenarios, the rest of discourse contexts, including the questions that elicited the given utterances with *focus* as answers, differed slightly among themselves, so as to fit naturally according to various types of Focus in the given discourse contexts.

2.2.4 Procedures

Two different production tasks were performed for the current study. One was more syntax-oriented task, with special attention to word order variation, the complete

sentences vs. fragmented sentences, and prominalization. I called this experiment "ranking task". In fact, this task served as the basis for the unified script used for the recording session. Later the recording session took place after the preliminary analysis of the rank task was completed.

Different numbers of samples were collected from the two experiments we conducted. Out of nine participants, all of them participated in the first experiment, i.e. the ranking task. Only seven of them attended both the ranking task and the recording session.

2.2.4.1 Ranking Task

This task was conducted to answer the following research questions.

RQ1. Do participants show different patterns in choosing the preferred word order variations, between *Contrastive Focus* (CF) and *Non-Contrastive Focus* (NF)?

RQ2. Do participants prefer the use of complete sentences to that of fragmented sentences when focus falls on the utterance narrowly ($F_{SUBJECT}$, F_{OBJECT}, and F_{VERB})?

RQ3. If so, will the degree of preference rank between one over the other differ between *Contrastive Focus* (CF) *and Non-Contrastive Focus* (NF), for example $CF_{SUBJECT}$ vs. $NF_{SUBJECT}$, CF_{OBJECT} vs. NF_{OBJECT}, and so on?

The procedure of this task is described as follows. Two written packages were given to each participant. One set contained the collection of the scripts of the aforementioned three sets of scenarios. The other package contained the lists of possible answers either to a *wh*-question or a tag question with various combinations of the constituents of the given utterance with *Focus*. In general, seven or eight possible combinations of words were presented for each utterance with a focused item. They varied in word order, in omission of redundant information, and in pronominalization.

The participants were told to choose all possible answers in a list of various "[28]well-formed" sentences that would fit best into the missing part in the pre-distributed script. The missing part would be expected to be filled in by an utterance containing either type of *focus*. After choosing all possible answers, the participants were also told to rank them according to the degree of appropriateness or naturalness in spoken Castilian Spanish, using a numeral system between 1 and 5 – 5 being the most natural sentence and 1 being the least natural. A typical list of various "well-formed" sentences looked like Figure 2.3 below.

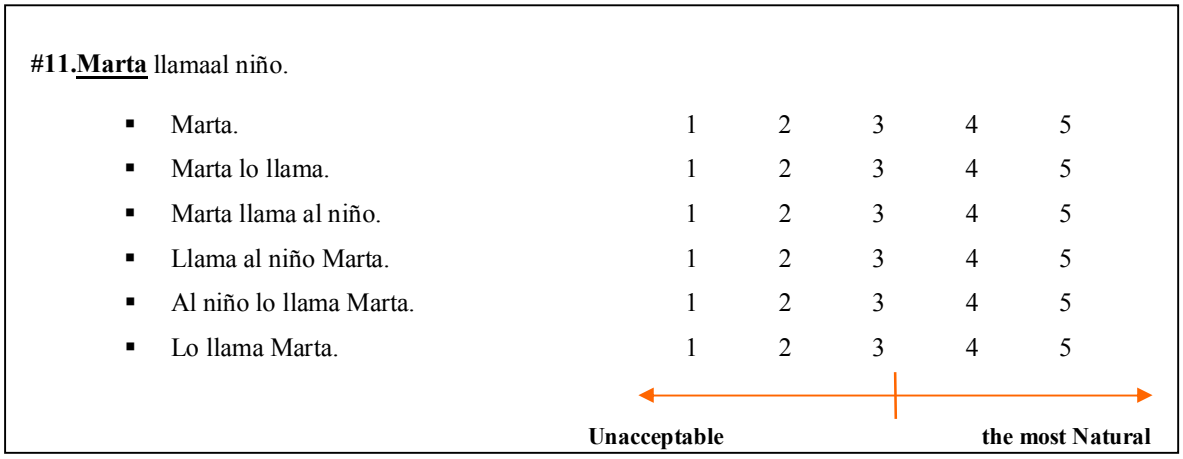


Figure 2.3. List of utterances feasible for the given script

The above sample rank sheet asks of a missing part in a script already given to the participants. In this case, the missing part corresponded to an utterance with *Non-Contrastive Subject Focus* ($NF_{SUBJECT}$), as an answer to the prompted question – *¿Quién llama al niño?* 'Who's calling the boy?' in the script. As you can see in Figure 2.3, the list contained 7 or 8 utterances, varying in word order or in omission. The list included the maximally reduced option –*Marta*, which contained *focus* alone, two pronominalized options –*Marta lo llama,* 'Marta is calling him' and *Lo llama Marta.* – and three full-length options varying in word order –*Marta llama al niño,* 'Marta is calling the boy,' *Al niño lo llama Marta,* and *Lo llama Marta* –.

[28] Grammatical and meaningful

The participants were also warned that there could be more than one possible sentence of the same rank. To maximize efficiency, we dropped some irrelevant sentences, even if they looked well-formed. The decisions about adding to or deleting possible sentences from the list as in the examples in Figure 2.3 were not made arbitrarily. Rather, they were based on the results of the pilot study conducted earlier.

The corresponding script for the rank sheet in Figure 2.3 would be something like Figure 2.4 and its English translated version Figure 2.5**.** Nevertheless, the previously distributed script of each discourse context was designed to have two missing parts rather than one. Out of two missing parts seen in the script, the one being asked in each sample rank sheet was indicated by an arrow (➔).

SITUACIÓN #11 - FOCO AL SUJETO ($F_{SUJECTO}$)

(LA DESCRIPCIÓN DE LA SITUACIÓN)

Después de la primera anécdota, se ponen los anuncios y la abuela va al baño, aprovechando la pausa. Cuando vuelve, la telenovela ya ha empezado de nuevo.

En la pantalla de la tele… .

un niño que corría, paró y se dio la vuelta, al oir que alguien le **llamó.**

La persona que le había llamado fue **su madre.**

Ahora, al volver a la sala, la abuela le pide a su nieta, Beatriz, que le explique lo que se ha perdido durante la pausa.

(EL GUIÓN DEL DIÁLOGO)

ABUELA : **Oye, cielo… me he perdido la parte inicial. ¿Ahora, quién llama al niño?**

BEA : ➔_____

ABUELA : **Ah.. El padre llama al niño. ¿Por qué será?**

BEA : **No, abuela. ¡_____! ¿Te has quitado los aparatos auditivos?**

ABUELA : **Sí, sí, ahora me los pongo.**

Figure 2.4. Sample script of conversation

SITUATION #11 – SUBJECT FOCUS ($F_{SUBJECT}$)

(DESCRIPTION OF SITUATION)

After the first episode of the soap opera, TV ads are put on and the grandmother goes to the bathroom making good use of the break. When she comes back, the soap opera has already resumed.

On the TV screen…. 

a boy who was running stopped and looked back, having heard someone **call** him. The person calling him was his **mother.**

Now, when she comes back, the grandmother asks her granddaughter, Beatriz, to explain what she's missed out during the break.

(THE SCRIPT OF THE CONVERSATION)

GRANDMA : **Listen, Sweetie… I missed the beginning. Now, who is calling the boy?**

BEA :➔ _____

GRANDMA : **I see. His father is calling the boy. I wonder why.**

BEA : **No, Granny. ¡_____! Aren't you wearing a hearing aid?**

GRANDMA : **No, no. But, now I'm putting it on.**

Figure 2.5. Sample script of conversation [Translated in English]

The participants were expected to easily recognize which type of *focus* utterance would replace each of the two missing parts through multiple practices in the information session beforehand. Each missing part appeared immediately after either one of the two prompt questions, a *wh*-question or a tag question. As mentioned in the previous subsection, a *wh*-question would trigger *Non-Contrastive Focus* (NF) whereas a tag-question would elicit the *Contrastive Focus* (CF). Moreover, there were less obvious but

noticeable cues if the participant were keen enough. Different *focus* types, namely, NF and CF were hinted at by different punctuation markers, by a period (.) for the former type of *focus* and by an upside-down Spanish exclamation mark (¡!) for the latter type of *focus*.

The result of this task were expected to show whether or not the two types of *focused* utterances show any contrast regarding word order and the use of full or partially omitted sentences. The findings would lay the foundation for later experiments on intonation. It was indispensable to verify if there were any syntactic differences between the two types of *focus* so as to be able to focus on the phonetic and phonological differences between them. This task was conducted individually in a quiet room and took about one hour to complete for each participant. A total of 135 samples (= 9 speakers x 3 sets of discourse contexts x 10 types of focus) were collected and analyzed.

2.2.4.2 Recording Session or Read-Aloud Task

The same scenarios presented in the Ranking Task were used for the recording session. The two tasks differed, however, in that in the second experiment, the whole script of the scenario had already been completed. In other words, the missing parts in the scripts used for the Ranking Task were filled at this time as seen in Figure 2.6[29].

SITUACIÓN #11 - FOCO AL SUJETO ($F_{SUBJECT}$)

(LA DESCRIPCIÓN DE LA SITUACIÓN)

Después de la primera anécdota, se ponen los anuncios y la abuela va al baño, aprovechando la pausa. Cuando vuelve, la telenovela ya ha empiezado de nuevo.

En la pantalla de la tele… . 

un niño que corría, paró y se dio la vuelta, al oir que alguien le **llamó.**

La persona que le había llamado fue **su madre.**

[29] Although in Figure 2.6 the sentences containing focus are underscored for a better understanding, in an actual script distributed to the participants during the recording session, those sentences were not underscored to avoid any special attention paid by the participants.

Ahora, al volver a la sala, la abuela le pide a su nieta, Beatriz,
que le explique lo que ha perdido durante la pausa.

(EL GUIÓN DEL DIÁLOGO)

ABUELA : **Oye, cielo… me he perdido la parte inicial. ¿Ahora, quién llama al niño?**

BEA : ***MARTA llama al niño*.**

ABUELA : **Ah.. El padre llama al niño. ¿Por qué será?**

BEA : **No, abuela. ¡*MARTA llama al niño*! ¿Te has quitado los aparatos auditivos?**

ABUELA : **Sí, sí, ahora me los pongo.**

Figure 2.6. Sample script of conversation

The completion of the whole script was based on the preliminary analysis of the results of the Ranking Task. In Figure 2.6, notice that particularly, the answer part of each question-answer pair had been written in complete sentences in the canonical word order. The use of complete sentences instead of fragmented sentences reflected the preliminary analysis of the results from the Ranking Task above. According to the Ranking Task, the omission of redundant elements in an answer to a particular question was either slightly more preferred over or equally preferred to the use of complete sentences in the same discourse context. The difference in preference was not statistically significant.

Each script was presented to the participants in written format with neither any indication of intonational realization nor any capitalization to indicate *focus*, so that the participants could recognize and produce *focus* on their own. The participants were asked to read the scenario as naturally as possible to maximally imitate the spontaneity of spoken language. Except for two females speakers (F2 and F4) (who were present at the same time and were able to do the role-play between them), each student had to play the roles of both the grandmother and granddaughter. Nevertheless, they were not required, in acting them out, to mimic two different voices. All dialogues were recorded.

The recording was carried out individually, except for the two aforementioned female speakers, who were sisters and wanted to participate together. Each recording session

lasted approximately ninety minutes. The stimuli were recorded in a quiet room onto a SONY digital voice recorder. The microphone was installed in the recorder and the investigator or the speaker held it approximately 10 inches from the speaker's mouth.

All 15 discourse contexts, 3 sets of scenarios multiplied by 5 different focus subtypes classified by location and size of *focus* ($F_{SUBJECT}$, F_{VERB}, F_{OBJECT}, $F_{PREDICATE}$, and F_{BROAD}), were quasi-randomized. They quasi-randomized in that although the order of presenting discourse contexts according to the scope of *focus* ($F_{SUBJECT}$, F_{VERB}, F_{OBJECT}, $F_{PREDICATE}$ or F_{BROAD}) was counterbalanced among the subtypes of *focus* scope, within each discourse context the order of presenting the two types of *focus* (NF and CF) was fixed. Recall that each discourse context was designed to include both sentences containing *Non-Contrastive Focus* and *Contrastive Focus* at once and to prompt each *focus* sentence in fixed order, namely, the sentence with *Non-Contrastive Focus* first and the sentence with *Contrastive Focus* later within each discourse context. Since 15 different discourse contexts were presented to 7 participants, a total of 210 individual utterances with Focus (15 x 2 x 7) were analyzed.

2.2.5 Data Analysis

2.2.5.1 Acoustic Analysis

For the recording session, a total of 210 individual utterances (= 7 speakers x 3 sets of discourse contexts x 10 types of focus) were collected for the analysis. Each target sentence was analyzed using Praat software (Boersma & Weenink, 2009).Various acoustical measurements have been made, using the waveform display as in Figure 2.7 and Figure 2.8, shown below.

Figure 2.7 demonstrates a sample analysis window. At the top of the window is shown the waveform[30] of an utterance. Under the waveform there appears the

[30] A waveform displays air pressure variation over time. A series of blue lines superimposed on the waveform indicates the glottal pulses which are produced by a flap during the vibration of the vocal cords.

[31]spectrogram of the utterance. The thin curve throughout the entire utterance in the spectrogram indicates the acoustic correlate of what we perceive as pitch, namely, the fundamental frequency, which is defined as the rate of vibration of vocal cords within the larynx. The three rows toward the bottom of screen are called labeling tiers. For the current study, [32]I segmented each utterance into its constituents as shown at the top tier and further into syllables as shown on the second tier from the top. At the lowest tier were indicated various crucial points with regard to pitch and duration. These points will be very useful to measure the necessary values, especially for pitch-related data, automatically rather than doing it by hand.

Let us now look at which concrete values were measured for the analysis. For the durational data the following values were measured or calculated: a) the length of each constituent (from the onset of its first syllabic element to the offset of the last one); b) the duration of each syllable (from the onset of its first segmental element- mostly, a consonant- to the offset of its last one-mostly, a vowel), and c) the duration of the whole sentence have been measured in millisecond (ms).

[31] A spectrogram displays all the constituents of the frequency of a speech sound at the given moment using Fourier analysis. The speech sound is complex in that its pitch is comprised of the sum of many different frequency contents, called, *spectra*. According to Fourier Analysis, we can decompose such complex speech sound into individual s*pectrum*, which are displayed in the spectrogram in a gray-scale rendition.

[32] An investigator can segment or chop the given sound into smaller units to suit her experimental design.

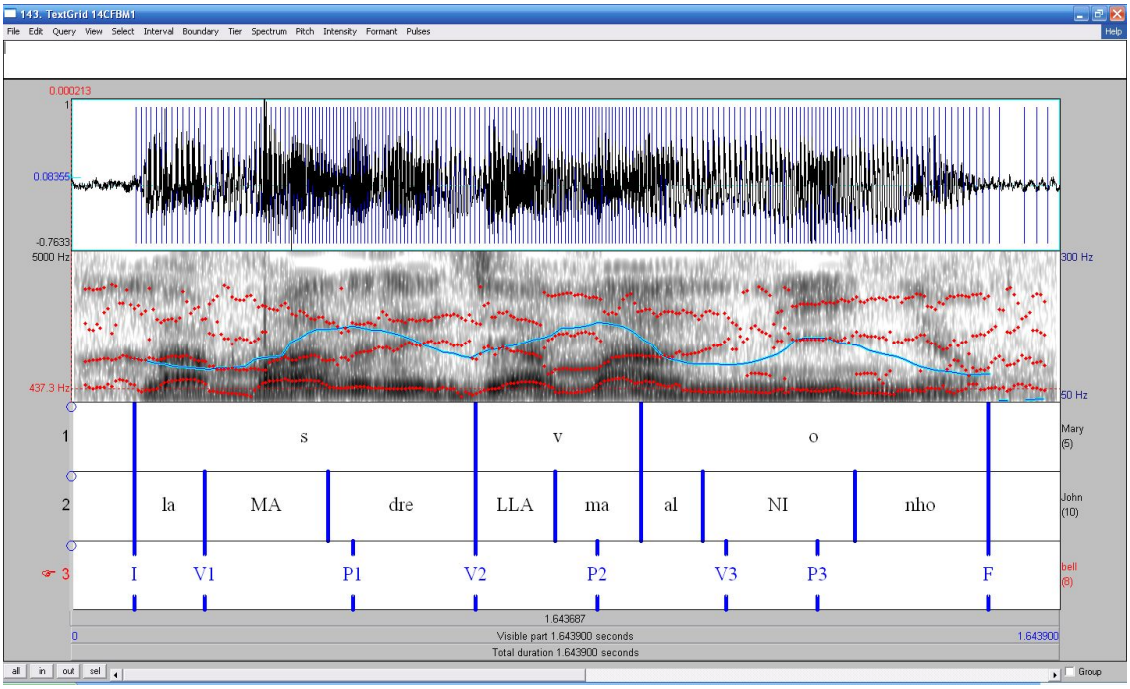


Figure 2.7. Sample analysis for duration and pitch

With regard to the pitch-related data, the following were measured in Hertz (Hz): a) utterance-initial F0 value (marked with 'I' at the bottom tier); b) utterance-final F0 value (marked with 'F'); c) peak or highest absolute F0 value for each pitch accent (marked with 'P1' for the first constituent, namely, a sentence subject, 'P2' for the second constituent, namely, a sentence verb, and 'P3' for the third constituent, namely, a sentence object); d) lowest absolute F0 value at the start of each rising pitch accent (marked with 'V1' for the first constituent, namely, a sentence subject, 'V2' for the second constituent, namely, a sentence verb, and 'V3' for the third constituent, namely, a sentence object); e) onset and offset values of each lexically stressed syllable. Finally, the presence of pauses have been checked, i.e., and f) initial F0 value in the postpausal phrase.

In quasi-natural data like this study, peaks and valleys do not always appear clearly, as can be observed in Figure 2.7. Depending on the speakers' speech rate or style,

peaks may have been compressed with no clear pitch excursion, as shown in Figure 2.8 below in the part indicated by a circle.

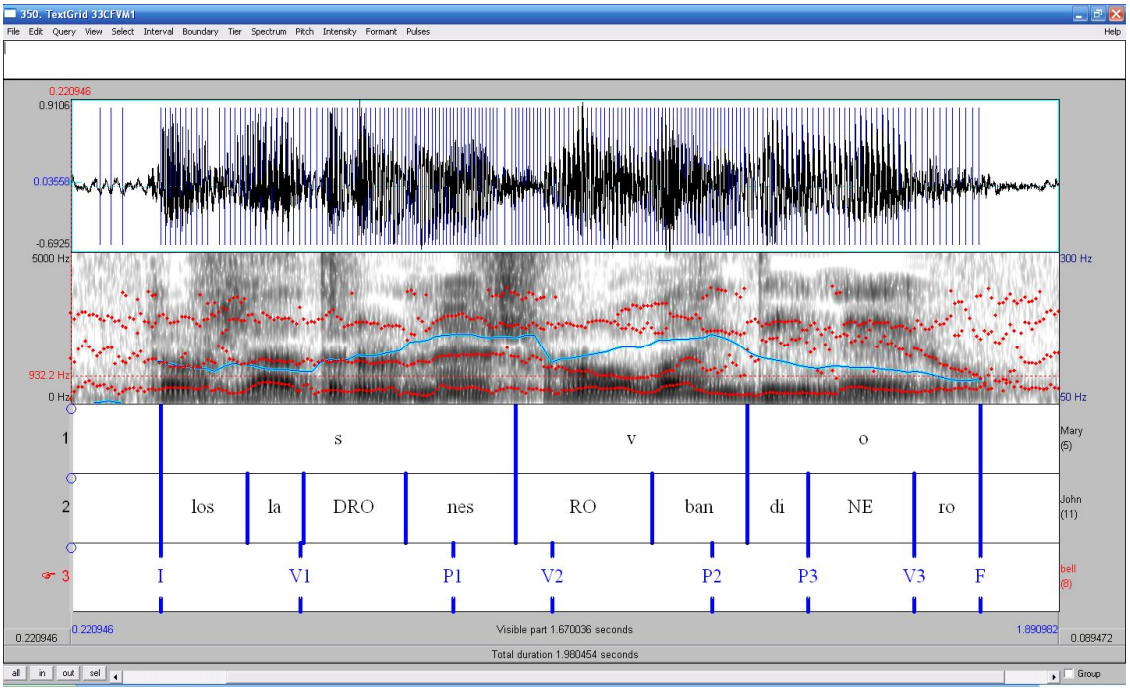


Figure 2.8. Sample analysis for duration and pitch, where the last peak on –*NE*- in the word *dinero* does not appear clear, unlike the previous case (Figure 2.7)

In such cases, following Prieto *et al.*(1996: 449), the given labels were reinterpreted: the labels P and V are redefined to "signal segmental boundaries in the lexically stressed syllable" – the onset and the endpoint, respectively – rather than actual values in the F0 contour. In the following example, the last peak, P3, is equivalent to the onset of the lexically stressed syllable and the last valley, V3, is equivalent to the end point of the stressed syllable.

In addition, F0 value at the midpoint of each syllable nucleus, namely the vowel, have been measured both in Hertz (Hz) and in semitone (ST: See Chapter 5 for an account for this unit of measurement) with respect to the following points: a) temporal distance from the F0 peak to the onset of the lexically stressed syllable; and b) temporal distance from the start of the F0 rise to the onset of the lexically stressed syllable. To

obtain the slope of each pitch accent, we measured temporal distances from the start of the F0 rise to the peak. The slope of the pitch accent, as suggested by De la Mota (1995, 1997), is expected to be useful in obtaining information about velocity.

Normalization procedures have been applied to both duration and pitch so as to minimize any potential confounding factors such as speech rates or variations among productions and speakers. As for the durational normalization, we have adopted De la Mota's (1995 & 1997) percentile calculation (see Chapter 3 for a concrete calculation). For the pitch normalization, we have adopted the calculation from Fernández Planas & Martínez Celdrán (2003) and Martínez Celdrán & Fernández Planas (2003).

After the recording, any damaged utterances containing any type of errors such as mispronunciation or missing elements were eliminated. In case the errors were critical, the participants were asked to record their voice again. All the data that was automatically extracted by the computer-implemented, pitch-detecting software were manually verified and corrected in case of any pitch tracking failure due to doubling/halving errors (Murray 2001) or creaky phonation characterized by drastically lowered F0 values in the spectrogram and by irregularly spaced glottal pulses in the waveform (Gorden & Ladefoged 2001).

2.2.5.2 Statistical Analysis

The following small subsections will describe two statistical research tools used for the analysis of the data collected in the experiments. Why do we need to use a statistical tool for an analysis of linguistic data? The collected data from the experiments of study are very small, compared to the infinite amount of speech corpus of all native speakers of Madrid Spanish in the world. In order to see whether our data is a well representative sample of the entire speech corpus produced by all native speakers of Madrid Spanish, we need to rely on statistical measurement.

2.2.5.2.1. *Hypothesis testing*[33]

Any statistical tool would require a researcher to establish a couple of hypotheses, one of which being a null hypothesis and the other of which being an alternative hypothesis to begin with and test them using the tool to verify which of the two hypotheses turns out to be true according to the collected data sample. The null hypothesis assumes that the gathered data would be the same as a particular theoretical expectation whereas the alternative hypothesis states that they would be different from the theoretical expectation. The ultimate goal of testing hypotheses is to determine "how likely" the data sample of interest would be if the null hypothesis were true (De Veaux 2008: 511). The concrete value for the probability of getting the observed results given the null hypothesis is called the P-value. This value would mean, for example, that in our study the probability value of getting the observed data given the null hypothesis, if you had an infinite number of the speech data produced by all Madrid Spaniards, half of data containing *Contrastive Focus* and half *Non-contrastive Focus*, and took a number or random sample pairs of the same number of the data in the present study. The P-value greater than the conventional significance level of 0.05 indicates that the data are consistent with what we would expect under the null hypothesis, and there is no reason to reject this hypothesis. On the other hand, the P-value smaller than the conventional significant level of 0.05 suggests that the observed data are so different from the theoretical expectation that we should reject the null hypothesis at issue and should support the alternative hypothesis which will be possibly more convincingly proved by some *post hoc* tests later on.

2.2.5.2.2. *Paired samples t-test*[34]

The data in the current study were collected in a *pairwise* manner. Instead of using question-answer congruence in isolation in a random order, a discourse context was

[33] See http://udel.edu/~mcdonald/stathyptesting.html and De Veaux (2009: 508)
[34] This type of test is also called "matched-pairs *t*-test" or "dependent-means *t*-test" (Field 2009:325).

created such that the given question-answer congruence would be understood by the participants. Also, each script was designed to first elicit an utterance containing *Non-contrastive Focus* (NF) and then an utterance containing *Contrastive Focus* (CF) later in an *orderly* fashion. The results of analyzing the data collected will be meaningful if and only if the utterance containing one type of *focus* is interpreted with the utterance containing the other type of *focus* within the same discourse context which is produced by the same participant. Since the *differences* between the representations of the two types of *focus* (NF and CF) under the same discourse context produced by the same participants are the primary interest of this study, the *paired t-test* is an appropriate tool to analyze the data in the current study (De Veaux 2008:652)[35].

To test whether the paired values would be statistically different from each other, the hypotheses were established as follows:

(2.16) $H_0: \mu_d = 0.$

(2.17) $H_A: \mu_d \neq 0.$

Here the μ is the hypothesized mean of the pairwise differences between any quantitative values of the representations containing *Non-contrastive Focus* (NF) and those of the representations containing *Contrastive Focus* (CF) and the *d* indicates the difference for each individual pair. What H_0, the null hypothesis, suggests in (2.16) is that there is no difference between *Non-contrastive Focus* (NF) and *Contrastive Focus* (CF). In other words, the actual mean of the pairwise differences between *Non-contrastive Focus* (NF) and *Contrastive Focus* (CF) is consistent with zero. Meanwhile, H_A, the alternative hypothesis proposes that there is some significant difference between *Non-contrastive Focus* (NF) and *Contrastive Focus* (CF). Putting it another way, the mean of the pairwise

[35] Before every time the *t*-test was conducted, the normality condition, which is a prerequisite to use the given statistical tool, had been checked for the differences between the representations of both types of *focus* using a histogram to make sure the histogram of the differences would appear unimodal and symmetric in a given setting (De Veaux 2008:653 and Field 2009:329)

differences between *Non-contrastive Focus* (NF) and *Contrastive Focus* (CF) is significantly different from zero.

The corresponding statistic or numeric version of equation to the hypotheses in (2.16) and (2.17) is as follows:

$$(2.18) \qquad {}^{36}t = \frac{d' - \mu_d}{s_d / \sqrt{n}}$$

Here the *d'* ('d-bar') is the actual mean of the pairwise differences between the representations containing *Non-contrastive Focus* (NF) and those of the representations containing *Contrastive Focus* (CF) gathered in the experiment, the *n* represents the number of pairs, and the s_d, the standard deviation representing how far each actual data value of the difference of each pair (*d*) is from the hypothesized mean of the differences (μ_d) (De Veaux 2008:64). The equation in (2.18) would compare the actual mean difference between each pair in the data collected in the current study (*d'*) to the difference expected to be found between the hypothesized difference (μ_d) with reference to the standard error of the differences ($s_d / \sqrt{n}$). Finally, using the calculated *t*-score via the mechanics of the paired *t*-test in (2.18), we can find its corresponding P-value. In the present study the calculated P-value will help us conclude whether or not there is significant difference between the representations of two *focus* types or not. The smaller P-value, the null hypothesis at issue is likely to be rejected (De Veaux 2008:511). Such a result would lead indirectly to the conclusion that the alternative hypothesis should be supported. This means that there may be a significant difference between the two types of *focus*.

[36] See De Veaux (2008: 655) or Field (2009: 327) for further details about the equation.

2.2.5.2.3. *Factorial Repeated-measures ANOVA*[37]

This statistic is too complex to explain with a few sentences in a linguistic dissertation, whose focus is clearly not on a description of certain statistical design. For this reason, I will try to offer an explanation as succinct and simple as possible in this subsection.

The paired samples *t*-test is a very useful tool when there is only one independent factor such as the type of *focus*, produced by each of the participants. However, this statistical tool is not appropriate when there is more than one independent factor to consider in the given experimental design. Also this method is not suitable, when the comparison under the individual factor should be made among multiple levels specified under the given factor rather than just two levels like *Non-contrastive Focus* (NF) and *Contrastive Focus* (CF). Note that although the main interest of the current study is the differences between the two types of *focus,* we would also like to pay attention to the further division of each of two types of *focus* into five subtypes depending on the scope of *focus,* i.e., $F_{SUBJECT}$, F_{VERB}, F_{OBJECT}, $F_{PREDICATE}$ and F_{BROAD}. Therefore there are now two independent factors, one being the type of *focus* and the other being the scope of *focus*. To take both conditions into account, another statistic measurement called[38,39]*Factorial repeated-measures ANOVA* was employed. The factorial repeated-measures ANOVA is an effective tool for an extended analysis in which there are two

---

[37] It is also called *two-way* repeated-measures ANOVA (Field 2009: 501).

[38] The meaning of this rather long statistical term is pretty straightforward. Let us look at the meaning of each component word from the left of this compound word. The term "ANOVA", the acronym of the Analysis of Variance, refers to a statistics analysis in order to compare the means of groups, levels or conditions that are more than just two assigned to the given factor (Field 2009: 348). The term "repeated-measures" suggests that the same participants underwent the whole process of an experiment (Field 2009: 458). Finally, the term "factorial" means that there is more than one independent factor to look at in the study (Field 2009: 422).

[39] Before every time the two-way repeated-measure ANOVA was made, the "sphericity" condition had been checked using the Mauchly Sphericity test, which will not be included in the body text, to make sure that the groups, levels or conditions under the given factor are independent of one another and the variation across them are roughly equal, which must be assumed along with the normality condition (See the footnote#20) before employing this statistical tool (Field 2009: 459).

factors to look into and the comparison among the levels or conditions of a given factor should be made in a multiple fashion rather than pairwise. This research tool tests the at least threefold null hypothesis[40],[41] as follows:

(2.19) $H_{0\text{-}1}$: There is no interaction between two or more independent factors.
$H_{0\text{-}2}$: The means of observations across groups by one factor are the same.
$H_{0\text{-}3}$: The means of observations across groups by the other factor are the same.

To test the above null hypothesis, we need to pay attention to a new value, called the *F*-statistics or ratio. The *F*-ratio is obtained by comparing the differences *between* the group means (MS_M) to the variation *within* the groups (MS_R) under an individual factor of interest.

$$(2.20)\quad {}^{42}F = \frac{MS_M}{MS_E}$$

If the calculated *F* value is greater than 1, it suggests that there is some significant main effect of the given factor. And it leads to greater differences *between* the group means, making the MS_M bigger. In practice, big *F*-statistics are usually accompanied by small P-values. Once we get a big *F*-value for one or both factors from the main analysis, a *post hoc* test should be applied to break down the effect of the given factor into individual levels or conditions under the given factor. In terms of the *post hoc* test, we will closely

[40] If there are more than two independent factors, the null hypothesis will be longer, by adding the following component of the existing null hypothesis as follows:
$H_{0\text{-}k}$: The means of observations across levels or groups by another (*k*-th) factor are the same.

[41] http://udel.edu/~mcdonald/stattwoway.html

[42] The calculation of the *F*-ratio is beyond the scope of the current study. Therefore, we decided not to include its detailed explanation but not in the body text.

look at which individual level(s) or condition(s) has played a major role to produce the overall main effect of the given factor, while we ignore the variations of the data due to the other factor[43]. Then the *F* ratio of each group, level or condition will tell us whether the given level has a significant effect or not. The results of this statistical test will verify in the current study whether or not the effect of the *focus* scope is significant and whether or not there is a significant interaction among the *focus* scope and the *focus* type[44].

2.3 Summary

This chapter started with the description of the pilot study which had been conducted before the full-scale experiments were done. The pilot study played a critical role in shaping the later study. Nine native speakers of Castilian Spanish participated in ranking task and seven among the same group attended the recording session. The main interest of study was whether the manifested difference between the two types of *focus,* i.e., *Non-contrast Focus* (NF) and *Contrast focus* (CF) was any significant and consistent in the participants' linguistic expressions. Each type of *focus* was decomposed further into five subtypes of *focus* according to the scope of *focus*. To make the experimental analysis of *focus* as natural as possible, the target item was carefully designed to be understood in a bigger discourse context rather than in isolation. As a result, a discourse context where the use of complete sentences was equally preferred as the use of fragmented sentences regardless the type of *focus* was constructed, which was proven to be the case by the results of the Ranking Task and their statistical analysis, as will be explained in Chapter 3. The sound files extracted from the Recording Session were

---

[43] Note that the equation in (2.20) shows the *F*-ratio of the data for a one-way independent ANOVA model which is the most basic design among different models of ANOVA. In a factorial or two-way repeated measures ANOVA model such as ours, there will appear multiple numbers of *F*-ratios, each of which is supposed to reveal the effect of each independent factor as well as that of their interaction. For example, you will see F_A, F_B, $F_{AxB}$and so on in the result chapters in the current study.

[44] In Chapter 3 the factorial repeated-measures ANOVA method will also be used to verify the preference effects among various possible choices as well as the interaction between the type of *focus* and the participant's choice of a few high-ranked choices.

examined for the more thorough acoustic analysis on the prosodic differences in the types of *focus*. Among three representative prosodic properties of the human speech sound, only duration and pitch turned out to be relevant to *focus* and the types of *focus* in the results of the present study, as will be seen in Chapters 4 and 5.

CHAPTER THREE
RESULT I: WORD ORDER OF TWO FOCUS TYPES

In this chapter, we examine the results of the ranking task. As mentioned in the earlier chapter, the purpose of the ranking task is two-fold. First, we want to check whether the two types of *focus* show different preference patterns among several possible options given. The second purpose is to choose the scripts for the Recording Session. Among six or so construction types given to the participants for both types of *focus* with a variation in the scope of *focus*, three top-ranked construction types[45] containing one of the five *focus* scopes are chosen for our main interest. This is because the rest of the constructions were ranked very low or hardly showed consistent patterns across participants. The data analysis and presentation were made in the following order: first, we observe and present what the raw rank distribution looked like for each construction type containing a particular type of *focus*. Then, using a simple descriptive statistics in SPSS, we calculate the average rank value for a given construction type rated by participants and by scenarios or carrier sentences, so as to generalize the overall patterns of preference. Finally, using the factorial repeated-measures ANOVA, we attempt to determine whether or not there is a clearly preferred construction type to others so as to be able to function as a solid script for the Recording session. In addition, this test would show whether or not such a preference pattern turned out to be different between the two types of focus. We present the outcome of the ranking task separately according to analysis tools. The descriptive patterns of Subject Focus ($F_{SUBJECT}$), Verb Focus (F_{VERB}), Direct Object Focus (F_{OBJECT}), Predicate Focus ($F_{PREDICATE}$) and Broad Focus (F_{BROAD}) will be given in the corresponding sections 3.1 and their statistical analysis will be presented in 3.2. Finally 3.3 will close the chapter.

[45] The full versions of charts of rank distributions for all given options is available in the Appendix III.

3.1. Descriptive patterns

3.1.1. Subject Focus ($F_{SUBJECT}$)

This section discusses about how each participant ranked several possible constructions when *focus* falls on the sentential subject and the rest of the sentence is presupposed in the discourse context. Subject Focus ($F_{SUBJECT}$) can be found as in utterances prompted by questions *¿Quién llama al niño?* 'Who is calling the child/boy?' or *El padre llama al niño, ¿verdad?* 'The father is calling the child/boy, right?' based on the corresponding discourse context given in Figure 3.1.

(EL GUIÓN DEL DIÁLOGO)

ABUELA : Oye, cielo… Me he perdido la parte inicial. **¿**Ahora, **quién llama al niño?**

BEA : ➔_____

ABUELA : Ah.. **El padre llama al niño.** ¿Por qué será?

BEA : No, abuela. **¡**_____**!** ¿Te has quitado los aparatos auditivos?

ABUELA : Sí, sí, ahora me los pongo.

(THE SCRIPT OF THE CONVERSATION)

GRANDMA : Listen, Sweetie… I missed the beginning. Now, **who is calling the child/boy?**

BEA :➔_____

GRANDMA : I see. **The father is calling the child/boy.** I wonder why.

BEA : No, Granny. **¡**_____**!** Have you taken off the hearing aid?

GRANDMA : Yeah, yeah. But, now I'm putting it on.

Figure 3.1. Sample script of conversation eliciting Subject Focus ($F_{SUBJECT}$)

Based on the previously presented description of the situation[46] in which the above dialogue would take place, the participants were expected to rate all the feasible answers that would fit well in the given discourse context. A list[47] of possible construction types that would fit into the script in Figure 3.1 was given to the participants as shown in Figure 3.2. The participants were told to rate the options from the most natural answers to the least ones on a scale ranging from '5', being the most appropriate choice for the given discourse context, to '1', being the most unlikely to choose, as follows.

#11.

▪ La madre.	[S]	1	2	3	4	5
▪ La madre lo llama.	[SPro$_{DO}$V]	1	2	3	4	5
▪ La madre llama al niño.	[SVO]	1	2	3	4	5
▪ Llama al niño la madre.	[VOS]	1	2	3	4	5
▪ Al niño lo llama la madre.	[O=Pro$_{DO}$VS]	1	2	3	4	5
▪ Lo llama la madre.	[Pro$_{DO}$VS]	1	2	3	4	5

Unacceptable ← → **the most Natural**

Figure 3.2. List of feasible utterances containing Subject Focus ($F_{SUBJECT}$) for the script in Figure 3.1

The results from the ranking task in the case of Subject Focus ($F_{SUBJECT}$) presented in Figures 3.1 and 3.2 are shown in Table 3.1 below. The first column indicates which scenarios containing one of three carrier sentences was presented in Section 2.2.3.1 and the second column identifies participants who participated in the ranking task session. The next six columns shows raw scores of three highly ranked construction types (SVO, S, VOS in the case Subject Focus) under each *focus* type (CF versus NF). Finally, the

[46] Not shown in the script in Figure 3.1. See Section 2.2.4.1 to see the example of a full script where both the description for the situation and the dialogue are presented.

[47] Instead of asking the participants to write down their own answers, we offered a series of well-formed utterances preselected based on the result of the pilot study.

numbers in each row show the raw rank values (using 1 through 5) judged by each of the nine participants in a given script presented to them as a stimulus.

Scenario	Participant	*Subject Focus* ($F_{SUBJECT}$)					
		$NF_{SUBJECT}$			$CF_{SUBJECT}$		
		SVO	S	VOS	SVO	S	VOS
1	1	5	5	3	5	4	1
	2	5	5	1	5	2	1
	3	4	5	1	1	5	1
	4	4	5	2	5	5	2
	5	5	5	3	5	4	1
	6	5	5	1	5	5	1
	7	4	5	1	4	5	1
	8	5	5	4	5	5	3
	9	4	5	1	4	5	1

Table 3.1. (Part of the chart of) **Raw Rank Values of Top Three Choices with Subject Focus ($F_{SUBJECT}$) by *Focus* Type**

Note that in the above table and all other following output tables, the three frequently chosen construction types are given in abbreviated forms. For example, the S option refers to the maximally reduced utterance as in *La madre* 'The mother' the *focus* part. The SVO choice indicates the full-length utterance in canonical word order, as in *La madre llama al niño* 'The mother is calling the child/boy', whereas the VOS option refers to the full-length utterance in *focus*-oriented order, as in *Lllama al niño la madre* 'She calls / is calling the child/boy, the mother'.

The descriptive table in Table 3.2 provides the mean and standard deviation for each of three construction types under both *focus* types.

Descriptive Statistics

	Mean	Std. Deviation	N
NF.SVO	4.37	.839	27
NF.S	4.93	.267	27
NF.VOS	1.93	1.269	27
CF.SVO	4.52	.893	27
CF.S	4.74	.656	27
CF.VOS	1.70	1.203	27

Table 3.2 Descriptive Table for the ranking task on Subject Focus ($F_{SUBJECT}$)

In this table we can see that the fluctuation among individual rank values was the greatest among the three top-rated options when the VOS options were rated by the participants. This is reflected in their biggest standard deviation values (the SD of the VOS option for $NF_{SUBJECT}$ = 1.269 and the SD of the VOS option for $CF_{SUBJECT}$ = 1.203, whereas the SDs of the other two choices were considerably small for being less than 1). The large fluctuation means that the individual rank values for all the VOS options produced by nine speakers across three different scripts varied significantly. Some VOS options were highly valued by getting the top score (5) whereas other VOS options received very low scores (1 or 2). In addition, some speakers ranked the same VOS options differently according to the script presented to them. Meanwhile, both the S and the SVO options were almost always ranked high by getting either 4 or 5 constantly. These results can be easily confirmed by looking at the raw distributions of rank values presented in Table 3.1 above. As regards the mean rank values, Table 3.2 shows the overall average rank values for each experimental design, regardless of the participants and of scenario types. The mean rank values for all SVO options and for all S options were ranked much higher than those for the VOS option, both by exceeding 4 out of 5 across types of *focus*. The mean of the SVO option for $NF_{SUBJECT}$ was 4.73 out of 5, which was slightly lower than the mean of the SVO option for $NF_{SUBJECT}$ with 4.93 out of 5, and the mean of the S option for $CF_{SUBJECT}$ with 4.52 out of 5 was even more slightly lower than the Mean of the SVO option for $CF_{SUBJECT}$ with 4.74 out of 5. Finally, the mean values for both VOS options

were considerably low, showing 1.93 in the VOS option for $NF_{SUBJECT}$ and 1.73 in the VOS option for $CF_{SUBJECT}$. The fact that both VOS options show lower mean rank values and bigger standard deviations suggests that the VOS option may be one of the participants' preferred choices for the utterances containing the Subject Focus by some participants (participants '5' and '8' for both types of *focus*), but not all of the participants.

The clustered bar graph in Figure 3.3 provides a graphic representation of the descriptive statistics shown in Table 3.2.

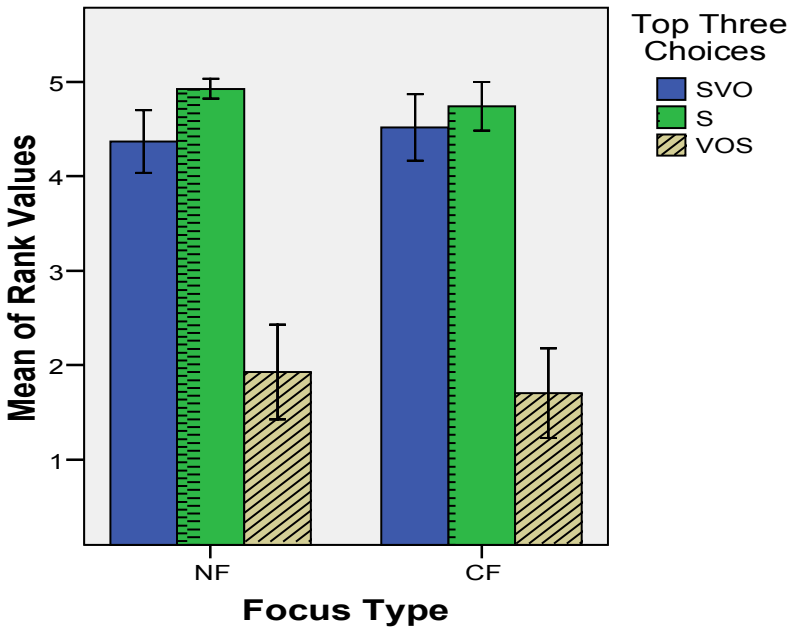


Figure 3.3. Descriptive Graph for the ranking task on Subject Focus ($F_{SUBJECT}$)

Each bar represents one of the six syntactic options that differ in construction type and in *focus* type. The three top-rated syntactic options (the S, the SVO, and the VOS from the left to right) are shown in different-patterned bars and presented separately by their type of *focus* (the $NF_{SUBJECT}$ cluster on the left hand side and the $CF_{SUBJECT}$ cluster on the right hand side). The height of each bar corresponds to the average rank value for each

condition and the range of the I-beam placed on the top of each bar represents the standard deviation or error, namely, the fluctuation among individual rank values to the given option.

In sum, both Table 3.2 and Figure 3.3 reveal the preliminary results of the ranking task on Subject Focus ($F_{SUBJECT}$) as follows: the maximally fragmented sentence seemed to be slightly preferred to the complete sentence in canonical order SVO across the *focus* type, although both options were ranked very high in the preference scale. Meanwhile, the other type of complete sentence with *focus* at the sentence-final position, namely the VOS construction, turned out to be ranked low compared to the other two with bigger spread. [S≥SVO>>VOS] This overall tendency remained unchanged if we calculated the data separately by *focus types*: [S_{NF}≥SVO_{NF}>>VOS_{NF} : S_{CF}≥SVO_{CF}>>VOS_{CF}]

3.1.2. Verb Focus (F_{VERB})

This section discusses each participant ranked several possible constructions when *focus* falls on the sentential verb alone and the rest of the sentence is presupposed in the discourse context. Verb Focus (F_{VERB}) can be found as in utterances prompted by questions *¿Qué le hace al niño la madre?* 'What is the mother doing to the child/boy?') or like *La madre lava al niño, ¿no?* 'The mother is going to wash the child/boy, isn't she' based on the corresponding discourse context given in Figure 3.4

(EL GUIÓN DEL DIÁLOGO)

ABUELA : Oye, cielo… ¿Qué dice la guía? **¿Qué le hace la madre al niño?**

BEA : ➔_____

ABUELA : Ah.. **La madre lava al niño.** ¿Por qué? ¿El niño está sucio?

BEA : No, abuela. **¡_____!** ¿Te has quitado los aparatos auditivos?

ABUELA : Sí, sí, ahora me los pongo.

(THE SCRIPT OF THE CONVERSATION)

GRANDMA : Listen, Sweetie… What does TV Guide say? **What is the mother going to do to the child/boy (in Tomorrow's episode)?**

BEA :➔_____

GRANDMA : I see. **The mother is going to wash the child/boy.** I wonder why. ¿Is he (or will he be) dirty?

BEA : No, granny. ¡_____**!** Di you take off the hearing aid?

GRANDMA : Yeah, yeah. Now, I'm putting it on.

Figure 3.4. Sample script of conversation eliciting Verb Focus (F_{VERB})

The list of possible options given to the participants for the script in Figure 3.4 is seen in Figure 3.5 below.

#15.

▪ Lo llama[48].	[$Pro_{DO}V$]	1	2	3	4	5
▪ Lo llama la madre.	[$Pro_{DO}VS$]	1	2	3	4	5
▪ La madre llama al niño.	[SVO]	1	2	3	4	5
▪ Llama al niño la madre.	[VOS]	1	2	3	4	5
▪ La madre lo llama.	[$SPro_{DO}V$]	1	2	3	4	5
▪ Llama al niño.	[VO]	1	2	3	4	5

Unacceptable **the most Natural**

Figure 3.5. List of feasible utterances containing Verb Focus (F_{VERB}) for the script in Figure 3.4

In the case of Verb Focus (F_{VERB}), it is rare and even considered ungrammatical for native speakers to pronounce the focused (transitive) verb only (*e.g. Llama.* 'She calls / is

[48] *Lo llama*. [$Pro_{DO}V$]'Is calling him', where the sentential subject was dropped, is perfectly grammatical in both written as well as spoken Spanish language. Spanish is known as one of *pro*-drop or null-subject languages that subjects can be left unexpressed and assumed to be replaced by the "null subject *pro"*, when the implicit subjects are understood as the topics in the given contexts (Casielles-Suarez 1997: 51).

Calling / is going to call' as an answer to the questions like *¿Qué le hace al niño la madre?* 'What is the mother doing to the child/boy?') or like *La madre lava al niño, ¿no?*, even if a verb alone gets a sole *focus* as designed in the current study. For this reason, such option had been excluded in the list, as seen in Figure 3.5.

The result from the ranking task in the case of Verb Focus (F_{VERB}) is shown in Appendix. It shows that for both types of Verb Focus (F_{VERB}), three top-rated options are SVO for NF_{VERB}, $Pro_{DO}V$ for NF_{VERB}, VO for NF_{VERB}, SVO for CF_{VERB}, $Pro_{DO}V$ for CF_{VERB} and VOS for CF_{VERB}. The participants attached the accusative clitic to the focused verb, indicated as '$Pro_{DO}V$' as in *Lo llama.* 'She calls him'. Speakers occasionally used the option of a verb followed by the deaccented direct object (DO) noun phrase (NP), indicated as 'VO' as in *Llama al niño.* 'She calls the child/boy'. The use of the full-length sentence in canonical order, SVO, was also ranked highly along with the other two choices.

The descriptive table in Table 3.3 below provides the mean and standard deviation for each of the six conditions.

Descriptive Statistics

	Mean	Std. Deviation	N
NF.SVO	4.08	1.324	26
NF.ProV	4.92	.392	26
NF.VO	3.81	1.524	26
CF.SVO	4.50	1.140	26
CF.ProV	3.96	1.341	26
CF.VO	4.38	1.061	26

Table 3.3. Descriptive Table for the ranking task on Verb Focus (F_{VERB})

This table shows the overall mean rank values for each experimental design. It seems that the overall distribution of the rank values for three top-rated construction types differed in the two types of *focus*. In the case of *Non-contrastive Focus* (NF_{VERB}), the maximally reduced option, $Pro_{DO}V$, was the most preferred among the top three options with the highest mean rank value (4.92 out of 5), followed by the full-length utterance in

canonical word order, the SVO option (4.08 out of 5). The lowest ranked construction was the VO option (3.81 out of 5). As for the case of *Contrastive Focus* (CF_{VERB}), the most preferred option among the three was the SVO option with the highest mean rank value (4.50 out of 5), followed by the VO option (4.38). The least preferred one was the $Pro_{DO}V$ option (3.96 out of 5), although its mean rank value was relatively quite high. As for the fluctuation among individual rank values, the $Pro_{DO}V$ options containing NF_{VERB} showed the smallest variation among all six experimental conditions with the smallest the standard deviation value of 0.392. Meanwhile, all other five experimental conditions showed a similar degree of fluctuation among the individual rank values within the group of each condition. These results can easily be confirmed by the graphic representation of the raw distributions of rank values presented in Figure 3.6 below.

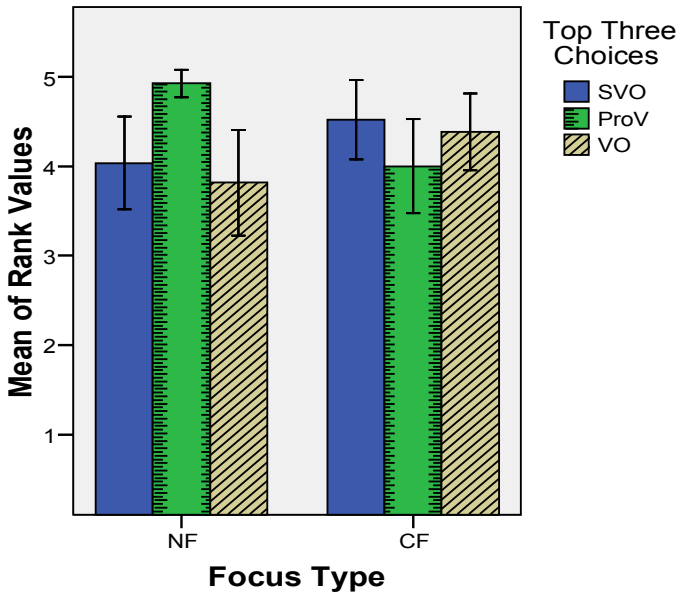


Figure 3.6 Descriptive Graph for the ranking task on Verb Focus (F_{VERB})

3.1.3. Object Focus (F_{OBJECT})

This section discusses how each participant ranked several possible constructions when *focus* falls on the direct object, while the rest of the sentence is presupposed. Object Focus (F_{OBJECT}) can be found as in utterances prompted by questions *¿A quién llama la*

madre? 'Who(m) is the mother calling?' or *La madre llama a la niña, ¿verdad?* 'The mother is calling the little girl, right?' based on the corresponding discourse context given in Figure 3.7.

(EL GUIÓN DEL DIÁLOGO)

ABUELA :Oye, cielo… Me he perdido la parte inicial. **¿**Ahora, **a quién llama la madre?**

BEA : ➔_____

ABUELA : Ah.. **La madre llama a la niña.** ¿Por qué será?

BEA : No, abuela. **¡_____!** ¿No llevas los aparatos auditivos toadavía?

ABUELA : Sí, sí, ahora me los pongo.

(THE SCRIPT OF THE CONVERSATION)

GRANDMA :Listen, Sweetie… I missed the beginning. Now, **who(m) is the mother calling?**

BEA :➔_____

GRANDMA : I see. **The mother is calling the girl.** I wonder why.

BEA : No, granny. **¡_____!** Aren't you wearing a hearing aid?

GRANDMA : No, no. But, now I'm putting it on.

Figure 3.7. Sample script of conversation eliciting Object Focus (F_{OBJECT})

The list of possible responses given to the participants for the script in Figure 3.7 is seen in Figure 3.8 below.

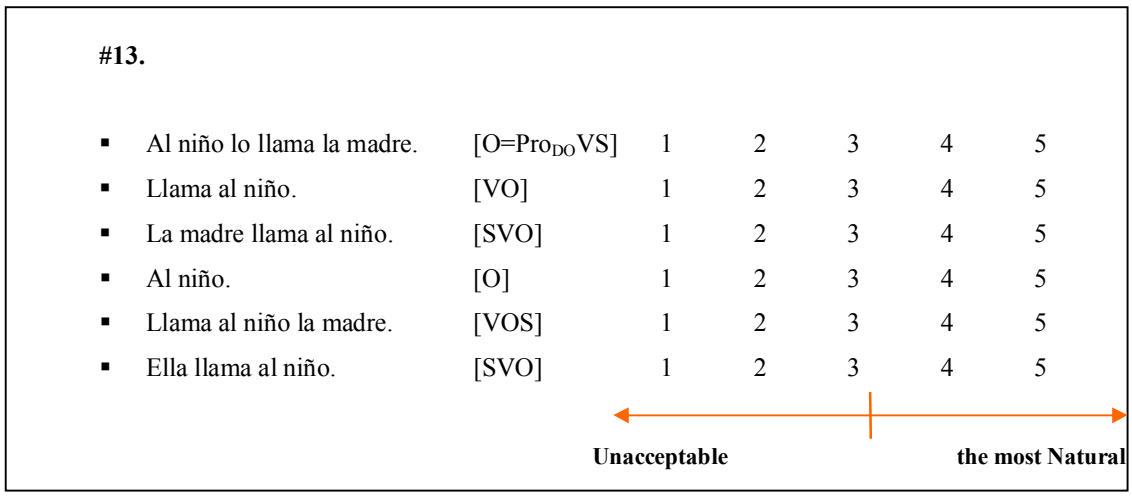


Figure 3.8. List of feasible utterances containing Object Focus (F_{OBJECT}) for the script in Figure 3.7

In the case of Object Focus (F_{OBJECT}), three highly ranked options were the maximally reduced utterance (the O option) as in *(Al) niño.* 'The child/boy.', the full-length utterance in canonical word order (the SVO option) as in *La madre llama al niño.* 'The mother calls / is calling / is going to call the child/boy', and the partially reduced utterance (the VO option) as in *Llama al niño.* 'She calls / is calling the child/boy'. In this last option (VO), the sentential "deaccented" verb containing the old or known information stood next to the focused object.

The result from the ranking task in the case of Object Focus (F_{OBJECT}) is shown in Appendix. It shows that for both types of Object Focus (F_{OBJECT}), three top-rated options are SVO for NF_{OBJECT}, O for NF_{OBJECT}, VO for NF_{OBJECT}, SVO for CF_{OBJECT}, O for CF_{OBJECT} and VO for CF_{OBJECT}, all of which were produced by a single speaker in a single script.

The descriptive table in Table 3.4 below provides the mean and standard deviation for each of the six conditions.

Descriptive Statistics

	Mean	Std. Deviation	N
NF.SVO	4.22	1.121	27
NF.O	4.96	.192	27
NF.VO	4.74	.712	27
CF.SVO	4.56	.751	27
CF.O	4.48	.975	27
CF.VO	4.78	.424	27

Table 3.4. Descriptive Table for the ranking task on Object Focus (F_{OBJECT})

This table shows the overall mean rank values for each experimental design. As in the case of Verb Focus, the overall distribution of the rank values for three top-rated constructions differed in the two types of *focus*. In the case of *Non-contrastive Focus* (NF_{OBJECT}), the maximally reduced option, O, was most preferred among the top three options with the highest mean rank value (4.96 out of 5) followed by the partially fragmented VO option (4.74 out of 5). The lowest among the three options was the SVO option with the lowest mean rank value (4.22 out of 5). As for the case of *Contrastive Focus* (CF_{OBJECT}), the most preferred option was the VO option with the mean rank value (4.78 out of 5), followed by the VO option (4.56) and the O option (4.48). Note, however, that the differences among the three options were quite small. As for the fluctuation among individual rank values, the O option containing NF_{OBJECT} showed the smallest fluctuation with the standard deviation value of 0.192, whereas the SVO option for NF_{OBJECT} showed the biggest fluctuation with the standard deviation of 1.121). These results can be easily confirmed by the graphic representation of the raw distributions of rank values presented in Figure 3.9 below.

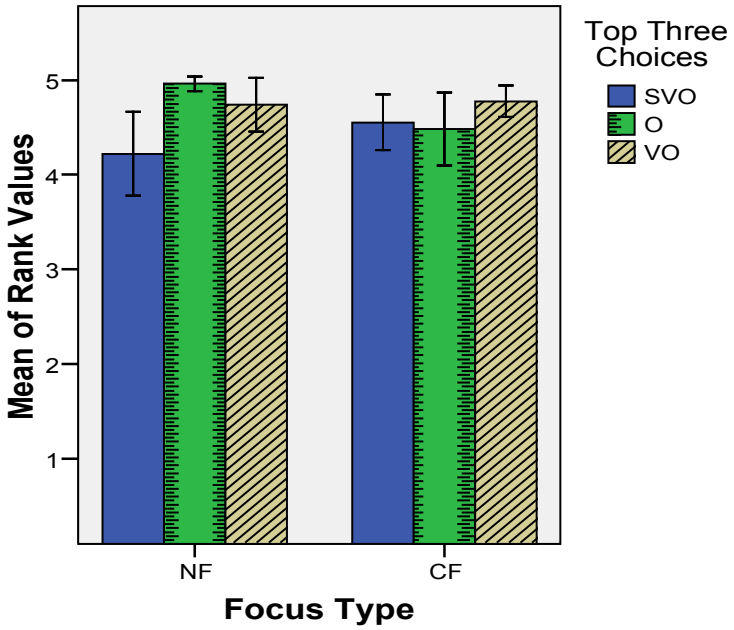


Figure 3.9. Descriptive Graph for the ranking task on Object Focus (F_{OBJECT})

3.1.4. PREDICATE FOCUS ($F_{PREDICATE}$)

This section discusses how each participant would rank several possible constructions when *focus* falls on the entire predicate phrase composed of a transitive verb and a direct object while the rest of the sentence, which is a sentential subject in this case, is presupposed. Predicate Focus ($F_{PREDICATE}$) can be found as in utterances prompted by questions *¿Qué hace la madre?* 'What is the mother doing?' or *La madre lleva el vino, ¿verdad?* 'The mother is carrying the wine, isn't she?' based on the corresponding discourse context given in Figure 3.10.

(EL GUIÓN DEL DIÁLOGO)

BEA : Mira, abuela, ahora se pone un avance del próximo episodio de la telenovela diaria.

ABUELA : Casi no veo nada sin gafas, niña. Sólo oigo la voz de la marde, la protagonista. **¿Qué hace ella? Ayúdame un poco.**

BEA :➔_____

ABUELA : Ajá.. **La madre lleva el vino.** Umm. Nada especial, ¿eh?

BEA : No, abuela. ¡_____**!** No aguanto más, me voy, por fin.

ABUELA : Sí, sí, ahora me los pongo.

(THE SCRIPT OF THE CONVERSATION)

BEA : Listen, grandma, now they are showing a preview of the next episode of the soap opera.

GRANDMA : Hardly can see it without glasses, dear. I only hear the voice of the mother, the main actress. **What is she doing?**

BEA :➔_____

GRANDMA : I see. **The mother is brining wine.** Hmm. Nothing special, right?

BEA : No, granny. _____**!** I can't stand any more, I've got to go, finally.

GRANDMA : Yeah, yeah, now I'm putting them on.

Figure 3.10. Sample script of conversation eliciting Predicate Focus ($F_{PREDICATE}$)

The list of possible responses given to the participants for the script in Figure 3.10 is seen in Figure 3.11.

#19.

▪ Llama al niño, la madre.	[VO,S]	1	2	3	4	5
▪ La madre lo llama.	[SPro$_{DO}$V]	1	2	3	4	5
▪ La madre llama al niño.	[SVO]	1	2	3	4	5
▪ Llama al niño.	[VO]	1	2	3	4	5
▪ Al niño lo llama, la madre.	[O=Pro$_{DO}$V,S]	1	2	3	4	5
▪ Ella llama al niño.	[Pro$_{SUBJ}$VO]	1	2	3	4	5

Unacceptable **the most Natural**

Figure 3.11. List of feasible utterances containing Predicate Focus ($F_{PREDICATE}$) for the script in Figure 3.10

In the case of Predicate Focus ($F_{PREDICATE}$), three highly ranked options were the fragmented utterance containing *focus* alone represented by the VO option as in *Llama al niño.* 'She calls / is calling the child/boy', the full-length utterance in canonical word order represented by the SVO as in *La madre llama al niño* 'The mother is calling the child/boy.', and the full-length utterance in an inverted word order, represented as VO,S, as in *Llama al niño, la madre.* 'She calls / is calling the child/boy, the mother'. Speakers use this construction to send their interlocutors a signal that the highly salient noun phrase referent in a given discourse context needs to be fully recognized as an active topic in the upcoming discourse context (Lambrecht 1994: 203). Note that in such case the fact that the predicate phrase remains in a scope of *focus* is unchanged.

The result from the ranking task in the case of Predicate Focus ($F_{PREDICATE}$) is shown in Appendix. It shows that for both types of Predicate Focus ($F_{PREDICATE}$), three top-rated options are SVO for $NF_{PREDICATE}$, VO for $NF_{PREDICATE}$, VO,S for $NF_{PREDICATE}$, SVO for $CF_{PREDICATE}$, VO for $CF_{PREDICATE}$ and VO,S option for $CF_{PREDICATE}$, all of which were produced by a single speaker in a single script.

The descriptive table in Table 3.5 provides the mean and standard deviation for each of the six conditions.

Descriptive Statistics

	Mean	Std. Deviation	N
NF.SVO	4.33	1.074	27
NF.VO	4.89	.424	27
NF.VOS	1.85	1.199	27
CF.SVO	4.67	.620	27
CF.VO	4.59	.797	27
CF.VOS	1.67	1.109	27

Table 3.5. Descriptive Table for the ranking task on Predicate Focus ($F_{PREDICATE}$)

From this table, we can see that the fluctuations among individual rank values were greater among the six experimental conditions when both the VO,S option for $NF_{PREDICATE}$ and for $CF_{PREDICATE}$ and the SVO option for $NF_{PREDICATE}$ were rated by the

participants, which can be confirmed by their bigger standard deviation values (the SDs of VO,S for $NF_{PREDICATE}$ = 1.199 and for $CF_{PREDICATE}$ = 1.109 and the SD of SVO for $NF_{PREDICATE}$ =1.074). Meanwhile, the standard deviation for the VO option was the smallest (0.424). As regards to the mean rank values, Table 3.17 shows the overall mean rank values for each experimental design. The mean rank values for all SVO options and for all VO options were ranked much higher than the other option, VO,S, both by exceeding 4 out of 5 across the two types of *focus*. The Mean of the SVO option for $NF_{PREDICATE}$ was 4.33, which was slightly lower than the Mean of the VO option for $NF_{PREDICATE}$ (4.89), whereas the Mean of the SVO option for $CF_{PREDICATE}$ (4.67) was slightly higher than the Mean of the VO option for $CF_{PREDICATE}$ (4.59). Finally, the Mean values for both VO,S options were considerably low, i.e., 1.85 in the VOS option for NF $_{PREDICATE}$ and 1.67 in the VO,S option for CF $_{PREDICATE.}$ Figure 3.12 is a graphic representation of the descriptive statistics shown in Table 3.5.

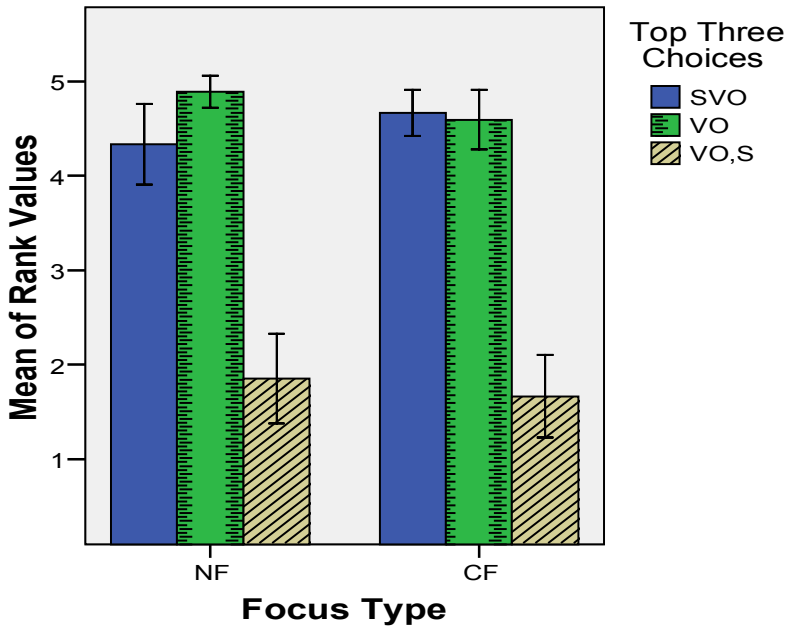


Figure 3.12. Descriptive Graph for the ranking task on Predicate Focus ($F_{PREDICATE}$)

3.1.5. Broad Focus (F_{BROAD})

This section discusses about how each participant ranked several possible constructions when *focus* falls on the entire sentence. Broad Focus (F_{BROAD}) can be found as in utterances prompted by questions *¿Qué pasa?* 'What is happening?' or *El padre mira el vino, ¿verdad?* 'The father is watching the wine, right?' based on the corresponding discourse context given in Figure 3.13.

(EL GUIÓN DEL DIÁLOGO)

BEA : Mira, abuela, es otra telenovela. Creo que es la nueva, que acaba de empezar esta semana.

ABUELA :Casi no veo nada sin gafas, niña. **¿Qué pasa?** Explícame un poco, mientras busco las gafas. (¿A propósito, dónde las dejé la última vez?)

BEA : Well.. I'm not familiar with the story either. But, I'll try.

➔_____

ABUELA : **¿El padre mira el vino?**

BEA : ¡Huy… abuela! ¿De qué narices estás hablando?➔**¡_____!**

ABUELA : **¡Qué maleducada! ¿Valió ya! ¡Se acabó la tele por hoy! ¡Vete!**

BEA : **¡Noooo… abuela! Déjame ver sólo esta, por fa! Me portaré bien. Te lo juro.**

(THE SCRIPT OF THE CONVERSATION)

BEA : Look, grandma, another soap opera is on. I think it's the new one that has just started this week.

GRANDMA : Listen, Sweetie… What does TV Guide say? **What is the mother going to do to the child (in Tomorrow's episode)?**

BEA : **Bueno.. No entiendo muy bien la historia tampoco. Pero, Bueno, lo intentaré. ➔_____**

GRANDMA : **The father is looking at (the) wine (bottle)?**

BEA : Shit… granny! What the heck are you talking about?➔

_____!

GRANDMA : How rude! Enough! You're done with TV for today! Go away!

BEA : Nooooo… grandma! Let me watch just this one, please! I'll behave myself. I swear.

Figure 3.13. Sample script of conversation eliciting Broad Focus (F_{BROAD})

The list of possible options given to the participants for the script in Figure 3.13 is seen in Figure 3.14 below.

#17.

▪ Al niño lo llama la madre.	[O=Pro_{DO}VS]	1	2	3	4	5
▪ La madreal niño llama.	[SOV]	1	2	3	4	5
▪ La madre llama al niño.	[SVO]	1	2	3	4	5
▪ Llama al niño la madre.	[VOS]	1	2	3	4	5
▪ Llama la madre al niño.	[VSO]	1	2	3	4	5
▪ Al niño la madre lo llama.	[OSPro$_{DO}$V]	1	2	3	4	5

Unacceptable **the most Natural**

Figure 3.14. List of feasible utterances containing Broad Focus (F_{BROAD}) for the script in Figure 3.13

In the case of Broad Focus (F_{BROAD}), all construction types presented were complete sentences and varied only in word order. Three top ranked options were SVO as in *La madre llama al niño*, the VOS as in *Llama al niño la madre* and the VSO option as in *Llama la madre al niño*. In fact, the latter two options have been proposed to be basic word order by Ordoñez (1999) and by Treviño (1998), respectively.

The result from the ranking task in the case of Verb Focus (F_{VERB}) is shown in Appendix. It shows that for both types of Verb Focus (F_{VERB}), three top-rated options are SVO for NF_{BROAD}, VOS for NF_{BROAD}, VSO for NF_{BROAD}, SVO for CF_{BROAD}, VOS option

for CF_{BROAD} and VSO option for CF_{BROAD}, all of which were produced by a single speaker in a single script.

The descriptive table in Table 3.6 below provides the mean and standard deviation for each of the six conditions.

Descriptive Statistics

	Mean	Std. Deviation	N
NF.SVO	5.00	.000	27
NF.VOS	1.52	1.051	27
NF.VSO	1.59	1.217	27
CF.SVO	5.00	.000	27
CF.VOS	1.89	1.450	27
CF.VSO	1.26	.712	27

Table 3.6. Descriptive Table for the ranking task on Broad Focus (F_{BROAD})

In Table 3.6 we can see that the fluctuations among individual rank values were zero for the SVO for both NF_{BROAD} and CF_{BROAD} among the six experimental conditions, indicating that nearly every SVO was given consistently the same rank value without any deviation. While all other options showed larger standard deviations, the VSO option containing CF_{BROAD} showed the least fluctuation among the remaining four conditions. Note that the SD of the VOS option for NF_{BROAD} (1.051), of the VSO option for NF_{BROAD}, of the VOS option for CF_{BROAD}, and of the VSO option for CF_{BROAD} is 1.051, 1.217, 1.450 and 0.712, respectively. Figure 3.15 below is a graphic representation of the descriptive statistics shown in Table 3.7 above.

Both Table 3.6 and Figure 3.19 show the overall mean rank values for each experimental design. The mean rank values for both SVO options were the highest scores possible, '5's in a scale of 1 to 5, and much higher than the other two options, VOS and VSO, across types of *focus*. Between the other two relatively low-ranked groups, the Mean of the VOS option for NF_{BROAD} (1.52) was slightly lower than the Mean of the VSO option for NF_{BROAD} (1.59), whereas the Mean of the VOS option for $CF_{PREDICATE}$ (1.89) was slightly higher than the Mean of the VSO option with 1.26.

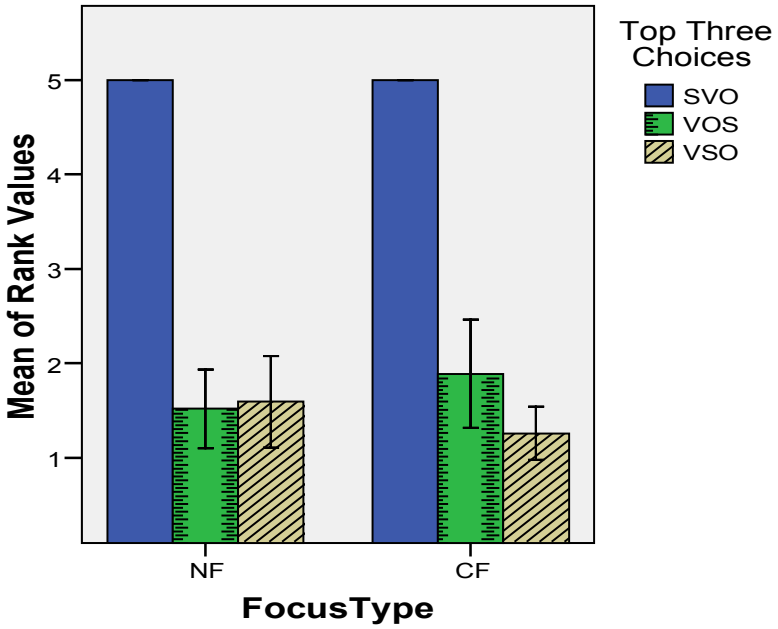


Figure 3.19. Descriptive Graph for the ranking task on Broad Focus (F_{BROAD})

3.1.6. SUMMARY

In this section, we examined the descriptive statistics when *focus* falls on different sentential elements. The followings are the graphs of the descriptive statistics for each *focus* scope.

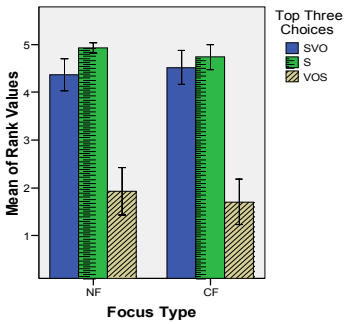


Figure 3.3. Subject Focus ($F_{SUBJECT}$)

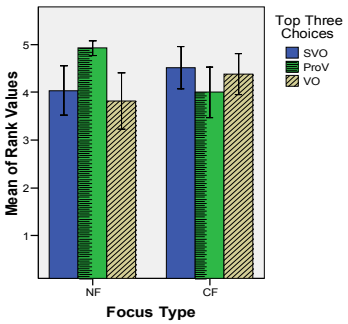


Figure 3.6. Verb Focus (F_{VERB})

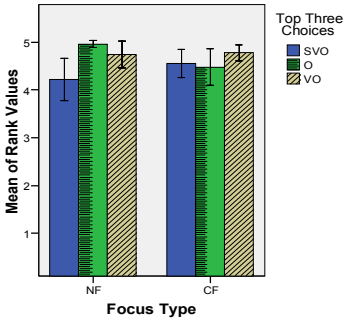


Figure 3.9. Object Focus (F_{OBJECT})

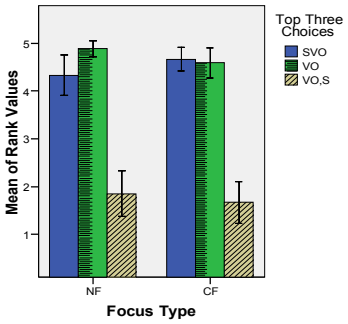


Figure 3.12. Predicate Focus ($F_{PREDICATE}$)

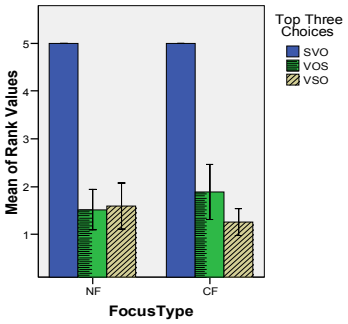


Figure 3.19. Broad Focus (F_{BROAD})

In the case of the sentential subject ($F_{SUBJECT}$), the top three construction types judged by the participants were the SVO, the S and the VOS option. The descriptive data show that the S options were most highly ranked among the three top-rated syntactic options, the VOP options the lowest, and the SVO option in-between for the both types of *focus*. Also, it was noticeable that the standard deviations for the VOS options were the largest among the top three options equally for both types of *focus*. This suggests that the individual rank values for the VOS options varied hugely among participants as well as among scenarios, whereas the other two options were consistently high-rated across participants as well as scenarios.

Meanwhile, when *focus* falls on the sentential verb alone (F_{VERB}), the top three construction types judged by the participants were the SVO, the $Pro_{DO}V$ and the VO. All three options were highly rated by easily exceeding 4 in the scale of 1 to 5.The descriptive data show that the overall patterns of the raw rank values among the top three choices differed in the two types of *focus*. In the case of *Non-contrastive Focus* (NF_{VERB}), the S option was ranked highest, the SVO option next highest, and the VO option the lowest. Meanwhile, in the case of *Contrastive Focus* (CF_{VERB}), both the SVO option and the VO option were equally preferred with a slight preference on the former option and the VO option was ranked lowest among the three. It was worth mentioning that the $Pro_{DO}V$ option under the *Non-contrastive Focus* (NF_{VERB}) showed the smallest range of the standard deviation among all six experimental conditions.

With regard to the case of Object Focus (F_{OBJECT}), the top three construction types judged by the participants were the SVO, the O and the VO. All three options were highly rated by easily exceeding 4 in the scale of 1 to 5.The descriptive data show that the overall patterns of the raw rank values among the three construction types differed in the two types of *focus*. In the case of *Non-contrastive Focus* (NF_{OBJECT}), the O option was ranked highest, the VO option next highest, and the SVO option the lowest. In the case of *Contrastive Focus* (CF_{OBJECT}), on the other hand, the VO option took the lead although the differences in mean rank values among the three options were minor. As for the

standard deviations of the mean rank values, the O option for the *Non-contrastive Focus* showed the smallest range of the standard deviation among all six experimental conditions, whereas the SVO option showed the largest range.

In the case of Predicate Focus ($F_{PREDICATE}$), in other words, when *focus* falls on the entre predicate phrase, the top three construction types selected by the participants were SVO, VO and VO,S. The descriptive data show that the overall patterns of the raw rank values among the three construction types differed somewhat for the two types of *focus*. In the case of *Non-contrastive Focus* ($NF_{PREDICATE}$), the VO option was ranked highest, the SVO option next highest, whereas in the case of *Contrastive Focus* ($CF_{PREDICATE}$), the SVO option took the lead and the VO option was followed. The right-dislocated option VO,S was the least preferred among the three choices for both types of *focus*. As for the standard deviations of the mean rank values, the VO option under *Non-contrastive Focus* ($NF_{PREDICATE}$) showed the smallest range of the standard deviation among all six experimental conditions, whereas the VOS option for both $NF_{PREDICATE}$ and $CF_{PREDICATE}$ and the SVO option containing *Non-contrastive Focus* ($NF_{PREDICATE}$) showed the largest range.

Finally, when *focus* falls on the entire sentence (F_{BROAD}). The top three construction types selected by the participants were SVO, VOS and VSO. The descriptive data show that the SVO option was predominantly high-ranked among the three construction types for both types of *focus*. In nearly all cases, the SVO options received the highest score possible (5). Meanwhile, the other two options were rated considerably low compared to the SVO option. The standard deviations for both the VOS option and the VSO option were larger across the types of *focus*.

3.2. Statistical Analysis: Two-Way Repeated-Measures Design

The descriptive patterns observed in the previous section are helpful to grasp the overall tendency of the data. Nevertheless, they overlook an important fact about the data collection in the study: the rank values should be understood and compared among those evaluated by the same speaker. Instead, the descriptive statistics merely calculates the overall average of the sum of the individual rank values for a particular construction type. Such an analysis may not be the accurate reflection of the data in that each person has a different mindset and therefore a different scale of judgment. For example, some people prefer to give definite or extreme answers to the naturalness of the given construction type and others tend to have a less decisive character. Both Descriptive Tables shown in Tables 3.2-3.6 and their graphic representations shown in Figures 3.3, 3.6, 3.9., 3.12, and 3.15, however, do not seem to reflect such diversity accurately. Some speakers spread all five rank values (1 to 5) out all around whereas others strictly used either 1 or 5. In addition, for some reason, the same participants revealed different rank values as they judged the utterances that had exactly the same construction types under the exactly same *focus* type but appeared under different scenarios. Therefore it is important to control for individual differences in rank scale and this can be achieved by testing the same people in all conditions of the experiment. This was exactly what was done in the current study.

In order to see whether the overall patterns looked significantly different depending on the *focus* type ($NF_{SUBJECT}$ and $CF_{SUBJECT}$) or not, for instance, a factorial repeated-measures ANOVA test was carried out using SPSS, of which the result is shown in Table 3.7 below.

Tests of Within-Subjects Effects

Measure:
MEASURE_1

Source		Type III Sum of Squares (SS)	Df	Mean Square (MS)	*F* : MS_F/MS	Sig.
Ftype	Sphericity Assumed[49]	($SS_{F.Type}$) 0.302	1	($MS_{F.Type}$) 302	**0.747**	**0.395**
Error(FType)	Sphericity Assumed	($SS_{Error(F.Type)}$) 10.531	26	($MS_{Error(F.Type)}$) 405		
Choice	Sphericity Assumed	(SS_{Choice}) 291.198	2	(MS_{Choice}) 149.599	**116.834**	**0.000**
Error(Choice)	Sphericity Assumed	($SS_{Error(Choice)}$) 64.802	52	($MS_{Error(Choice)}$) 1.246		
FType * Choice	Sphericity Assumed	(SS_{FTxC}) 1.123	2	(MS_{FTxC}) .562	**2.157**	**0.126**
Error(FType*Choice)	Sphericity Assumed	($SS_{Error(FTxC)}$) 13.543	52	($MS_{Error(FTxC)}$) .260		
Total		(SSw) 424.18	161			

Table 3.7. Results of the Factorial Repeated-Measures ANOVA of Top Three Choices with Subject Focus ($F_{SUBJECT}$) across the two *focus* types[50]

[49] As mentioned in the footnote #39 in Section 2.2.5.2.3, 'Sphericity Condition' is one of the assumptions that should be considered at the time of conducting any standard repeated measures ANOVA. What it stands for is that when the variance of the differences of rank values for any pair of groups under a particular factor, it is the same as for any other pair. If this condition is met, we can continue and run the statistical test without problem. Such a case will be notified in the present study with a phrase of "Sphericity Assumed" in the first column of each table. In case this condition is not met, the SPSS program suggests four different correcting methods, each of which adjusts the degree of freedom (*df*) but keeps the *F*-ratio the same. In this study we chose to consult a "conservative" solution, called the "Greenhouse-Geisser correction" when the sphericity condition was not met (Field 2009: 476).

[50] (Kutner *et al.* 2005: 1156) Note that there are various Sums of Squares (SS)s in the current study depending on the factor and the group you are looking into.

$SS_{F.Type}$ and SS_{Choice} : Conceptually it is the sum of the variability due to all factor pairs.

$SS_{F.Type} = sb \sum j (G'_{FT} j - X'grand)^2$,
where *s* refers to the number of participants or subjects, *b* refers to the number of groups under the other factor, namely, the 'Choice' factor in the current study, G'_{FT} refers to the mean of rank values of each group under the factor of interest, that is, 'Focus Type' in the current study, and *X'grand* refers to the grand mean, namely, the overall mean for all individual rank values.

$SS_{Error(F.Type)}$ and $SS_{Error(F.Type)}$: It refers to residual variability, that is, unexplained variance by the theoretical expectation.

$SS_{Choice} = sa \sum k (G'_C k - X'grand)^2$, where *a* refers to the number of groups under the other factor, namely, the 'Focus Type' factor, and G'_C refers to the mean of rank values of each group under the factor of interest, that is, 'Choice'.

Statistically speaking, there are two independent factors at issue: the type of *focus* ($NF_{SUBJECT}$ or $CF_{SUBJECT}$) and the construction type (SVO, S or VOS). These two factors combined produce six experimental conditions: a) SVO option for $NF_{SUBJECT}$, b) S option for $NF_{SUBJECT}$, c) VOS option for $NF_{SUBJECT}$, d) SVO option for $CF_{SUBJECT}$, e) S option for $CF_{SUBJECT}$, and f) VOS option for $CF_{SUBJECT}$. We need to see if the participants valued utterances containing one *focus* type consistently better (or worse) than ones containing the other *focus* type regardless of the construction type. In addition, we need to check if there was an interaction between the two factors - the *focus* type and the construction type-: if there were no interaction between the two factors, a certain construction type, say, the S option for example would appear equally the most highly ranked among the three under one type of *focus* as well as under the other *focus* type. If there were indeed an interaction between the two factors, the construction type that was ranked the highest among the three options under one type of *focus* could appear constantly less preferred to the other option(s) under the other type of *focus*.

The main effect of the *focus* type would determine whether or not an individual participant provided the rank values for one of the two *foci* in a consistently different

---

$SS_{F.Type\ X\ Choice} = s \sum j \sum k\ (C'jk - G'_{FT}\ j - G'_{C}\ k - X'grand)^2$ where *C'jk* refers to the mean of rank values of each of six experimental conditions, depending on both individual factors : the S option for $NF_{SUBJECT}$, the SVO option for $NF_{SUBJECT}$, the VOS option for $NF_{SUBJECT}$, the S option for $CF_{SUBJECT}$, the SVO option for $CF_{SUBJECT}$, and the VOS option for $CF_{SUBJECT}$.

$SS_{Error(F.Type)} = b \sum i \sum j\ (C'ij - S'i - G'_{FT}\ j - X'grand)^2$ where *C'ij* refers to the mean of rank values of each condition under the factor of interest, namely, 'Focus Type' according to each speaker and S'i refers to the mean of rank values of each speaker for all six experimental conditions.

$SS_{Error(Choice)} = a \sum i \sum k\ (C'ik - S'i - G'_{C}\ k - X'grand)^2$ where *C'ik* refers to the mean of rank values of each condition under the factor of interest, namely, 'Choice' according to each speaker.

$SS_{Error(F.Type\ X\ Choice)} = \sum i \sum j \sum k\ (Y - C'jk - C'ij - C'ik + G'_{FT}\ j + G'_{C}\ k + S'i - X'grand)^2$ where Y refers to the actual raw rank value for each case.

SS_W : Conceptually it reflects the participants' score variation about their own individual means. This is broken down into various individual factors and the error variances.

$SS_W = SS_{F.Type} + SS_{Choice} + SS_{F.Type\ X\ Choice} + SS_{Error(F.Type)} + SS_{Error(Choice)} + SS_{Error(F.Type\ X\ Choice)}$

manner for the other type of *focus* regardless of the top-three rated construction types. For example, it compares the average rank value for the S, the SVO and the VOS for $NF_{SUBJECT}$ and those for $CF_{SUBJECT}$, produced by the same speaker as to the same scenario.

A small P-value for this main effect would indicate that there was indeed an overall significant difference in rank values for *Non-contrastive Focus* and for *Contrastive Focus*. Another main effect of the *construction* type would determine whether or not overall, an individual participant provided the rank values, regardless of the *focus* types, for one of the top-three construction types consistently differently for either of the other two construction types. We will ignore this main effect, because the comparison among construction types without taking *focus* type into consideration does not concern our interest.

The interaction of the two factors would represent the results of making individual construction type-by-type comparisons of one *focus* type and of the other type. For example, it compares the rank value for the S option for $NF_{SUBJECT}$ and the S option for $CF_{SUBJECT}$, produced by the same speaker as to the same scenario. A small P-value for the interaction of the two factors would indicate that there was indeed an overall significant difference between individual construction types for one *focus* type and those for the other *focus* type.

3.2.1. Subject Focus ($F_{SUBJECT}$)

Now let us take a close look at the F-ratios and their corresponding P-values shown at the two rightmost columns in Table 3.3 once more. (For the sake of convenience, Table 3.3 was copied below on next page.)

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares (SS)	Df	Mean Square (MS)	F . MS_M / MS_E	Sig.
Ftype	Sphericity Assumed	($SS_{F.Type}$) 0.302	1	($MS_{F.Type}$) 302	**0.747**	**0.395**
Error(FType)	Sphericity Assumed	($SS_{Error(F.Type)}$) 10.531	26	($MS_{Error(F.Type)}$) .405		
Choice	Sphericity Assumed	(SS_{Choice}) 291.198	2	(MS_{Choice}) 149.599	**116.834**	**0.000**
Error(Choice)	Sphericity Assumed	($SS_{Error(Choice)}$) 64.802	52	($MS_{Error(Choice)}$) 1.246		
FType * Choice	Sphericity Assumed	(SS_{FTxC}) 1.123	2	(MS_{FTxC}) .562	**2.157**	**0.126**
Error(FType*Choice)	Sphericity Assumed	($SS_{Error(FTxC)}$) 13.543	52	($MS_{Error(FTxC)}$) .260		
Total		(SSw) 424.18	161			

Table 3.3.[51]Results of the Factorial Repeated-Measures ANOVA of Top Three Choices with Subject Focus ($F_{SUBJECT}$) across the two *focus* types

First, let us take a close look at the statistical significance of *focus* type. In Table 3.3, the F-ratio, F (1,26) = 0.747<1 and its corresponding large P-value (.395) for the factor of *focus* type shows that the *focus* type did not have a significant influence on participants'

[51] To fully understand the output in Table 3.3, we need to expand the account for the factorial repeated-measures ANOVA model offered in Section 2.2.5.1.3. In Table 3.3 the first column, titled as "Sum of Squares" indicates the sum of the differences between the means of the rank values for each group under a given factor and the overall mean of all individual values under the factor *within* the same participants (SS). The next column, titled as "degree of freedom" (*df*) refers to the number of the "entities that are free to vary when estimating some kind of statistical parameter"(Field 2009:784), roughly speaking, being the number of groups under a given factor or individuals under the given factor minus one. The third-to-last column from the left named "Mean Square" (MS) refers to the weighted value of the total Sum of Squares (SS) by its corresponding degree of freedom (*df*). Recall that the *F*-value is the ratio of the variation explained by the model (MS_M) and the variation that is not explained by the model (MS_E), as mentioned in Section 2.2.5.3.3. If you take a closer look at the table, each row in the odd number shows the variation explained by the model (MS_M), resulting from the value in the first column (SS_M) divided by the value in the second column (df_M) in the same row. On the other hand, each row in the even number shows the variation of error (MS_E) that reflects the differences in the individual rank values to the various experimental. As a result, the *F*-value, the ratio of MS_M to MS_E, appears in every other row. As explained in the earlier section 2.2.5.3.3, if the *F*-value is smaller than 1, it suggests that none of the groups under the given factor revealed conspicuous patterns compared to other groups under the same factor and therefore leads to the conclusion that the given factor does not have a significant effect. On the contrary, if the *F*-value is bigger than 1, it indicates that some or all of the groups under the given factor revealed noticeable patterns consistently and therefore leads to the conclusion that the given factor has a significant effect. As mentioned earlier, bigger *F*-values generally go with smaller P-values, which are shown in the leftmost column in Table 3.3.

ratings of the given type of construction type. In other words, there was no significant overall difference in rank values between the two types of *focus* [$NF_{SUBJECT} \approx CF_{SUBJECT}$].

Another finding from the ranking data on Subject Focus ($F_{SUBJECT}$) is that there was no significant interaction between the two factors, i.e., the *focus* type and the construction type (*P-value*=.126) as shown in Table 3.3 above. This tells us that the type of *focus* did not have a different effect according to construction type and vice versa. The overview of all the interactions can be better understood in Figure 3.4 below.

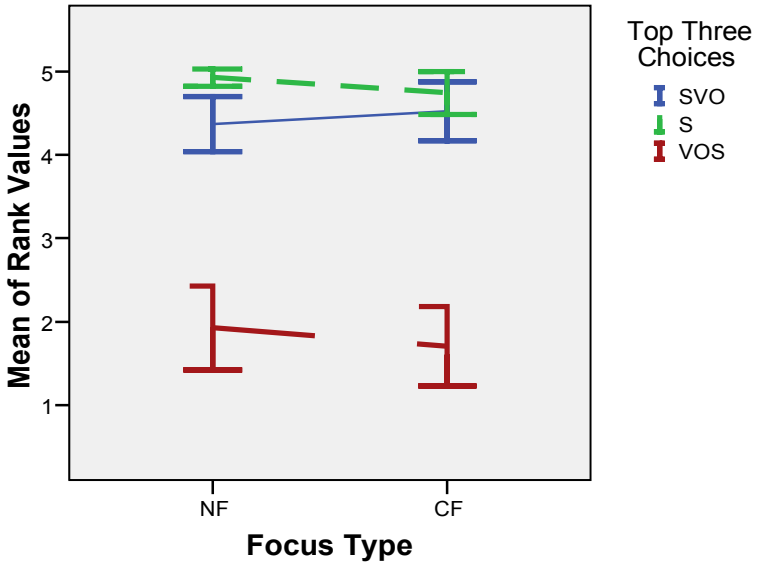


Figure 3.4. Graphical view of the interaction between the Choice factor and the *Focus* type factor regarding Subject Focus ($F_{SUBJECT}$)

In Figure 3.4, the solid line connects the mean rank value of the SVO option for $NF_{SUBJECT}$ and for $CF_{SUBJECT}$, and the dotted line connects the mean rank value of the S option for $NF_{SUBJECT}$ and for $CF_{SUBJECT}$. Finally, the dashed line links the mean rank value of the VOS option for $NF_{SUBJECT}$ to that for $CF_{SUBJECT}$. The slope of each line represents the degree of difference between the ranking values of $NF_{SUBJECT}$ and those for $CF_{SUBJECT}$ for a given syntactic option. The quantified interactions are found in Table 3.5.

Source	Focus Type	Choice	Type III Sum of Squares	Df	Mean Square	F	Sig.
FType * Choice	Level 1 vs. Level 2	Level 1 vs. Level 3	3.704	1	3.704	3.178	0.086
		Level 2 vs. Level 3	0.037	1	0.037	0.051	0.823
		Level 1 vs. Level 2	3.000	1	3.000	2.437	0.131
Error (FType * Choice)	Level 1 vs. Level 2	Level 1 vs. Level 3	30.296	26	1.165		
		Level 2 vs. Level 3	18.963	26	0.729		
		Level 1 vs. Level 2	32.000	26	1.231		

Table 3.5. Simple Effect Analysis (Part I) for repeated-measures factors and their interaction on Subject Focus ($F_{SUBJECT}$)

The above table shows the results of the *post hoc* tests, called 'simple effect analysis' to verify the interpretation of the interaction effect, if any. The upper part in Table 3.5, indicated with a rectangle box, shows two out of three interactions in the study. The first interaction looks at the SVO option (labeled as 'Level 1') compared to the VOS option (labeled as 'Level 3') according to the *focus* type. By a large P-value (0.086), the table suggests that this contrast was not significant. In other words, when compared the SVO options to the VOS options while taking the *focus* type into consideration, we discovered that the higher ranking values were consistently found in the SVO options than in the VOS options for both type of focus. This is indicated in Figure 3.6 by the solid line (SVO) that continues to be above the dashed line (VOS) [SVO > VOS both for $NF_{SUBJECT}$ and for $CF_{SUBJECT}$]. As for the slope of the lines, the solid line for the SVO options and the dashed line for the VOS options look parallel without any crossing between the two lines in Figure 3.4. This suggests no interaction found between the *focus* type and the construction type, when we compared the SVO options and VOS options pairwise.

The second interaction of interest deals with the S option (labeled as 'Level 2') compared to the VOS option depending on the *focus* type. Even larger P-value (0.823) suggests that the significant contrast between the S option and the VOS option was found

in neither types of *focus*. In Figure 3.4, the gaps between the dotted line (S) and the dashed line (VOS) remain huge across the *focus* type without any crossing between the two lines, indicating that the higher ranking values were consistently found in the S options than in the VOS options for both type of focus[S > VOS both for $NF_{SUBJECT}$ and for $CF_{SUBJECT}$]. As for the slope of the lines, the direction of the dotted line (S) and that of the dashed line (VOS) seemed to differ in the two types of *focus*. That is, the differences in ranking values between the two syntactic options seemed to get larger in $CF_{SUBJECT}$ than $NF_{SUBJECT}$. Nevertheless, such difference was not large enough to interfere with the overall difference between the S options and the VOS options. This result suggests no interaction found between the two factors of study, namely, the *focus* type and the construction type, when we compared the S options and VOS options pairwise.

Finally, the interaction between the S options and the SVO options is confirmed by a large P-value (0.131) in Table 3.5.This suggests that this contrast was not significant. Although the distance between the dotted line (S) and the solid line (SVO) got much closer than the distance between the dashed line (VOS) and either of the lines that represent the former two options, the higher ranking values for the S options than the SVO options was found across both types of *focus,* producing no crossing. As for the slope of the lines, the direction of the dotted line for the S options and that of the solid line for the SVO options seemed to differ in the two types of *focus*. That is, the differences in ranking values between the two syntactic options seemed to get smaller in $CF_{SUBJECT}$ than $NF_{SUBJECT}$. Nevertheless, such difference was not large enough to interfere with the overall difference between the S options and the SVO options[S ≈ SVO both for $NF_{SUBJECT}$ and for $CF_{SUBJECT}$]. This result suggests no interaction found between the *focus* type and the construction type, when we compared the S options and SVO options pairwise.

3.2.2. Verb Focus (F_{VERB})

In order to see if the overall rank value difference between the constructions composed of $Pro_{DO}V$ or VO and the complete sentence SVO is consistent throughout the collected data, a statistic test was needed. In addition, since the descriptive pattern of rank differences summarized in Table 3.7 and Figure 3.7 above did not take into consideration the variation among participants, it was necessary to run a factorial repeated-measures ANOVA test to understand our data accurately. The result table of the given statistical test is shown in Table 3.8 below.

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares (SS)	Df	Mean Square (MS)	F : MS_F/MS_E	Sig.
Ftype	Greenhouse-Geisser	($SS_{F.Type}$) .006	1	($MS_{F.Type}$) .006	**0.005**	**0.947**
Error(FType)	Greenhouse-Geisser	($SS_{Error(F.Type)}$) 35.160	25	($MS_{Error(F.Type)}$) 1.406		
Choice	Greenhouse-Geisser	(SS_{Choice}) 3.128	1.471	(MS_{Choice}) 1.271	**1.271**	**0.284**
Error(Choice)	Greenhouse-Geisser	($SS_{Error(Choice)}$) 61.538	36.769	($MS_{Error(Choice)}$) 1.674		
FType * Choice	Greenhouse-Geisser	(SS_{FTxC}) 18.667	1.917	(MS_{FTxC}) 9.735	**6.422**	**0.004**
Error (FType*Choice)	Greenhouse-Geisser	($SS_{Error(FTxC)}$) 47.936	47.982	($MS_{Error(FTxC)}$) 1.516		
Total		(SSw) 166.435				

Table 3.8. Results of the Factorial Repeated-Measures ANOVA of Top Three Choices with Verb Focus (F_{VERB}) across the two *focus* types

Table 3.8 above shows the main effects of two individual factors of study, i.e., the *focus* type and the top-rated construction type and their interaction involving Verb Focus. Note that the variations among participants or those among scenarios are not the main concerns in this study. Table 3.8 correctly reflects that the differences in rank values of study now reside *within* participants or subjects by removing the dependence on participants or on scenarios. The table is split into sections that indicate each of the effects of individual

factors *within* the same participants and the effect of their interaction, if any, *within* the same participants, and the error rates associated with these effects *within* the same participants.

First, let us take a look at one of the factors of the study, i.e., *focus* type. Table 3.8 above indicates that the *focus* type as a factor did not have a significant influence on participant's ratings of the given type of construction type (F = 0.005 and P-value = 0.947). In other words, regardless of construction types, there was no significant difference in individual rank values between the two types of *focus* [$NF_{VERB} \approx CF_{VERB}$].

Another finding from the ranking data on Verb Focus in Table 3.8 above is that there was a significant interaction between the two factors, that is, *focus* type and choice of construction type (P-value=0.004). This tells us that the type of *focus* indeed had a different effect depending on which choice of construction type it was presented alongside and vice versa. The overview of all the interactions can be better understood in Figure 3.8 below.

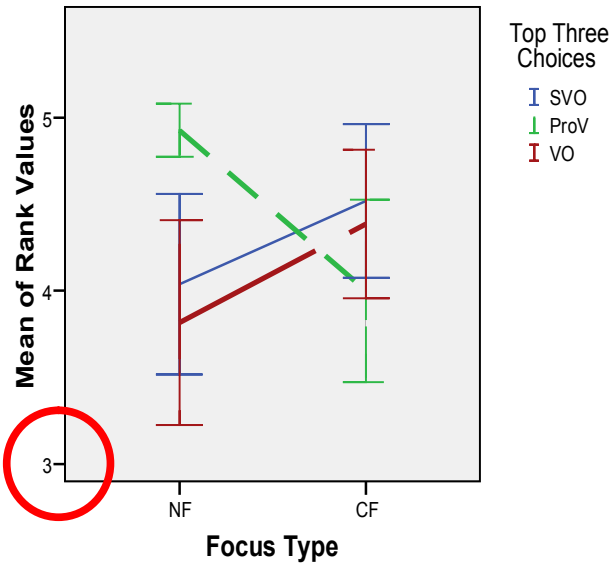


Figure 3.8. Graphical view of the interaction between the Choice factor and the *Focus* type factor regarding Verb Focus (F_{VERB})

In Figure 3.8 above, the solid line connects the mean rank value of the SVO option for NF_{VERB} and for CF_{VERB}, and the dotted line connects the mean rank value of the $Pro_{DO}V$ option for NF_{VERB} and for CF_{VERB}. Finally, the dashed line links the mean rank value of the VO option for NF_{VERB} and for CF_{VERB}. The slope of each line represents the degree of difference between the ranking values of $NF_{SUBJECT}$ and those for $CF_{SUBJECT}$ for a given syntactic option. The crossing between lines is a clear indicator that there was an interaction between the two individual factors of study, namely, the *focus* type factor and the construction type factor, although the converse is not always true. This interaction is well quantified in Table 3.10 below, which show the results of the simple effect analyses to verify the interpretation of the interaction effect.

Source	Focus Type	Choice	Type III Sum of Squares	Df	Mean Square	F	Sig.
FType * Choice	Level 1 vs. Level 2	Level 1 vs. Level 3	0.615	1	0.615	0.088	0.77
		Level 2 vs. Level 3	61.538	1	61.538	11.614	0.002
		Level 1 vs. Level 2	49.846	1	49.846	9.724	0.005
Error (FType * Choice)	Level 1 vs. Level 2	Level 1 vs. Level 3	175.385	26	7.015		
		Level 2 vs. Level 3	132.482	26	5.298		
		Level 1 vs. Level 2	128.154	26	5.126		

Table 3.10 Simple Effect Analysis (Part I) for repeated-measures factors and their interaction on Verb Focus (F_{VERB})

The upper part in Table 3.10, indicated with a rectangle box, shows three interactions in the study. The first interaction looks at the SVO option (labeled as 'Level 1') compared to the VO option (labeled as 'Level 3') depending on the *focus* type. By a large P-value (0.77), the table suggests that this contrast was not significant. In other words, when we compared the SVO options to the VO options while taking the *focus* type into consideration altogether, we discovered that the slightly higher ranking values were consistently found in the SVO options than in the VO options across the two types of

focus. In the graphical display in Figure 3.8 above, the solid line linking the solid line (SVO) options continues to be above the dashed line (VO) [SVO > VO both for NF_{VERB} and for CF_{VERB}]. As for the slope of the lines, the solid line (SVO) and the dashed line (VO) look parallel without any crossing between the two lines in Figure 3.8 above. As a result, this suggests no interaction between the *focus* type and the construction type, when we compared the SVO options and VO options pairwise.

The second interaction of interest views the $Pro_{DO}V$ option (labeled as 'Level 2') compared to the VO option (labeled as 'Level 3') according to the *focus* type. In Table 3.10 above, a small P-value (0.002) suggests that the significant contrast between the $Pro_{DO}V$ option and the VO option was found according to the *focus* type. In Figure 3.8 above, the direction of the dotted line ($Pro_{DO}V$) and that of the dashed line (VO) were completely opposite in the two types of *focus,* having the two lines intersected. Namely, in the case of *Non-contrastive Focus* (NF_{VERB}) the $Pro_{DO}V$ option was preferred to the VO option [$Pro_{DO}V$ > VO for NF_{VERB}], whereas the latter was preferred to the former in the case of *Contrastive Focus* (CF_{VERB}) [VO > $Pro_{DO}V$ for CF_{VERB}]. This result suggests a significant interaction found between the *focus* type and the construction type, when we compared the $Pro_{DO}V$ options and VO options pairwise.

The last interaction of interest, i.e., between the SVO options and the $Pro_{DO}V$ options turned out to be as follows: a small P-Value (0.005) for the contrast between the two syntactic options depending on the *focus* type as shown in Table 3.10 and the crossing between the solid line (SVO) and the dotted line ($Pro_{DO}V$) as shown in Figure 3.8. Such results suggest that there was a significant contrast between these two options depending on the *focus* type. Namely, in the case of *Non-contrastive Focus* (NF_{VERB}) the $Pro_{DO}V$ option was preferred to the SVO option [$Pro_{DO}V$ > SVO for NF_{VERB}], whereas the latter was preferred to the former in the case of *Contrastive Focus* (CF_{VERB}) [SVO > $Pro_{DO}V$ for CF_{VERB}]. Similar to the aforementioned result regarding the previous pair, this one suggests a significant interaction found between the two factors of study,

namely, the *focus* type and the construction type, when we compared the $Pro_{DO}V$ options and SVO options pairwise.

3.2.3. Object Focus (F_{OBJECT})

In order to see if the overall rank value difference between the constructions composed of O or VO and the complete sentence SVO is consistent throughout the collected data, a statistic test was needed. Furthermore, since the descriptive pattern of rank differences summarized in Table 3.12 and Figure 3.11 above did not take into consideration the variation among participants, it was necessary to run a factorial repeated-measures ANOVA test to capture the accurate understanding on our data. The result table of the given statistical test is shown in Table 3.13 below.

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares (SS)	Df	Mean Square (MS)	*F* : MS_F/MS_E	Sig.
Ftype	Greenhouse-Geisser	($SS_{F.Type}$) .056	1	($MS_{F.Type}$) .056	**0.119**	**0.733**
Error(FType)	Greenhouse-Geisser	($SS_{Error(F.Type)}$) 12.111	26	($MS_{Error(F.Type)}$) .466		
Choice	Greenhouse-Geisser	(SS_{Choice}) 4.494	1.296	(MS_{Choice}) 3.466	**3.748**	**0.051**
Error(Choice)	Greenhouse-Geisser	($SS_{Error(Choice)}$) 31.173	33.708	($MS_{Error(Choice)}$) .925		
FType * Choice	Greenhouse-Geisser	(SS_{FTxC}) 4.593	1.497	(MS_{FTxC}) 3.068	**6.731**	**0.006**
Error (FType*Choice)	Greenhouse-Geisser	($SS_{Error(FTxC)}$) 17.741	38.913	($MS_{Error(FTxC)}$) .456		
Total		(SSw) 70.168				

Table 3.13. Results of the Factorial Repeated-Measures ANOVA of Top Three Choices with Object Focus (F_{OBJECT}) across the two *focus* types

Table 3.13 above shows the main effects of two individual factors of the study, i.e., *focus* type and construction type and their interaction, involving Object Focus. Note that this

table demonstrates that the differences in rank values of study now reside *within* participants, by removing the variation due to participants or scenarios. Table 3.13 is split into sections indicating the effects of each of individual factors *within* the same participants and the effect of their interaction, if any, *within* the same participants, and the error rates associated with these effects *within* the same participants.

First, let us take a close look at one of the factors of the study, i.e. *focus* type. In Table 3.13, the first two rows indicate that the *focus* type did not have a significant influence on participant's ratings of the given type of construction ($F = 0.119$ and P-value = 0.733). In other words, regardless of construction types, there was no significant difference in individual rank values between *Non-contrastive Focus* and *Contrastive Focus* [$NF_{OBJECT} \approx CF_{OBJECT}$].

In Table 3.13 above, the two rows in the middle shows the main effect of the choice of construction types (SVO, O and VO), where the *F*-ratio (3.748) and its associated P-value (0.051) were calculated using the Greenhouse-Geisser correction[52]. Considering that the significant level threshold of the study is 0.05 by default, the P-value greater than 0.05 is considered to suggest that there is no statistical significance. Therefore, the resultant P-value for the main effect of construction type, 0.051 in Table 3.13, seems to suggest that there was only minor main effect of construction types. This

[52] Note that the P-value of the *F*-ratio for this main effect falls only slightly above a 0.05 level of significance we set at the beginning of the present study. Nevertheless, we had to conclude that the main effect turned out to be non-significant. This is an example that shows how arbitrary the decision about a level of significance is in a study (Field 2009: 477). If the level of significance were 0.1, we could assume without being agonized that the P-value of 0.051 would indicate the non-significance of the effect. On the other hand, if the level of significance were 0.01 as done in much medical research, we could assume once again without being agonized that the P-value of 0.051 would indicate the significance of the effect. The initial decisions about the level of significance lead completely opposite conclusions! A couple of ways to avoid being agonized with those tricky borderline P-values around any given level of significance are suggested in the literature. First, we can gather a large-sized sample so that we can be more confident even of the borderline P-values. Second, we can calculate and report the effect size along with the *F*-ratio and its associated P-value of a particular effect. In the current study, neither of suggestion will be taken. The purpose of this chapter is to look at the distributed patterns of the rank values among different choices rather than estimating the accurate effect sizes. Therefore, we will continue to be loyal to the level of significance we set originally (0.05).

means that the participants did not rate the three constructions in a significantly different manner, regardless of *focus* type.

In order to look at the nature of the effect of construction types in the study more closely, we ran the pairwise comparisons for this effect out using the Bonferroni adjustment. The result of this *post-hoc* test is shown in Table 3.14 below. Note that the SVO option is labeled as '1', the O as '2', and the VO as '3', respectively.

Pairwise Comparisons

Measure: MEASURE_1

(I) Choice	(J) Choice	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-.333	.196	.303	-.835	.169
	3	-.370*	.112	.008	-.657	-.084
2	1	.333	.196	.303	-.169	.835
	3	-.037	.125	1.000	-.357	.283
3	1	.370*	.112	.008	.084	.657
	2	.037	.125	1.000	-.283	.357

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Table 3.14. Pairwise comparisons for the main effect of Construction type on Object Focus (F_{OBJECT}) regardless the '*focus* type' factor

Table 3.14 above reveals that in fact the mild significance of the overall main effect of construction type shown in the previous table, Table 3.13 (*P-value* = 0.051), resulted from the combination of one very significant difference between one pair of construction types and a couple of non-significant differences from two pairs of construction types. Concretely speaking, the differences between the SVO and the O option (labeled as '1' and '2', respectively) and between the O and the VO option (labeled as '3') turned out to be non-significant as indicated by their large P-values (P=0.303 for the first pair and P=1.000 for the second pair). Meanwhile, the difference between the SVO and the VO option (labeled as '1' and' 3', respectively) was significant as indicated by its small P-

value (P=0.008). In sum, while the participants rated all three construction types quite highly rated, they consistently preferred the VO options to the SVO options [VO > SVO], regardless of *focus* type. On the other hand, when the participants compared the other pairs, i.e., the SVO and the S options [SVO ≈S] or the S and the VO options [S ≈ VO], the preference ranks between the two pairs were not consistent.

The final finding from the ranking data on Object Focus in Table 3.13 above is that there was a significant interaction between *focus* type and construction type (P-value =0.006). This tells us that the type of *focus* had a different effect on the choice of construction type and vice versa. The overview of all the interactions can be better understood in Figure 3.12 below.

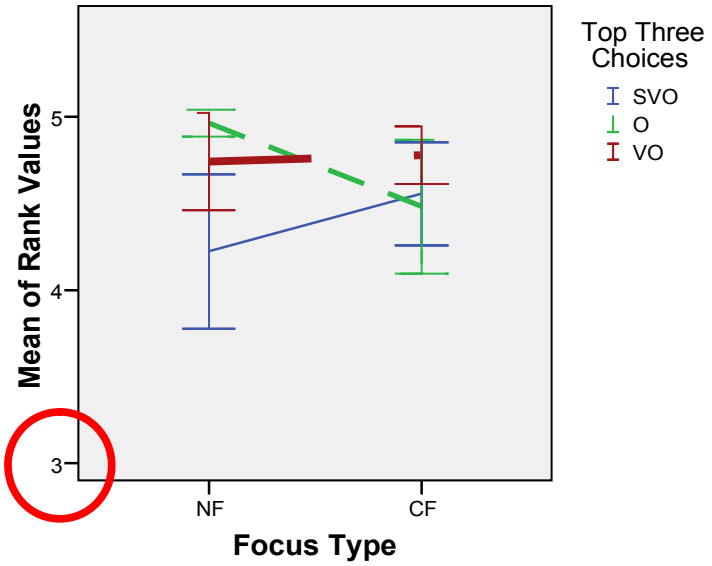


Figure 3.12. Graphical view of the interaction between the Choice factor and the *Focus* type factor regarding Object Focus (F_{OBJECT})

In the above figure, the solid line connects the mean rank value of the SVO option for NF_{OBJECT} and for CF_{OBJECT}, and the dotted line connects the mean rank value of the O option for NF_{OBJECT} and for CF_{OBJECT}. Finally, the dashed line links the mean rank value of the VO option for NF_{OBJECT} and for CF_{OBJECT}. The slope of each line represents the

degree of difference between the ranking values for NF_{OBJECT} and for CF_{OBJECT} for each construction type. The crossing between lines is a clear indicator that there was an interaction between the *focus* type factor and the construction type factor, although the converse is not always true. This interaction is well quantified in Table 3.15 below, which shows the results of the simple effect analyses to verify the interpretation of the interaction effect.

Source	Focus Type	Choice	Type III Sum of Squares	Df	Mean Square	F	Sig.
FType * Choice	Level 1 vs. Level 2	Level 1 vs. Level 3	2.370	1	2.370	3.943	0.058
		Level 2 vs. Level 3	7.259	1	7.259	4.633	0.041
		Level 1 vs. Level 2	17.926	1	17.926	9.308	0.005
Error (FType * Choice)	Level 1 vs. Level 2	Level 1 vs. Level 3	15.630	26	0.601		
		Level 2 vs. Level 3	40.741	26	1.567		
		Level 1 vs. Level 2	50.074	26	1.926		

Table 3.15. Simple Effect Analysis for repeated-measures factors and their interaction on Object Focus (F_{OBJECT})

In Table 3.15, the upper part indicated with a rectangle box shows three interactions in the study. The first interaction looks at the SVO option (labeled as 'Level 1') compared to the VO option (labeled as 'Level 3') depending on the *focus* type. By a P-value (0.058) greater than the level of significance of study (0.05), we conclude that this contrast was not significant. In other words, when compared the SVO option to the VO option while taking the *focus* type into consideration altogether, we discovered that the ranking values in the SVO options were found consistently lower than in the VO options across the two types of *focus*. In the graphical display in Figure 3.12 above, the solid line (SVO) continues to be below the dashed line (VO) [SVO > VO both for NF_{OBJECT} and for CF_{OBJECT}]. As for the slope of the lines, the direction of the solid line and the dashed line seemed to differ in the two types of *focus*. That is, the differences in ranking values between the two construction types seemed to get smaller in NF_{OBJECT} than CF_{OBJECT}.

Nevertheless, such a difference was not large enough to interfere with the overall difference between the SVO option and the VO option. This result suggests no interaction found between the *focus* type and the construction type, when we compared the SVO options and VO options pairwise.

The second interaction of interest views the O option (labeled as 'Level 2') compared to the VO option (labeled as 'Level 3') according to the *focus* type. In Table 3.15 above, a P-value (0.041) smaller than the threshold significance level (0.05) suggests that the moderately significant contrast between the O and the VO option was found according to the *focus* type. In Figure 3.12 above, the direction of the dotted line (O) and that of the dashed line (VO) were clearly different in the two types of *focus*. As a result, the dotted line (O) and the dashed line (VO) intersect indicating that in the case of *Non-contrastive Focus* (NF_{OBJECT}) the O option was preferred to the VO option [O > VO for NF_{OBJECT}], whereas the latter was preferred to the former in the case of *Contrastive Focus* (CF_{OBJECT}) [VO > O for CF_{OBJECT}]. This result suggests a significant interaction found between the *focus* type and the construction type, when we compared the O option and VO option pairwise.

Finally, the interaction between the SVO options and the O options is verified by both a small P-Value for the contrast between the SVO options and the O options according to the *focus* type (P-value = 0.005) in Table 3.15 above and the crossing between the solid line (SVO) and the dotted line (O) in Figure 3.12 above. Concretely speaking, the participants preferred the O option to the SVO option in the case of *Non-contrastive Focus* [O > SVO for NF_{OBJECT}], while such preference was inversed in the case of *Contrastive Focus* [O < SVO for CF_{OBJECT}]. Based on the given data, we could conclude there was a significant interaction found between the *focus* type and the construction type, when we compared the SVO options and O options pairwise.

3.2.4. Predicate Focus ($F_{PREDICATE}$)

In order to see if the overall rank value difference among the construction types, VO, SVO and VO,S, is consistent throughout the collected data, a statistical test was needed. Moreover, since the descriptive pattern of rank differences summarized in Table 3.17 and Figure 3.15 above did not take into consideration the variation among participants, it was necessary to run a factorial repeated-measures ANOVA test to capture the accurate understanding on our data. The result table of the given statistical test is shown in Table 3.18 below.

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares (SS)	Df	Mean Square (MS)	*F* : MS_F/MS_E	Sig.
FType	Greenhouse-Geisser	($SS_{F.Type}$) .099	1	($MS_{F.Type}$) .099	**0.300**	**0.589**
Error(FType)	Greenhouse-Geisser	($SS_{Error(F.Type)}$) 8.568	26	($MS_{Error(F.Type)}$) .330		
Choice	Greenhouse-Geisser	(SS_{Choice}) 296.259	1.487	(MS_{Choice}) 199.285	**138.189**	**0.000**
Error(Choice)	Greenhouse-Geisser	($SS_{Error(Choice)}$) 55.741	38.652	($MS_{Error(Choice)}$) 1.442		
FType * Choice	Greenhouse-Geisser	(SS_{FTxC}) 3.049	1.76	(MS_{FTxC}) 1.733	**2.803**	**0.077**
Error (FType*Choice)	Greenhouse-Geisser	($SS_{Error(FTxC)}$) 28.284	47.757	($MS_{Error(FTxC)}$) .618		
Total		(SSw) 392				

Table 3.18. Results of the Factorial Repeated-Measures ANOVA of Top Three Choices with Predicate Focus ($F_{PREDICATE}$) across the two *focus* types

Table 3.18 above shows the main effects of two individual factors of study, i.e., the *focus* type and the construction type and their interaction when the scope of *focus* is the entire predicate composed of a transitive verb and its direct object ($F_{PREDICATE}$). Note that this table demonstrates that the differences in rank values now reside *within* participants or subjects by removing the dependence on participants or on scenarios. Table 3.18 is split into sections that indicate each of the effects of individual factors *within* the same

participants and the effect of their interaction, if any, *within* the same participants, and the error rates associated with these effects *within* the same participants.

First, let us take a close look at one of the factors of the study, i.e. *focus* type. The first two rows instable 3.18 indicate that the *focus* type as a factor did not have a significant influence on participant's ratings of the given type of construction ($F = 0.300$ and P-value = 0.589). In other words, regardless of construction types, there was no significant difference in individual rank values between *Non-contrastive Focus* and *Contrastive Focus*.

The two rows in the middle of Table 3.18 show the main effect of the choice of construction types (SVO, VO and VO,S) after being used the Greenhouse-Geisser correction (F-ratio = 138.189 and P-value = 0.000). This means that the participants rated the top three construction types significantly differently regardless of the *focus* type.

In order to see the nature of the effect of construction type in the study, the pairwise comparisons for this effect were carried out using the Bonferroni adjustment. The result of this *post-hoc* test is shown in Table 3.19 below. Note that the SVO option is labeled as '1', the VO as '2', and the VO,S as '3', respectively.

Pairwise Comparisons

Measure: MEASURE_1

(I) Choice	(J) Choice	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	-.241	.147	.341	-.617	.136
	3	2.741*	.248	.000	2.106	3.375
2	1	.241	.147	.341	-.136	.617
	3	2.981*	.190	.000	2.496	3.467
3	1	-2.741*	.248	.000	-3.375	-2.106
	2	-2.981*	.190	.000	-3.467	-2.496

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Table 3.19. Pairwise comparisons for the main effect of Construction type on Predicate Focus ($F_{PREDICATE}$) regardless the '*focus* type' factor

Table 3.19 above indicates that the significant main effect of construction type reflects significant differences (P=.000 for both) between the SVO and the VO,S option and between the VO and the VO,S option. This means that the VOS option was consistently and significantly ranked lower than either of the other two options [SVO >> VO,S and VO >> VO,S]. Meanwhile, the difference between the SVO and the VO option was not significant showing its large P-value (P=0.341) [SVO≈VO]. In sum, the rank values for the VO,S options were so low compared to the values for the other two options available to influence the overall effect of the factor of interest heavily, which results in a significant main effect of construction types (*F*-ratio = 138.189 and P-value = 0.000) in Table 3.18.

The final finding from the ranking data on Predicate Focus in Table 3.18 above is that there was no significant interaction between the two factors, that is, *focus* type and choice of construction type (p=.077)[53]. This tells us that the type of *focus* did not have a different effect on the choice of construction type and vice versa. The overview of all the interactions can be better understood in Figure 3.16 below.

[53] Beware that the P-value for the overall interaction is slightly over the level of significance of study (0.05). If we break the overall interaction effect into three pairwise individual interactions, not all of the contrasts were non-significant as will be shown in Table 3.31 and Table 3.32 later. Also, look at Figure 3.24, a graphical distribution of the overall interaction, where there is a small degree of intersection found between one of the pairs.

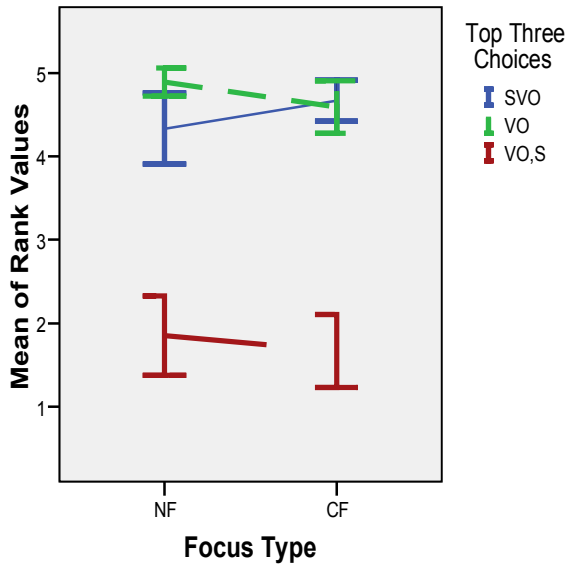


Figure 3.16. Graphical view of the interaction between the Choice factor and the *Focus* type factor regarding Predicate Focus ($F_{PREDICATE}$)

In the above figure, the solid line connects the mean rank value of the SVO option for $NF_{PREDICATE}$ and for $CF_{PREDICATE}$; the dotted line connects the mean rank value of the VO option for $NF_{PREDICATE}$ and for $CF_{PREDICATE}$; and the dashed line links the mean rank value of the VO,S option for $NF_{PREDICATE}$ to that of the VO option for $CF_{PREDICATE}$. Note that the slight crossing appeared between the solid line (SVO) and the dotted line (VO).

The slope of each line represents the degree of difference between the ranking values for $NF_{PREDICATE}$ and for $CF_{PREDICATE}$ for each construction type. This interaction is well quantified in Table 3.20 below, which shows the results of the simple effect analyses to verify the interpretation of the interaction effect.

Source	Focus Type	Choice	Type III Sum of Squares	Df	Mean Square	F	Sig.
FType * Choice	Level 1 vs. Level 2	Level 1 vs. Level 3	7.259	1	7.259	4.633	0.041
		Level 2 vs. Level 3	0.333	1	0.333	0.165	0.688
		Level 1 vs. Level 2	10.704	1	10.704		0.067
Error (FType * Choice)	Level 1 vs. Level 2	Level 1 vs. Level 3	40.741	26	1.567		
		Level 2 vs. Level 3	52.667	26	2.026		
		Level 1 vs. Level 2	76.296	26	2.934		

Table 3.20. Simple Effect Analysis for repeated-measures factors and their interaction on Predicate Focus ($F_{PREDICATE}$)

In Table 3.20, the first interaction compares the SVO option (labeled as 'Level 1') to the VO,S option (labeled as 'Level 3') according to the *focus* type. A P-value (0.041) smaller than the level of significance of study (0.05) suggests that the significant contrast between the SVO and the VO,S option was found according to the *focus* type. Yet, in the graphical display in Figure 3.16, the solid line (SVO) continues to be much above the dashed line (VO) without any crossing[54]. The gaps between the solid line (SVO), and the dashed line (VO,S) remain huge across the *focus* type without any crossing between the two lines, indicating that the higher ranking values were consistently found in the SVO options than in the VO,S options for both type of focus [SVO > VO,S both for $NF_{PREDICATE}$ and for $CF_{PREDICATE}$]. As for the slope of the lines, the direction of the solid line (SVO) and that of the dashed line (VO) clearly differed in the two types of *focus*. That is, the differences in ranking values between the two construction types seemed to get much larger with $CF_{PREDICATE}$ than $NF_{PREDICATE}$. Unlike the previous findings, such difference in this case was indeed large enough to interfere with the overall difference between the SVO option and the VO option. This result led to the conclusion

[54] This mismatch between the small P-value and the absence of crossing is rather surprising considering the observations made so far, where the small P-values were likely to be associated with the presence of a crossing or intersecting between the lines.

that there was a significant interaction found between the *focus* type and the construction type, when we compared the SVO option and VO option pairwise.

The second interaction of interest in Table 3.20 deals with the VO option (labeled as 'Level 2') compared to the VO,S option according to the *focus* type. A large P-value (0.688) suggests that the significant contrast between the VO and the VO,S option was not found in any of the two types of *focus*. In other words, when compared the VO options to the VO,S options while taking the *focus* type into consideration, we discovered that the higher ranking values were consistently found in the VO options than in the VO,S options for both type of focus. This is indicated in Figure 3.24 by the dotted line (VO) that continues to be above the dashed line (VO,S) [VO > VO,S both for $NF_{PREDICATE}$ and for $CF_{PREDICATE}$]. As for the slope of the lines, the dotted line (VO) and the dashed line (VO,S) look parallel without any crossing between the two lines in Figure 3.24. This suggests no interaction found between the two factors of study, namely, the *focus* type and the construction type, when we compared the VO options and VO,S options pairwise.

Finally, the interaction between the SVO options and the VO options was not significant as shown by the P-value (0.067) greater than the level of significance of study (0.05) in Table 3.20. In addition, the distance between the solid line (SVO) and the dotted line (VO) in Figure 3.16 got much closer than the distance between the dashed line for the VO,S options and either of the lines that represent the former two options. As for the slope of the lines, the direction of the solid line (SVO) and the dotted line (VO) seemed to differ in the two types of *focus.* That is, the differences in ranking values between the two construction types seemed to get smaller in $CF_{SUBJECT}$ [SVO ≈ VO for $CF_{SUBJECT}$] than $NF_{SUBJECT}$ [VO > VO for $CF_{SUBJECT}$] to the extent that the ranking for SVO and for VO seem to have been reversed slightly. Nevertheless, such a difference was not large enough to interfere with the overall difference between the SVO option and the VO option. Based on these data, we could conclude that there was no interaction

found between the *focus* type and the construction type, when we compared the SVO options and VO options pairwise.

3.2.5. Broad Focus (F_{BROAD})

In order to see whether or not the overall rank value differences among the sentences with different word orders were consistent throughout the collected data, a statistic test was needed. In addition, since the descriptive pattern of rank differences summarized in Table 3.22 and Figure 3.19 above did not take into consideration the variation among participants, it was necessary to run a factorial repeated-measures ANOVA test to capture the accurate understanding of our data. The result of this statistical test is shown in Table 3.23 below.

Tests of Within-Subjects Effects

Measure:
MEASURE_1

Source		Type III Sum of Squares (SS)	df	Mean Square (MS)	*F* : MS_F/MS_E	Sig.
FType	Greenhouse-Geisser	($SS_{F.Type}$) 006	1	($MS_{F.Type}$) 06	**0.008**	**0.931**
Error(FType)	Greenhouse-Geisser	($SS_{Error(F.Type)}$) 21.160	26	($MS_{Error(F.Type)}$) .814		
Choice	Greenhouse-Geisser	(SS_{Choice}) 426.901	1.728	(MS_{Choice}) 247.079	**218.642**	**0.000**
Error(Choice)	Greenhouse-Geisser	($SS_{Error(Choice)}$) 50.765	44.923	($MS_{Error(Choice)}$) 1.130		
FType * Choice	Greenhouse-Geisser	(SS_{FTxC}) 3.346	1.646	(MS_{FTxC}) 2.032	**2.807**	**0.081**
Error (FType*Choice)	Greenhouse-Geisser	($SS_{Error(FTxC)}$) 30.988	42.802	($MS_{Error(FTxC)}$) .724		
Total		(SSw) 533.166				

Table 3.23. Results of the Factorial Repeated-Measures ANOVA of Top Three Choices with Broad Focus (F_{BROAD}) across the two *focus* types

This table shows the main effects of two individual factors of the study, i.e., *focus* type and construction type, and their interaction. Note that the differences in rank values of the study now reside *within* participants, by removing the variation based on participants or scenarios. Table 3.23 is divided into sections indicating the effects of each of the individual factors *within* the same participants and the effect of their interaction, if any,

within the same participants, and the error rates associated with these effects *within* the same participants.

First, let us take a close look at the *focus* type. Table 3.23 above indicates that the *focus* type as a factor did not have a significant influence on participant's ratings of the given type of construction type (F = 0.008 and P-value = 0.931). In other words, if we ignore the factor of construction types for a moment, there was no significant difference in individual rank values between the two types of *focus* [$NF_{BROAD} \approx CF_{BROAD}$].

Second, in Table 3.23 above, the main effect of the choice of construction types (SVO, VOS and VSO) used as a stimulus was estimated by its huge F-ratio (218.642) and its associated P-value (0.000) following the Greenhouse-Geisser correction. This means that the participants rated the top three construction types significantly differently regardless the *focus* type.

So as to see the nature of the effect of construction types more closely, we ran the pairwise comparisons for this effect using the Bonferroni adjustment. The result of this effect is shown in Table 3.24 below. Note that the SVO option is labeled as '1', the VOS as '2', and the VSO as '3', respectively.

Pairwise Comparisons

Measure: MEASURE_1

(I) Choice	(J) Choice	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	3.296*	.185	.000	2.822	3.771
	3	3.574*	.157	.000	3.172	3.976
2	1	-3.296*	.185	.000	-3.771	-2.822
	3	.278	.222	.667	-.291	.846
3	1	-3.574*	.157	.000	-3.976	-3.172
	2	-.278	.222	.667	-.846	.291

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Bonferroni.

Table 3.24. Pairwise comparisons for the main effect of Construction type on Broad Focus (F_{BROAD}) regardless the '*focus* type' factor

The above table indicates that the significant main effect of construction types reflects significant differences (P=.000 for both) between the SVO and the VOS and between the SVO and the VSO option. This means that the SVO option was consistently and significantly ranked higher than either of the other two options [SVO > VOS and SVO > VSO]. Meanwhile, the difference between the VOS option and the VSO option was not significant showing its large P-value (P=0.667) [VOS ≈ VSO]. In sum, the rank values for the SVO options were so high compared to the values for the other two options available to influence the overall effect of the factor of interest heavily, which results in a significant main effect of construction types (*F*-ratio = 218.642 and P-value = 0.000) in Table 3.23 above.

The final finding from the ranking data on Broad Focus (F_{BROAD}) in Table 3.23 above is that there was no significant interaction between the two factors, that is, *focus* type and choice of construction type (P = 0.081). This tells us that the type of *focus* did not have a different effect on the choice of construction type and vice versa. As in the case of Predicate Focus ($F_{PREDICATE}$), however, note that the P-value for the overall interaction is slightly over the level of significance of study (0.05). It would not be surprising that if we break the overall interaction effect into three pairwise individual interactions, there might be one or two significant interaction. The overview of all the interactions can be better understood in Figure 3.20 below.

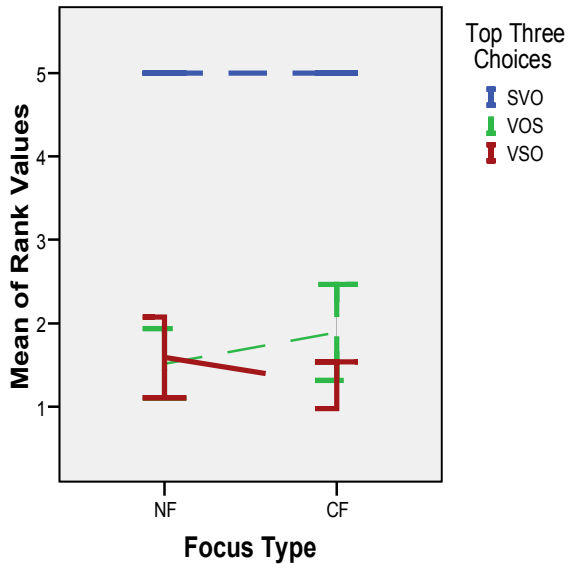


Figure 3.20. Graphical view of the interaction between the Choice factor and the *Focus* type factor regarding Broad Focus (F_{BROAD})

In this figure, the blue solid line connects the mean rank value of the SVO option for NF_{BROAD} and for CF_{BROAD}, and the dotted line bridges the mean rank value of the VOS option for NF_{BROAD} and for CF_{BROAD}. Finally, the dashed line links the mean rank value of the VSO option for NF_{BROAD} to that for CF_{BROAD}. The slight crossing appeared between the dotted line (VOS) and the dashed line (VSO). The slope of each line will represent the degree of difference between the ranking values of NF_{BROAD} and those for CF_{BROAD} for a given construction type. This interaction is well quantified in Table 3.25 below, which shows the results of the simple effect analyses to verify the interpretation of the interaction effect.

Source	Focus Type	Choice	Type III Sum of Squares	Df	Mean Square	F	Sig.
FType * Choice	Level 1 vs. Level 2	Level 1 vs. Level 3	3.000	1	3.000	2.294	0.142
		Level 2 vs. Level 3	13.370	1	13.370	4.259	0.049
		Level 1 vs. Level 2	3.704	1	3.704	1.37	0.252
Error (FType * Choice)	Level 1 vs. Level 2	Level 1 vs. Level 3	34.000	26	1.308		
		Level 2 vs. Level 3	81.630	26	3.140		
		Level 1 vs. Level 2	70.296	26	2.704		

Table 3.25. Simple Effect Analysis for repeated-measures factors and their interaction on Broad Focus (F_{BROAD})

In Table 3.25 above, the first interaction looks at the SVO option (labeled as 'Level 1') compared to the VSO option (labeled as 'Level 3') for each *focus* type.

By a large P-value (0.142), the table suggests that this contrast was not significant. In other words, when compared the SVO option to the VSO option while taking the *focus* type into consideration this time, we discovered that the higher ranking values were consistently found in the SVO option than in the VSO option for both type of focus. This is indicated in Figure 3.20 by the solid line (SVO) being continuously above the dashed line (VSO) [SVO > VSO for both NF_{BROAD} and for CF_{BROAD}]. As for the slope of the lines, the direction of the solid line (SVO) and that of the dashed line (VSO) seemed to differ in the two types of *focus*. That is, the differences in ranking values between the two construction types seemed to get larger in CF_{BROAD} than NF_{BROAD}. Nevertheless, such difference was not large enough to interfere with the overall difference between the SVO and the VSO option. This result suggests no interaction found between the two factors of study, namely, the *focus* type and the construction type, when we compared the SVO and VSO option pairwise.

The second interaction of interest in Table 3.25 above views the VOS option (labeled as 'Level 2') compared to the VSO option (labeled as 'Level 3') for each *focus* type. A P-value (0.049) just below the level of significance of study (0.05) suggests that the significant contrast between the VOS option and the VSO option was found according to the *focus* type. In Figure 3.20, the direction of the dotted line (VOS) and that of the dashed line (VSO) were clearly different in the two types of *focus*. As a result, the dotted line (VOS) and the dashed line (VSO) intersect indicating that in the case of *Non-contrastive Focus* (NF_{BROAD}) the VOS option was slightly preferred to the VO option [VOS > VSO both for NF_{BROAD}], whereas the latter was preferred over the former to a larger extent in the case of *Contrastive Focus* (CF_{BROAD}) [VSO > VOS both for CF_{BROAD}]. This result suggests a significant interaction found between the two factors of study, namely, the *focus* type and the construction type, when we compared the VOS option and VSO option pairwise.

Finally, the last interaction of interest, namely, between the SVO options and the VOS options is also found in Table 3.25 above. In this table, the interaction squared in a thin rectangle box looks at the SVO option (labeled as 'Level 1') compared to the VOS option (labeled as 'Level 2') for each *focus* type. By a large P-value (0.252), the table suggests that this contrast was not significant. In other words, when compared the SVO to the VOS option while taking the *focus* type into consideration this time, we see that the higher ranking values were consistently found in the SVO options than in the VOS options for both type of focus. This is indicated in Figure 3.20 above by the solid line (SVO) that is continuously above the dotted line (VOS) [SVO > VOS both for NF_{BROAD} and for CF_{BROAD}]. As for the slope of the lines, the direction of the solid line (SVO) and that of the dotted line (VOS) seemed to differ in the two types of *focus*. That is, the differences in ranking values between the two construction types seemed to get smaller in CF_{BROAD} than NF_{BROAD}. Nevertheless, such a difference was not large enough to interfere with the overall difference between the SVO and the VOS option. This result suggests

that there is no interaction between the two factors of study (the *focus* type and the construction type), when we compared the SVO option and VOS option pairwise.

3.2.6. Summary

In this section, we examined the statistical significance when *focus* falls on different sentential elements. The followings are the graphs that show the interaction effects for each *focus* scope.

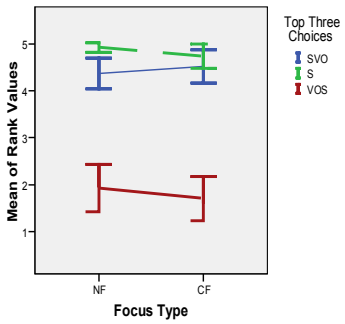


Figure 3.4. Subject Focus ($F_{SUBJECT}$)

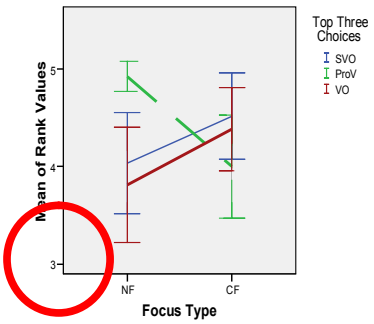


Figure 3.8. Verb Focus (F_{VERB})

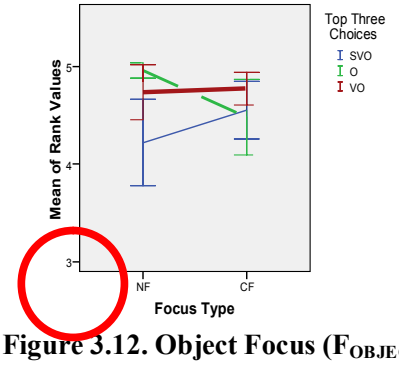


Figure 3.12. Object Focus (F_{OBJECT})

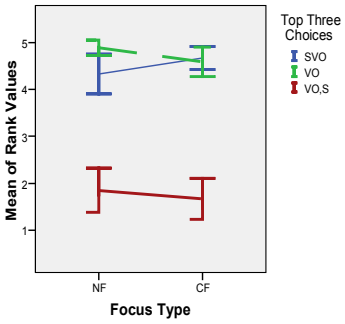


Figure 3.16. Predicate Focus ($F_{PREDICATE}$)

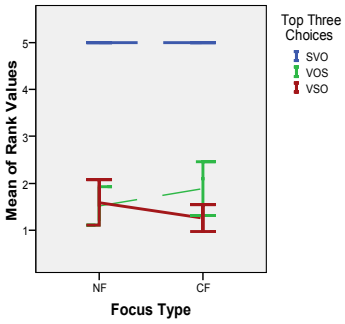


Figure 3.20. Broad Focus (F_{BROAD})

We began this section explaining why the descriptive statistics may not offer an accurate diagnosis on the collected data, because the variation among the participants and the scenarios was not controlled. Without controlling such potentially lurking factors, the overall result may be influenced heavily by one or two speakers or by one or two scenarios, rather than being based on the evenly factored out data. This is why we chose to conduct a factorial repeated measures ANOVA test as the main analysis tool of study.

The results of the factorial repeated measures ANOVA test on Subject Focus ($F_{SUBJECT}$) are composed of two parts: the main effect of each of the two independent factors of study while factoring out the other factor and their interaction. It turns out that there was no significant main effect of the factor of *focus* type [$NF_{SUBJECT} \approx CF_{SUBJECT}$] but that there was a significant main effect of the factor of construction types (SVO, S, and VOS). There was no significant difference in rank values for the individual rank values for the $NF_{SUBJECT}$ and those for $CF_{SUBJECT}$ judged by each participant with regard to a given scenario, when we ignore the distinction among the top three construction types. In addition, using two simple effect analyses, the interaction between the two factors of study, namely, the *focus* type and the construction type pattern, was observed. Taking both factors into consideration simultaneously, there was no significant contrast between any pair of experimental groups. In other words, the factor of *focus* type did not interfere with the pattern of the rank distributions among the three top choices and vice versa. The VOS options were consistently less preferred to either of the two syntactic options across the *focus* types and there was no significant statistical predominance between the S options and the SVO options across the *focus* types[$SVO_{CF} \approx S_{CF} >> VOS_{CF}$; and $SVO_{NF} \approx S_{NF} >> VOS_{NF}$ both for $NF_{SUBJECT}$ and $CF_{SUBJECT}$].

The factorial repeated measures ANOVA test revealed the main effect of each of the two independent factors of study, i.e., the *focus* type and the construction type, while factoring out the other factor and their interaction when *focus* falls on the sentential verb (F_{VERB}). There was no significant main effect of either of factors of study. There was no significant difference in rank values for the individual rank values for the NF_{VERB} and

those for CF_{VERB} [$NF_{VERB} \approx CF_{VERB}$], judged by each participant with regard to a given scenario, when we ignore the distinction among the top three construction types (*P-value* for *focus* type = 0.947, as seen in Table 3.8). In addition, using two simple effect analyses, the interaction between *focus* type and the construction type pattern, was checked. Taking both factors into consideration simultaneously, there were two significant contrasts and one non-significant contrast found between the pairs of experimental groups. The first significant contrast was found between the $Pro_{DO}V$ option and the VO option according to the *focus* type. In the case of *Non-contrastive Focus* (NF_{VERB}) the $Pro_{DO}V$ option was preferred to the VO option [$Pro_{DO}V$ > VO for NF_{VERB}], whereas the latter was preferred to the former in the case of *Contrastive Focus* (CF_{VERB}) [VO > $Pro_{DO}V$ for CF_{VERB}]. The second significant contrast was found between the SVO option and the $Pro_{DO}V$ option, according to the *focus* type. Namely, in the case of *Non-contrastive Focus* (NF_{VERB}) the $Pro_{DO}V$ option was preferred to the SVO option [$Pro_{DO}V$ > SVO for NF_{VERB}], whereas the latter was preferred to the former in the case of *Contrastive Focus* (CF_{VERB}) [SVO > $Pro_{DO}V$ for CF_{VERB}]. Finally, there was no significant contrast between the SVO options and the VO options depending on the *focus* type. The SVO options were consistently preferred to the VO options across the *focus* types [SVO> VO both for NF_{VERB} and for CF_{VERB}]. .

The factorial repeated measures ANOVA test was carried out to verify the main effect of each of the two independent factors of study, i.e., the *focus* type and the construction type, and the interaction between the two factors, when *focus* falls on the direct object. There was no significant main effect of either of factors of study (See Table 3.13). There was no significant difference in rank values for the individual rank values for the NF_{OBJECT} and those for CF_{OBJECT} [$NF_{OBJECT} \approx CF_{OBJECT}$], judged by each participant with regard to a given scenario, when we ignore the distinction among the top three construction types (*P-value* for *focus* type = 0.733, as seen in Table 3.13). By the same token, there were no significant overall differences among rank value for the SVO, the O and the VO options regardless the *focus* type (*P-value* for construction type =

0.051, as seen in Table 3.13). However, the statement on the latter finding needs to be refined further, because the P-value we obtained seems quite small (0.051), which is barely larger than the significance level threshold (0.05). When the three construction types were compared pairwise using the Bonferroni correction, the contrast between the SVO and the VO option turned out to be consistently significant [SVO > VO] while the contrast between the O option and either of the other options was neither consistent nor significant [O≈SVO and O≈VO].

Finally, using two simple effect analyses, the interaction between the *focus* type and the construction type pattern, was checked. Taking both factors into consideration simultaneously, there were two significant contrasts and one non-significant contrast found between the pairs of experimental groups. The first significant contrast was found between the O option and the VO option according to the *focus* type. In the case of *Non-contrastive Focus* the O option was preferred to the VO option [O > VO for NF_{OBJECT}], whereas the latter was preferred to the former in the case of *Contrastive Focus* [VO > O for CF_{OBJECT}]. The second significant contrast was found between the SVO option and the O option, according to the *focus* type. In the case of *Non-contrastive Focus* the O option was preferred to the SVO option [O > SVO for NF_{OBJECT}], whereas the latter was preferred to the former in the case of *Contrastive Focus* [SVO > O for CF_{OBJECT}]. Finally, there was no significant contrast between the SVO option and the VO option according to the *focus* type. The VO option was consistently preferred to the SVO option across the *focus* types [SVO> VO both for NF_{OBJECT} and for CF_{OBJECT}].

The factorial repeated measures ANOVA test was carried out to verify the main effect of each of the two independent factors of study, i.e., *focus* type and construction type, and their interaction when *focus* falls on the entire predicate phrase ($F_{PREDICATE}$). It turns out that there was no significant main effect of the factor of *focus* type (See Table 3.18). There was no significant difference in rank values for the individual rank values for the $NF_{PREDICATE}$ and those for $CF_{PREDICATE}$ judged by each participant with regard to a given scenario, when we ignore the distinction among the top three construction types (*P*-

value for *focus* type = 0.589, as seen in Table 3.18). On the other hand, there was a significant main effect of construction types (SVO, VO and VO,S). That is, there were significant differences in rank values for the individual rank values for the SVO, the VO and the VO,S options regardless the *focus* type (*P-value* for *focus* type = 0.000, as seen in Table 3.18). However, this latter finding needed to be analyzed further in a pairwise manner using a method called Bonferroni to check any unexpected hidden pattern. When compared the three options pairwise, the contrast between the SVO option and the VO option was not significant while the contrasts between the VO,S option and either of the other options were significant enough [SVO≈VO>> VO,S].

Finally, using two simple effect analyses, the interaction between the *focus* type and the construction type was observed. Taking both factors into consideration simultaneously, we found that there were one significant contrast and two non-significant contrasts found between the pairs of experimental groups. The significant contrast was found between the SVO option and the VO, S option according to the *focus* type. This is rather surprising because the significant contrast between the paired options of interest results from the degree of difference between the ranking value for one *focus* type and that for the other, not from the difference between the raw rank value for one *focus* type and that for the other [VO>SVO for $NF_{PREDICATE}$ and SVO≈VO for $CF_{PREDICATE}$]. Finally, there was no significant contrast between the SVO option and the VO option or between the VO option and the VO,S option for each *focus* type. In other words, the VOS options were consistently less preferred to either of the two construction types across the *focus* types and there was no significant statistical predominance between the S option and the SVO option across the *focus* types [SVO>>VO,S and VO>>VO,S both for $NF_{PREDICATE}$ and for $CF_{PREDICATE}$].

The results on Broad Focus (F_{BROAD}) analyzed by a factorial repeated measures ANOVA test present the main effect of each of the two independent factors of study, i.e., the *focus* type and the construction type, while factoring out the other factor and their interaction. It turns out that there was no significant main effect of the factor of *focus*

type [NF_{BROAD} ≈CF_{BROAD}] judged by each participant with regard to a given scenario, when we ignore the distinction among the three construction types (*P-value* for *focus* type = 0.931, as seen in Table 3.23). On the other hand, there was a significant main effect of the factor of construction types (*P-value* for *focus* type = 0.000, as seen in Table 3.23). There were significant differences in rank values for the individual rank values for the SVO option, the VOS option and the VSO option regardless of the *focus* type. However, this latter finding needed to be analyzed further in a pairwise manner using a method called Bonferroni to check any surprising hidden pattern. When compared the three options pairwise, the contrast between the VOS option and the VSO option was not significant while the contrasts between the SVO option and either of the other options were significant enough [SVO >> VOS≈ VSO].

Finally, using two simple effect analyses, the interaction between the *focus* type and the construction type was observed. Upon taking both factors into consideration simultaneously, there were one significant contrast and two non-significant contrasts found between the pairs of experimental groups. The significant contrast was found between the VOS option and the VSO option according to the *focus* type [VOS > VSO both for NF_{BROAD} and VSO > VOS both for CF_{BROAD}]. This conclusion results from the fact that in the case of *Non-contrastive Focus* (NF_{BROAD}) the VOS option was slightly preferred to the VO option, whereas the latter was preferred over the former to a larger extent in the case of *Contrastive Focus* (CF_{BROAD}). Finally, there was no significant contrast between the SVO option and the VOS option or between the SVO option and the VSO option for neither *focus* type, suggesting the SVO option was consistently ranked much higher than either of the other options across the two *focus* types [SVO >> VOS and SVO >> VSO for NF_{BROAD} and CF_{BROAD}].

3.3. Chapter Summary & Implications

In this chapter, we examined the results of the ranking task of different construction types containing *focus*. The task of the participants was to rank each syntactic construction type using a scale of 1 to 5. Each discourse context was designed to elicit one of ten subtypes of *focus* classified on the basis of the scope of *focus* and the type of *focus*:

Non-contrastive Subject Focus ($NF_{SUBJECT}$)	vs. *Contrastive Subject Focus* ($CF_{SUBJECT}$)
Non-contrastive Verb Focus (NF_{VERB})	vs. *Contrastive Verb Focus* (CF_{VERB})
Non-contrastive Object Focus (NF_{OBJECT})	vs. *Contrastive Object Focus* (CF_{OBJECT})
Non-contrastive Predicate Focus ($NF_{PREDICATE}$)	vs. *Contrastive Predicate Focus* ($CF_{PREDICATE}$)
Non-contrastive Broad Focus (NF_{BROAD})	vs. *Contrastive Broad Focus* (CF_{BROAD}).

In order to ensure consistency in presenting all different subtypes of *focus,* only top-three ranked construction types were chosen for each pair. The top-three choices varied in the presence or absence of the redundant information as well as in the word order. Nevertheless, there was one construction type that was constantly rated high across all the five *focus* scope. It was the SVO option. In all cases, its mean rank value exceeded 4 out 5.

The distributions of the mean rank values among the top-three construction types also varied according to the scope of *focus*. In the cases of Subject Focus and Predicate Focus, the mean rank values of two construction types –the S and the SVO for Subject Focus and the VO and the SVO for Predicate Focus- were far higher than the third type – the VOS for Subject Focus and the VO,S for Predicate Focus-, whereas the third type revealed the biggest standard deviations, suggesting the variations by the speakers. Both Object Focus and Verb Focus showed relatively equal distributions among all top-three construction types --: in the case of Object Focus (F_{OBJECT}), all the SVO, the O, and the VO for both types of *focus*, exceeded 4 out 5 and in the case of Verb Focus (F_{VERB}), the SVO consistently went beyond 4 whereas the VO and the $Pro_{DO}V$ option fluctuated around 4 according to the *focus* type. As for the Broad Focus, the SVO option was

conspicuously higher than the other two construction types –the VOS and the VSO-, which were far low ranked.

There seemed slight differences in the overall mean rank value distributions between *Non-contrastive Focus* (NF) and *Contrastive Focus* (CF) across all the scopes of *focus*, except for Subject Focus ($F_{SUBJECT}$) as summarized in Table 3.26. Note that this result merely shows the descriptive summary based on the mean rank values for each construction type under each *focus* type, disregarding speakers' and scenario's variations.

	Non-Contrastive Focus	*Contrastive Focus*
Subject Focus	S > SVO >> VOS	S > SVO >> VOS
Verb Focus	$Pro_{DO}V$ > SVO > VO	SVO > $Pro_{DO}V$ > VO
Object Focus	O > VO > SVO	VO > SVO > O
Predicate Focus	VO > SVO >> VO,S	SVO > VO>> VO,S
Broad Focus	SVO >>VSO > VOS	SVO >> VOS > VSO

Table 3.26. Relative rank distributions among the top-three construction types across all five *focuses*

The above table shows that the ranking among the mean rank values of the top three choices in one type of *focus* turned out to differ from that in the other type of *focus* without considering any statistical significance. For each pair, we looked at whether the two types of *focus* showed different rank distributions among the top three choices.

When we controlled the variation among the participants and among the scenarios, the factorial repeated measures ANOVA showed the following results with regard to the main effects of the *focus* type and the construction type and their interaction effects. First, none of the five scopes of *focus* showed the overall significant main effects of the *focus* type with their small *F*-ratios (<1) and their associated large P-values (>0.05) when we ignored the differences in construction types as summarized in Table 3.27.

	F-ratio	*P-value*	*Overall main effect*
Subject Focus	0.747	0.395	Non-significant
Verb Focus	0.005	0.947	Non-significant
Object Focus	0.119	0.733	Non-significant
Predicate Focus	0.300	0.589	Non-significant
Broad Focus	0.008	0.931	Non-significant

Table 3.27. Main effect of the *focus* type, regardless of the construction type, across all five *focuses*

In other words, the above table demonstrates that given the same speaker and the same scenario, the average of the three individual rank values of the top-three construction types for one *focus* type is not significantly different from that for the other *focus* type.

The overall main effect of the construction type demands caution at the time of interpreting the result. Since the statistics shown in the main tables like 3.3, 3.8, 3.13, 3.18 and 3.23 are the combinations of three-way comparisons among three construction types, we had to run *post-hoc* tests to inquire about the effects of individual construction types. The overall main effects of the construction types and the effects of the individual construction types are summarized in Table 3.28 below.

Focus scope	*The overall main effect P-value*	*Individual main effect*		
Subject Focus	**0.000 (Overall, significant!)**	SVO < S	0.119	SVO ≈ S
		SVO > VOS	**0.000**	***Significant!***
		S > VOS	**0.000**	***Significant!***
Verb Focus	0.284	SVO < $Pro_{DO}V$	1.000	SVO ≈ $Pro_{DO}V$
		SVO > VO	0.608	SVO ≈ VO
		$Pro_{DO}V$ > VO	0.401	$Pro_{DO}V$ ≈ VO
Object Focus	0.051	SVO < O	0.303	SVO ≈ O
		SVO < VO	**0.008**	***Significant!***
		O < VO	1.000	O ≈ VO
Predicate Focus	**0.000 (Overall, significant!)**	SVO < VO	0.341	SVO ≈ VO
		SVO > VO,S	**0.000**	***Significant!***
		VO > VO,S	**0.000**	***Significant!***

Broad Focus	**0.000 (Overall, significant!)**	**SVO > VOS**	**0.000**	***Significant!***
		SVO > VSO	**0.000**	***Significant!***
		VOS > VSO	0.667	VOS ≈ VSO

Table 3.27. Main effect of the construction types, regardless of the *focus* type, across all five *focus* scopes

The above table tells in which among the five *focus* scopes, given the same speaker and the same scenario, the average of the three individual rank values of both *focus* types for one of the three construction types was significantly different from either of those for the other two construction types.

As for the overall main effects for the second factor of study, namely, the chosen construction type showed differences among the five *focus* scopes. In the cases of Subject Focus ($F_{SUBJECT}$), Predicate Focus ($F_{PREDICATE}$), and Broad Focus (F_{BROAD}) there was significant main overall effect of the construction type, whereas in the cases of Verb Focus (F_{VERB}) and Object Focus (F_{OBJECT}) there was non-significant main overall effect of this factor. The overall main effect of the construction type turned out to be significant when there were one or two construction types that held a clear lead in the rank values over the other choice(s), although all three options were ranked considerably higher than the rests of the list presented to the participants.

The effects of the individual construction types further showed us which construction type(s) took a clear lead among the three: with respect to Subject Focus ($F_{SUBJECT}$), both the S option and the SVO option took a clear lead over the VOS option, whereas the two leading options did not show a significant difference between them. With regard to Verb Focus (F_{VERB}), as expected from the overall main effect of this factor, none of the three choices showed a clear lead. The three options were evenly preferred. When we broke the overall main effect of the construction type regarding Object Focus (F_{OBJECT}), which was seemingly non-significant, into the individual effects using the pairwise comparison, there was indeed a significant contrast in one pair. The contrast between SVO and VO turned out to be significant in that the former was consistently ranked lower than the latter. As for Predicate Focus ($F_{PREDICATE}$), both the

SVO and the VO options took a clear lead over the right-dislocated VO,S option, whereas the two leading options did not show a significant difference between them. Finally, regarding Broad Focus (F_{BROAD}), SVO had a great lead on the other two options. Between the less preferred options, i.e., VOS and VSO, did not show any significant contrast between them.

The last observation made with regard to the results of the ranking task was the overall interaction between the *focus* type and the construction type. If the interaction of the two factors were present, the result of combining the two factors would change the results of the main effects of the individual factors summarized in Tables 3.26 and 3.27 above. If not, the results of the main effects of the individual factors would remain the same. Table 28 below illustrates the main effects of the individual construction types and the presence or absence of the change of the results after the interaction between the *focus* type and the construction type.

Focus scope	*The overall interaction P-value*	The individual main effects	After the interaction	*Individual interaction*	
Subject Focus	0.126	SVO ≈ S	NF = CF	0.131	
		SVO > VOS	NF = CF	0.086	
		S > VOS	NF = CF	0.823	
Verb Focus	**0.004 (Overall, significant!)**	SVO ≈ $Pro_{DO}V$	SVO_{NF}< $Pro_{DO}V_{NF}$	0.005	*Significant!*
			SVO_{CF}> $Pro_{DO}V_{CF}$		
		SVO ≈ VO	NF = CF	0.77	
		$Pro_{DO}V$ ≈ VO	$Pro_{DO}V_{NF}$> VO_{NF}	0.002	*Significant!*
			$Pro_{DO}V_{CF}$< VO_{CF}		
Object Focus	**0.006 (Overall, significant!)**	SVO ≈ O	SVO_{NF}< O_{NF}	0.005	*Significant!*
			SVO_{CF}> O_{CF}		
		SVO < VO		0.058	
		O ≈ VO	O_{NF}> VO_{NF}	0.041	*Significant!*
			O_{CF}< VO_{CF}		
Predicate Focus	0.077	SVO ≈ VO	NF = CF	0.067	
		SVO > VO,S	NF = CF only different degrees	*0.041	**Significant!*
		VO > VO,S	NF = CF	0.688	
Broad Focus	0.081	SVO > VOS	NF = CF	0.252	
		SVO > VSO	NF = CF	0.142	
		VOS ≈ VSO	VOS_{NF}> VSO_{NF}	0.049	*Significant!*
			VOS_{CF}< VSO_{CF}		

Table 3.28. Interaction effect of the *focus* type and the construction type across all five *focuses*

In Table 3.28, the changes due to the interaction mainly occurred in Verb Focus and Object Focus. Recall that there was little difference between the longer utterances and the shorter ones when they were compared disregarding the *focus* type. When both the *focus* type and the construction type were taken into account simultaneously, the following tendency emerged: when the given *focus* type is *non-contrastive,* the shorter version was preferred than the longer version ($Pro_{DO}V_{NF}$> VO_{NF} ≈ SVO_{NF} for Verb Focus and O_{NF}> VO_{NF}> SVO_{NF} for Object Focus). On the other hand, when the given *focus* type is *contrastive,* the longer version was preferred to the shorter version ($Pro_{DO}V_{NF}$< VO_{NF} ≈ SVO_{NF} for Verb Focus and O_{NF}< SVO_{NF}< VO_{NF} for Object Focus) as shown in Table 3.28.

As for the remaining scopes of *focus,* the overall interaction turned out to be not significant. However, when we broke down the individual interaction significance, we found two rather unexpected significant interactions. Of the two interactions, the interaction of the SVO and the VO,S for Predicate Focus ($F_{PREDICATE}$) was reported to be significant in spite of the fact that the SVO option was seemingly consistently ranked much higher than the VO,S option for both *focus* types. The significant interaction could result from the **degree or amount** of the rank differences, not the relative rank values between the two options. In other words, the degree of differences in rank values between the SVO option containing *Non-contrastive Focus* ($NF_{PREDICATE}$) and the VO,S option containing *Contrastive Focus* ($NF_{PREDICATE}$) were significantly smaller than that between the SVO option containing *Contrastive Focus* ($CF_{PREDICATE}$) and the VO,S option containing *Contrastive Focus* ($CF_{PREDICATE}$). This result may have to be treated rather exceptional in the current data, because no such significant changes occurred by changing the *focus* type. Finally, in the case of Broad Focus (F_{BROAD}), the SVO option was consistently preferred to either of the two options for both types of *focus* (NF_{BROAD} and CF_{BROAD}). However, the two low ranked options differed depending on the type of *focus*. If they contained *Non-contrastive Focus* (NF_{BROAD}), the VSO option was slightly

preferred to the VOS option. If they contained *Contrastive Focus* (CF_{BROAD}) on the other hand, the latter option was much preferred to the former.

Finally, we would like to close this chapter by discussing the implications of our findings. One of our fundamental research questions posed in Chapter 1 was whether there was any difference between *Non-contrastive Focus* and *Contrastive Focus* loaded syntactically, as claimed by Zubizarreta (1998) and her supporters. The answer we presented in this chapter does not seem as easy and clear-cut as its question. Depending on the scopes of *focus,* the answer could be different. For Subject Focus, Predicate Focus and Broad Focus, the answer would be that there was no or little syntactic difference between the two *focus* types. On the other hand, the Verb Focus and the Object Focus showed that there was some distinguishable tendency between the two types of *focus. on-contrastive Focus* was more associated with the simpler or reduced sentence by containing pronoun or omitting the presupposed part, while *contrastive focus* with the more complete sentence by stating both the *focus* part and the presupposed part.

Another important finding from the main effects of construction types was that both the complete sentence in canonical word order (SVO) and the maximally fragmented sentence with *focus* element only-the S for Subject Focus, the $Pro_{DO}V$ for Verb Focus, the O for Object Focus, and the VO for Predicate Focus- were rated high indistinctively, at least, statistically non-significantly in our data, by both consistently exceeding 4 out of 5. If there is indeed only little difference between these two options, it suggests that the use of the complete sentence instead of the fragmented sentence will not harm the naturalness of the script to be used for the recording sessions.

Note that the findings from the current study turned out to be the opposite to the well-known assumptions regarding the two types of *focus* in the literature (Zubizaretta, 1998 and thereafter). For example, the focus-oriented word order VOS for Subject Focus was ranked quite low not only for *Contrastive Focus* but also for *Non-contrastive Focus*. On the contrary, the complete sentence with a canonical word order was highly rated for both types of *focus*. How can we explain this major difference between the previous

studies and the outcome of the current study, without losing the validity in either of the studies? One suggestion is that we can attribute such conflict to the register of the discourse context used for the current study. The use of 'formal' register as in the pilot study or the setting to elicit 'clear speech' –dialogues with a senior person who suffers from the hearing problems- in the current study may cause the participants to use the more "canonical", "conventional" or "standard" version of sentences, rather than the inversed or right-dislocated version of sentences. Future research will be needed in order to verify the effects of "register" on the syntactic patterns.

CHAPTER FOUR
RESULTS II: PROSODY OF TWO FOCUS TYPES

This chapter presents the results of the experiment on prosodic properties in relation to the two types of *focus*. I tested on three prosodic properties, duration, pitch and intensity and only duration and pitch turned out to be relevant to *focus* itself and the distinction of its subtypes. Intensity did not show relevance to *focus* representation in our analyses and the corresponding results are not shown here. The organization of this chapter is as follows. 4.1 deals with the durational differences between *Contrastive Focus* and *Non-contrastive Focus*. 4.2 discusses the pitch-related differences between the two focus types.

4.1 Duration

The experiment on duration consisted of measuring i) the entire utterances containing *focus* [U]; ii) the *focal* constituent[C]; and iii) the stressed syllable within the given *focus* constituent [S].

In the experiment conducted, the duration of various *focus* units was measured in two ways: *absolute duration* and *relative duration*. *Absolute duration* refers to the raw length of any linguistic unit containing *focus.* In the present study, the following *absolute* durational data were collected to see if there are differences between *Contrastive* and *Non-contrastive Focus*: the stressed syllable within the *focused* word [AS], the *focused* constituent [AC], and the entire sentence [AU] containing *focus*. The actual length of the constituent containing either type of *focus* was measured in milliseconds. In the case of *Subject Focus* (**$F_{SUBJECT}$**) as in the sentence *La MADRE llamó al niño* 'The MOTHER calls the boy', its Absolute duration of the stressed syllable within a *focus* constituent [AS] corresponds to the length of the stressed syllable of the content word containing *focus,* that is, the length of MA- in La MADRE, its Absolute duration of a *focus* constituent [AC], the length of the subject constituent consisting of a content word and

plus a functional word, that is, the length of La MADRE, and its Absolute duration of the entire utterance [AU] corresponds to the length of the entire utterance, that is, *La MADRE llamó al niño*. Figure 4.1 below illustrates how the *absolute duration* of each *focus*-related unit was measured and analyzed.

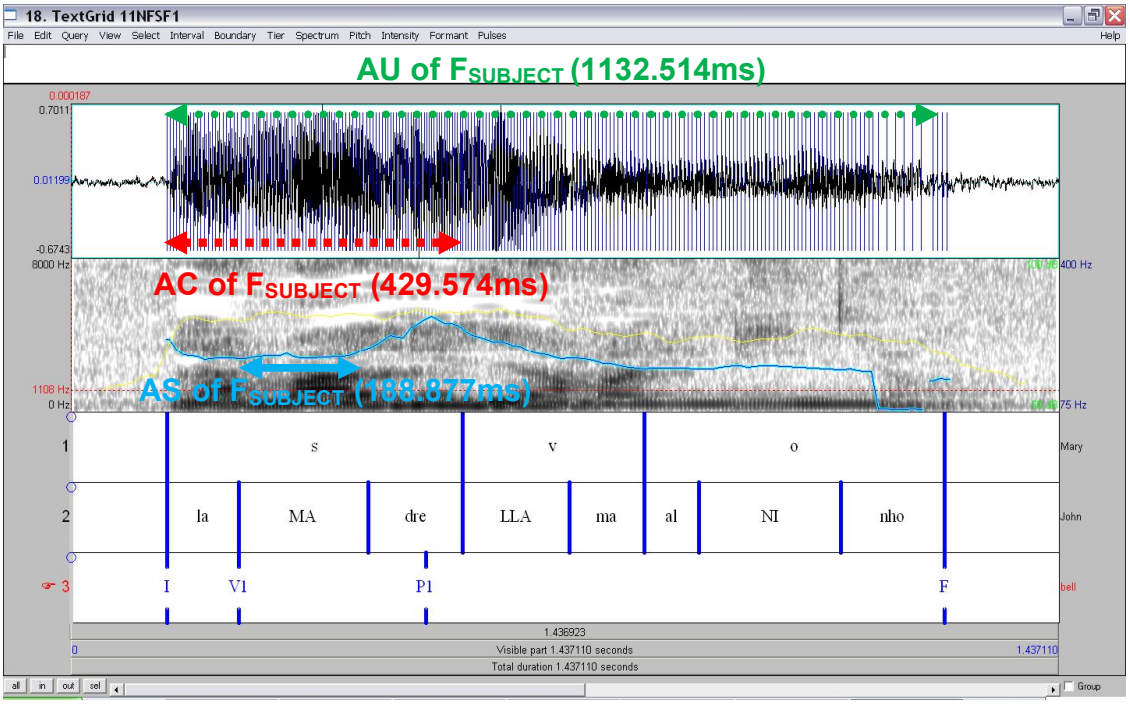


Figure 4.1. Sample analysis for duration of the utterance with *Subject Focus* ($F_{SUBJECT}$)

Three *absolute durational* values under interest were indicated with different arrows in this figure: the length of the stressed syllable of the focused content word [AS] (188.877ms), that of the entire focused constituent [AC] (429.574ms), and that of the entire utterance [AU] (1132.514ms). Then, each linguistic unit containing either type of *focus* measured compared pair-wise. Figure 4.2 below illustrates how the given linguistic units, [AC] in this case, containing either *Contrastive Focus* (**$CF_{SUBJECT}$**) or *Non-contrastive Focus* (**$NF_{SUBJECT}$**) were compared.

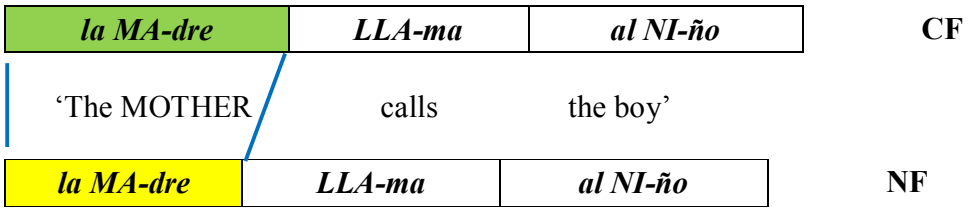


Figure 4.2. Illustration of the measured units to compare the *absolute duration* of the *focused* constituent [AC] containing $CF_{SUBJECT}$ and that containing $NF_{SUBJECT}$

Similar measurement and comparison was made for the cases under other *focus* scope. There are a couple of points to be made. First, in the cases of wider *focus* scope such as *Predicate Focus* (**$F_{PREDICATE}$**), and *Broad Focus* (**F_{BROAD}**), the absolute duration of *focus* constituent [AC] and the absolute duration of the stressed syllables [AS] were calculated as the sum of the lengths of the individual constituents under the *focal* scope and the sum of the lengths of their stressed syllables. For instance, in the case of *Predicate Focus* (**$F_{PREDICATE}$**) such as an utterance *La madre LLAMA AL NIÑO* 'The mother CALLS the BOY', the length of the stressed syllable of the sentential verb *LLA-* and that of the sentential object *NI-* within the same scope of *Predicate Focus* (**$F_{PREDICATE}$**) were measured first and then added up for the total value for the *absolute duration* for the constituent containing *Predicate Focus* (**$F_{PREDICATE}$**). In the same manner, the *focus* constituents within *Broad Focus* (**F_{BROAD}**) were measured and added for the sum value. Figure 4.3 below illustrates how the given linguistic units, [AC] in this case, containing either *Contrastive Focus* (**$CF_{PREDICATE}$**) or *Non-contrastive Focus* (**$NF_{PREDICATE}$**) were compared.

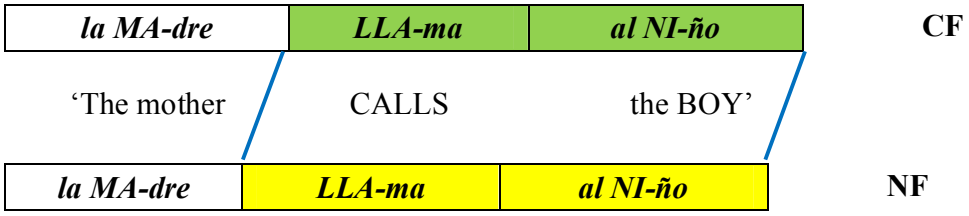


Figure 4.3 Illustration of the measured units to compare the *absolute duration* of the *focused* constituent [AC] containing $CF_{PREDICATE}$ and that containing $NF_{PREDICATE}$

Another point to be made is that in the case of Broad Focus (**F_{BROAD}**), since the absolute duration of the focus constituents [AC] of F_{BROAD} is equal to Absolute duration of the entire utterance [AU] for F_{BROAD}, the data for Broad Focus were not included for the overall calculation for AC.

Relative duration refers to the ratio of the given *focus*-related unit to the bigger unit of which the former is part. The reason for measuring *relative duration* in addition to *absolute duration* is to see whether unstressed syllables or unfocused constituents are negatively affected by *focus* in a consistent way. A more detailed account regarding *relative duration* will be made in next section. In the present study, the following *relative* durational data were collected to see if there are differences between *Contrastive* and *Non-contrastive Focus*: the ratio of the length of the *focused* constituent to the length of the entire utterance containing *focus* to which the *focused* constituent belongs [RC], and the ratio of the length of the stressed syllable within the *focus* constituent to the length of the entire utterance [RSU]. The *relative duration* of a *focus* constituent [RC] [55] containing either type of *focus* (RC hereafter), is defined as the percentage (%; i.e., the value multiplied by 100) of the *absolute duration* of the constituent (AC), divided by *the absolute duration* of the entire utterance (AU), shown in (4-1) below.

(4-1)

$$\textit{relative duration} \text{ of a constituent [RC](\%)} = \frac{\textit{absolute duration of the constituent [AC]}}{\textit{absolute duration of the entire utterance [AU]}} \times 100$$

Let us explain the formula in (4-1) with the case of *Subject Focus* (**$F_{SUBJECT}$**) as in the sentence *La MADRE llamó al niño* 'The MOTHER calls the boy'. To obtain the value of

[55] To measure the *relative duration* of the focused constituent, De la Mota (1995: 154)'s formula was chosen over Navarro Tomás' (1918) original way, mainly because the former way is fairly straightforward and simple.

the relative duration of the focused constituent '*la madre*' [RC], the value of the *absolute duration* of the focused constituent '*la madre*' [AC] (429.574ms) was taken and then divided by the *absolute duration* of the entire utterance *'la madre llama al niño'* [AU] (1132.514ms (See Figure 4.0). The calculated value (0.3793) was multiplied by 100 to get a percentage value (37.93%).

On the other hand, the *relative duration* of the stressed syllable within a *focus* constituent to the entire utterance corresponds to the ratio of the length of the stressed syllable to the entire sentence was measured. It was calculated as the percentage of the *absolute duration* of the stressed syllable [AS] divided by the *absolute duration* of the entire utterance [AU], shown in (4-2) below.

(4-2)[56]

$$\textit{relative duration} \text{ of a stressed syllable [RSU](\%)} = \frac{\textit{absolute duration} \text{ of the stressed syllable [AS]}}{\textit{absolute duration} \text{ of the entire utterance [AU]}} \text{ X } 100$$

For *the relative duration* of the focused constituent '*la madre*' [RSU] with *Subject Focus* ($\mathbf{F_{SUBJECT}}$), the value of the *absolute duration* of the stressed syllable under the focused constituent –MA- (188.877ms) was taken and then divided by the *absolute duration* of the entire utterance *'la madre llama al niño'* [AU] (1132.514ms). The calculated value (0.1668) was multiplied by 100 to get a percentage value (16.68%).Similar measurement and comparison was made for the cases under other *focus* scope.

With regard to the two wider focus scopes, *Predicate Focus* ($F_{PREDICATE}$) and *Broad Focus* (F_{BROAD}), the *relative duration* of the stressed syllable [RS] of each of the constituents, making up the predicate (Verb + Object) or the sentence (Subj + Verb +

[56] This is the exactly same way used by De la Mota (1995 and 1997) to measure the *relative duration* of the stressed syllable under the scope of *focus*.

Obj) respectively, was first measured separately. Then, the measurement of the relevant constituents was added to be considered as the *relative duration* of the stressed syllable corresponding to *Predicate Focus* ($F_{PREDICATE}$) and *Broad Focus* (F_{BROAD}).

4.1.1 Issues on Duration

Duration, compared to pitch, have received less attention with regard to *focus*. The reason why duration has been regarded as secondary is because it is harder to treat as a categorical indicator than pitch (Hualde, 2005) unlike the AM advocate; for instance, efforts to have made one of the pitch-related properties, *pitch alignment*, something with binary categories, i.e. *late peak* versus *early peak*. However, there does not seem to be a way to make durational property categorical, because the distinction between *longer* versus *shorter* can be understood as something categorical.

Any discussion of duration regarding *focus* can be traced back to Navarro Tomás (1918). He distinguished *absolute duration* and *relative duration* and only the former is relevant to what he calls "el acento enfático". According to him (Navarro Tomás 1918: § 21), *absolute duration* may fluctuate due to various factors such as speaker's age, emotion, habit, and so on. With regard to *focus,* he compared[57] durational differences among the syllables of a *focused* word and those of an *unfocused word.* For both the stressed syllable and unstressed syllables of a *focused* word lasted longer than those of an unfocused word. Furthermore, the difference between the stressed syllables appeared greater than that between the unstressed syllables: for example, the stressed syllable of a *focused* word, *MA-* in the *focused* word *la MADRE* in the sentence like <u>La MADRE</u> *llama al niño*, compared to one without *focus, ma-* in the unfocused word *la madre* in the sentence like <u>La madre</u> *llama al NIÑO* would show greater durational increase than the

[57] Note that this example was not extracted from Navarro Tomás' original manuscript. He simply offered an example of a word with durational values with providing further context. He compared the lengths of each syllable of a constituent with and without *focus* interpretation: *per[24ms]-der[30ms]* in ordinary (in our term, unfocused) intonation versus *per[26ms]-der[42ms]* in emphatic (in our term, *focused*) intonation

unstressed syllables of the same word with *focus, -DRE* compared to one without *focus, -dre* in the same set of sentences.

With regard to *relative duration* with regard to *focus* is that there were two seemingly opposite claims made in the literature. Navarro Tomás (1918 : §21) argued that the *relative duration*, defined as the ratio of a stressed syllable to an unstressed syllable, would be determined by language-specific phonetic rule and in his experiment, it turned out to be fairly constant in Spanish. For this reason, according to Navarro Tomás (ibid), the *relative duration* is not affected by *focus*. On the other hand, de la Mota (1997) defined the *relative duration* as the percentile value of a stressed syllable to the bigger unit which the former is part of, and found the percentile difference between the stressed syllable of a *focused* word and that of the stressed syllable of the same word but without *focus* is greater than the percentile difference between the unstressed syllable of the *focused* word and the unstressed syllable of the same but unfocused word. Therefore, she concludes that the *relative duration* was one of the cues to mark *focus*. This discrepancy between the two scholars seems to be due to the different way each defines "*relative duration*". For the current study, the *relative duration* in De la Mota's sense, not in Navarro Tomás' is our interest.

It is hard to find any previous study that deals with durational differences between the two types of *focus*. Nevertheless, we were able to find a study in different field that bears some relevance to the current study. In a psycholinguistic stream, similar attention has been drawn from the differences in speech mode between 'clear speech' and 'casual speech' (Knoll & Uther 2004 & 2007, Smiljanic & Bradlow 2005, and Hay *et al.* 2006). Clear speech refers to the speakers' speech mode when some difficulty in speech perception is expected on the part of their interlocutors due to "background noise, a hearing impairment, or a different native language" (Smiljanic & Bradlow 2005: 1677). During clear speech, speakers would "speak more loudly, more slowly and in a more exaggerated manners" to make themselves more *intelligible* to the hearers. The studies regarding clear speech have great significance in that they managed to pinpoint the extent

to which the intelligibility-enhancing modifications, which may seem a self-explanatory phenomenon, are considered to be motivated by phonological and systematic properties. Although our definition of *contrastive focus* cannot be equated to the definition of clear speech, there is some shared area between the two. Given that speech rate can involve not only the speed of a speaker's whole speech but also the absolute length of complete sentences, for example, if the absolute lengths of the entire sentences containing *Contrastive Focus* appear consistently longer than those containing *Non-contrastive Focus*, we can also say that it involves speech rate.

The issue of *focus projection* with regard to wider *focus* has been traditionally treated in the areas of pitch (Gussenhoven 1983 & 1999, Selkirk 1995, and Welby 2003). If duration, in addition to pitch, turns out to be relevant to *focus* marking, we wondered if the *focus projection* can be reflected in marking *focus* and more importantly in distinguishing two types of *focus*. To verify this, a few additional paired *t*-tests were conducted in order to view whether the so-called *focus-projection* phenomenon occurred with regard to the distinction between the two *focus* types.

4.1.2 Results

The results showed that there was indeed significant durational difference in *focus*-related units between the two types of *focus*. Furthermore, in some cases, there were slight discrepancies with regard to *focus* scope, i.e. narrower focus with the scope of subject, verb, or object versus wider focus with the scope of the entire predicate or entire sentence. However, our study did not show powerful evidence of the effect triggered by *focus projection* with regard to duration in the cases of *Predicate Focus* ($F_{PREDICATE}$) and *Broad Focus* (F_{BROAD}).

4.1.2.1. Absolute duration of the entire utterance[AU]

Figure 4.1 below displays how to compare the *absolute duration* of the entire sentence [AU] containing *Contrastive Focus* and *Non-contrastive Focus* graphically.

Since we are measuring the raw length of the entire sentence, the lengths of the sentences in pair are expected to vary, as illustrated in Figure 4.4.

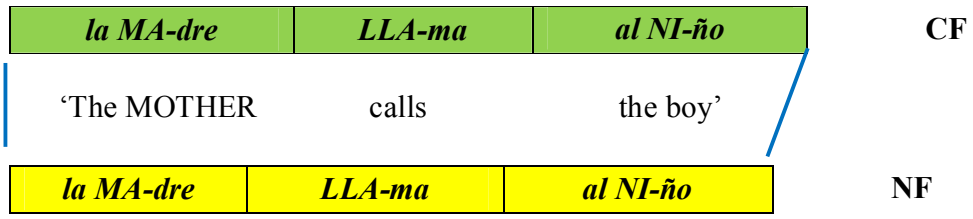


Figure 4.4. Illustration of the measured units to compare the *absolute duration* of the entire sentence [AU] containing $CF_{SUBJECT}$ and one containing $NF_{SUBJECT}$

Figure 4.5 and Table 4.1 below show the comparison of the two types of *focus* on the basis of the overall mean value of the *absolute duration* of the entire utterance. The results are shown according to different scopes of data.

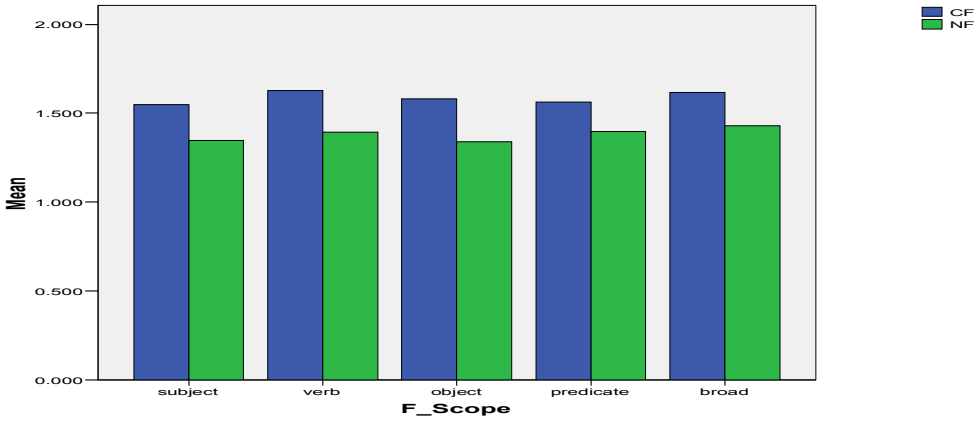


Figure 4.5. Mean *absolute duration* (in *seconds*) of the entire utterance [AU]
of the two types *of focus* produced by seven speakers
(*Contrastive Focus*; marked as 'CF' and *Non-contrastive Focus* marked as 'NF')

Paired Samples Statistics

F_Scope			Mean	N	Std. Deviation	Std. Error Mean
subject	Pair 1	CF	1.54722	21	.284423	.062066
		NF	1.34729	21	.245886	.053657
verb	Pair 1	CF	1.62722	21	.295951	.064582
		NF	1.39388	21	.215909	.047115
object	Pair 1	CF	1.58219	21	.320808	.070006
		NF	1.33875	21	.224628	.049018
predicate	Pair 1	CF	1.56115	21	.278628	.060802
		NF	1.39805	21	.261990	.057171
broad	Pair 1	CF	1.61707	21	.285511	.062304
		NF	1.43062	21	.205256	.044791

Table 4.1. Mean absolute durations (in *seconds*) of the entire utterance [AU]
of the two types *of focus* produced by seven speakers
(*Contrastive Focus*; marked as 'CF' and *Non-contrastive Focus* marked as 'NF')

Both Figure 4.5 and Table 4.1 show that the mean *absolute duration* of the entire utterances with *Contrastive Focus* (CF) appeared longer, across the board, than that with *Non-contrastive Focus* (NF).

Note that the descriptive data shown in Figure 4.5 and Table 4.1, however, only show the average value of all the utterances for the given type of *focus* without identifying the pair of each produced utterance. In order to check whether or not the durational differences appeared consistently among participants regardless of different scenarios provided to the participants, it was necessary to make pair-wise comparisons between two utterances under the same scope of *focus*, produced by the same speaker on the same carrier sentence appearing in the same scenario. For this, we conducted a paired sample *t*-test, and Table 4.2 below shows the results that the durational difference was indeed present.

Paired Samples Test

F_Scope			Paired Differences: Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference: Lower	Upper	t	df	Sig. (2-tailed)
subject	Pair 1	CF - NF	.199928	.252346	.055066	.085061	.314794	3.631	20	.002
verb	Pair 1	CF - NF	.233338	.298758	.065194	.097345	.369331	3.579	20	.002
object	Pair 1	CF - NF	.243442	.314268	.068579	.100389	.386495	3.550	20	.002
predicate	Pair 1	CF - NF	.163096	.248994	.054335	.049755	.276436	3.002	20	.007
broad	Pair 1	CF - NF	.186451	.212349	.046338	.089791	.283112	4.024	20	.001

Table 4.2. Paired samples t-test
on the *absolute duration* (in *seconds*) **of the entire utterance [AU]**
with a distinction on types of *focus* (*Contrastive Focus* vs. *Non-contrastive Focus*).

Note that in the above table the *p*-values came out smaller than 0.05 in all cases, confirming that, other things being equal, the *absolute duration* of the entire utterance [AU] containing *Contrastive Focus* (CF) always appeared longer than the one with *Non-contrastive Focus* (NF) across all *focus* scopes.

4.1.2.2. Absolute duration of the focused constituent or word[AC]

In this section, we look at the *absolute duration* of the *focused* constituent. As mentioned in Chapter 2, all the utterances have the same three sentential constituents, namely, subject + verb + object. Figure 4.6 below displays graphically how the units were measured to compare the *absolute duration* of the *focused* constituent containing *Non-contrastive Focus* and one containing *Contrastive Focus*.

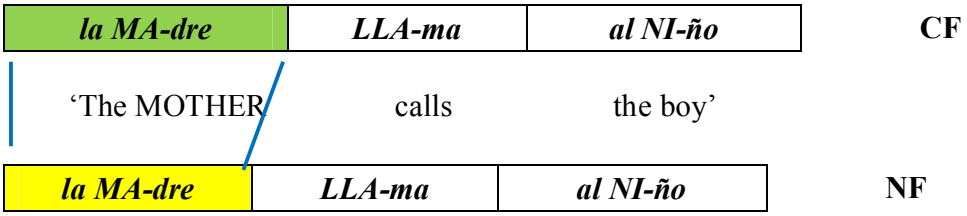


Figure 4.6. Illustration of the measured units to compare the *absolute duration* of the *focused* constituent [AC] containing $CF_{SUBJECT}$ and that containing $NF_{SUBJECT}$

As we measure the raw length of the focused constituent, the variation in lengths of all utterances is expected, as illustrated in Figure 4.6.

Figure 4.7 and Table 4.3 below contrasts the overall mean value of the *absolute duration* of the focused constituent for *Contrastive Focus* and for *Non-contrastive Focus* displayed according to the *focus* scope.

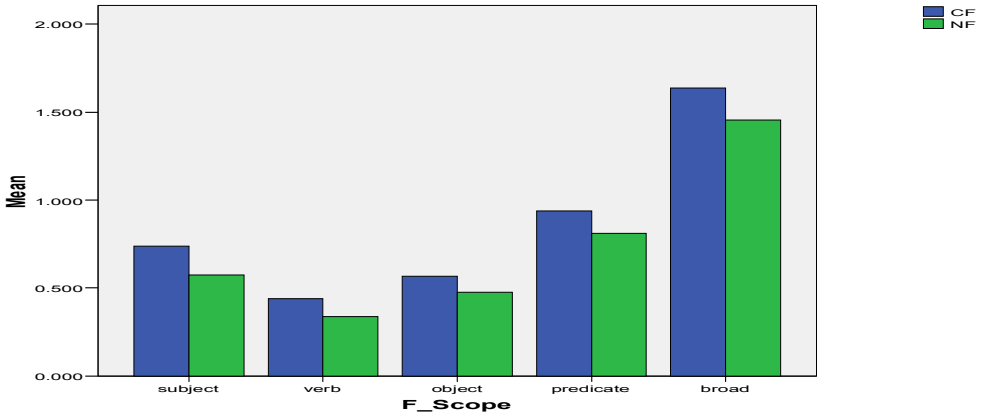


Figure 4.7. Mean *absolute duration* (in *seconds*)of the *focused* constituent [AC]
of the two types of *focus* produced by seven speakers
(*Contrastive Focus*; marked as 'CF' and *Non-contrastive Focus* marked as 'NF')

Paired Samples Statistics

F_Scope			Mean	N	Std. Deviation	Std. Error Mean
subject	Pair 1	CF	.73872	21	.182071	.039731
		NF	.57582	21	.127894	.027909
verb	Pair 1	CF	.44176	21	.136277	.029738
		NF	.33879	21	.076167	.016621
object	Pair 1	CF	.56598	21	.152568	.033293
		NF	.47669	21	.094006	.020514
predicate	Pair 1	CF	.93969	21	.208172	.045427
		NF	.81114	21	.123401	.026928
broad	Pair 1	CF	1.61707	21	.285511	.062304
		NF	1.43062	21	.205256	.044791

Table 4.3. Mean *absolute duration* (in *seconds*)of the *focused* constituent [AC]
of the two types *of focus* produced by seven speakers
(*Contrastive Focus*; marked as 'CF' and *Non-contrastive Focus* marked as 'NF')

Note that as in the *absolute duration*s of the entire utterances [AU], the mean *absolute duration* of the *focused* constituent with *Contrastive Focus* appeared longer than the one with *Non-contrastive Focus* regardless of the position and the size of focal scope. What appears different here from the cases of [AU] is that the mean lengths of *focus* constituents, indicated with a bar height, vary among the five focal scopes involved. It is a logical consequence because each *focus* constituent in a carrier sentence used in the measurement had a different number of syllables. Particularly, two kinds of wider *focus*, *Predicate Focus* ($F_{PREDICATE}$) and *Broad Focus* (F_{BROAD}), are composed of more than one sentence constituent. Naturally, two wider *focus* types have longer durations than the three narrowly *focused* types. As for the *Broad Focus* (F_{BROAD}), its value for the *absolute duration* of the *focused* constituent [AC] would be exactly the same as the *absolute duration* of the entire utterance [AU].

Table 4.4 below shows the result of the paired sample *t*-test between the two types of *focus* when closely compared pair-wise.

Paired Samples Test

F_Scope			Paired Differences					t	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
subject	Pair 1	CF - NF	.162895	.146169	.031897	.096360	.229430	5.107	20	.000
verb	Pair 1	CF - NF	.102976	.145265	.031699	.036853	.169100	3.249	20	.004
object	Pair 1	CF - NF	.089286	.113152	.024692	.037779	.140792	3.616	20	.002
predicate	Pair 1	CF - NF	.128543	.168081	.036678	.052034	.205052	3.505	20	.002
broad	Pair 1	CF - NF	.186451	.212349	.046338	.089791	.283112	4.024	20	.001

Table 4.4. Paired samples t-test
on the *absolute duration* (in *seconds*) of the focused constituent [AC]
with a distinction on Types of Focus (*Contrastive Focus* vs. *Non-contrastive Focus*).

Note that in all cases, the *p*-values came out smaller than 0.05., clearing showing that, other things being equal, the *absolute duration* of the *focused* constituent [AC] with *Contrastive Focus* (CF) were consistently and significantly longer than one containing *Non-contrastive Focus* (NF).

Since both the entire utterances and the *focused* constituents of utterances containing *Contrastive Focus* were constantly longer than ones containing *Non-contrastive Focus*, our next point of investigation is how the unfocused parts of the utterance differ for the two types of *focus*. If the unfocused parts of the utterances containing *Contrastive Focus* come out constantly longer than those containing *Non-contrastive Focus,* we can conclude that the difference is simply in the speech rate of utterances containing each type of *focus,* as Navarro Tomás (1918: §174) suggested. If, however, there is no such consistent difference, we can confirm that the durational difference between the two *focus* types appears mainly in the *focused* parts. Table 4.5 below displays the difference in *absolute duration* of the unfocused parts (i.e., [AU]-[AC]) between the two types of *focus*. Note that the comparison between two types of Broad Focus (i.e., CF_{BROAD} vs. NF_{BROAD}) was made, because there is no unfocused part in Broad Focus (F_{BROAD}).

Paired Samples Test[a]

F_Scope			Paired Differences					t	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
subject	Pair 1	COMPUTE DIFF_CF_Unfocused = CF_AU - CF_AC - COMPUTE DIFF_NF_Unfocused = NF_AU - NF_AC	.037032	.146204	.031904	-.029519	.103584	1.161	20	.259
verb	Pair 1	COMPUTE DIFF_CF_Unfocused = CF_AU - CF_AC - COMPUTE DIFF_NF_Unfocused = NF_AU - NF_AC	.130362	.186423	.040681	.045503	.215220	3.204	20	.004
object	Pair 1	COMPUTE DIFF_CF_Unfocused = CF_AU - CF_AC - COMPUTE DIFF_NF_Unfocused = NF_AU - NF_AC	.154156	.253586	.055337	.038725	.269587	2.786	20	.011
predicate	Pair 1	COMPUTE DIFF_CF_Unfocused = CF_AU - CF_AC - COMPUTE DIFF_NF_Unfocused = NF_AU - NF_AC	.034553	.213065	.046495	-.062433	.131539	.743	20	.466

a. No statistics are computed for one or more split files

Table 4.5.Paired samples t-test
on the *absolute duration* (in *seconds*) of the unfocused constituent [AU-AC]
with a distinction on Types of Focus (*Contrastive Focus* vs. *Non-contrastive Focus*)

The output table above shows mixed results depending on the scope of *focus*. With respect to *Verb Focus* (F_{VERB}) and *Object Focus* (F_{OBJECT}) the unfocused constituents for *Contrastive Focus,* were longer than those for *Non-contrastive Focus*. With respect to *Subject Focus* ($F_{SUBJECT}$) and *Predicate Focus* ($F_{PREDIACTE}$), on the other hand, there was no significant difference between *Contrastive Focus* and *Non-contrastive Focus*. At this point, we are unable to provide an explanation to this discrepancy and we will have to leave it to future research.

We now turn to the issue of the effect of *focus projection* on the two types of *focus*. Since the comparison was only made pairwise between the utterances under the same scopes, whether or not the *focus projection* occurred in the utterances with wider *focus* scopes is irrelevant in the current discussion. Rather, we are interested in knowing if *focus projection* influences the specification of *focus* types at all. In order to find this out, additional paired *t*-tests were conducted for wider *focus* scope such as *Predicate Focus* ($F_{PREDICATE}$) or *Broad Focus* (F_{BROAD}). It turns out that neither of the two wider *focus* scopes shows *focus projection.*

First see Table 4.6 below, when shows the results of *Predicate Focus* ($F_{PREDICATE}$).

Paired Samples Test

			Paired Differences					t	df	Sig. (2-tailed)
						95% Confidence Interval of the Difference				
PF_Scope_AC			Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
verb	Pair 1	CF - NF	.047745	.075391	.016452	.013427	.082062	2.902	20	.009
object	Pair 1	CF - NF	.047151	.107881	.023542	-.001956	.096258	2.003	20	.059

Table 4.6.Paired samples t-test
on the *absolute duration* (in *seconds*) of the individual *focused* constituents [AC]
under *Predicate Focus* ($F_{PREDICATE}$) with a distinction on Types of Focus
(*Contrastive Focus* vs. *Non-contrastive Focus*).

Note that the *focus* verbs under the scope of *Contrastive Predicate Focus* ($CF_{PREDICATE}$) are consistently longer than those under the scope of *Non-contrastive Predicate Focus* ($NF_{PREDICATE}$). Meanwhile, the *focus* objects under the same scope containing *Contrastive*

Focus show only consistently longer than those under the same scope containing *Non-contrastive Focus*. If there were an effect of *focus projection* on the distinction of two types of *focus*, only the object should appear longer than the one under the same scope containing *Non-contrastive Focus*. Since both verb and object of *Predicate Focus* appeared longer with *Contrastive Focus* than with *Non-contrastive Focus,* we conclude that there is no effect of *focus projection* on the *focus* distinction of the sort discussed here.

Next observe Table 4.7, which shows the results of as *Broad Focus* (F_{BROAD}).

Paired Samples Test

BF_Scope_AC			Paired Differences					t	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
subject	Pair 1	CF - NF	.062023	.125882	.027470	.004722	.119324	2.258	20	.035
verb	Pair 1	CF - NF	.038572	.072174	.015750	.005719	.071426	2.449	20	.024
object	Pair 1	CF - NF	.085856	.084811	.018507	.047250	.124461	4.639	20	.000

Table 4.7. Paired samples t-test
on the *absolute duration* (in *seconds*) of the individual constituent [AC] under *Broad Focus* (F_{BROAD}) with a distinction on Types of Focus
(*Contrastive Focus* vs. *Non-contrastive Focus*)

Note that all three constituents –subject, verb, and object- for *Contrastive Focus* (CF_{BROAD}) are consistently longer than for *Non-contrastive Focus* (NF_{BROAD}). If there were indeed an effect of *focus projection*, only the object constituent within the scope of *Broad Contrastive Focus* should appear longer than one under the same scope with *Non-contrastive Focus*. From this, we conclude that there is no effect of *focus projection* on the *focus*-type distinction with regard to duration.

To recapitulate this section, we found that regardless of the scope of *focus,* the *absolute duration* of the sentential constituent containing *Contrastive Focus* with narrow scope was always longer than one containing *Non-contrastive Focus*. In addition, there was no evidence that the *focus* scope distinction made significant changes on the *absolute duration* of the *focused* constituent. The *absolute duration* of the unfocused parts of the

utterances showed different results according to the *focal* scopes. Both *Verb Focus* (F_{VERB}) and *Object Focus* (F_{OBJECT}) showed greater *absolute duration* for *Contrastive Focus* than for *Non-contrastive Focus,* suggesting that the entire speech rate of utterances containing *Contrastive Focus* is slower than those of utterances containing *Non-contrastive Focus*. Meanwhile, *Subject Focus* ($F_{SUBJECT}$) and *Predicate Focus* ($F_{PREDICATE}$) did not show such durational differences. This suggests that durational differences are mainly caused by the *focused* parts rather than the entire utterance. Finally, there was no distinction between the two types of *focus* with regard to *focus projection*.

4.1.2.3. Absolute duration of the stressed syllable of the focused content word[AS]

In this section we consider the *absolute duration* of the stressed syllable of the focused constituent. Figure 4.8 below displays which unit was measured to compare the *absolute duration* of the stressed syllable of a sentential constituent containing *Non-contrastive Focus* and *Contrastive Focus*. Note that since we are measuring the raw length of the *focused* constituent, the length of each sentence is expected to vary as in Figure 4.7.

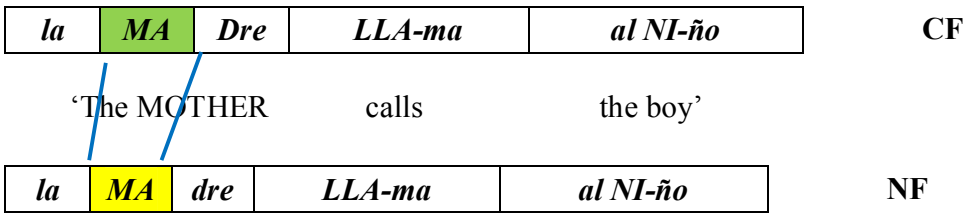


Figure 4.8. Illustration of the measured units to compare the *absolute duration* of the stressed syllable within the *focused* constituent [AS] containing $CF_{SUBJECT}$ and that containing $NF_{SUBJECT}$

Figure 4.9 and Table 4.8 below show an overall mean value of the *absolute duration* of the stressed syllable of the focused (content) word for both types of *focus* [AS] according to different *focus* scopes.

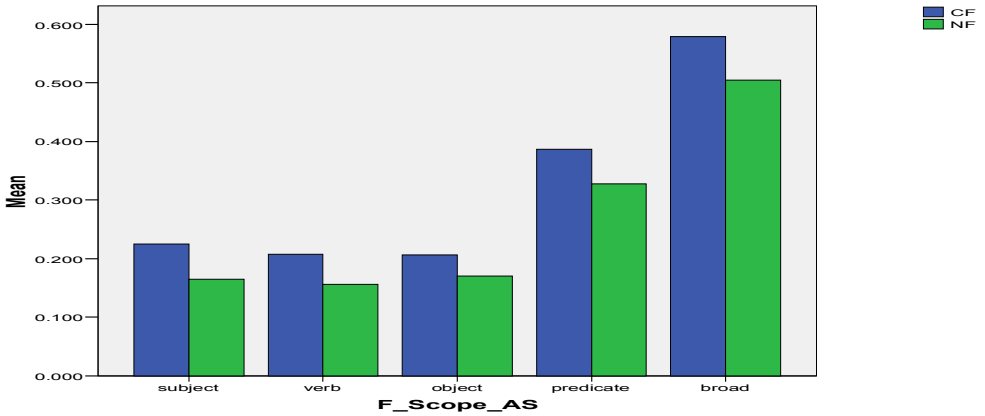


Figure 4.9. Mean *absolute duration* (in *seconds*) of the stressed syllable of the focused content word [AS] of the two types of *focus* produced by seven speakers (*Contrastive Focus*; marked as 'CF' and *Non-contrastive Focus* marked as 'NF')

Paired Samples Statistics

F_Scope_AS			Mean	N	Std. Deviation	Std. Error Mean
subject	Pair 1	CF	.22481	21	.049010	.010695
		NF	.16452	21	.025192	.005497
verb	Pair 1	CF	.20719	21	.063596	.013878
		NF	.15561	21	.051650	.011271
object	Pair 1	CF	.20589	21	.056927	.012423
		NF	.17080	21	.038382	.008376
predicate	Pair 1	CF	.38652	21	.090812	.019817
		NF	.32756	21	.051508	.011240
broad	Pair 1	CF	.57943	21	.107506	.023460
		NF	.50519	21	.070260	.015332

Table 4.8. Mean Absolute Durations (in *seconds*) **of the stressed syllable of the focused content word [AS]** according to the types of *focus* with regard to *contrast* (*Contrastive Focus*; marked as 'CF' and *Non-contrastive Focus* marked as 'NF')

Remember that each constituent was designed to include one content word and, as a cushion, one or a couple of functional words like definite or indefinite articles or

prepositions. The inclusion of such words was to minimize any confounding effects such as initial-strengthening and tonal clash (Prieto, 2003). Since all the functional words used in the tested utterances were monosyllabic, the value of the stressed syllable was only taken from the content word under each given focal domain. Also, note that for the *absolute duration* of the stressed syllable under wider *focus* scopes (*Predicate Focus* and *Broad Focus*) the sum value of the stressed syllables of all the sentential constituents was used for statistical coherence. Figure 4.8 and Table 4.7 above suggest that the mean *absolute duration* of the stressed syllable of the focused content word containing *Contrastive Focus* appeared longer than that containing *Non-contrastive Focus,* regardless of the position and the size of focal scope. These results coincide with earlier cases – [AU] and [AC]-,

Furthermore, Table 4.9 below confirms that the differences found in Figure 4.9 and Table 4.8 illustrated above was indeed statically significant ($P < 0.05$) across all five *focus* scopes. Note that all Confidence Intervals of the Difference have plus values.

Paired Samples Test

			Paired Differences					t	df	Sig. (2-tailed)
						95% Confidence Interval of the Difference				
F_Scope_AS			Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
subject	Pair 1	CF - NF	.060295	.039848	.008696	.042157	.078434	6.934	20	.000
verb	Pair 1	CF - NF	.051571	.078912	.017220	.015651	.087492	2.995	20	.007
object	Pair 1	CF - NF	.035086	.048661	.010619	.012936	.057236	3.304	20	.004
predicate	Pair 1	CF - NF	.058967	.083643	.018252	.020893	.097041	3.231	20	.004
broad	Pair 1	CF - NF	.074243	.092858	.020263	.031975	.116511	3.664	20	.002

Table 4.9. Paired samples t-test
on the *absolute duration* (in *seconds*) of the stressed syllable of the focused content word [AS] with a distinction on Types of Focus (*Contrastive Focus* vs. *Non-contrastive Focus*)

We have just confirmed that both the *focused* constituents of utterances and their stressed syllables containing *Contrastive Focus* were constantly longer than ones containing *Non-contrastive Focus*. The next question to be posed is if the unstressed syllables within the *focused* constituents consistently differ for the two types of *focus*. If the unstressed

syllables of the *focused* constituents containing *Contrastive Focus* come out constantly longer than those containing *Non-contrastive Focus,* we can conclude that the *focus* type differentiation is not only related to the stressed syllable but also to the unstressed syllable. If, however, there is no consistent difference, we can say that the durational difference between the two *focus* types is only related to the stressed syllable of the *focused* parts. The table below displays the difference in *absolute duration* of the unstressed syllables within the *focused* constituents (i.e., [AC]-[AS]) between the two types of *focus.*

Paired Samples Test

			Paired Differences					t	df	Sig. (2-tailed)
						95% Confidence Interval of the Difference				
F_Scope			Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
subject	Pair 1	COMPUTE DIFF_CF_Unfocused = CF_AC - CF_AS - COMPUTE DIFF_NF_Unfocused = NF_AC - NF_AS	.102600	.123093	.026861	.046569	.158631	3.820	20	.00
verb	Pair 1	COMPUTE DIFF_CF_Unfocused = CF_AC - CF_AS - COMPUTE DIFF_NF_Unfocused = NF_AC - NF_AS	.051405	.102392	.022344	.004796	.098013	2.301	20	.032
object	Pair 1	COMPUTE DIFF_CF_Unfocused = CF_AC - CF_AS - COMPUTE DIFF_NF_Unfocused = NF_AC - NF_AS	.054200	.087657	.019128	.014299	.094101	2.834	20	.010
predicate	Pair 1	COMPUTE DIFF_CF_Unfocused = CF_AC - CF_AS - COMPUTE DIFF_NF_Unfocused = NF_AC - NF_AS	.069576	.113697	.024811	.017822	.121331	2.804	20	.011
broad	Pair 1	COMPUTE DIFF_CF_Unfocused = CF_AC - CF_AS - COMPUTE DIFF_NF_Unfocused = NF_AC - NF_AS	.112208	.144344	.031498	.046504	.177913	3.562	20	.002

Table 4.10. Paired samples t-test
on the *absolute duration* (in *seconds*) of the unfocused constituent [AU-AC]

The output table shows that across the *focus* scopes, the unstressed syllables within the *focused* constituents with *Contrastive Focus* were longer than ones under the same *focus* scopes with *Non-contrastive Focus*. This is the exact result that Navarro Tomás (1918) discovered almost a hundred years ago. This would bring a fresh challenge to the existing 'stress = accent' view (Ortega-Llebaria 2006, Ortega-Llebaria & Prieto

2007, Ortega-Llebaria *et al.* 2010). We could offer an additional evidence for the effort of separating stress from accent, by suggesting that *contrast* would be an important factor to disentangle stress from accent.

Let us look at, with regard to the *absolute duration* of the stressed syllable within a *focused* constituent, the effect of *focus projection* on the distinction of the two types of *focus*. To verify whether *focus projection* affects the specification of *focus* types, additional paired *t*-tests were conducted for wider *focus* scope such as *Predicate Focus* ($F_{PREDICATE}$) or *Broad Focus* (F_{BROAD}). The results are shown in Tables 4.10 and 4.11 below. Neither of the two wider *focus* scopes shows the evidence of *focus projection*.

Paired Samples Test

			Paired Differences					t	df	Sig. (2-tailed)
						95% Confidence Interval of the Difference				
PF_Scope_AS			Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
verb	Pair 1	CF - NF	.027542	.072433	.015806	-.005429	.060513	1.742	20	.097
object	Pair 1	CF - NF	.009915	.046093	.010058	-.011067	.030896	.986	20	.336

Table 4.10. Paired samples t-test on the *absolute duration* (in *seconds*) of the stressed syllables of the two *focused* constituents [AS] under *Predicate Focus* ($F_{PREDICATE}$) with a distinction on Types of Focus (*Contrastive Focus* vs. *Non-contrastive Focus*)

In the case of *Predicate Focus* ($F_{PREDICATE}$), as shown in Table 4.10 above, neither the *focused* verbs nor the *focused* object with *Contrastive Focus* are consistently longer than ones with *Non-contrastive Focus*. If there were *focus projection*, at least the object constituent in the scope of *Predicate Contrastive Focus* ($CF_{PREDICATE}$) would have appeared longer than the same unit under the same scope containing *Non-contrastive Focus* ($NF_{PREDICATE}$).

Paired Samples Test

BF_Scope_AS			Paired Differences					t	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
subject	Pair 1	CF - NF	.024709	.037962	.008284	.007429	.041989	2.983	20	.007
verb	Pair 1	CF - NF	.025128	.046409	.010127	.004003	.046253	2.481	20	.022
object	Pair 1	CF - NF	.030402	.038694	.008444	.012789	.048015	3.601	20	.002

Table 4.11. Paired samples t-test on the *absolute duration* (in *seconds*) of the stressed syllables of the three *focused* constituent [AS] under *Broad Focus* (F_{BROAD})

In the case of Broad Focus (F_{BROAD}), as shown in Table 4.11 above, the stressed syllables of all three constituents –subject, verb, and object- under the scope of *Contrastive Predicate Focus* ($CF_{PREDICATE}$) are consistently longer than those under the scope of *Non-contrastive Predicate Focus* ($NF_{PREDICATE}$). If there were *focus projection*, only the stressed syllable of the object constituent in the scope of *Broad Contrastive Focus* (CF_{BROAD}) would appear longer than the same unit under the same scope containing *Non-contrastive Focus* (NF_{BROAD}). The above two findings suggest that *focus projection* may not be relevant in distinguishing two types of *focus*, when it comes to the absolute duration of the stressed syllable of the *focused* constituent in distinguishing the two types of *focus*.

In sum, we conclude that regardless of the scope of *focus,* the *absolute duration* of both the stressed syllable and its surrounding unstressed syllables of the sentential constituent containing *Contrastive Focus* were always longer than the equivalents containing *Non-contrastive Focus*. In addition, there was no evidence that the *focus* scope differentiation brought significant changes in the *absolute duration* of the stressed syllable and its surrounding unstressed syllables of the (content) word. Finally, *focus projection* was not involved with the distinction between the two types of *focus*.

4.1.2.4. Relative duration of the focused constituent [RC]

We now turn to the *relative duration*s of different segmental units: the ratio of the focused constituent to the entire utterance, the stressed syllable within the scope of *focus* to the focused constituent, and the stressed syllables within the scope of focus to the entire sentence.

Figure 4.11 below displays graphically how we compared the duration of the focused constituent containing *Non-contrastive Focus* and that containing *Contrastive Focus* with relation to the entire duration. In this example, the scope of *focus* is narrow and falls on the subject. Since we are measuring the ratio of the focused constituent to the entire sentence, the length of each sentence is equalized as in Figure 4.11.

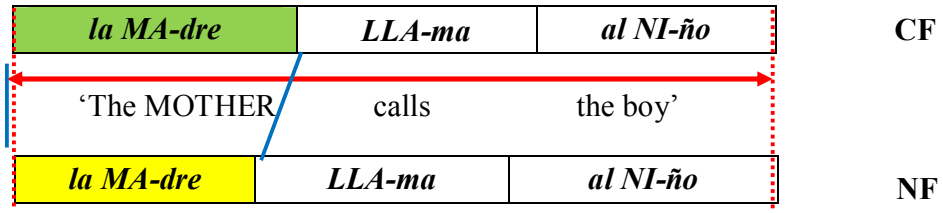


Figure 4.11. Illustration of the measured units to compare the length of the *focused* constituent *relative to* the entire sentence [RC] containing $CF_{SUBJECT}$ and that containing $NF_{SUBJECT}$

Figure 4.12 and Table 4.12 below illustrate what percentage of the given utterance was occupied by the focused constituent in question. The *relative duration* of the focused constituents for Broad Focus (F_{BROAD}) was excluded, since regardless of the type of *focus* the sum of the *relative duration* of its focused constituents will, by definition, be 100%.

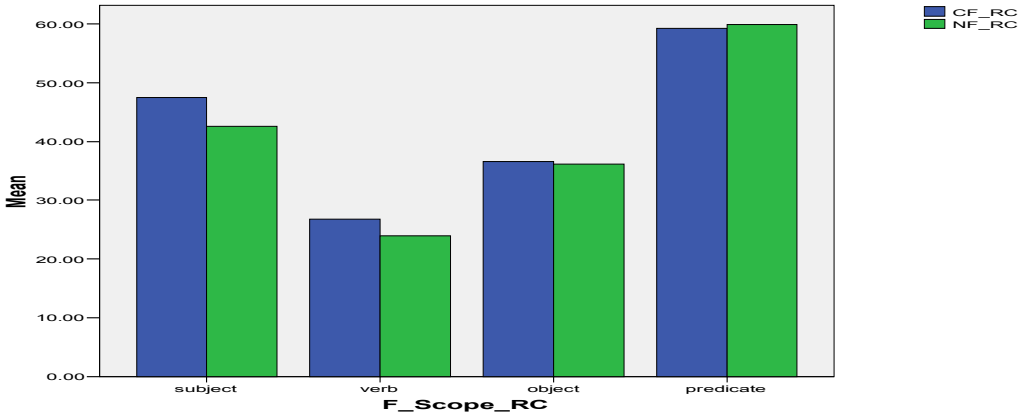


Figure 4.12 Mean Relative Durations (%) of the focused constituent [RC]

Paired Samples Statistics

F_Scope_RC			Mean	N	Std. Deviation	Std. Error Mean
subject	Pair 1	CF	47.4905	21	5.49117	1.19827
		NF	42.5671	21	3.95960	.86405
verb	Pair 1	CF	26.7981	21	4.30199	.93877
		NF	23.8929	21	3.08604	.67343
object	Pair 1	CF	36.5357	21	7.87221	1.71786
		NF	36.1271	21	6.43488	1.40421
predicate	Pair 1	CF	59.2081	21	4.94999	1.08018
		NF	59.9457	21	6.04919	1.32004

Table 4.12. Mean Relative Durations (%) of the focused constituent [RC]

For certain kinds of *focal* scope, the mean *relative duration* of the *focused* constituents shows a clear difference between *Contrastive Focus* and *Non-contrastive Focus*.

Paired Samples Test

F_Scope_RC			Paired Differences					t	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
subject	Pair 1	CF - NF	4.92333	4.41345	.96309	2.91435	6.93231	5.112	20	.000
verb	Pair 1	CF - NF	2.90524	4.73371	1.03298	.75048	5.06000	2.812	20	.011
object	Pair 1	CF - NF	.40857	5.06030	1.10425	-1.89485	2.71199	.370	20	.715
predicate	Pair 1	CF - NF	-.73762	5.24060	1.14359	-3.12311	1.64787	-.645	20	.526

Table 4.13.Paired samples t-test
on the Relative Durations (%) of the focused constituent (RC) with a distinction on types of *focus* (*Contrastive Focus* vs. *Non-contrastive Focus*)

In the cases of utterance non-final *focus* such as Subject Focus($F_{SUBJECT}$) and Verb Focus (F_{VERB}), the mean *relative duration* of the corresponding *Contrastive Focus* was longer than that of *Non-contrastive Focus.* With regard to statistical significance, as shown in Table 4.13 above, our data show that only the pairs of the utterances containing utterance-nonfinal *focus* made a significant distinction. The smaller *p*-values (<.001 for Subject Focus ($F_{SUBJECT}$) and 0.011 for Verb Focus (F_{VERB})) in the paired-sample *t*-test in Table 4.13 clearly indicates the significant difference between *Contrastive Focus* and *Non-contrastive Focus.* For utterance final focus such as Object Focus and Predicate Focus, on the other hand, there was hardly any difference in mean *relative duration* between *Contrastive Focus* and *Non-contrastive Focus*. This is indicated by the larger *p*-values (0.715 for Object Focus (F_{OBJECT}) and 0.526 for Predicate Focus ($F_{PREDICATE}$)) in the paired samples *t*-test in Table 4.12. With regard to statistical significance, the differences between the two types of focus in Object Focus (F_{OBJECT}) and Predicate Focus ($F_{PREDICATE}$) did not gain any statistical significance.

In fact, this finding correlates with Domínguez's (2004 a&b) result that *Contrastive Focus* and *Non-contrastive Focus* at utterance-final positions were intonationally (pitch-wise) indistinguishable. Considering, however, that *absolute duration* of the focused constituent was constantly longer for *Contrastive Focus* than for *Non-contrastive Focus* even at these utterance-final scopes of *focus*, we suggest that speakers may manage the

speaking rate of the entire utterance containing *focus* rather than the ratio of the focused part to the remaining of the sentence.

Recall that there were no significant differences in *relative duration* between the two types of *focus* containing wider *focus* scopes in the cases of Broad Focus sand Predicate Focus. We checked to see if there were any differences in the relative duration of each component of a given *focal* scope containing either type of *focus, Contrastive Focus* or *Non-contrastive Focus*. In particular, if there are relative-durational differences in the last *focus* elements like the sentence object between *Contrastive Focus* and *Non-contrastive Focus*, we needed to confirm the effect of *focus projection* on the distinction of *focus* types. Therefore, we conducted additional paired-sample *t*-tests for two wider *focus* scopes. As shown in the following two tables (Tables 4.14 and 4.15), none of *focused* constituents containing *Contrastive Focus* under wider scopes appeared consistently longer than that of the corresponding unit containing *Non-contrastive Focus*. With this result, we were able to confirm that none of the individual *focal* constituent under the wider scope showed any relative-durational distinction between the two types of *focus*

Paired Samples Test

			Paired Differences					t	df	Sig. (2-tailed)
						95% Confidence Interval of the Difference				
PF_Scope_AC			Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
verb	Pair 1	CF - NF	.65571	2.86266	.62468	-.64735	1.95878	1.050	20	.30
object	Pair 1	CF - NF	-1.39333	6.36975	1.38999	-4.29281	1.50614	-1.002	20	.32

Table 4.14. Paired samples t-test on the *relative duration* (in *seconds*) of the individual constituents [RC] under *Predicate Focus* ($F_{PREDICATE}$)

Paired Samples Test

BF_Scope_AC			Paired Differences					t	df	(2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
subject	Pair 1	CF - NF	-.99571	4.43837	.96853	-3.01604	1.02461	-1.028	20	.31
verb	Pair 1	CF - NF	-.29095	3.03965	.66331	-1.67458	1.09268	-.439	20	.66
object	Pair 1	CF - NF	1.28143	3.94889	.86172	-.51608	3.07894	1.487	20	

Table 4.15. Paired samples t-test on the *relative duration* (in *seconds*) of the individual constituents [RC] under *Broad Focus* (F_{BROAD})

The findings we observed here on the relevant duration, combined with the findings on the absolute duration, tell us that *focus projection* plays no role in distinguishing the two types of *focus*.

4.1.2.5. Relative duration of the stressed syllable of the focused content word (RSU):

We now turn to what percentage of the entire utterance was occupied by the stressed syllable of the focused content word. Figure 4.13 displays graphically how we compared the duration of the stressed syllable within the scope of *focus* containing *Non-contrastive Focus* and that containing *Contrastive Focus* with relation to the entire utterance. Since we are measuring the ratio of the stressed syllable within the scope of *focus* to the entire sentence, the length of each sentence is equalized.

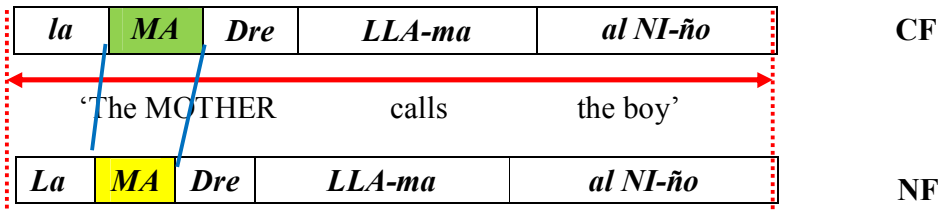


Figure 4.13. Illustration of the measured units to compare the *relative duration* of the *stressed syllable of the focused* constituent to the entire sentence [RCU] containing $CF_{SUBJECT}$ and that containing $NF_{SUBJECT}$

Figure 4.14 and Table 4.16 below demonstrate what percentage of the entire utterance was occupied by the stressed syllable of the focused content word.

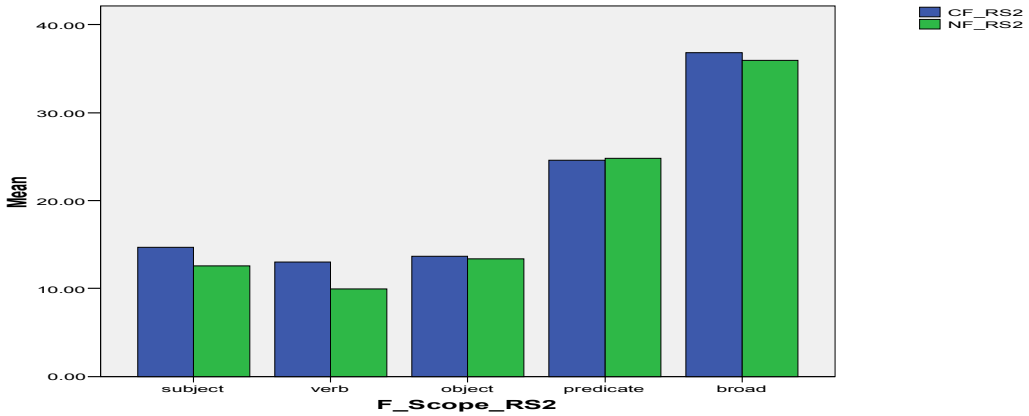


Figure 4.14. Mean Relative Durations (%) of the stressed syllable of the focused content word within the entire utterance [RSU]

Paired Samples Statistics

F_Scope_RS2			Mean	N	Std. Deviation	Std. Error Mean
subject	Pair 1	CF	14.7238	21	3.19642	.69752
		NF	12.5671	21	2.80043	.61110
verb	Pair 1	CF	13.0071	21	4.04131	.88189
		NF	9.9481	21	4.60167	1.00417
object	Pair 1	CF	13.6643	21	2.96797	.64766
		NF	13.3610	21	2.28964	.49964
predicate	Pair 1	CF	24.5714	21	5.00173	1.09147
		NF	24.8076	21	4.70872	1.02753
broad	Pair 1	CF	36.7857	21	5.10569	1.11415
		NF	35.9686	21	4.85680	1.05984

Table 4.16. Mean relative durations (%) of the stressed syllable of the focused content word within the entire utterance [RSU]

A paired-sample *t*-test was conducted to compare the *duration* of the stressed syllable of the focused content word in relation to the entire utterance [RSU] for *Contrastive Focus* and *Non-contrastive Focus*. Note that the mean *relative duration* of the stressed syllables in Figure 4.14 and Table 4.16 and the paired-sample *t*-tests between the *relative duration*

of the stressed syllable containing *Contrastive Focus* and *Non-contrastive Focus* in Table 4.17below resemble the results for the mean *relative duration* of the focused constituents reported in the previous section.

Paired Samples Test

			Paired Differences					t	df	Sig. (2-tailed)
F_Scope_RS2			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
subject	Pair 1	CF - NF	2.15667	2.22773	.48613	1.14262	3.17072	4.436	20	.000
verb	Pair 1	CF - NF	3.05905	4.77227	1.04139	.88674	5.23136	2.937	20	.008
object	Pair 1	CF - NF	.30333	2.53695	.55361	-.85147	1.45814	.548	20	[illegible]
predicate	Pair 1	CF - NF	-.23619	3.50675	.76524	-1.83245	1.36006	-.309	20	.761
broad	Pair 1	CF - NF	.81714	2.87483	.62734	-.49146	2.12575	1.303	20	[illegible]

Table 4.17. Paired samples t-test
on the relative durations (%) of the stressed syllable of the focused content word within the entire utterance[RSU]

That is, the *relative duration* of the stressed syllables of the *contrastively* focused word was significantly longer than that of the *non-contrastively focused* word in the cases of utterance-*Non*-final foci such as *Subject Focus* ($F_{SUBJECT}$) and *Verb Focus* (F_{VERB}). In contrast, such difference in *relative duration* did not appear in the cases of utterance final foci such as *Object Focus* (F_{OBJECT}), *Predicate Focus* ($F_{PREDICATE}$) and *Broad Focus* (F_{BROAD}).

We also checked to see if there were any differences among the individual *focus* constituents under the same *focus* scope. Recall that when *focus* falls narrowly on sentence object -Object Focus (F_{OBJECT})- there was no significance difference in the *relative duration* of the stressed syllable [RSU] containing the two types of *focus*, whereas the opposite result was the case in the *absolute duration* of the stressed syllable [AS]. If there were no relative-durational differences in the last *focus* elements like the object between *Contrastive Focus* and *Non-contrastive Focus* under the wider *focus* scopes, we could confirm that this last position was neutralized in the sense that certain significant distinction would disappear in this position (Nibert 2002, for example). In order to test this, we conducted additional paired-sample *t*-tests for two wider *focus*

scopes. As shown in the two following tables (Tables 4.18 and 4.19), none of the stressed syllables of the *focused* constituent containing *Contrastive Focus* under wider scopes significantly differed from that of the corresponding unit containing *Non-contrastive Focus*.

Paired Samples Test

PF_Scope_RS2			Paired Differences					t	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
verb	Pair 1	FC - FN	.75714	3.47630	.75859	-.82525	2.33954	.998	20	.330
object	Pair 1	FC - FN	-.99286	2.86676	.62558	-2.29779	.31208	-1.587	20	.128

Table 4.18. Paired samples t-test on the *relative duration* (in *seconds*) of the stressed syllables of the individual constituents to the entire utterance [RSU] under *Predicate Focus* (PF) with a distinction on Types of Focus (*Contrastive Focus* vs. *Non-contrastive Focus*).

Paired Samples Test

BF_Scope_RS1			Paired Differences					t	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
subject	Pair 1	FC - FN	.18714	1.62863	.35540	-.55420	.92849	.527	20	.604
verb	Pair 1	FC - FN	.25381	2.66903	.58243	-.96112	1.46874	.436	20	.668
object	Pair 1	FC - FN	.37619	1.93222	.42164	-.50334	1.25573	.892	20	.383

Table 4.19. Paired samples t-test on the *relative duration* (in *seconds*) of the stressed syllables of the individual constituents to the entire utterance [RSU] under *Broad Focus* (PF) with a distinction on Types of Focus (*Contrastive Focus* vs. *Non-contrastive Focus*).

In sum, the *relative duration* turned out to be only a partially significant cue in distinguishing between the two types of *focus*. When *focus* appears utterance-internally, such as *Subject Focus* ($F_{SUBJECT}$) or *Verb Focus* (F_{VERB}), the *relative duration* of the focused constituent and of the stressed syllable appeared longer in *Contrastive Focus* than in *Non-contrastive Focus*. On the other hand, when *focus* appears utterance-final, such as *Object Focus* (F_{OBJECT}), *Predicate Focus* ($F_{PREDICATE}$) or *Broad Focus* (F_{BROAD}), the *relative duration* did not show any significant distinction between the two types of focus. This latter finding is in line with the findings in Domínguez (2004 a&b).

4.2. Pitch

This section describes the results of the experiment conducted to see if there are any intonational differences between the two types of *focus*. As Face (2002) points out, pitch itself bears multiple aspects to be considered. In the present study, the experiment on pitch consisted of measuring i) the peak height of the intonational contour associated with the *focus* constituent; ii) the pitch range between the peak and the valley around the *focus* constituent; iii) the pitch alignment.

The *height of a peak* or the maximum pitch associated with the *focus* constituent was measured in Hz. When the *focal* scope is wider as in *Predicate Focus* (**$F_{PREDICATE}$**) or *Broad Focus* (**F_{BROAD}**), a comparison between *Contrastive Focus* and *Non-contrastive Focus* was made in two ways. Note that there is more than one constituent in the given *focal* scope. In this case, the peak patterns may be varied: there can be only one pitch contour across the entire *focal* scope, in which case the peak position matters. It can only be associated with one of the two (or three, in the case of *Broad Focus* (**F_{BROAD}**)) constituents under the scope of *focus,* especially with the last one, i.e. the Object, due to *focus-projection* phenomenon (Jackendoff 1972). However, it is also possible that each constituent under the *focal* scope may carry its own pitch contour; therefore there can be more than one peak, due to the optionality of *focus projection*. More detailed account for *focus projection* will be given in the following section.

Pitch range is defined as the difference between the peak and the valley of a given intonational contour. While the peak corresponds to the maximum pitch of the intonational contour, the valley can be defined as the pitch either at the onset of the rising pitch or at the coda of the falling pitch, because the minimum pitch, namely, the "baseline" of one's vocal pitch remains constant (Liberman & Pierrehumbert, 1984).

Pitch alignment refers to the peak position relative to the stressed syllable of a *focus* constituent. The peak alignment can be categorized as early or late, depending on the peak position of the intonational contour in relation to the boundary of the stressed syllable. The peak of the intonational contour can appear either delayed, passing the

offset of the stressed syllable or before or right on the offset of the stressed syllable. Figures 4.15 and 4.16 show the possible peak positions relative to the stressed syllable:

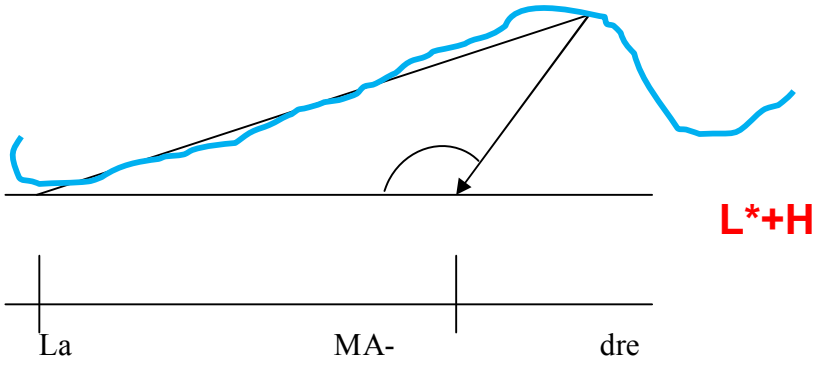


Figure 4.15. Case of peak alignment with regard to the stressed syllable: after the syllable boundary ➔ Late Peak

When the peak associated with *focus* falls outside of the boundary of the stressed syllable of a *focused* constituent as shown in Figure 4.15 above, it is considered as 'late peak' and represented as L*+H:

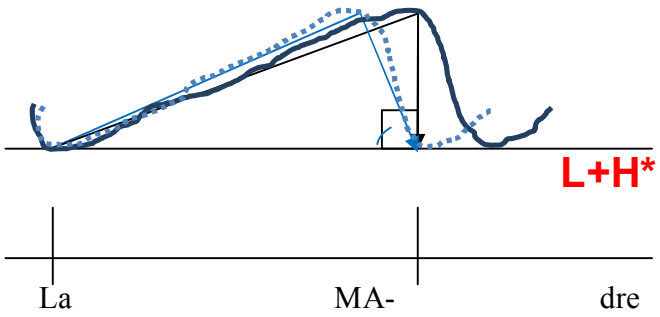


Figure 4.16. Case of peak alignment with regard to the stressed syllable: within (in a dotted curve) or at (in a solid curve) the offset of the stressed syllable➔ Early Peak

If the peak associated with *focus*, on the other hand, falls within the boundary of the stressed syllable of a *focused* constituent, as indicated with a dotted curve in Figure 4.16,

or right on the offset of the syllable boundary marked with a solid curve in the same figure, it is represented as 'early peak', characterized as L+H*.

Figure 4.17 below illustrates how various pitch-related properties were measured and analyzed. It shows, in particular, the case when *focus* falls narrowly on subject (**F**$_{\textbf{SUBJECT}}$).

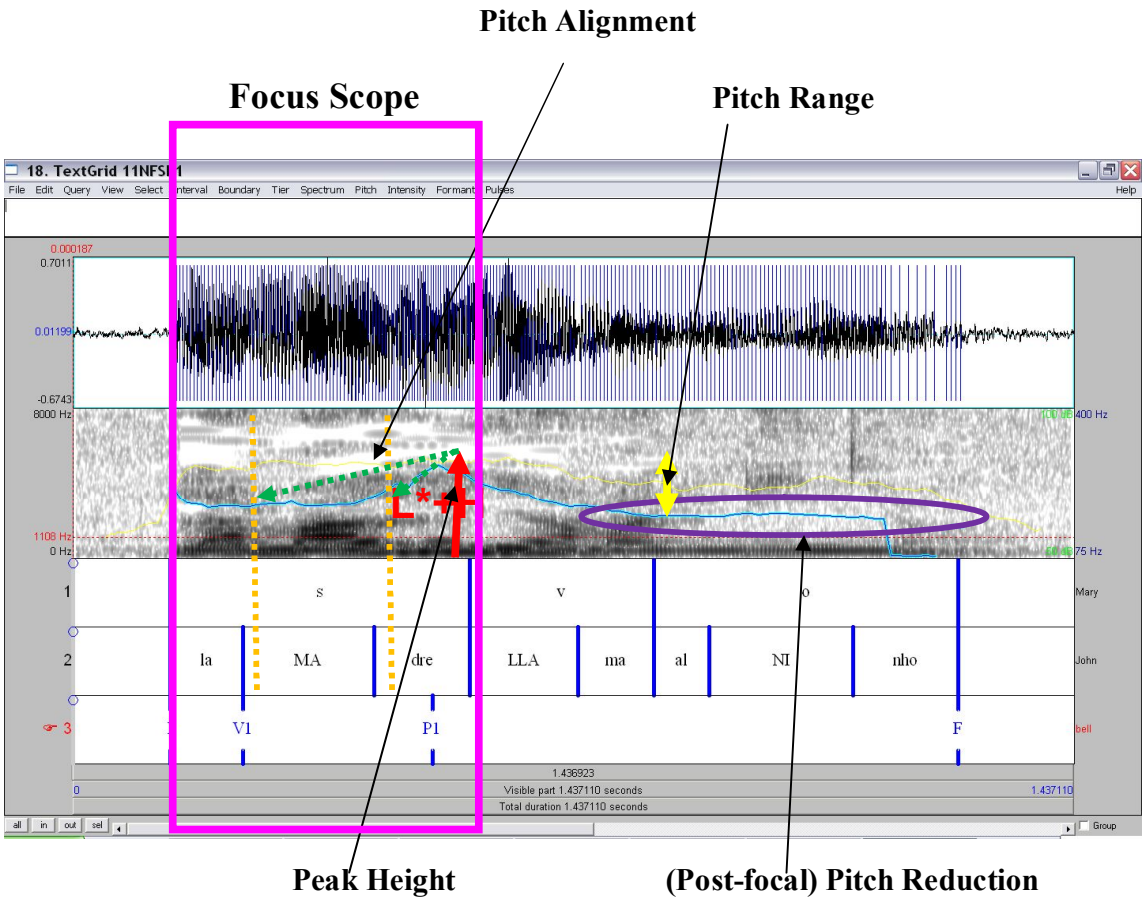


Figure 4.17. Sample analyses for pitch of the utterance with *Subject Focus* (F$_{\text{SUBJECT}}$)

In the above figure, the rising pitch contour starts at the onset of the stressed syllable – *MA*- of the *focused* constituent, *la madre*, and reaches to its peak right after the offset of the stressed syllable (277Hz). The peak alignment is categorized as 'late', i.e. L*+H. The

value of the given pitch range was taken from the difference between the height of this peak and that of the valley of the same contour (277Hz - 186Hz =91Hz).

4.2.1. Issues on Pitch

Pitch has been considered one of the most crucial acoustic cues for Spanish Focus by many (Sosa 1991 & 1999, de la Mota 1995 & 1997, Hualde 2002, 2003 & 2005, Face 2000, 2001, 2002 a & b, 2003b & 2005, Kim & Avelino 2003, Willis 2003, Domínguez 2004 a & b among others). However, as pointed out by Face (2002a), exactly which property of pitch makes focused element prominent is still open to debate. For example, Face (2002a) found that the peak value of a rising pitch in the lexical stressed syllable within a *focused* word would appear higher than one within an unfocused word (Also, see Toledo 1989, García-Lecumberri 1995, and De la Mota 1995). In addition, Face (2002a) suggested that pitch range is another indicator of *focal* prominence.

As for the distinction between the two types of *focus*, not much research has been done in Spanish. Considering that *focus,* may it be *contrastive* or *non-contrastive*, appears prominent, the prosodic differences between the two types of *focus* have barely drawn any attention in the literature. Research on *focus* with relation to pitch in Spanish, however, has primarily dealt with *Contrastive Focus*. Very little has been done to investigate the properties of *Non-contrastive Focus*. It is because the distinction between *Contrastive Focus* and *Non-contrastive Focus* is assumed to be made syntactically at utterance-non-final positions (Zubizarreta, 1998); therefore any focus occurring at such positions will be treated uniformly as *Contrastive Focus*. Furthermore, such distinctions are assumed to be phonetically neutralized at utterance-final positions (Domínguez, 2004a). Zubizarreta (1998) states that *contrastive focus* appearing non-finally has "extra-high peak", without further comments.

Recently, there has been a lot of discussion on another aspect of pitch related to *focus* marking. It is claimed that the peak timing of a pitch contour spreading over a given constituent indicates whether the constituent falls under focal domain or not

(Hualde 2002, 2003 & 2005, Nibert 2000, Face 2001 & 2002b). Face (200b) claims that if a sentential constituent is *focused*, the peak of its associated rising pitch will be within the range of the stressed syllable of the *focused* constituent, categorized as 'early peak' representation. It is, however, common for the peak of a rising pitch, bearing no interpretation of *focus,* to be displaced to the posttonic syllable, i.e., the one after the stressed syllable, by appearing after the offset of the stressed syllable, categorized as 'late peak' representation (Llisterri *et al*. 1995). Such a perspective, in fact, finds its foundation in the Autosegmental-Metrical theory of intonational phonology (Pierrehumbert 1980, Ladd 1996, Beckman *et al.* 2002). If pitch alignment, having two discrete categories, i.e., 'early' or 'late', indeed turns out to be strongly associated with the presence or absence of the *focus* interpretation, this property of pitch should be treated as phonological one, without stopping being phonetic one. This is the advantage of the Autosegmental-Metrical theory, according to which an *early peak* is marked as a symbolic combination of L*+H, where a star (*) indicates the offset boundary of a stressed syllable, and a *late peak* as L+H*. This indicates that the peak of its associated pitch contour is delayed, occurring outside the boundary of the stressed syllable. However, the actual outcome of any prosodic experiments never provides us with a clear-cut picture, given that suprasegmental properties, such as duration, pitch, or intensity, by themselves are gradient or continuous, rather than discrete or categorical. For this reason, Calhoun (2003, 2006), among many others, takes a rather practical view, by proposing a probabilistic analysis of pitch alignment. Summarizing this view, a pitch contour containing *focus* interpretation is *more likely* to have an early peak, whereas a pitch contour with no relation to *focus* is more likely to have a late peak.

With reference to the *focus* types in Spanish, it is commonly agreed that all tones related to *focus* – may it be the type of *focus* may be *contrastive* or *non-contrastive*-tend to have an early peak (L+H*), while all other tones such as prenuclear accents tend to have a late peak (L*+H) (Face 2002a, Hualde 2005 among others).Nevertheless, Kim and Avelino (2003), who were interested in the prosodic differences among different types of

focus for the first time, found little differences between *Contrastive Focus* and *Non-contrastive Focus*. Plus, the difference was mostly found in frequency distribution.

There is an important issue to be considered, with regard to wider *focus* scopes such as Predicate Focus ($F_{PREDICATE}$) or Broad Focus (F_{BROAD}). It is assumed that when the entire predicate phrase falls under the scope of *focus,* only the last constituent, i.e., the object but not the verb would be accented. It is commonly said that *focus* is projected to the predicate phrase. This is accounted for by Phrasal Focus Rule (Selkirk, 1995) or by Sentence Accent Assignment Rule (SAAR) (Gussenhoven 1983 & 1999, Selkirk 1995, Welby 2003). Note that *focus* projection is customary but not obligatory (Welby 2003). In other words, it may or may not happen that the marking for *Predicate Focus* ($F_{PREDICATE}$) resembles that of *Object Focus* (F_{OBJECT}). With regard to the current topic of study, we were interested in checking if *focus projection* has an effect on distinguishing the two types of *focus.*

If the *focus*-related suprasegmental characteristics show differences between the two types of *focus* only with the final constituent under the given *focus* scope, we can confirm that *focus projection* influences the *focus* subtype distinction. If such differences between the two *focus* types appear at all constituents in the given *focal* scope, or if they appear only at the non-final constituents in the given wider *focal* scope, we can conclude that *focus projection* does not affect the specification of *focus* types.

4.2.2. Results

4.2.2.1. Peak height

Peak height refers to the height of the maximum pitch contour surrounding a focal domain. Figure 4.18 below represents the mean height of the maximum pitch across all cases of *focus* scope.

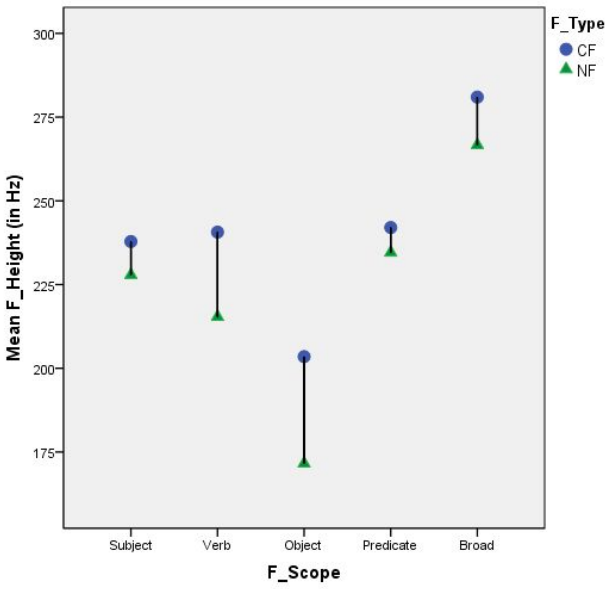


Figure 4.18. Mean peak height (in Hz) of two types of *focus* across focus scopes

In all cases, the peak of a pitch contour containing *Contrastive Focus* is higher than that containing *Non-contrastive Focus*. Note that for *Predicate Focus* ($F_{PREDICATE}$) or in *Broad Focus* (F_{BROAD}), the highest peak among potentially multiple peaks inside the *focal* scope was chosen.

Figure 4.19 and Table 4.22 below show the results of the paired sample *t*-test on the difference in the peak height between the two types of *focus* when closely compared pair-wise.

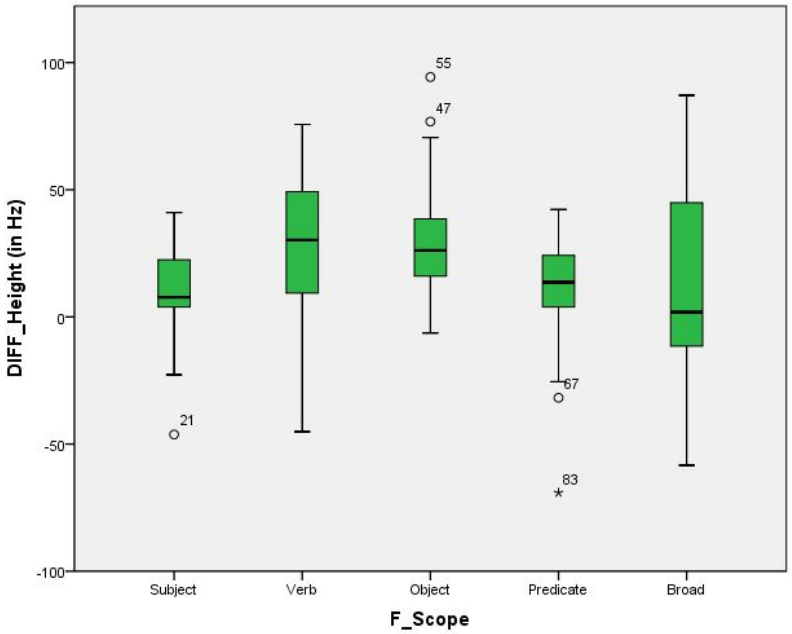


Figure 4.19. Boxplot for mean height difference between two types of *focus* across focus scopes

In Figure 4.19, each box illustrates the distribution of the individual differences in the peak height between the two types of *focus,* when closely compared pair-wise across *focus* scopes. Table 4.20 below shows the results of the statistical analysis.

Paired Samples Test

			Paired Differences					t	df	Sig. (2-tailed)
						95% Confidence Interval of the Difference				
F_Scope			Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Subject	Pair 1	CF_Height - NF_Height	9.947740	20.664574	4.509380	.541339	19.354142	2.206	20	.039
Verb	Pair 1	CF_Height - NF_Height	25.302592	32.411305	7.072727	10.549143	40.056041	3.577	20	.002
Object	Pair 1	CF_Height - NF_Height	31.904605	26.291604	5.737298	19.936810	43.872400	5.561	20	.000
Predicate	Pair 1	CF_Height - NF_Height	7.465249	26.439826	5.769643	-4.570016	19.500513	1.294	20	.210
Broad	Pair 1	CF_Height - NF_Height	14.343553	41.084044	8.965274	-4.357680	33.044786	1.600	20	.125

Table 4.20. Paired samples t-test
on the height of the maximum pitch (in Hertz) within the scope of *focus*
between *Contrastive Focus* vs. *Non-contrastive Focus*

In the first three narrowly *focus* scopes, the *p*-values came out smaller than 0.05. These statistical results confirm that, other things being equal, the peak height associated with the *focused* constituent with *Contrastive Focus* (CF) was consistently and significantly higher than that containing *Non-contrastive Focus* (NF). On the other hand, when compared without considering the peak location inside the *focus* scope, no noticeable differences were found between the two types of *focus* neither in *Predicate Focus* ($F_{PREDICATE}$) nor in *Broad Focus* (F_{BROAD}). The results shown in the above table, however, need further explanation. In the cases of wider *focus* scope, it is possible that there is more than one peak in the utterance, this due to the customary feature of focus projection. If indeed there are multiple peaks, it is necessary to locate which of those peaks are the highest in the given utterance and to compare each peak height of two types of wide *focus* separately. For this reason, we did an additional paired-sample test by comparing the heights of the peaks on the same constituent position. When we compared the height of the maximum pitch associated with each constituent of the wider *focus*, we obtained the results, as shown in Table 4.21 below.

Paired Samples Test

				Paired Differences					t	df	Sig. (2-tailed)
							95% Confidence Interval of the Difference				
F_Scope	Peak_Position			Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Predicate	verb	Pair 1	CF_Height - NF_Height	15.717570	44.508220	9.712490	-4.542328	35.977469	1.618	20	.121
	object	Pair 1	CF_Height - NF_Height	2.088674	36.700390	8.008682	-14.617143	18.794491	.261	20	.797
Broad	subject	Pair 1	CF_Height - NF_Height	21.554170	55.168396	12.038731	-3.558183	46.666522	1.790	20	.089
	verb	Pair 1	CF_Height - NF_Height	34.114202	60.286657	13.155627	6.672045	61.556359	2.593	20	.017
	object	Pair 1	CF_Height - NF_Height	4.381985	52.203249	11.391683	-19.380649	28.144619	.385	20	.705

Table 4.21. Paired samples t-test
on the height of the maximum pitch (in Hertz) associated with each *focal* consistent within the scope of wider *focus*
between *Contrastive Focus* vs. *Non-contrastive Focus*

When we examined the peak of each constituent inside the *focus* scope in pair, *Predicate Focus* ($F_{PREDICATE}$) and *Broad Focus* (F_{BROAD}) rarely showed consistent distinction between *Contrastive Focus* and *Non-contrastive Focus*, unlike the cases of narrow focus.

4.2.2.2. Pitch Range

The pitch range refers to the difference between the peak of the intonational contour associated with the *focus* constituent and the valley where this contour and the subsequent intonational contour cross. Figure 4.20 below represents the average pitch range across all cases of *focus* scope.

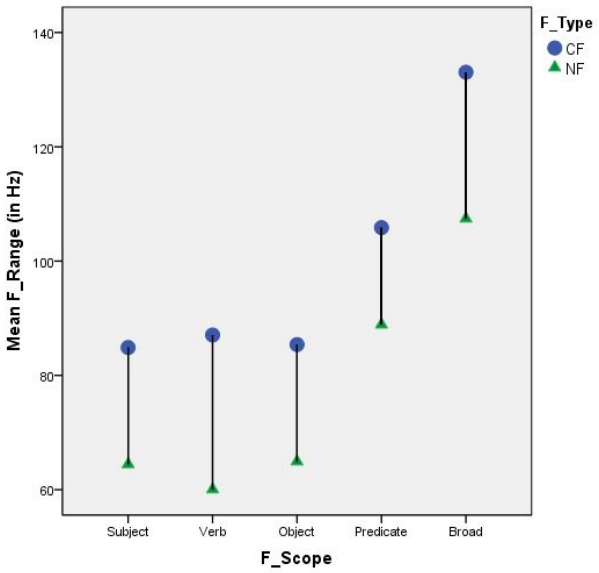


Figure 4.20. Mean pitch range (in Hz) of two types of *focus* across focus scopes

In all three kinds of foci, the range of a pitch contour containing *Contrastive Focus* turn out to be greater than that containing *Non-contrastive Focus*. Note that neither for *Predicate Focus* ($F_{PREDICATE}$) nor of *Broad Focus* (F_{BROAD}), was the greatest pitch range among potentially multiple pitch contours inside the focal scope chosen.

Figure 4.21 and Table 4.24 below show the results of the paired sample *t*-test on the difference in the pitch range between the two types of *focus* when closely compared pair-wise.

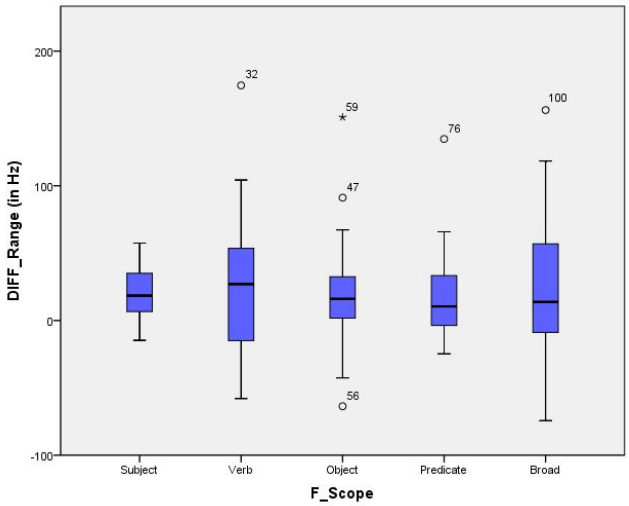


Figure 4.21. Boxplot for mean range difference between two types of *focus* across focus scopes

In Figure 4.21 above, each box illustrates the distribution of the individual differences in the pitch range between the two types of *focus,* when closely compared pair-wise, across *focus* scopes. The following table shows the results of the statistical analysis.

Paired Samples Test

			Paired Differences					t	df	Sig. (2-tailed)
						95% Confidence Interval of the Difference				
F_Scope			Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Subject	Pair 1	CF_Range - NF_Range	20.414516	19.021948	4.150929	11.755829	29.073203	4.918	20	.000
Verb	Pair 1	CF_Range - NF_Range	27.013457	55.157733	12.036404	1.905958	52.120956	2.244	20	.036
Object	Pair 1	CF_Range - NF_Range	20.463406	47.540852	10.374264	-1.176930	42.103742	1.973	20	.063
Predicate	Pair 1	CF_Range - NF_Range	16.976165	36.402732	7.943727	.405840	33.546490	2.137	20	.045
Broad	Pair 1	CF_Range - NF_Range	25.626716	58.360139	12.735226	-.938501	52.191933	2.012	20	.058

Table 4.22. Paired samples t-test
on the pitch range (in Hertz) associate with the scope of *focus*
between *Contrastive Focus* vs. *Non-contrastive Focus*

Note that in most cases, the *p*-values came out smaller than or close to 0.05. This clearly shows that, other things being equal, the pitch range associated with the focused

constituent with Contrastive Focus (CF) were consistently and significantly greater than that containing Non-contrastive Focus (NF). In other words, the pitch associated with Contrastive Focus fluctuates in a wider range than one associated with Non-contrastive Focus.

4.2.2.3.Pitch Alignment

Often judging certain pitch contour by types of pitch alignments is not an easy task because actual pitch movements are far from being clear-cut. For this reason, the decision on pitch alignment type is subject to the investigator's own impression, as pointed out by Martínez Celdrán & Fernández Planas (2003).To aim for an objective pitch analysis, these researchers adopted 't Hart, Collier & Cohen's (1990) formula, which is often used for perception analyses, in their project of building a new taxonomy of Spanish pitch types (Martínez Celdrán & Fernández Planas, 2003).

(4-3) 't Hart, Collier & Cohen's (1990) formula

$$\mathbf{D= 12*\log_2(f_1/f_2) = 12/\log_{10}2*\log_{10}(f_1/f_2)}$$ [58]

where D represents the relative pitch in semitones; f1 and f2 are two neighboring fundamental frequency

Using 't Hart, Collier & Cohen (1990) formula, Martínez Celdrán & Fernández Planas (2003) attempted to solve the problems which we often run into, when analyzing various pitch alignment patterns. They often look vague and inconsistent even to many fellow phoneticians' eyes. Rather than absolute fundamental frequencies of raw pitch movement, only pitch movements that are perceivable to language user' ears are

[58] Let us show how the difference of certain two actual pitch values can be perceived according to this formula: let us assume that a couple of speakers, one is male and the other is female, produce two consecutive pitch values at 100 Hz and 150 Hz, and 200Hz and 300Hz. Although the difference between the pitch values produced by the male speaker is 50Hz and smaller than that by the female speaker, 100Hz, their relative differences, using t'Hart, Collier & Cohen (1990)'s formula, are the same (7.02 semitones).

considered relevant. This type of pitch is called 'relative pitch' and the unit of measurement used is called 'semitone' (Nooteboom, 1997). In more concrete terms, a 'semitone', which roughly amounts to a frequency difference of 6 % between two consecutive pitch values, is a unit used to measure pitch in the perception study of intonation. The relative pitch, defined as the distance between two tones, matters in order for ordinary listeners to perceive pitch differences of any given two consecutive tone ('t Hart, 1981). In particular, differences of at least 1.5 semitones as a perceptual threshold are sufficiently reliable on a linguistic context (Rietveld & Gussenhoven, 1985). Such a threshold is a very effective tool to "normalize possible differences" among speakers or within a speaker's own speech (Fernández Planas & Martínez Celdrán, 2003:170). If we can have a more objective tool to analyze with, instead of purely relying on few experienced native phoneticians' eyes, we can expect more prolific and solid studies on pitch alignment.

Retuning to Martínez Celdrán & Fernández Planas's (2003) study, they measured the absolute pitch values at the midpoint of each vowel of stressed syllable, and its anterior (pretonic) syllable, and its posterior (posttonic) syllable and identified 12 different possible patterns of pitch alignment in Spanish declarative and interrogatives sentences. These patterns are reduced further to four fundamental types of Spanish pitch accents: /L*+H/, /L+H*/, /H*+L/, /H+L*/ (Martínez Celdrán & Fernández Planas, 2003: 173). For the sake of simplicity, I only describe four fundamental types of Spanish pitch alignment patterns (Martínez Celdrán & Fernández Planas, 2003: 270). First, /L*+H/ is characterized as a rising pitch contour with a peak appearing after the stressed syllable. The relative pitch difference between the consecutive tones exceeds 1.5 semitones. It is also characterized as a tone with late peak, because the peak of a pitch contour appears after the end of the stressed syllable. The second type /L+H*/ also corresponds to a rising pitch contour but its peak appears within in the stressed syllable[59]. It is also characterized

[59] Martínez Celdrán & Fernández Planas (2003) included a [H*] alignment pattern in this second group /L+H*/, following Ladd (1996: 84), who affirms that [H*] and [L+H*] share the same basic structure.

as a tone with early peak, because the peak of a pitch contour appears before the end of the stressed syllable. The third and fourth types are related to falling contours. /H*+L/ is identified as the peak of its falling contour throughout the stressed syllable that starts at the onset of the stressed syllable or even before. The last type of pitch alignment is /H+L*/ with a peak clearly appearing in the pretonic syllable[60].

For the current study, I adopted Fernández Planas & Martínez Celdrán's (2003) taxonomy of pitch alignments into our data and then double-checked the data to the naked eyes, in order to avoid any possible mechanical errors. Tables 4.23 and 4.24 below show the distribution of pitch alignment patterns of three narrow foci in raw number and in percentile, respectively. Note that the utterances with either of the two wide *focus* are analyzed separately because there can be more than one pitch contours inside a given *focus* scope.

Focus Scope	Focus Type	Pitch Alignment					
		L*+H	L+H*	H*+L	H+L*	UNDEFINED	TOTAL
SF	CSF	7	12	1	0	-	21
	NSF	10	9	2	0	1	21
VF	CVF	4	6	7	4	-	21
	NVF	7	0	7	7	-	21
OF	COF	4	5	6	6	-	21
	NOF	3	3	2	12	1	21

Table 4.23. Crosstabulation for pitch alignment patterns (in raw numbers) for each utterance of the corresponding *focus* type and scope

Focus Scope	Focus Type	Pitch Alignment					
		L*+H	L+H*	H*+L	H+L*	UNDEFINED	TOTAL
SF	CSF	33%	62%	5%	0%	0%	100%
	NSF	48%	38%	10%	0%	5%	100%
VF	CVF	19%	29%	33%	19%	0%	100%
	NVF	33%	0%	33%	33%	0%	100%

[60] Martínez Celdrán & Fernández Planas (2003) included the [L*] alignment type variant in the group /H+L*/, following Ladd's view(1996:86).

OF	COF	19%	24%	29%	29%	0%	100%
	NOF	14%	14%	10%	57%	5%	100%

Table 4.24. Crosstabulation for pitch alignment patterns (in percentile) for each utterance of the corresponding *focus* type and narrow scope

At a glance the pitch alignment patterns appear a little differently according to the scope of *focus*: *Subject Focus* shows rising pitch contours (L*+H or L+H*), whereas *Object Focus* shows falling pitch contours (H*+L and H+L*). The fact that the second pattern - L+H*- and the fourth one - H+L*- prevail slightly compared to the other two tones in the cases of *Subject Focus* and *Object Focus* may well support how Hualde (2005) has characterized the Spanish nuclear focus. Hualde (ibid) observed that the difference between these two pitch alignment patterns is that the L+H* tone sounds even more emphatic than the H+L*. The prosody of a constituent at the utterance-final position, as in *Object Focus,* is already prominent due to the default position of the nuclear accent. In addition, the onset of a pitch contour at this position should appear earlier than other prenuclear tones, because there is no space left to spread over the remaining part of the utterance (Nibert 2006). On the other hand, when the focus appears at the beginning of an utterance, as in *Subject Focus*, the pitch contour starts from the pitch of a baseline, i.e., a low tone (L), and this rising pitch would sound more prominent to the listeners' ears. The cases of *Verb Focus* show all four fundamental pitch alignment patterns indiscriminately. This uncharacteristic picture of the *Verb Focus* is possibly because the pitch contour containing *focus* could not fully spread out over the corresponding *focus* scope due to the short length of the carrier sentence used in the experiments, which has only three constituents.

In the cases of wider focus, i.e., *Predicate Focus* or *Broad Focus*, the descriptive patterns, as shown in Tables 4.25 and 4.26, do not show any consistent correlation between focus types and pitch alignment.

Focus Scope	Focus Type	L*+H	L+H*	H*+L	H+L*	UNDEFINED	TOTAL
PF	CPF(V)	5	5	4	7	-	21
	NPF(V)	4	2	9	6	-	21
	CPF(O)	4	3	9	5	-	21
	NPF(O)	3	3	9	6	-	21
BF	CBF(S)	9	12	0	0	-	21
	NBF(S)	16	5	0	0	-	21s
	CBF(V)	9	4	5	3	-	21
	NBF(V)	6	0	7	8	-	21
	CBF(O)	4	5	7	5	-	21
	NBF(O)	4	1	4	10	2	21

Table 4.25. Pitch alignment patterns (in raw numbers) for each utterance of the corresponding *focus* type and wider scope

Focus Scope	Focus Type	L*+H	L+H*	H*+L	H+L*	UNDEFINED	TOTAL
PF	CPF(V)	24%	24%	19%	33%	0%	100%
	NPF(V)	19%	10%	43%	29%	0%	100%
	CPF(O)	19%	14%	43%	24%	0%	100%
	NPF(O)	14%	14%	43%	29%	0%	100%
BF	CBF(S)	43%	57%	0%	0%	0%	100%
	NBF(S)	76%	24%	0%	0%	0%	100%
	CBF(V)	43%	19%	24%	14%	0%	100%
	NBF(V)	29%	0%	33%	38%	0%	100%
	CBF(O)	19%	24%	33%	24%	0%	100%
	NBF(O)	19%	5%	19%	48%	10%	100%

Table 4.26. Pitch alignment patterns (in percentile) for each utterance of the corresponding *focus* type and wider scope

When they were compared pairwise, there was no noticeable difference according to the *focus* types. When we examined the individual peaks under these wide *focus* scopes, the falling pitch contours, rather than the rising tones, were prevalent in both *Predicate focus* and *Broad Focus*.

To verify whether pitch alignment patterns are the same for both types of *focus,* a Chi-Square Test for Independence[61] was conducted. Table 4.27 below shows the observed counts as well as the expected counts, which are calculated as the following formula:

(4-4) $\chi 2$ statistics

$$\chi 2 = \sum_{\text{all cells}} \frac{(\text{Observed Count} - \text{Expected Count})^2}{\text{Expected Count}}$$

F_Type * Pitch.Alignment Crosstabulation

			Pitch.Alignment					Total
			L*+H	L+H*	H*+L	H+L*	Undefined	
F_Type	CF	Count	14	23	14	10	2	63
		Expected Count	17.5	17.5	12.5	14.5	1.0	63.0
		Std. Residual	-.8	1.3	.4	-1.2	1.0	
	NF	Count	21	12	11	19	0	63
		Expected Count	17.5	17.5	12.5	14.5	1.0	63.0
		Std. Residual	.8	-1.3	-.4	1.2	-1.0	
Total		Count	35	35	25	29	2	126
		Expected Count	35.0	35.0	25.0	29.0	2.0	126.0

Table 4.27. Contingency table for pitch alignment patterns for the two types of *focus*

Table 4.28 shows the output of the Chi-Square Test, including g the value of chi-square statistics ($\chi 2 = 10.010$) and its significance value ($P = 0.040$).

[61] Chi-square models are used to observe the relationship between two categorical variables, that is, counts rather than numeral values, by testing whether the observed counts in a frequency table match what would be expected according to the given model. In particular, the Chi-square test of Independence finds expected counts based on the overall frequencies, adjusted for the total in each group under the assumption that the given variables are independent from each other" (de Veaux *et al.* 2009). The small P-value would mean that the there is an association between the variables in the test.

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.010[a]	4	.040
Likelihood Ratio	10.899	4	.028
Linear-by-Linear Association	.023	1	.879
N of Valid Cases	126		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 1.00.

Table 4.28. Result table of chi-square tests

The relatively small P-value in Table 4.28 *suggests*[62] that there is an association between Pitch alignment pattern and they *focus* type. In other words, the type of *focus* had a significant effect on which pattern of pitch alignment would appear. Examination of the residuals in Table 4.27 shows that utterances having *Contrastive Focus* are more likely to show L+H* pattern than any other patterns, while utterances having *Non-contrastive Focus* are more likely to show L*+H (or H+L*, as a second choice) patterns than any other options. This result is very encouraging, in that the categorical property of pitch involves in the distinction between the *focus* types. Nevertheless, we should be wary of a couple of potentially discoursing fact. For one thing, the distribution looked, by no means, clear-cut. For each type of *focus,* one (or two) pitch-alignment was preferred to the rests. Secondly, the resultant P-value (0.04) is just below 0.05. We would be more confident with what the data suggested if we would have much larger size of sample.

[62] There is a reason to carefully choose the word "suggests" over "indicates" or "shows" in this sentence. The message at the bottom of Table 4.28 warns that there is an expected count that falls far short of 5: a couple of undefined pitch alignment patterns found, for *Contrastive Focus*. Field (2009: 692) states that the test result is acceptable as long as the percentage of the cells of expected frequencies below 5 of all cells is 20% or smaller. Nevertheless this may be potentially imply a loss of statistical power.

4.3. Summary

This chapter has reported the prosodic differences found between the two types of *Contrastive Focus* and *Non-Contrastive Focus*. In section 4.1, we have observed durational distinction made between the two types of *focus*. When we compared units with *Contrastive Focus* and those with *Non-contrastive Focus* on the basis of *absolute duration,* we found that the former uniformly showed a greater duration than the latter, irrespective of scope of *focus*. In other words, speakers tend to increase the raw lengths of the entire utterance, the focal constituent, and the stressed syllable of the focal constituent with *Contrastive Focus* more than with *Non-contrastive Focus*. This indicates that speakers seem to carefully *plan* the speech rate from the smallest *focus*-related unit, i.e., the stressed syllable of a *focal* constituent, through the intermediate-size unit, i.e., the *focal* constituent or word, to the entire utterance to make a clear distinction between the two types of *focus*. The speech rate difference between one type of *focus* and the other type resembles the contrast between "clear speech" and casual speech (Knoll & Uther 2004 & 2007, Smiljanic & Bradlow 2005, and Hay *et al.* 2006). It is easily predictable that speakers would "speak more loudly, more slowly and in a more exaggerated manners" to make themselves more *intelligible* to the hearers. The studies regarding clear speech have great significance in that they managed to pinpoint the extent to which the intelligibility-enhancing modifications are characterizable to be motivated by phonological and systematic properties. The current study shares the same goal. *Focus* or the types of *focus* is traditionally regarded as phonetic property. Based on the findings in this chapter, we claim that the prosodic distinction between *Contrastive* and *Non-contrastive Focus* correlates with the speakers' conceptual distinction between the two types of *focus*.

The *relative duration*, on the other hand, provides different pictures among different scopes of *focus*. The position of *focus,* rather than the size of *focus*, matters more. When the scope of *focus* is involved with the sentence-final position, the relative length of *focus*-related units do not show clear distinctions between the two types of

focus. This is not a surprising result, because as mentioned earlier in this chapter, there are "crowding effects" at the sentence-final position. The crowding effects refer to the phenomenon in which many prosodically meaningful distinctions would be lost for the lack of room to make them fully articulated toward the end of utterance (Nibert, 2002). The opposite result of *the absolute duration* and the *relative duration* of the same units containing utterance-final *focus* suggests that the crowding effect was operative to the extent that the distinction between *Contrastive Focus* and *Non-contrastive Focus* would be minimized but not completely lost.

Let us remark on the effect of *focus projection*. When the scope of *focus* exceeds over one-constituent, *focus* is "projected" into the left-most constituent under the given *focal* domain by default. Since the comparison in the present study was made pairwise between the utterances contacting *focus* in the same scope, the presence or absence of *focus projection* can only be verified indirectly, by comparing utterances containing *Object Focus* (F_{OBJECT}) and ones containing wider *focus* domain like *Predicate Focus* ($F_{PREDICATE}$) or *Broad Focus* (F_{BROAD}). This is, nevertheless, not the interest of the current study. What matters here is whether or not the remnant of *focus projection* phenomenon is involved in distinguishing *Contrastive Focus* and *Non-contrastive Focus*. If there would be any remnant of *focus projection* in the utterances with wider scopes of *focus* with regard to the distinction between the two types of *focus*, there should be different behavior found between the non-final *focused* constituent(s) like subject or verb and the utterance-final *focused* constituent within the given *focal* scope. For example, the distinction between *Contrastive Predicate focus* ($CF_{PREDICATE}$) and *Non-contrastive Focus* ($NF_{PREDICATE}$) should appear either on verbs or object, but not on both. All the data show that the output patterns turned out to be identical for all *focused* components that shared the same scope[63]: the distinction were either equally present for verbs and objects

[63] Note that there should be at least one difference letter among the circled pair or triple in Table 4.22 above, to verify the remnant of *focus projection* phenomenon. All circles are uniform within its group, which suggest that there was no effect of *focus projection* with regard to the distinction of the two types of *focus*.

under the focal scope containing *Contrastive Focus* and *Non-contrastive Focus*, or equally absent for verbs and objects that share the same wider scope.

In section 4.2, we have observed pitch-related distinction made between the two types of *focus, Contrastive Focus* and *Non-Contrastive Focus*. Not only the continuous pitch-related features, i.e. peak height and pitch range, but also the categorical pitch-related feature, i.e. pitch alignment, somehow played a role in distinguishing between the two types of *focus*. Nevertheless, we should be cautious about interpreting this feature of pitch. We succeeded in showing the different distribution among four basic pitch alignment patterns according to the *focus* type; the actual distribution did not look black-and-white. In other words, certain pitch alignment pattern "relatively" prevailed over the rest, but it never was the sole (or absolute) option of utterances of containing one or the other *focus* type. This "imperfect" picture has been, by no means, a new problem of studies of pitch-alignment. Even in numerous *focus*-related studies, which have attempted to define the scope or position of *focus* as in Face (2002a&b) or Hualde (2005), for example, the pitch alignment, itself, has never been the clear-cut signal for *focus* per se, as pointed out by Calhoun (2006). She suggests that due to its imperfect nature, pitch alignment should be considered as *focus* indicator under a probabilistic analysis rather than categorical judgment. The same idea can be adopted here. For the moment, we should be satisfied with the fact there is a clear difference found in distribution of pitch-alignment patterns between the two types of *focus*, although it was by no means a clear-cut picture. We would be able to reach a more conclusive conclusion with much larger sample size.

CHAPTER FIVE
CONCLUSIONS

The principal objective of this study was to seek to describe different ways to distinguish the subtypes of *focus* in Spanish. According to Zubizarreta (1998)'s well-known claim, *focus* is marked either syntactically or phonetically. Using either *wh*-question in the case of *Non-contrastive focus,* or *yes-or-no* question or disjunctive question in the case of *Contrastive focus*, she argued that in Spanish, *Non-contrastive Focus* would always appear at the utterance final position, whereas *Contrastive Focus* would appear in-situ, i.e., at the utterance-non-final position. This claim had hardly been challenged by posterior scholars, in particular, by those working in Spanish phonology and phonetics (Face among many others). For this reason, prosodic representations of two types of *focus* in Spanish have never been contrasted in the same position. For instance, Face's prolific studies regarding Spanish *focus*, except for his very first study on this topic, have focused on *Contrastive Focus,* which would appear at non-utterance final positions. *Non-contrastive Focus* has been studied in association with nuclear accents or boundary tone, which would be located at the last position of utterance. Nevertheless, not all the studies seem to accept Zubizarreta's (1998) syntax-oriented distinction between the two *focus* types. A few studies suggest that not only *Contrastive Focus* but also *Non-Contrastive Focus* can indeed occur sentence-internally (Cabrera Abreu & García Lecumberri, 2003; Kim & Avelino, 2003; Toledo, 1989)[64]. Although the main interests of these studies, except for Kim & Avelino's (2003), were not in the specification of *focus* types, the common finding of these studies was that there was little difference in word order between the two types of *focus*. Kim and Avelino (2003) is the only study in which prosodic features of the two types of *focus* have actually been compared. What needs to point out here is that people may not necessarily make syntactic distinction between the

[64] Similar to the current study, *wh*-questions was used to elicit utterances containing *Non-contrastive Focus* (NF) (Toledo 1989, Kim & Avelino 2002, Cabrera Abreu & García Lecumberri 2003). But unlike our study, any minimal context was provided.

two types of *focus*. Although Kim and Avelino's study (2003) did not show significant results with regard to the *focus* distinction, it implied the possibility of English-like *focus* marking in Spanish. More specifically, it suggested that prosodic differentiation could be made between the *focus* subtypes, just like in English. This tendency was also confirmed in the pilot study I made with two native speakers of Castilian Spanish. Moreover, the pilot study showed little syntactic preference of complete sentences over one-word utterances and little difference in word order variability between the two types of *focus*, in addition to clear durational differences between the two.

5.1. Summary of Findings

5.1.1 Ranking Task

The purpose of the ranking task is to check whether the two types of *focus* show different preference patterns among several possible options given. The result of the ranking task can be summarized as follows: Depending on the scopes of *focus,* the answer could be different. For *Subject Focus, Predicate Focus* and *Broad Focus*, the answer would be that there was no or little syntactic difference between the two *focus* types. For the *Verb Focus* and the *Object Focus*, on the other hand, there was some distinguishable tendency between the two types of *focus*. Participants preferred simpler or reduced sentences for *Non-contrastive Focus* using a pronoun or omitting the presupposed part, while they preferred complete sentences for *Contrastive Focus*. Nevertheless, it is important to point out that both the complete sentence in canonical word order (SVO) and the maximally fragmented sentence, i.e., the S option for Subject Focus, the $Pro_{DO}V$ option for *Verb Focus*, the O option for *Object Focus*, and the VO option for *Predicate Focus*, were rated noticeably high, compared to other syntactic options given to the participants, regardless of the *focus* types. If there is little syntactic difference between the two types of *focus,* it is necessary to reconsider Zubizarreta's (1998) syntax-oriented claim on the distinction between the *focus* subtypes.

5.1.2 Prosodic Analyses

Among three prosodic properties, duration, pitch and intensity tested, only duration and pitch turned out to be relevant to the distinction of its subtypes. Intensity did not show significant relevance with regard to *focus* representation in our analysis and therefore further argument was not made in the text[65]. This may not be completely out of expectations, if we recall that intensity has turned out to be the least correlated with *focus* per se in the literature (Navarro Tomás 1918, Quilis 1971). If there be any relationship to be found, it would be something to do with the stressed syllable (Sluijter & van Heuven 1996, Llebaria & Prieto 2007). In the current study, there was no significant distinction between the intensity of the stressed syllables under the two types of *focus.* In fact, each speaker showed stable intensity for all the utterances they produced. More fluctuation was found among speakers. In other words, some speakers spoke constantly louder than others. It may be due to a flaw in the experimental setting where the distance of a microphone was not fully controlled. If that is the case, more careful attention should be paid in future experimental settings in this line of study.

When we compared units with *Contrastive Focus* and those with *Non-contrastive Focus* on the basis of *absolute duration,* we found that the former uniformly showed a greater duration than the latter, irrespective of scope of *focus*, in all three major linguistic units: the stressed syllable, the *focal* consistent, and the entire utterance containing *focus*. The *relative duration*, on the other hand, provides discrepant views among different scopes of *focus*. The position of *focus,* rather than the size of *focus*, matters more. When the scope of *focus* is involved with the sentence-final position as in *Object Focus, Predicate Focus* or *Broad Focus*, the relative length of *focus*-related units do not show clear distinctions between the two types of *focus.* This discrepancy according to *focus* scopes is explained by "crowding effects" at the sentence-final position. The crowding

[65] In particular, the mean intensity of the stressed syllable containing either *focus* types was measured. For most cases –except for the cases of Object Focus--, there were very little differences between the two types of *focus.* What caused the exceptional behavior of Object Focus (P=0.03) remains unknown in the current work. The result tables of the intensity data are found in Appendix III.

effects refer to the phenomenon in which many prosodically meaningful distinctions would be lost for the lack of room to make them fully articulated toward the end of utterance (Nibert 2000). The opposite result of *the absolute duration* and the *relative duration* of the same units containing utterance-final *focus* suggests that the crowding effect was operative to the extent that the distinction between *Contrastive Focus* and *Non-contrastive Focus* would be minimized but not completely lost.

As for pitch-related distinction made between the two types of *focus, Contrastive Focus* and *Non-Contrastive Focus*, all three pitch-related features, i.e., peak height, pitch range and pitch alignment, clearly or suggestively marked the differences between the two types of *focus*. However, we should be more cautious about confirming the results due to the small size of the sample tested, to begin with. Especially, when interpreting the association between the pitch alignments with the *focus* type, Calhoun's (2006) probabilistic analysis may be more practical. In effect, it was found that the pitch alignment, itself, has never been the clear-cut signal for *focus* per se in many studies (Face, 2005, for example). Calhoun (2006) suggests that due to its imperfect nature pitch alignment should be considered as a *focus* indicator under a probabilistic analysis rather than categorical judgment. We were also able to confirm that *focus* itself is not marked by a sole linguistic marker such as peak height or pitch alignment, as pointed by Face (2002a &b). The findings in the current study are that whereas the syntactic differences between the two types of *focus* are much more diminished than what has been suggested by the previous studies, the prosodic distinctions between the two turned out to be more consistent.

5.2. Implications

The most significant contribution of the current study is that the findings give clear evidence that the pragmatically defined notion of *focus* (Lambrecht, 1994) is indeed further divided into two types in Castilian Spanish. In other words, the distinction between the two *focus* types can be made prosodically without relying on a syntactic tool

such as word order variation, contrary to what Zubizarreta (1998) has claimed. In addition, the current study was able to specify which of the prosodic features play a role to make the prosodic distinction. Among several superasegmental features that had been claimed to be related to *focus* marking itself, my study proved that only duration and pitch turned out to be relevant to the specification of *focus*. Each of the two prosodic features was even further specified to detect concrete features directly involved. Concretely, I was able to find out that absolute duration of various *focus*-related units and continuous aspects of pitch were directly relevant to the distinction of the *focus* types. Meanwhile, relative duration in some cases or pitch alignment did not show significant role in the distinction. This suggests that the *focus* subtypes are distinguished mostly phonetically. This result is similar to what Selkirk (1984 and 1995) found for English in terms of focus types.

If the English-like *focus* distinction is indeed relevant in Spanish as well, what would motivate native speakers' preference of the prosodic distinction to the syntactic one? I propose that the former is less costly than the latter. Unlike Zubizzareta's (1998) impression, the participants in the current study showed little attention to syntactic differences between the two types of *focus*. Although the conceptual distinction between the *focus* subtypes is well reflected in the language, it may not be "functionally strong" enough to make the syntactic distinction between the two. For instance, the seeming movement of the sentential subject, as in *Llama al niño la madre* '(It is) the mother (who) calls the boy', may have been caused by the feature of *focus* per se of the given constituent. It may not be because the given constituent is certain type of *focus* according to Zubizaretta's claim (1998). Therefore, a more effective way to make a distinction between the two types of *focus* would be to rely on the prosodic features. Furthermore, these findings on the *focus* specification in Spanish suggest a second look at other languages like Russian (Van Valin 1999) or Hungarian (É. Kiss 1988, Kenesei 2006), where a *focused* element is known to be placed at a particular position in a sentence.

One other contribution of this study is the original experimental design, which consisted of medium-sized discourse contexts, instead of isolated sentences often used in laboratory settings. Since the topic of the current study, *focus*, can be fully understood at the interdisciplinary level, the results from the experiments performed in this study should comply with the standards of experimental phonetics as well as with those of pragmatics and syntax. The context used for the experiment was carefully designed so that the preference of complete sentences could be maximized and at the time the contrast of the two types of *focus* could stand out well in the given context. The stimuli used for the experiments and procedures contained three sets of scenarios based on three different imaginary soap-opera scenes on TV at the time of speech. Each set consisted of five different discourse contexts which correlated with the location of *focus* within a given utterance and the size of *focus*. This contextualized approach allowed the participants of the experiments to produce utterances that were less stilted and as close as to spontaneous speech, making the study more credible.

5.3. Future Research

There are a couple of directions that future research might take. From an empirical perspective, larger number of samples will make the outcome and the claim of the study more persuasive. As explained in Chapter 2, the repetition of the same stimuli-response in a prosodic experiment bears a double-edged sword. Although it can guarantee the collection of a large number of samples in the most effective way, it might interfere with the reflection of the natural use of language due to the participants' mechanical repetition. This latter position can be problematic in studies like the present one, which is based on a pragmatic framework. It is fundamental to make sure that the participants take the entire context into consideration, rather than focusing merely on the question-answer congruence, which has been done in previous *focus-related* studies with special attention to prosodic aspects. For this reason, the repetition of the same carrier sentence embedded in exactly the same context could not have been avoided in the

present study. Two alternative solutions would be either increasing the number of participants or having multiple sessions of experiments with the same participants.

From a theoretical perspective, the present study succeeded in proving the prosodic distinction between *Contrastive Focus* and *Non-contrastive Focus* phonetically. Nevertheless, there was no significant phonological evidence found. The most plausible phonological feature with regard to *focus* was pitch-alignment, since it has been named as one of the identifiers of *focus* in the literature (Face 2002 a&b, Hualde 2005 among many others). This result leads us to two different directions in further studies. First, knowing that the actual distribution of pitch alignment as an indicator of *focus* is far from a clear-cut picture, it is possible to specify this phonological feature even further, with more than four existing types, with regard to the *focus* subtypes. Otherwise, we can regard the prosodic distinction between the two types of *focus* as a phonetic variability, a result somewhat similar to the distinction made between the clear speech and the ordinary speech. It is important, however, to note that the latter distinction may have been caused by psychological or pathological reasons, while the distinction between the two types of focus is due to a specific linguistic reason.

APPENDIX I – RANK TEST MATERIALS

Tarea de juicio de gramaticalidad

Instrucción

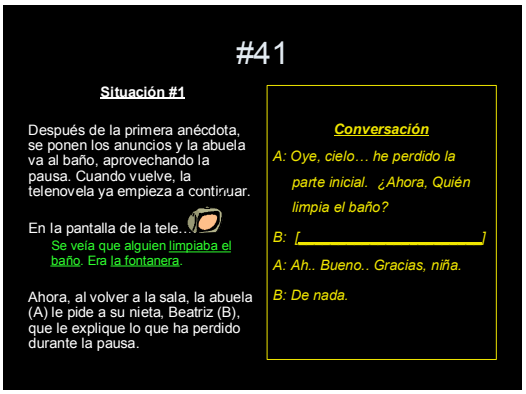
Pasos:

i. Echele un vistazo a cada diapositiva.

ii. Lea la descripción de la situación dada a la izquierda de la pantalla dada.

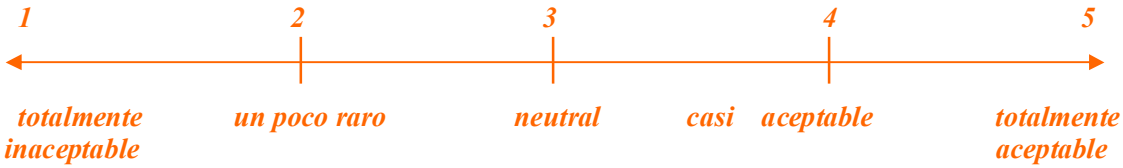
iii. Teniendo la situación descrita en cuenta, lea el diálogo a la derecha de la pantalla.

Ejemplo:



iv. Con la escala de aceptablidad dada, Ud. va a elegir las respuetas apropidas para rellene el espacio vacío en el diálogo de la mayor cantidad de maneras diferentes que Ud. pueda aceptar.

La escala de aceptabilidad:



v. Califique cada respuesta posible en orden de aceptabilidad, tomando en cuenta que 5 es el más natural y aceptable y 1 el menos natural y inaceptable.

vi. Nótese que es posible que haya más de una respuesta posible del mismo nivel de aceptabilidad.

Sample Scripts

Situación #11 - Foco al sujeto (SF)

(la descripción de la situación)

Después de la primera anécdota, se ponen los anuncios y la abuela va al baño, aprovechando la pausa. Cuando vuelve, la telenovela ya empieza a continuar.

En la pantalla de la tele… . 

un niño que corría, paró y se dio la vuelta, al oir que alguien le llamó. La persona que le había llamado fue su madre.

Ahora, al volver a la sala, la abuela le pide a su nieta, Beatriz, que le explique lo que ha perdido durante la pausa.

(EL GUIÓN DEL DIÁLOGO)

ABUELA : Oye, cielo… Me he perdido la parte inicial. **¿**Ahora, **quién llama al niño?**

BEA : ➔_____

ABUELA : Ah.. **El padre llama al niño.** ¿Por qué será?

BEA : No, abuela. **¡**_____**!** ¿Te has quitado los aparatos auditivos?

ABUELA : Sí, sí, ahora me los pongo.

(THE SCRIPT OF THE CONVERSATION)

GRANDMA : Listen, Sweetie… I missed the beginning. Now, **who is calling the child/boy?**

BEA :➔_____

GRANDMA : I see. **The father is calling the child/boy.** I wonder why.

BEA : No, granny. _____**!** Have you taken off the hearing aid?

GRANDMA : Yeah, yeah. But, now I'm putting it on.

Sample script of conversation eliciting Subject Focus ($F_{SUBJECT}$)

Situación #12 - Foco al verbo (VF)

(la descripción de la situación)

Una vez que la telenovela se acaba, las dos tratan de adivinar el próximo episodio. Muerta de curiosidad, la nieta, Beatriz, coge un periódico y empieza a leer el resumen del episodio de mañana en el periódico.

El periódico dice…. 

Por fin, la protagonista – pobre madre soltera- llama a su niño reunido recientemente.

Ahora, la abuela (A), que también se muere por enterarse del espisodio próximo, le pide a su nieta, Beatriz(B), que le lea lo que dice el resumen del periódico .

(EL GUIÓN DEL DIÁLOGO)

ABUELA : Oye, cielo… ¿Qué dice la guía? **¿Qué le hace la madre al niño?**

BEA : ➔_____

ABUELA : Ah.. **La madre lava al niño.** ¿Por qué? ¿El niño está sucio?

BEA : No, abuela. **¡_____!** ¿Te has quitado los aparatos auditivos?

ABUELA : Sí, sí, ahora me los pongo.

(THE SCRIPT OF THE CONVERSATION)

GRANDMA : Listen, Sweetie… What does TV Guide say? **What is the mother going to do to the child/boy (in Tomorrow's episode)?**

BEA : ➔_____

GRANDMA : I see. **The mother is going to wash the child/boy.** I wonder why. Is he (or will he be) dirty?

BEA : No, Granny. **_____!** Di you take off the hearing aid?

GRANDMA : Yeah, yeah. Now, I'm putting it on.

Sample script of conversation eliciting Verb Focus (F_{VERB})

Situación #13 - Foco al objeto (OF)

(la descripción de la situación)

Después de otra anécdota, se ponen los anuncios y la abuela va al baño, aprovechando la pausa. Cuando vuelve, la telenovela ya empieza a continuar.

En la pantalla de la tele…. 

la protagonista – pobre madre soltera- estaba llamando a alguien. Estaba llamando a su niño.

Ahora, al volver a la sala, la abuela (A) le pide a su nieta, Beatriz (B), que le explique lo que ha perdido durante la pausa.

(EL GUIÓN DEL DIÁLOGO)

ABUELA : Oye, cielo… Me he perdido la parte inicial. **¿**Ahora, **a quién llama la madre?**

BEA : ➔_____

ABUELA : Ah.. **La madre llama a la niña.** ¿Por qué será?

BEA : No, abuela. **¡**_____**!** ¿No llevas los aparatos auditivos toadavía?

ABUELA : Sí, sí, ahora me los pongo.

(THE SCRIPT OF THE CONVERSATION)

GRANDMA : Listen, Sweetie… I missed the beginning. Now, **who(m) is the mother calling?**

BEA :➔_____

GRANDMA : I see. **The mother is calling the girl.** I wonder why.

BEA : No, Granny. _____**!** Aren't you wearing a hearing aid?

GRANDMA : No, no. But, now I'm putting it on.

Sample script of conversation eliciting Object Focus (F_{OBJECT})

Situación #14 - Foco al predicado entero (PF)

(la descripción de la situación)

Después de la cena, las dos vuelven a sentarse en el sofá y ponen la tele de nuevo. En la tele, se muestra un avance del próximo episodio de su teleovela diaria favorita.

En la pantalla de la tele…. 

La madre –protagista- está llamando a un niño.

Mientras tanto, la abuela casi no ve nada, puesto que dejó sus gafas en la cocina. Sólo oye algunos sonidos esporádicos. Entonces, la abuela (A) le pide a su nieta, Beatriz (B), que le diga lo que se ve en el avance.

(EL GUIÓN DEL DIÁLOGO)

BEA : Mira, abuela, ahora se pone un avance del próximo episodio de la telenovela diaria.

ABUELA : Casi no veo nada sin gafas, niña. Sólo oigo la voz de la marde, la protagonista. **¿Qué hace ella? Ayúdame un poco.**

BEA :➔_____

ABUELA : Ajá.. **La madre lleva el vino.** Umm. Nada especial, ¿eh?

BEA : No, abuela. **¡**_____**!** No aguanto más, me voy, por fin.

ABUELA : Sí, sí, ahora me los pongo.

(THE SCRIPT OF THE CONVERSATION)

BEA : Listen, grandma, now they are showing a preview of the next episode of the soap opera.

GRANDMA : Hardly can see it without glasses, dear. I only hear the voice of the mother, the main actress. **What is she doing?**

BEA :➔_____

GRANDMA : I see. **The mother is brining wine.** Hmm. Nothing special, right?

BEA : No, Granny. _____**!** I can't stand any more, I've got to go, finally.

GRANDMA : Yeah, yeah, now I'm putting them on.

Sample script of conversation eliciting Predicate Focus ($F_{PREDICATE}$)

Situación #15 - Foco a la oración entera (BF)

(la descripción de la situación)

Después de la cena, las dos vuelven a sentarse en el sofá y poner la tele. Acaba de empezar otra telenovela nueva. Es la nueva telenovela que ha empezado esta semana. La nieta la mira con curiosidad, tratando de enterarse de la historia nueva tanto como sea posible.

En la pantalla de la tele…. 

Una madre está llamando a un niño.

Mientras tanto, la abuela casi no ve nada, puesto que dejó sus gafas en la cocina. Sólo oye algunos sonidos esporádicos. Entonces, la abuela (A) le pide a su nieta, Beatriz (B), que le diga lo que está pasando.

(EL GUIÓN DEL DIÁLOGO)

BEA : Mira, abuela, es otra telenovela. Creo que es la nueva, que acaba de empezar esta semana.

ABUELA : Casi no veo nada sin gafas, niña. **¿Qué pasa?** Explícame un poco, mientras busco las gafas. (¿A propósito, dónde las dejé la última vez?)

BEA : Well.. I'm not familiar with the story either. But, I'll try.

➔_____

ABUELA : **¿El padre mira el vino?**

BEA : ¡Huy… abuela! ¿De qué narices estás hablando?➔**¡_____!**

ABUELA : **¡Qué maleducada! ¿Valió ya! ¡Se acabó la tele por hoy! ¡Vete!**

BEA : **¡Noooo…, Abuela! Déjame ver sólo esta, por fa! Me portaré bien. Te lo juro.**

(THE SCRIPT OF THE CONVERSATION)

BEA : Look, grandma, another soap opera is on. I think it's the new one that has just started this week.

GRANDMA : Listen, Sweetie… What does TV Guide say? **What is the mother going to do to the child (in Tomorrow's episode)?**

BEA : **Bueno.. No entiendo muy bien la historia tampoco. Pero, bueno, lo intentaré.**

➔_____

GRANDMA : **The father is looking at (the) wine (bottle)?**

BEA : Shit… granny! What the heck are you talking about?➔

_____!

GRANDMA : How rude! Enough! You're done with TV for today! Go away!

BEA : Nooooo…, Grandma! Let me watch just this one, please! I'll behave myself. I swear.

Sample script of conversation eliciting Broad Focus (F_{BROAD})

Sample Scales of 'Acceptability'

CPF or NPF trigger (La madre **llama al niño.**)

- Llama al niño. 1 2 3 4 5
- La madre llama al niño. 1 2 3 4 5
- Llama al niño la madre. 1 2 3 4 5
- La madre lo llama. 1 2 3 4 5
- Lo llama la madre. 1 2 3 4 5
- La madre llama al niño. 1 2 3 4 5

inaceptable neutral aceptable

CVF or NVF trigger (La madre **llama** al niño.)

- Lo llama. 1 2 3 4 5
- Llama al niño. 1 2 3 4 5
- La madre lo llama. 1 2 3 4 5
- Lo llama la madre. 1 2 3 4 5
- La madre llama al niño. 1 2 3 4 5
- Llama al niño la madre. 1 2 3 4 5

inaceptable neutral aceptable

COF or NOF trigger (La madre llama **al niño.**)

- Al niño. 1 2 3 4 5
- Llama al niño. 1 2 3 4 5
- La madre llama al niño. 1 2 3 4 5
- Llama al niño la madre. 1 2 3 4 5
- Llama la madre al niño. 1 2 3 4 5
- Al niño llama la madre. 1 2 3 4 5

inaceptable neutral aceptable

CSF or NSF trigger (La madre llama al niño.)

- La madre. 1 2 3 4 5
- La madre lo llama. 1 2 3 4 5
- La madre llama al niño. 1 2 3 4 5
- Llama al niño la madre. 1 2 3 4 5
- Al niño lo llama la madre. 1 2 3 4 5
- Lo llama la madre. 1 2 3 4 5

inaceptable **neutral** **aceptable**

CBF or NBF trigger (La madre llama al niño.)

- La madre llama al niño 1 2 3 4 5
- La madre al niño llama. 1 2 3 4 5
- Llama la madre al niño. 1 2 3 4 5
- Llama al niño la madre. 1 2 3 4 5
- Al niño lo llama la madre. 1 2 3 4 5
- Al niño la madre lo llama. 1 2 3 4 5

inaceptable **neutral** **aceptable**

APPENDIX II – RECORDING SESSION MATERIALS

La tarea de leer en voz alta

Instrucción

Pasos:

i. Echele un vistazo a la siguiente lectura.

ii. Lea la descripción de la situación silenciosamente.

iii. Teniendo la situación descrita en cuenta, **lea el guión del diálogo con su pareja de la manera natural en voz alta.**

Ejemplo:

Situación #11 - Foco al sujeto (SF)

(el guión del diálogo)

Abuela : **Oye, cielo… me he perdido la parte inicial. ¿Ahora, quién llama al niño?**

Bea : **La madre llama al niño.**

Abuela **: Ah.. El padre llama al niño. ¿Por qué será?**

Bea : **No, abuela. La madre llama al niño. ¿Te has quitado los aparatos auditivos?**

Abuela : **Sí, sí, ahora me los pongo.**

Situación #12 - Foco al verbo (VF)

(el guión del diálogo)

Abuela **: Oye, cielo… ¿qué dice la guía? ¿Qué hace la madre con el niño mañana?**

Bea **: La madre llama al niño.**

Abuela **: Ah.. La madre lava al niño. ¿Por qué? ¿Está el niño sucio?**

Bea **: ¡No, abuela! La madre llama al niño. ¿Te has quitado los aparatos auditivos?**

Abuela **: Sí, sí, ahora, me los pongo de nuevo.**

Situación #13 - Foco al objeto (OF)

(el guión del diálogo)

Abuela**: Oye, cielo… Me he perdido la primera parte. ¿Ahora, a quién llama la madre?**

Bea : **La madre llama al niño.**

Abuela **: Ah.. La madre llama a la niña. ¿Por qué será…?**

Bea **: ¡No, abuela! La madre llama al niño. ¿No llevas aparatos auditivos todavía?**

Abuela**: Sí, sí ahora me los pongo.**

Situación #14 - Foco al predicado entero (PF)

(el guión del diálogo)

Bea : **Mira, abuela, ahora se pone un avance del próximo episodio de la telenovela diaria.**

Abuela **: Casi no veo nada sin gafas, niña. Sólo oigo la voz de la madre, la protagonista. ¿Qué hace ella? Ayúdame un poco.**

Bea **: La madre llama al niño.**

Abuela **: Aja… La madre lleva el vino. Ummm. Nada especial.**

Bea **: No,abuela. La madre llama al niño. No aguanto más, me voy, por fin.**

Situación #15 - Foco a entero (BF)

(el guión del diálogo)

Bea : **Mira, abuela, es otra telenovela. Creo que es la nueva, que acaba de empezar esta semana.**

Abuela: **Casi no veo nada sin gafas, niña. Explícame un poco, mientras busco las gafas. (¿A propósito, dónde las dejé la última vez?)**

Bea : **Bueno.. No entiendo muy bien la historia tampoco. Pero bueno, lo intentaré. La madre llama al niño.**

Abuela: **¿El padre mira el vino?**

Bea : **¡Huy.. abuela! ¿De qué narices estás hablando? La madre mira al niño.**

Abuela: **¡Qué maleducada! ¡Valió ya! ¡Se acabó la tele por hoy! Vete..**

Bea : **No…. Abuela. Déjame ver solo esta, por fa! Me portaré bien. Te lo juro.**

APENDIX III – DATA RESULTS

Ranking Task Raw Data

Scenario	Participant	*Subject* *Focus* ($F_{SUBJECT}$)					
		$NF_{SUBJECT}$			$CF_{SUBJECT}$		
		SVO	S	VOS	SVO	S	VOS
1	1	5	5	3	5	4	1
	2	5	5	1	5	2	1
	3	4	5	1	1	5	1
	4	4	5	2	5	5	2
	5	5	5	3	5	4	1
	6	5	5	1	5	5	1
	7	4	5	1	4	5	1
	8	5	5	4	5	5	3
	9	4	5	1	4	5	1
2	1	5	5	1	5	5	1
	2	5	4	1	5	4	2
	3	4	5	1	4	5	1
	4	3	5	1	4	5	1
	5	5	5	3	5	5	2
	6	5	5	1	5	5	1
	7	4	5	1	4	5	1
	8	5	5	4	5	5	4
	9	3	5	3	4	5	4
3	1	5	5	1	5	5	1
	2	5	4	2	5	4	2
	3	2	5	1	5	5	1
	4	4	5	1	5	5	1
	5	5	5	4	5	5	4
	6	5	5	1	5	5	1
	7	3	5	1	4	5	1
	8	5	5	5	5	5	5
	9	4	5	3	3	5	1

Raw Rank Values of Top Three Choices with Subject Focus ($F_{SUBJECT}$) by *Focus* Type

Scenario	Participant	*Verb Focus* (F_{VERB})					
		NF_{VERB}			CF_{VERB}		
		SVO	ProV	VO	SVO	ProV	VO
1	1	5	5	5	5	1	5
	2	5	5	5	5	3	4
	3	1	5	2	5	4	4
	4	4	5	2	5	4	5
	5	5	5	5	5	5	4
	6	5	5	5	5	5	5
	7	3	5	4	5	5	5
	8	5	5	5	5	1	5
	9	4	5	1	1	5	5
2	1	5	5	5	5	5	5
	2	5	3	4	5	4	5
	3	1	5	4	5	3	3
	4	3	5	5	4	5	5
	5	5	5	4	5	5	5
	6	5	5	5	5	5	5
	7	4	5	5	4	5	5
	8	5	5	5	5	5	5
	9	3	5	5	3	5	1
3	1	4	5	3	5	1	5
	2	5	5	5	5	3	3
	3	1	5	1	4	5	5
	4	4	5	4	5	3	4
	5	5	5	5	5	3	2
	6	5	5	3	5	4	5
	7	3	5	4	5	5	·
	8	5	5	1	5	4	5
	9	4	5	1	1	5	4

Raw Rank Values of Top Three Choices with Verb Focus (F_{VERB}) by *Focus* Type

Scenario	Participant	*Object Focus* (F_{OBJECT})					
		NF_{OBJECT}			CF_{OBJECT}		
		SVO	O	VO	SVO	O	VO
1	1	5	5	5	5	1	5
	2	5	5	5	5	3	5
	3	1	5	2	3	5	4
	4	4	5	5	5	5	5
	5	5	5	5	5	4	4
	6	5	5	5	5	5	5
	7	3	5	4	4	5	5
	8	5	5	5	5	5	5
	9	4	5	5	4	5	5
2	1	5	5	5	5	4	5
	2	5	5	5	5	5	5
	3	2	5	3	4	3	5
	4	4	5	4	5	5	5
	5	5	5	5	5	5	5
	6	5	5	5	5	5	5
	7	3	5	5	4	5	4
	8	5	5	5	5	5	5
	9	3	5	5	3	5	5
3	1	5	5	5	5	5	5
	2	5	4	5	5	5	5
	3	3	5	5	5	3	4
	4	5	5	5	5	5	5
	5	4	5	5	5	4	5
	6	5	5	5	5	5	5
	7	5	5	5	3	4	4
	8	5	5	5	5	5	5
	9	3	5	5	3	5	4

Raw Rank Values of Top Three Choices with Object Focus (F_{OBJECT}) by *Focus* Type

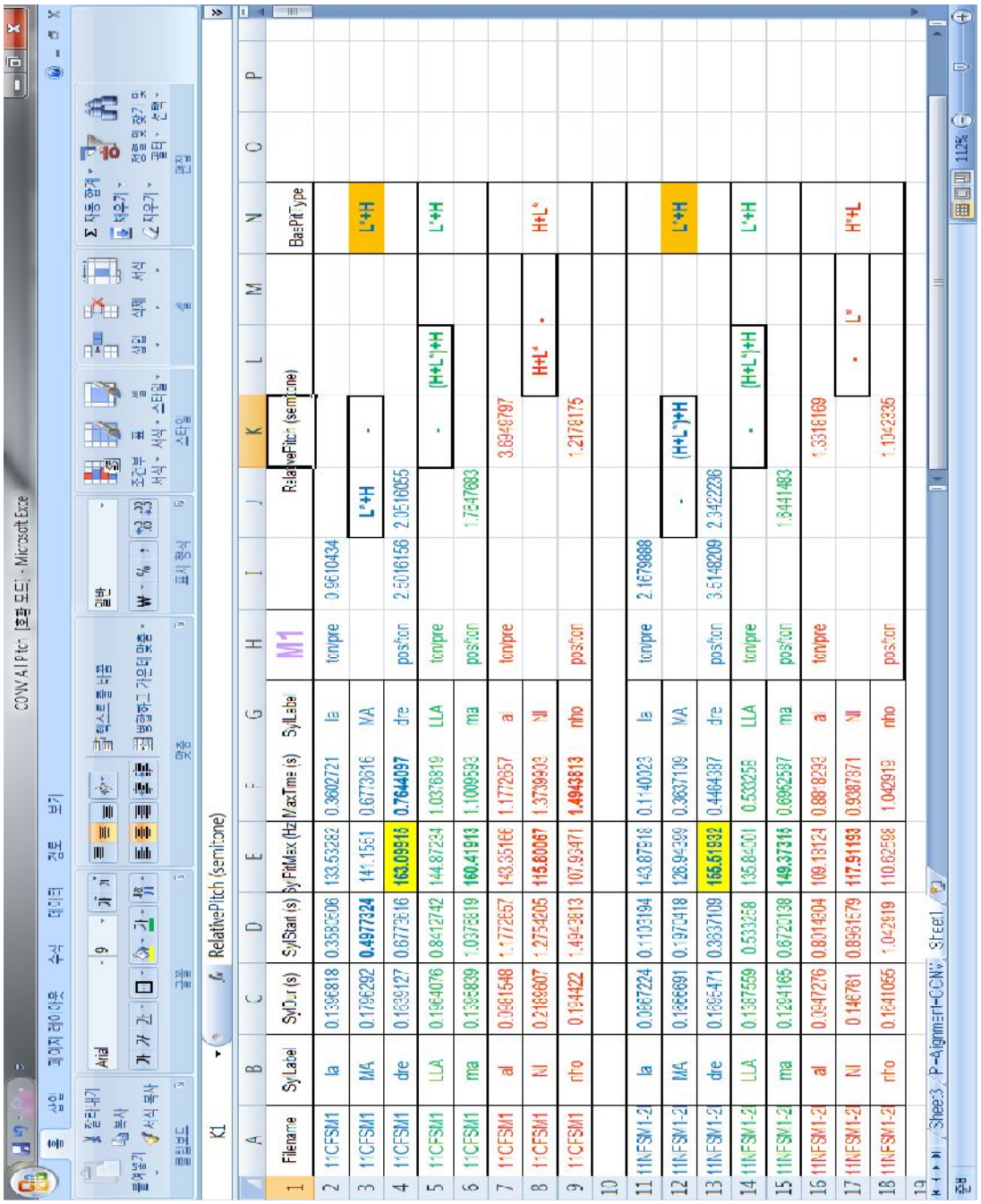
Scenario	Participant	*Predicate Focus* ($F_{PREDICATE}$)					
		$NF_{PREDICATE}$			$CF_{PREDICATE}$		
		SVO	VO	VO,S	SVO	VO	VO,S
1	1	5	5	2	5	5	1
	2	5	3	1	5	5	1
	3	1	5	1	5	3	1
	4	5	5	2	5	5	1
	5	5	5	2	5	5	2
	6	5	5	1	5	5	1
	7	4	5	1	4	5	1
	8	4	5	3	5	5	4
	9	4	5	3	4	5	4
2	1	5	5	1	5	5	3
	2	5	5	1	5	3	1
	3	2	5	1	5	3	1
	4	4	5	1	5	3	2
	5	5	5	3	5	4	2
	6	5	5	1	5	5	1
	7	4	5	1	4	3	1
	8	5	5	3	5	5	1
	9	4	5	4	4	5	1
3	1	5	5	1	5	5	1
	2	5	4	1	5	5	1
	3	2	5	1	3	5	1
	4	5	5	1	5	5	1
	5	5	5	3	5	5	2
	6	5	5	1	5	5	1
	7	4	5	1	4	5	1
	8	5	5	4	5	5	4
	9	4	5	5	3	5	4

Raw Rank Values of Top Three Choices with Predicate Focus ($F_{PREDICATE}$) by *Focus* Type

Scenario	Participant	*Broad Focus* (F_{BROAD})					
		NF_{BROAD}			CF_{BROAD}		
		SVO	VOS	VSO	SVO	VOS	VSO
1	1	5	1	5	5	1	1
	2	5	1	5	5	2	2
	3	5	1	1	5	1	1
	4	5	1	2	5	1	1
	5	5	3	3	5	1	4
	6	5	1	1	5	1	1
	7	5	1	1	5	1	1
	8	5	1	1	5	1	1
	9	5	4	1	5	1	1
2	1	5	4	4	5	1	1
	2	5	1	1	5	3	1
	3	5	1	1	5	1	1
	4	5	1	1	5	3	1
	5	5	2	2	5	5	2
	6	5	1	1	5	1	1
	7	5	1	1	5	1	1
	8	5	1	1	5	1	1
	9	5	3	1	5	4	1
3	1	5	1	1	5	1	1
	2	5	1	1	5	5	1
	3	5	1	1	5	1	1
	4	5	1	1	5	1	1
	5	5	1	2	5	5	3
	6	5	1	1	5	1	1
	7	5	1	1	5	2	1
	8	5	1	1	5	1	1
	9	5	4	1	5	4	1

Raw Rank Values of Top Three Choices with Broad Focus (F_{BROAD}) by *Focus* Type

Sample Analysis of Pitch and Duration Data



Filename	SylLabel	SylDur (s)	SylStart (s)	SylFitMax (Hz)	MaxTime (s)	SylLabel	M1		RelativeFitch (semitone)		BasPitType
11CFSM1	la	0.1396818	0.3585206	133.53282	0.3602721	la	tonpre	0.9610434			
11CFSM1	MA	0.1796292	**0.4977324**	141.1561	0.6773616	MA			L*+H	-	L*+H
11CFSM1	dre	0.1639127	0.6773616	**163.09916**	**0.7644097**	dre	posfon	2.5016156	2.9516055		
11CFSM1	LLA	0.1964076	0.8412742	144.87234	1.0376819	LLA	tonpre		-	(H+L*)+H	L*+H
11CFSM1	ma	0.1395839	1.0376819	**160.41913**	1.1009593	ma	posfon	1.7547683			
11CFSM1	al	0.0981548	1.1772657	143.35166	1.1772657	al	tonpre		3.6948797		
11CFSM1	NI	0.2168607	1.2754205	**115.80067**	1.3739403	NI			H+L*	-	H+L*
11CFSM1	rho	0.134422	1.4943813	107.93471	**1.4943813**	rho	posfon		1.2178175		
11NFSW1-2	la	0.0867224	0.1103194	143.87918	0.1140023	la	tonpre	2.1679888			
11NFSW1-2	MA	0.1966891	0.1970418	126.94389	0.3637109	MA			-	(H+L*)+H	L*+H
11NFSW1-2	dre	0.1664471	0.3637109	**155.61932**	0.4464387	dre	posfon	3.5148209	2.3422286		
11NFSW1-2	LLA	0.1387559	0.533258	135.84001	0.533258	LLA	tonpre		-	(H+L*)+H	L*+H
11NFSW1-2	ma	0.1284165	0.6720138	**149.37315**	0.6962587	ma	posfon	1.8441483			
11NFSW1-2	al	0.0947276	0.8014504	109.13124	0.8818293	al	tonpre		1.3316169		
11NFSW1-2	NI	0.146761	0.8961679	**117.91193**	0.9387971	NI			-	L*	H*+L
11NFSW1-2	rho	0.1641055	1.042919	110.62598	1.042919	rho	posfon		1.1042335		

Result Tables for Intensity Data

The mean intensity of the stressed syllable containing *focus* across all five *focus* scopes ➔ non significant difference between the two types of *focus*, almost all *focus* scopes

Paired Samples Test

F_Scope			Paired Differences					T	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
						Lower	Upper			
Subject	Pair 1	CF_Int - NF_Int	-.14898	1.33991	.29239	-.75890	.46094	-.510	20	.616
Verb	Pair 1	CF_Int - NF_Int	.39338	1.57074	.34276	-.32161	1.10837	1.148	20	.265
Object	Pair 1	CF_Int - NF_Int	.69787	.92846	.20261	.27523	1.12050	3.444	20	.003
Predicate	Pair 1	CF_Int - NF_Int	.12136	1.68767	.26041	-.40456	.64727	.466	41	.644
Broad	Pair 1	CF_Int - NF_Int	.05339	1.39663	.17596	-.29834	.40513	.303	62	.763

The mean intensity of the stressed syllables of the individual constituents under wider *focus* scope (Predicate Focus and Broad Focus) ➔ non significant difference between the two types of *focus*

Paired Samples Test

F_Scope	Ind_F_Scope			Paired Differences					t	df	Sig. (2-tailed)
				Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Predicate	W-V	Pair 1	CF_Int - NF_Int	.18988	1.69791	.37051	-.58300	.96275	.512	20	.614
	W-O	Pair 1	CF_Int - NF_Int	.05284	1.71643	.37456	-.72847	.83415	.141	20	.889
Broad	W-S	Pair 1	CF_Int - NF_Int	-.14543	1.21357	.26482	-.69784	.40698	-.549	20	.589
	W-V	Pair 1	CF_Int - NF_Int	-.17068	1.54023	.33611	-.87179	.53042	-.508	20	.617
	W-O	Pair 1	CF_Int - NF_Int	.47629	1.38553	.30235	-.15439	1.10698	1.575	20	.131

APPENDIX IV – INFROMATION SHEET FOR PARTICIPANTS

Nombre: _____
Edad: _____
Género: _Masculino / Femenino_
Lugar de nacimiento: _____

Language Information
Información lingüística

1. ¿Cuál es su idioma nativo? (el idioma con el que habla con su familia)
2. ¿Habla Ud. otro idioma?
   Sí No
3. Enumere los idiomas que sabe Ud.
   idioma 1:
   idioma 2:
   idioma 3:
   otros:

4. ¿Cuántos años tenía cuando empezó a aprender estos idiomas?
   idioma 1:
   idioma 2:
   idioma 3:
   others:

5. Califique su conocimiento de cada idioma:

idioma 1:	nativo	avanzado	intermedio	básico
idioma 2:	nativo	avanzado	intermedio	básico
idioma 3:	nativo	avanzado	intermedio	básico

Información actual

6. ¿Qué hace Ud. en esta ciudad?
7. ¿Cuánto tiempo lleva en esta ciudad?
8. ¿Ha estado alguna vez en un país donde se habla un idioma extranjero?
   Sí No
9. En caso afirmativo, ¿cuántos años tenía y cuánto tiempo hace que vivió allí?
10. ¿Tiene o Tenía Ud. alguna discapacidad oral o auditiva?

(English Version)

NAME: _____
AGE: _____
GENDER: ___MALE / FEMALE____
PLACE OF BIRTH: _____

Language Information

1. What is your native language? (The language you speak with your family)
2. Do you speak any other language?
   Yes No
3. Name the languages you know
   language 1:
   language 2:
   language 3:
   others:

4. How old were you when you started learning these languages?
   language 1:
   language 2:
   language 3:
   others:

5. Rate your competence in these languages:

language 1:	native	advanced	intermediate	beginner
language 2:	native	advanced	intermediate	beginner
language 3:	native	advanced	intermediate	beginner

Present Information

6. What are you doing in this city?
7. How long have you been in this city?
8. Have you ever been to any foreign language speaking country before?
   Yes No
9. If yes, since what age and how long have you been there?
10. Do you have or did you have any speech or hearing problem?

BIBLIOGRAPHY

Arvaniti, Amalia, D. Robert Ladd, Ineke Mennen (1998). Stability of Tonal Alignment: The case of Greek Prenuclear Accents. *Journal of Phonetics, 26,* 3-25.

---------- (2000). What is a Starred Tone? Evidence from Greek. In M. Broe and J. Pierrehumbert (Eds.), *Papers in Laboratory Phonology V: Acquisition and the Lexicon*, (pp. 119-131). Cambridge: Cambridge University Press.

Beckman, Mary (1986). *Stress and Non-stress Accent.* Dordrecht: Foris.

Beckman, Mary, Manuel Díaz-Campus, Julia Trevis McGory & Terrell Morgan (2002). Intonation Across Spanish, in the Tones and Break Indices framework, *Probus,* 14, 9-36.

Beckman, Mary & Jan Edwards (1994). Articulatory evidence for differentiating stress categories. In P. Keating (Ed.), *Papers in Laboratory Phonology III: Phonological Structure and Phonetic Form*, (pp. 7-33). Cambridge: Cambridge University Press.

Beckman, Mary & Pierrehumbert, Janet (1986). Intonational Structure in Japanese and English. *Phonology Yearbook, 3, 15*–70.

Beaver, David & Clark, B. (2007). Sense and Sensibility: How Focus Determines Meaning (Draft)

Bentivoglio, Paola (1993). Full NPs in Spoken Spanish: a Discourse Profile. In W. Ashby et al. (Eds.), *Linguistic Perspectives on the Romance Languages: Selected Papers from the XXI Linguistic Symposium on Romance Languages* (pp. 211-224), Amsterdam: Benjamins.

Boersma, Paul & David Weenink (2009). Praat: doing phonetics by computer (Version 5.1.20) [Computer program]. Retrieved October 31, 2009, from http://www.praat.org/

Bolinger, Dwight (1945). Meaningful Word Order in Spanish. *Boletín de Filología* 8, 45-46

---------- (1954). English Prosodic Stress and Spanish Sentence Order. *Hispania,* 37. 152-156.

---------- (1961). Contrastive Accent and Contrastive Stress. *Language*, Vol. 37, No. 1. (Jan. - Mar., 1961), 83-96.

---------- (1965). Forms of English: Accent, Morpheme, Order. In Abe and T. Kanekiyo (Eds.) Cambridge: Harvard University Press.

---------- (1972). Accent is Predictable (if you are a mind reader). *Lingua* 48: 633-644.

Büring, Daniel (1997). The Meaning of Topic and Focus: The 59th Street Bridge Accent. London: Routledge.

---------- (1999). Topic. In Peter Bosch and Rob van der Sand (Eds.), *Focus: Linguistic, cognitive, and computational perspectives* (pp. 142–165). Cambridge: Cambridge University Press.

---------- (2003). On D-Trees, Beans, and B-Accents. *Linguistics and Philosophy, 26,* 511–545.

---------- (2006). Focus Projection and Default Prominence. In Valéria Molnár and Susanne Winkler (Eds.), *The Architecture of Focus* (pp. 321–346). Berlin: Mouton. DeGruyter.

Büring, Daniel & Rodrigo Gutiérrez-Bravo (2001). Focus Related Word Order Variation Without the NSR: A Prosody- Based Crosslinguistic Analysis. *Syntax at Santa Cruz.*

Cabrera Abreu Mercedes & García Lecumberri María Luisa (2003). The Manifestation of Intonational Focus in Castilian Spanish. *Catalan Journal of Linguistics, 2,* 33-54.

Calhoun, Sasha (2003). The Nature of Theme and Rheme Accents. *Paper presented at One-Day Meeting for Young Speech Researchers*, University College, London, April 2003.

---------- (2006). *Information Structure and the Prosodic Structure of English: a Probabilistic Relationship.* Doctoral Dissertation. University of Edinburgh, Edinburgh.

Casielles-Suárez, Eugenia (1996). On the Misbehavior of Bare Nouns in Spanish. In C. Parodi, C. Quicoli, M. Saltarelli and L.Zabizarreta (Eds.) *Aspects of Romance Linguistics.* Selected Papers from the XXIV Linguistic Symposium on Romance Languages at USC and UCLA, Washington: Georgetown University Press.

---------- (1997). *Topic, Focus, and Bare Nominals in Spanish*. Doctoral Dissertation. University of Massachusetts, Amherst.

---------- **(**1998). Focus Preposing (it is called). *Proceedings of the Workshop in Focus, 21* (pp. 51-64).

Cinque, Guglielmo (1990). *Types of A' dependencies*. Cambridge: MIT Press.

Chafe, Wallace (1976). Givenness, contrastiveness, definiteness, subjects, topics and point of view. In C. Li (Ed.), *Subjects and topic,* (pp. 25-56). New York: Academic Press.

Choi, Hye-Won (1999). Optimizing Structure in Context: Scrambling and Information Structure, Stanford, CSLI.

Chomsky, Noam (1972). *Studies on Semantics in Generative Grammar.* The Hague: Mouton.

Chomsky, Noam & Morris Halle (1968). *The Sound Pattern of English.* New York: Harper and Row.

Chung, Hye-Yoon (2006). Ambiguous Focus Marking: In a Sentence-Final Position, Presented at LASSO XXXV Conference, Laredo, TX.

Contreras, Heles (1976). *A Theory of Word Order with Special Reference to Spanish*, Linguistic Series No. 29.Amsterdam: North-Holland.

---------- (1991). On the Position of Subjects. In S. Rothstein (Ed.), *Perspectives on phrase structure: Heads and licensing* (Syntax and Semantics 25), (pp. 64-79). San Diego: Academic Press.

Cullicover, Peter & Michael Rochemont (1983). Stress and Focus in English. *Language, 59*, 123-165.

Daneš, Frantisek (1966). A Three-Level Approach to Syntax. In F. Daneš *et al.* (Eds.), *Travaux linguistiques de Prague, vol. I*, (pp.225-240). University of Alabama Press.

Dik, Simon, et al. (1980). On the Typology of Focus Phenomena. *GLOT , 3,* 41-74.

Domínguez, Laura (2004a). Effects of Phonological Cues on the Syntax of Focus Constructions in Spanish. In Bok-Bennema, Reineke, Bart Hollebrandes, Brigitte Kampers-Manhe and Petra Sleeman (Eds.), *Romance Languages and Linguistics Theory.* Amsterdam/Philadelphia: John Benjamins.

---------- (2004b). *Mapping Focus: The syntax and prosody of focus in Spanish,* Unpublished Doctoral Dissertation, University of Boston.

Dretske, Fred (1972). Contrastive statements. *The Philosophical Review, 81,* 411-437.

Drubig, Bernhard (2003). Toward a Typology of Focus and Focus Constructions. *Linguistics, 41,* 1-50.

Drubig, Bernhard &Schaffar, W. (2001). Focus Constructions. In M. Haspelmath, E. König, H.E. Wiegand and H. Steger (Eds.), *Language typology and language universals: An international handbook.* (pp. 1079-1104). Berlin: Mouton de Gruyter.

É. Kiss, Katalin (1998). Identificational Focus versus Information Focus. *Language, 74* (2), 245-273.

Eefting, Wieke (1991). The effect of 'information value' and 'accentuation' on the duration of Dutch words, syllables and segments. *Journal of Acoustic Society of America, 89,* 412-424.

Erteschik-Shir, Nomi (1993). *The Dynamics of Focus Structure.* Unpublished Manuscript. Ben Gurion University of the Negev, Be'er-Sheva.

Estebas-Vilaplana, Eva & Pilar Prieto (2008). La notación prosódica en español. Una revisión del Sp_ToBI. E*studios de Fonética Experimental, XVII*, 263-283.

Face, Timothy (2000). Prosodic manifestations of focus in Spanish. *Southwest Journal of Linguistics, 19,* 45-62.

---------- (2001). Focus and early peak alignment in Spanish intonation. *Probus, 13,* 223-246.

---------- (2002a). El foco y la altura tonal en español. *Boletín de lingüística, 17,* 30-52.

---------- (2002b). Local intonational marking of Spanish contrastive focus. *Probus, 14,* 71-92.

---------- (2003a). Intonation in Spanish declaratives: differences between lab speech and spontaneous speech. *Catalan Journal of Linguistics, 2,* 115-131.

---------- (2003b). Un análisis fonológico del acento nuclear en el español de Madrid. In E. Herrera Z. & P. Martín Butragueño (Eds.), *La tonía: Dimensiones fonéticas y fonológicas* (pp. 221-243). Mexico City: El Colegio de México.

Face, Timothy & Pilar Prieto (2007). Rising accents in Castilian Spanish: A Revision of Sp-ToBI. *Journal of Portuguese Linguistics, 6*(1), 117-146.

Fanselow, Gisbert (2007). The Restricted Access of Information Structure to Syntax: A Minority Report. In C. Féry, G. Fanselow, & M. Krifka (Eds.) *Interdisciplinary Studies on Information Structure 6* (pp. 205–220). Potsdam: Universitätsverlag Potsdam.

Fant, Lars (1984). *Estructura informativa en español: estudio sintáctico y entonativo*.Tesis de Doctorado, Uppsala: Universitatis Upsaliensis.

Féry, Caroline (2007). The Fallacy of Invariant Phonological Correlates of Information Structural Notions. In C. Féry, G. Fanselow, & M. Krifka (Eds.) *Interdisciplinary Studies on Information Structure 6* (pp. 161–184). Potsdam: Universitätsverlag Potsdam.

Fernández Planas, Ana M[a] & Eugenio Martínez Celdrán (2003). El tono fundamental y la duración: Dos aspectos de la taxonomía prosódica en dos modalidades de habla (enunciativa e interrogativa) del español. *Estudios de Fonética Experimental, XII*, 165-200.

Field, Andy (2009). *Discovering Statistics Using SPSS.* (3rd Edition). London: SAGE.

Fromkin, Victoria, Robert Rodman, & Nina Hyams (2007). *An Introduction to Language*. (8th Edition), Boston: Thomson Wadsworth.

Frota, Sonia (2000). *Prosody and Focus in European Portuguese*: *Phonological phrasing and intonation*. New York: Garland Publishers.

Garrido, Juan M. (1996). *Spanish Intonation Modeling for Text-to-Speech Application,* Doctoral Thesis. Universitat Autónoma de Barcelona.

Gordon, Matthew & Peter Ladefoged (2001). Phonation types: A cross-linguistic overview. *Journal of Phonetics, 29,* 383-406.

Gundel, Jeanette (1999). On Different Kinds of Focus. In Peter Bosch and Rob van der Sand (Eds.), *Focus: Linguistic, cognitive and computational perspectives* (pp. 293-305). Cambridge: Cambridge University Press.

Gundel, Janette & Thorstein Fretheim (2001). Topic and Focus. In L. Horn & G. Ward (Eds.), *The Handbook of Pragmatic Theory* (pp. 1-19). Oxford: Blackwell.

Gussenhoven, Carlos (1983). Focus, Mode and Nucleus. *Journal of Linguistics, 19,* 377–417.

---------- (1992). Sentence Accents and Argument Structure. In Iggy M. Roca (Ed.), *Thematic Structure: Its Rolein Grammar* (pp. 79–105), Berlin: Foris.

---------- (1999). On the Limits of Focus Projection in English. In Peter Bosch and Rob van der Sandt (Eds.), *Focus: Linguistic, Cognitive, and Computational Perspectives* (pp. 43–55). Cambridge: Cambridge University Press.

.

---------- (2002). Intonation and Interpretation: phonetics and phonology

---------- (2004). *The Phonology of Tone and Intonation: Research Surveys in Linguistics.* Cambridge: Cambridge University Press.

Gutiérrez Bravo, Rodrigo (2002a). *Structural Markedness and Syntactic Structure: A Study of Word Order and the Left Periphery in Mexican Spanish.* Unpublished Doctoral Dissertation, University of California, Santa Cruz.

---------- (2002b). Focus, Word Order Variation and Intonation in Spanish and English. In C. Wiltshire & J. Camps (Eds.), *Romance Phonology and Variation* (pp. 39-53). Amsterdam/Philadelphia: John Benjamins.

---------- (2005). La identificación de los tópicos y los focos. *Nueva revista de filología hispánica, 56* (2), 363-401.

---------- (2007). Prominence Scales and Unmarked Word Order in Spanish. *Natural Language and Linguistic Theory, 25,* 235-271.

Hajiĉová, Eva, Barbara Partee & Eric Sgall (1998). *Topic-Focus Articulation, Tripartite Structures, and Semantic Content.* Kluwer Academic Publishers.

Halliday, Michael A.K. (1967). Notes on Transitivity and Theme in English (part 2). *Journal of Linguistics,* 3,199–244.

't Hart, Johan (1981). Differential Sensitivity to Pitch Distance, Particularly in Speech. *Journal of the Acoustical Society of America, 69,* 811-821.

't Hart, Johan, Collier René &Antonie Cohen (1990). *A Perceptual Study of Intonation : An experimental-phonetic approach to speech melody.* Cambridge: Cambridge University Press.

Hedberg N. & Sosa J.M. (2001). The Prosodic Structure of Topic and Focus in Spontaneous English Dialogue. In Matthew Gordon, Daniel Büring, and Chungmin Lee (Eds.), *Proceedings of the Workshop on Topic and Focus*. Held at the LSA Summer Institute, Santa Barbara, CA. July.

Horn, Laurence R. (1981). Exhaustiveness and the Semantics of Clefts. *Proceedings of the Northeastern Linguistic Society,11,* 125-142.

Hualde, José Ignacio (2003). El modelo métrico y autosegmental. In P. Prieto (Ed.) *Teorías de la entonación* (pp. 155-184). Barcelona: Ariel.

---------- (2005). *The Sound of Spanish,* Cambridge: Cambridge University Press.

Jackendoff, Ray (1972). *Semantic Interpretation in Generative Grammar.* Cambridge/Massachusetts: MIT Press.

Jiménez, Maria Luisa (1997) *Semantic and Pragmatic Conditions on Word Order in Spanish,* PhD Dissertation, Georgetown University.

Johnson, Keith (2004) *Acoustic and Auditory Phonetics*. Blackwell Publishing (2nd Edition).

Jun, Sun-Ah (2005). Prosodic Typology. In Sun-Ah Jun (Ed.), *Prosodic transcription and typology: A unified approach* (pp. 430-458). Oxford: Oxford University Press.

Keller, Frank & Theodora Alexopoulou (2001). Phonology Competes with Syntax: Experimental Evidence for the Interaction of Word Order and Accent Placement in the Realization of Information Structure. *Cognition, 79*(3), 301-372.

Kenesei, István (2006). *Focus as Identification.* In V. Molnár and S. Winkler (Eds.), *The Architecture of Focus* (pp. 137-168). Berlin & New York: Mouton de Gruyter.

Kim, Sahyang & Heriberto Avelino (2003). An Intonational Study of Focus and Word Order Variation in Mexican Spanish.' In E. Herrera & P. Martín Butragueño (Eds.), *La tonía: Dimensiones fonéticas y fonológicas* (pp. 357-374). Mexico City: El Colegio de México.

Kiss, É. Katalin. (1988). Identificational Focus versus Information Focus. *Language, 74,* 245-273.

Koopman, H., & Sportiche, D. (1991). The Position of Subjects. *Lingua, 85,* 211-258.

Krifka, Manfred (1991). The Representation of Focus. In Arnim von Stechow and Dieter Wunderlich (Eds.), *Semantik/Semantics: An International Handbook of Contemporary Research* (pp. 804-825). Berlin: de Gruyter.

Kruijiff-Korbayová, I. &Steedman, M. (2003) Discourse and Information Structure. *Journal of Logic, Language and Information, 12*(3), 249-259.

Kuno, Susumo (1972). Functional Sentence Perspective: A Case Study from Japanese and English. *Linguistic Inquiry, 3,* 269-320.

Kutner, Michael, Christopher Nachtsheim, John Neter & William Li (2005). *Applied Linear Statistical Models*. (5th Edition). Singapore: McGraw-Hill (Asia).

Kuroda, S.-Y. (1972). The Categorical and the Thetic Judgement: Evidence from Japanese Syntax. *Foundations of Language, 9,* 153-185.

Laan, Gitta (1997). The Contribution of Intonation, Segmental Durations, and Spectral Features to the Perception of a Spontaneous and a Read Speaking Style. *Speech Communication, 22*(1), 43-65.

Ladefoged, Peter (2003). *Phonetic Data Analysis: An Introduction Fieldwork and Instrumental Techniques*. Oxford: Blackwell Publishing.

Ladd, D. Robert (1996). *Intonational Phonology*. Cambridge: Cambridge University Press.

Lambrecht, Knud (1984). A Pragmatic Constraint on Lexical Subjects in Spoken French. *Papers from the Twentieth Annual Meeting of the Chicago Linguistic Society.*239-256.

---------- (1988). Presentational Cleft Constructions in Spoken French. In John Haiman & Sandra Thompson (Eds.), *Clause Combining in Grammar and Discourse*. (pp. 319-339). Amsterdam: John Benjamins.

---------- (1994). *Information Structure and Sentence Form: Topic focus and the mental representations of discourse referents*. Cambridge: Cambridge University Press.

Lee, Chungmin (1999). Contrastive Topic: A Locus of the Interface - Evidence from Korean and English. In Turner *et al.* (Eds.), *The Semantics/Pragmatics Interface from Different Points of View 1* (pp. 317-341). London: Elsevier.

---------- (2003). Contrastive topic and/or contrastive focus. In B. McClure (Ed.), *Japanese/Korean Linguistics, 12,* Stanford, CA: CSLI Publications.

Li, Charles & Sandra A. Thomson (1976). Subject and Topic: A New Typology of Language. In Charles Li (Ed.), *Subject and topic* (pp. 457-490). New York/San Francisco/London: Academic Press.

Liberman, Mark & Janet Pierrehumbert (1984). Intonational invariance under changes in pitch range and length. In M. Aronoff & R. Oerhle (Eds.), *Language sound structure* (pp. 157-233). Cambridge, Massachusetts: The Massachusetts Institute of Technology Press.

Liceras, Juana (1994). La teoría sintáctica y los juicios de gramaticalidad: la posposición del sujeto en español. *Revista Canadiense de Estudios Hispánicos, 18*(2), 219-255.

Llisterri, Joaquim, Rafael Martín, Carme de la Mota, & Antonio Ríos (1995). Factors affecting F0 peak displacement in Spanish. *EUROSPEECH'95*: *Proceedings of the 4th European Conference on Speech Communication and Technology, 3,* (pp. 2061-2064). Madrid.

López, Luis (1999).The Syntax of Contrastive Focus: Evidence from VP-Ellipsis. *Advances in Hispanic Linguistics: Proceedings of the 2nd Symposium on Hispanic Linguistics,* eds. Javier Gutiérrez-Rexach and Fernando Martínez-Gil, (pp. 412-427). Somerville, Mass:Cascadilla Press.

Martínez Celdrán, Eugenio, & Ana Mª Fernández Planas (2003). Taxonomía de las estructuras entonativas de las modalidades declarativa e interrogativa del español estándar peninsular según el modelo *AM* en habla de laboratorio. In E. Herrera &

P. Martín Butragueño (Eds.), *La tonía: Dimensiones fonéticas y fonológicas* (pp. 267-294). Mexico City: El Colegio de México.

Molnár, Valéria (2002). Contrast: From a Contrastive Perspective. In Hilde Hasselgard, Stig Johansson, Berglijot Behrens and Catherine Fabricius-Hansen (Eds.), *Information structure in a cross-linguistic perspective* (pp. 147-161). Amsterdam/New York: Rodopi.

de la Mota, Carme (1995). La representación gramatical de la información nueva en el discurso. Doctoral dissertation, Departamento de Filología Española, Universitat Autónoma de Barcelona

---------- (1997). Prosody of Sentences with Contrastive New Information in Spanish. *ESCA Workshop On Intonation: Theory, Models and Applications,* 75-78.

Murray, Kathleen (2001). A study of automatic pitch tracker doubling/halving "error". SIGDIAL '01. *Proceedings of the Second SIGdial Workshop on Discourse and Dialogue* (16) (pp.1-4)*, September, 2001, Aalborg, Denmark*.

Narbona Jiménez, Antonio (1989). *Sintaxis española: nuevos y viejos enfoques.* Barcelona: Ariel.

Navarro Tomás, Tomás(1918). *Manual de pronunciación española*. Madrid: Centro de Estudios Históricos.

---------- (1944). *Manual de entonación española*. New York: Hispanic Institute in the United States.

---------- (1964). La medida de la intensidad. *Boletín del Instituto de Filología de la Universidad de Chile, 16*, 231-235.

Nespor, Marina & Irena Vogel (1986). *Prosodic Phonology*. Dordrecht: Foris.

Nibert, Holly J. (2000). *Phonetic and Phonological Evidence for Intermediate Phrasing in Spanish Intonation*. Unpublished Doctoral Dissertation). University of Illinois at Urbana-Champaign.

Nooteboom, Sieb (1997). The prosody of speech: Melody and rhythm. In W. J. Hardcastle and J. Laver (Eds.), *The handbook of phonetic science* (pp. 640-673). Cambridge, Massachusetts: Blackwell.

Ocampo, Francisco (1991). Word Order in Constructions with a One-Valency Verb, a Subject NP, and a PP in spoken Rioplatense Spanish. *Hispania, 74*(2), 409-416.

---------- (1993). The Introduction of New Referents in French and Spanish Discourse: One Constraint Two Strategies. In William Ashby, Marianne Mithun, Giorgio Perissinotto, and Eduardo Raposo (Eds.), *Linguistic perspectives on the Romance languages* (pp. 351-362). Amsterdam: John Benjamins.

---------- (1995). The Word Order of a Construction With a Verb, a Subject and a Direct object in Spoken Spanish. In Jon Amastae, Grant Goodall, Mario Montalbetti, and Marianne Phinney (Eds.), *Contemporary research in Romance Linguistics* (pp. 291-305). Amsterdam: John Benjamins.

Ordóñez, Francisco (1997). *Word Order and Clause Structure in Spanish and Other Romance Languages*. Doctoral Dissertation. City University of New York

Ortega-Llebaria, Marta (2006). Phonetic Cues to Stress and Accent in Spanish. In Manuel Diaz-Campos (Ed.), *Selected Proceedings of the 2nd Conference on Laboratory Approaches to Spanish Phonology*, (pp. 104-118). Somerville, MA: Cascadilla Press.

Ortega-Llebaria, Marta & Pilar Prieto (2007). Disentangling Stress From Accent in Spanish: Production Patterns of the Stress Contrast in De-accented Syllables. In Prieto, Pilar, Joan Mascaró & Maria-Josep Solé (Eds.), *Segmental and prosodic issues in Romance Phonology*. (pp. 155-176). Amsterdam/Philadelphia: John Benjamins.

Ortega-Llebaria, Marta, Maria del Mar Vanrell & Pilar Prieto (2010). Catalan speakers' perception of word stress in unaccented contexts. *Journal of the Acoustical Society of America, 127*(1), 462-471.

Partee, Barbara H. (1991). Topic, Focus, and Quantification. In Steve Moore and Adam Z. Wyner (Eds.), *Proceedings of SALT1* (pp. 159–187). Cornell Working Papers in Linguistics.

Pierrehumbert, Janet (1980). *The Phonology and Phonetics of English Intonation*. Cambridge, Massachusetts: The Massachusetts Institute of Technology Press.

Pierrehumbert, Janet & Julia Hirschberg (1990). The Meaning of Intonational Contours in the Interpretation of Discourse. *Intentions in Communication*, ed. by Cohen, Morgan, and Pollack, (pp. 271–311). Cambridge, Massachusetts: The Massachusetts Institute of Technology Press.

Prat-Sala, M & Branigan, H. (2000). Discourse Constraints on Syntactic Processing in Language Production: A Cross-linguistic Study in English and Spanish. *Journal of Memory and Language* 42(2), 168-182.

Prieto, Pilar (2003). Efectos de coarticulación tonal en choques acentuales. In Martín, P.; Herrera, E. (Eds.), *La tonía: Dimensiones fonéticas y fonológicas*, (pp. 187-218). México: El Colegio de México.

Prieto, Pilar, Jan van Santen & Julia Hirschberg (1995). Tonal Alignment Patterns in Spanish. *Journal of Phonetics, 23,* 429-451.

Prieto, Pilar, Shih Chilin & Holly Nibert (1996). Pitch Downtrend in Spanish. *Journal of Phonetics, 24,* 445-4

Prince, Ellen (1981a). Toward a taxonomy of given-new information. In Peter Cole (Ed.), *Radical Pragmatics* (pp. 223–256). New York: Academic Press.

---------- (1981b). Topicalization, focus movement and Yiddish movement: A pragmatic differentiation. *Proceedings of the Seventh Annual Meeting of the Berkeley Linguistics Society* (pp.249-264). Berkeley, California.

Quilis, Antonio (1971). Caracterización fonética del acento en español. *Travaux de Linguistique et de Líterrature 9, 53-72.*

---------- (1981). *Fonética acústica de la lengua española.* Madrid: Gredos.

---------- (1993). *Tratado de fonología y fonética españolas.* Madrid: Gredos.

Reinhart, Tanya (1981). Pragmatics and Linguistics: An Analysis of Sentence Topics. *Philosophica, 27,* 53-94.

---------- (1995). Interface Economy: Focus and Markedness. *Studia Grammatica, 40,* 147-169.

Reyes, Graciela (1985). Orden de palabras y valor informativo en español. *Philologia Hispaniensia, Tomo II,* 567-588.

Rietveld, Toni & Carlos Gussenhoven (1985). On the relation between pitch excursion size and Prominence. *Journal of Phonetics, 13,*199-308.

Rivero, M.L.(1980) On Left-Dislocation and Topicalization in Spanish, *Linguistic Inquiry,* 11. 363-393.

Rizzi, Luigi (1997). The fine structure of the left periphery. In L. Haegeman (Ed.), *Elements of Grammar: Handbook in Generative Syntax* (pp.281-337). Dordrecht: Kluwer.

Roberts, Craige (1996). Information Structure in Discourse: Towards an Integrated Formal Theory of Pragmatics. *OSU Working Papers in Linguistics 49. Papers in Semantics,* J.H. Yoon and Andreas Kathol (eds.), 91-136.

---------- (1998). Focus, the flow of information, and universal grammar. In P. Culicover & L. McNally (Eds.), *Syntax and Semantics, 29: The limits of syntax* (pp.109–160). New York: Academic Press.

Rochemont, Michael (1986). *Focus in Generative Grammar*. Amsterdam: John Benjamins.

Rooth, Mats (1985). *Association with Focus*. University of Massachusetts, Amherst: Graduate Linguistics Student Association.

---------- (1992). A Theory of Focus Interpretation. *Natural Language Semantics, 1,* 75–116.

---------- (1996). Focus. In Shalom Lappin (Ed.), *The Handbook for Semantic Theory* (pp. 271-297). Oxford: Blackwell.

Sasse, Hans-Jürgen (1987). TheThetic/Categorical Distinction Revisited. *Linguistics, 25,* 511 -580.

Selkirk, Elisabeth (1984). *Phonology and Syntax: The Relation between Sound and Structure*. Cambridge, Massachusetts: The Massachusetts Institute of Technology Press.

---------- (1995). Sentence Prosody: Intonation, Stress, and Phrasing. In John A. Goldsmith (Ed.), *The Handbook of Phonological Theory* (pp. 550–569). Oxford: Blackwell.

---------- (2002). Contrastive *FOCUS* vs. presentational *focus*: Prosodic evidence from right node raising in English. In B. Bel and I. Marlin (Eds.), *Speech Prosody 2002: Proceedings of the First International Speech Prosody Conference* (pp.643-646). Laboratoire Parole et Langage, Université de Provence, Aix-en-Provence.

Shattuck-Hufnagel, S. and Turk, A.(1996). A Prosody Tutorial for Investigators of Auditory Sentence Processing. *Journal of Psycholinguistic Research, 25,* 193–247.

Silva-Corvalán Carmen (1983). On the interaction of word order and Intonation: Some OV constructions in Spanish. In F. Klein-Andreu (Ed.), *Discourse Perspectives on Syntax* (pp.117-140). New York: Academic Press.

Silverman, Kim, Mary Beckman, John Pitrelli, Mari Ostendorf, Colin Wightman, Patti Price, Janet Pierrehumbert & Julia Hirschberg (1992). ToBI: A Standard for Labelling English Prosody. In Proceedings *of the International Conference on Spoken Language Processing* (ICSLP), Vol. 2, (pp. 867–870).

Sluijter, Agaath & Vincent van Heuven (1996). Spectral Balance as an Acoustic Correlated of Linguistic Stress. *Acoustical Society of America, 100*(4),2140-2485.

Sluijter, Agaath, Vincent van Heuven & Jos Pacilly (1997). Spectral Balance as a Cue in the Perception of Linguistic Stress. *Acoustical Society of America, 101*(1),502-513.

Sosa, Juan Manuel (1991). *Fonética y fonología de la entonación del español hispanoamericano*, Doctoral Dissertation, University of Massachusetts, Amherst.

---------- (1995). Nuclear and Pre-Nuclear Tonal Inventories and the Phonology of Spanish Declarative Intonation. In *Proceedings of the XIIIth International Congress of Phonetic Sciences* (pp. 646-649).

---------- (1999). *La entonación del español: su estructura fónica, variabilidad y dialectología*. Madrid: Cátedra.

Steedman, Mark (2001). Information Structure and the Syntax-Phonology Interface. *Linguistic Inquiry, 31,* 649–689.

Suñer, Margarita (1982). *Syntax and Semantics of Spanish Presentational Sentence Types*. Washington D.C.: Georgetown University Press.

Szendröi, Kriszta (2001). Focus and the Syntax-Phonology Interface. Doctoral Dissertation. University of College London.

Toledo, Guillermo Andrés (1989). Señales prosódicas del foco. *Revista Argentina de Lingüística, 5,* 205-230.

Tomlin, Russell S. (1997). Focal attention, voice and word order: An experimental, crosslinguistic study. In P. Downing & M. Noonan (Eds.), *Word order in discourse* (pp.517-554). Amsterdam: John Benjamins.

Torrego, Esther (1984). On Inversion in Spanish and Some of Its Effects. *Linguistic Inquiry, 15,* 103-129.

Umbach, Carla (2004). On the Notion of Contrast in Information Structure and Discourse Structure. *Journal of Semantics, 21,* 155-175.

Uriagereka, Juan (1995). An F Position in Western Romance. *Discourse Configurational languages,* 153-175.

Vallduví, Enric (1992). *The Informational Component*. New York: Garland Publishing.

Vallduví, Enric & Maria Vilkuna (1998). On Rheme and Kontrast. In P. Culicover and L. McMally (Eds.), *Syntax and Semantics, 29*: *The limits of syntax* (pp.79-108). The Ohio State University: Academic Press.

Van Vallín, Robert D. Jr. (1999). A Typology of the Interaction of Focus Structure and Syntax. In E. Raxilina & J. Testelec (Eds.), *Typology and the theory of language: From description to explanation* (pp.511-524). Moscow: Languages of Russian Culture.

De Veaux, Richard, Paul Velleman & David Bock (2009). *Intro Stats*. 3rd Edition, Boston: Pearson Education.

Ward, Gregory (1988). *The Semantics and Pragmatics of Preposing*. New York: Garland Publishing, Inc.

Wee, Hae-Kyung (2001). Focus, Contrastive Topic and Theories of Focus. *Korea Society for Language and Information 5*(1), 86-106.

Willis, Erik (2003). Prenuclear low tone alignment in Dominican Spanish. In M.J. Solé, D. Recasens, & J. Romero (Eds.), *Proceedings of the XVth International Congress of Phonetic Sciences,* Universitat Autonomá de Barcelona, Barcelona, 3-9 August (pp. 2941-2944). Barcelona.

Yeni-Komshian, Grace, James Flege, Serena (2000). Pronunciation Proficiency in the First and Second Languages of Korean–English Bilinguals. *Bilingualism: Language and Cognition, 3*(2), 131–150.

Zimmermann, Malte (2007). Contrastive Focus. In C. Féry, G. Fanselow, & M. Krifka (Eds.) *Interdisciplinary Studies on Information Structure 6* (pp. 147–160). Potsdam: Universitätsverlag Potsdam.

Zubizarreta, Maria Luisa (1998) *Prosody, Focus and Word Order*. Cambridge, Massachusetts: The Massachusetts Institute of Technology Press.

---------- (1999) Tema y Foco, In . I. Bosque & V. Demonte (Eds.), *Gramática Descriptiva de la lengua española* (pp. 4216-4244). Madrid, Espasa-Calpe.