

**Encoding discourse-based meaning: prosody vs. syntax.
Implications for SLA.**

**Maria Luisa Zubizarreta & Emily Nava
University of Southern California**

0. Introduction.

We examine the complex interplay between sentence prosody, syntax, and meaning in English and Spanish and we explore its implication for second language acquisition (SLA). As is well-known, English has more prosodic plasticity than Spanish regarding sentence prominence patterns (see Contreras 1976, Zubizarreta 1998, as well as Vallduví 1995 on Catalan, and Samek-Lodovici 2005 on Italian). Spanish uses word order where English uses main sentence prominence (i.e. Nuclear Stress) to encode meaning distinctions, such as *categorical vs.thetic statements* (a distinction based on the topic-comment articulation of the clause). Similarly, Spanish uses word order to align the focused constituent with Nuclear Stress, while English uses prosody (i.e. Anaphoric Deaccenting & Nuclear Stress-Shift) to obtain such alignment.

We present and discuss L2 data from L1 Spanish/L2 English speakers that indicate that moving from syntax to prosody to encode the thetic/categorical distinction is more challenging than moving from syntax to prosody to align the focused constituent with Nuclear Stress (based on work by Nava & Zubizarreta in press and in progress). On the other hand, L2 data from L1 English/L2 Spanish indicate that moving from prosody to syntax to encode the thetic/categorical distinction is far less challenging than moving from prosody to syntax to align the focused constituent with Nuclear Stress (based on work by Hertel 2003 and Lozano 2003). We argue that grammar can readily account for this seemingly contradictory situation. The difference between the Germanic and the Romance Nuclear Stress algorithms is rooted in deep phonotactic differences between the two set of languages and therefore, the L2 acquisition of the Germanic Nuclear Stress by native Spanish speakers requires non-trivial restructuring of the L1 algorithm. On the other hand, the prosodic algorithms involved in aligning the focused constituent with Nuclear Stress in English (namely, Anaphoric deaccenting & Nuclear Stress-Shift) are algorithms that Standard Spanish lacks but which can easily be incorporated into its grammar without any restructuring. Such an account crucially assumes that L2 language learners acquire a grammatical system (possibly incomplete or divergent in the sense of Sorace 1993) and not unconnected patterns. The phenomena under discussion furthermore suggests that not all L2 acquisition that engages the interface with semantics and pragmatics are equally challenging.

1. The functions of Nuclear Stress. General background.

One of the well-known functions of Nuclear Stress (NS) in Germanic is to encode the focus/presupposition distinction. A word is identified as bearing NS if it is the rhythmically most prominent word in the sentence.¹ In Germanic, as in many other

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languages, the focused (or asserted) constituent must contain the word that bears NS. Thus, the transitive sentence in (1b) with NS on the object is compatible with an interpretation where the entire sentence is under assertion, as indicated by the fact that it is a natural response to the context question in (1a). The presupposition associated with (1a) is “*event x happened*” and the assertion is “*that event x = a boy broke his leg*”. On the other hand, the same sentence with NS on the subject is only compatible with a narrow focus interpretation, as indicated by the fact that (2b) is an adequate response to the question in (2a). The presupposition associated with (2b) is “*some individual x broke his leg*” and the assertion is “*the x such that x broke his leg = a boy*”.

- (1) a. What happened?
b. A boy broke his leg. (wide focus)
- (2) a. Who broke his leg?
b. A boy broke his leg. (narrow focus)

It is assumed that the Nuclear Stress algorithm (or NSR) determines the location of main phrasal prominence in wide focus contexts only. Such NS patterns are considered to be “unmarked”. In the case of transitive structures, the unmarked NS pattern is (1b). The NS pattern in (2b) is “marked” in that it is derived from the unmarked pattern via a mechanism of deaccenting and NS-shift. The application of NS-shift is driven by the necessity to align the focused constituent with NS. In the first part of this paper, we will discuss unmarked NS patterns only, i.e. NS patterns in wide focus contexts. We return to cases of narrow focus and the focus/presupposition divide at the end of paper.

1.1. Thethetic vs. categorical distinction. Germanic vs. Romance.

While the use of NS to identify the scope of the focus across typologically different languages is well-known, it is less recognized that NS in Germanic also plays an important role in encoding the thetic/categorical divide. This distinction was first introduced by the 19th century philosophers Brentano and Marty and revived by Kuroda 1972. The latter author showed that in Japanese, the subject of a thetic statement is case-marked differently from the subject of a categorical statement. More than a decade later, Sasse 1987 noticed that English and other Germanic languages use NS to encode that distinction. This is revealed by the stress pattern distribution in SV intransitives. The SV structures with NS on the subject are thetic statements, while SV structures with NS on the verb are categorical statements.

Categorical statements are those that consist of two acts: an act of naming the subject and an act that consists of attributing a property to that subject, namely, the property denoted by the VP. Grammatically, the attribution of a property to the subject corresponds to the subject-predicate relation, a relation which is grounded in the discourse-based notion of “aboutness” (Reinhart 1981). Thus, categorical statements are topic/comment sentences, where the subject is the “topic” and the VP provides the “comment”. On the other hand, thetic statements simply introduce an event or situation; they are eventive statements. Sasse op.cit. considers a thetic clause to be semantically

¹ In the languages under discussion, the word with NS is the one that bears the Nuclear Pitch Accent, i.e. the last pitch accent in the intonational domain.

comparable to its nominalization counterpart in that both lack a subject-predicate relation; e.g. *a friend arrived* and *a dog is barking* are in that respect comparable to *the arrival of a friend* and *the barking of a dog*, respectively.

While thethetic/categorical distinction does not give rise to a truth-conditional difference, it does seem to be the case that SV unaccusative structures (due to the lexical- semantics of this class of verbs) tend to be construed asthetic (or eventive) statements. On the other hand, SV unergative structures tend to have a variable behavior, either as categorical orthetic, depending in part on pragmatic properties like degree of predictability and noteworthiness of the predicate in relation to the subject. This is supported by the data from own study (Nava & Zubizarreta in press a).

Based on a question & answer (Q&A) protocol (see 3.2), our 34 English Native Controls (ENC) produced almost all of the 12 unaccusative SV test items with NS on the subject, a sample of which is provided in (3). (Underlines indicate the position of NS.)

- (3) a. Why are you so happy? My friend arrived. (100%)
 b. Why are the kids looking outside? A rabbit appeared. (100%)
 c. What was that crashing sound? A window broke. (100%)

On the other hand, in the case of the 12 unergative SV test items, we found a lot of variability across tokens and across native participants; i.e. NS patterns fluctuated between NS on the subject and NS on the verb. A sample of unergatives with NS on the verb is provided in (4); the remaining percentages correspond to cases of NS on the subject.

- (4) a. Why didn't they finish the play? An actress was crying. (79%)
 b. How did the party end? A guest sang. (57%)

Pragmatic factors such as predictability and noteworthiness can influence NS placement. Thus compare the examples in (5), which the majority of participants pronounced with NS on the subject, with the examples in (6), which the majority of participants pronounced with NS on the verb. While a barking dog and a dolphin swimming are pragmatically predictable and uneventful events, a dog singing and a dolphin talking are pragmatically unexpected and noteworthy events.²

- (5) a. Why are those children screaming? Because a dog is barking. (71%)
 b. Why is everybody at the aquarium? Because a dolphin is swimming (87%)
 (6) a. Why does everybody look so surprised? Because a dog is singing. (81%)
 b. Why does everybody look so surprised? Because a dolphin was talking. (89%)

² Note that noteworthiness can also influence the position of NS in the case of certain unaccusatives. Thus, we found that with the following two token items, NS tended to be located on the verb:

- (i) *Why is the show over? Guess what? The magician disappeared!* (60%)
 (ii) *What happened at the game? You won't believe it! The major fell!* (75%).

Still, it is remarkable that the light verbs of appearance, which are cross-linguistically the unaccusative verbs par excellence, do not seem to be influenced by considerations of noteworthiness, as shown by the fact that all renditions of the token items below had NS on the subject:

- (iii) *What happened? You won't believe it! The aliens arrived!* (100%)
 (iv) *How was the parade? Not good. The police came!* (100%).

We summarize the relation between type of statement, verb class, and prosodic pattern in the table below.

Table 1.

Prosodic pattern	Thetic (or eventive) statement	Categorical (or topic/comment) statement
<u>SV</u>	Unaccusative Unergative	N/A
<u>SV</u>	Unergative	Unergative

English (or Germanic, more generally) can use NS to encode the categorical/thetic divide because its Nuclear Stress algorithm (or NSR) allows for non-sentence final NS. On the other hand, in Romance, NS in wide-focus contexts is always sentence final.³ Therefore, Romance uses syntax to encode this distinction. A rigid word order language like French uses the existential “il y a” construction, among other constructions, to encode theticity (see (7)), while languages with flexible word order like Spanish and Italian, uses the VS structure; see (8).

- (7) a. Il y a un ami qui est arrivé. Cf. (3a)
 b. Il y a une fenêtre qui s’est cassé. Cf. (3c)
 c. Il y a un chien qui aboie. Cf. (5c)
- (8) a. Llegó un amigo. Cf. (3a)
 b. Se rompió una ventana. Cf. (3c)
 c. Está ladrando un perro. Cf. (5c)

Although we recognize that languages may vary as to the means they employ to encode the thetic/categorical divide, we do not think that the form should be reduced to the function; the two should be kept distinct. Indeed, English also has syntactic means, like the existential *there*-construction, to encode thetic or eventive statements. Still, it is remarkable that even in the existential construction, where the word order in the two set of languages are comparable, non-final NS is possible in English but not in Romance; compare English (9) with its Spanish counterpart in (10) and its French counterpart in (7c).

- (9) There is a dog barking.
 (10) Hay un perro ladrando.

³ More precisely, NS in wide focus contexts in Romance is sentence final within the sentential structure that constitutes an intonational phrase. In the core (simple) cases, there is a correspondence between the syntactic sentential structure and Intonational Phrase. It is well-known that considerations such as length can distort such correspondence. Yet, we think that acquisition is based on the core (simple) cases and therefore these are the cases that should be considered in determining the properties of the NS algorithm.

The obvious conclusion is that Germanic, but not Romance, can encode the thetic/categorical distinction via prosody precisely because the Germanic NSR generates flexible NS patterns, namely patterns with sentence internal NS and patterns with NS in sentence final position. More specifically, for any intransitive SV sentence, the Germanic NSR generates both an SV and a SV pattern. Which pattern the speaker's chooses for any given SV sentence will depend on whether (s)he intends to express a thetic or categorical statement, and this in turn will be conditioned by the semantics of the verb as well as by pragmatic factors such as predictability and noteworthiness. In contrast to the Germanic NSR, the Romance NSR systematically places NS sentence-finally. We turn next to the discussion of the NS algorithm in these two sets of languages.

2. The Nuclear Stress algorithm in Germanic and Romance.

As hinted by the above discussion, our view is that a grammatically-encapsulated NS algorithm exists, namely a rule that only appeals to grammatical notions in determining the placement of NS. The role of semantics and pragmatics comes in later in that the speaker chooses a particular pattern depending on whether (s)he intends to articulate the sentence as a thetic or as a categorical statement. This decision depends partly on the semantics of the verb and on pragmatic notions such as noteworthiness. The question that arises is why the Germanic NSR, but not the Romance NSR, can generate flexible prosodic patterns. We turn to this question below.

2.2. The Nuclear Stress algorithm and the relevance of the prosody of function words.

The Nuclear Stress Rule (NSR) that applies to a metrically interpreted metrical structure (in the sense of Liberman 1975) and generates the unmarked NS patterns. An empirically adequate NSR must account, on the one hand, for the variability of NS patterns in Germanic (in particular in SV intransitives), and on the other hand, for the lack of variability in Romance. The two-layer NSR in (11), in conjunction with another assumption introduced immediately below, achieves just this. The general-NSR is the “elsewhere” case; it applies when the specific-NSR fails to apply. *S* stands for metrically strong constituent, the sister of which is *W* (Weak) by convention. NS is located on the node that is uniquely solely dominated by *S* nodes.⁴

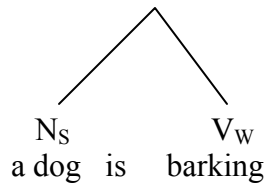
- (11) Given two metrical sister nodes A and B:
(i) If A is a head and B is its argument, assign *S* to B. (***specific-NSR***)
Otherwise,
(ii) Assign *S* to the right-most constituent node in the phrase.
(***general-NSR***)
(Zubizarreta 1998, Zubizarreta & Vergnaud 2005).

The reason why the NSR generates variable patterns in the case of intransitive SV structures in Germanic is due to the metrical status of its functional nodes. *Because function words in Germanic are systematically unstressed/reduced, functional categories*

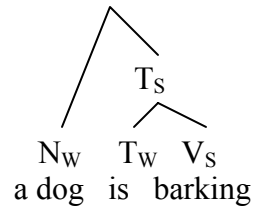
⁴ A is a metrical head iff it is non-branching. B is an argument of A iff B is contained within the l(exico)-syntactic structure of A, where l-structure is to be understood in the sense of Hale & Keyser 2002 (see Nava & Zubizarreta in press a for details).

in this language may be analyzed as metrically invisible. To illustrate the implications of this proposal, consider the metrical structure of the intransitive sentence *a dog is barking*. If T is interpreted as metrically invisible, we obtain the metrical structure in (12a), where N and V are metrical sisters. The specific-NSR applies, designating the subject as metrically strong. If T is interpreted as metrically visible, we obtain the metrical structure in (12b). The presence of the T node bleeds the application of the specific-NSR, i.e. N and V are not metrical sisters in such a structure. Instead, the general-NSR applies to the sister nodes N and T and to the sister nodes T and V, ultimately designating V as the locus of NS.

(12)a.



b.



In contrast to Germanic, *functional nodes in Romance are always metrically visible*. Therefore, an intransitive SV in Romance will never be metrically interpreted as (12a); it will always be metrically interpreted as (12b). The specific-NSR will never be activated in Romance and for this reason only the general-NSR can be part of the grammar in this language type.

The next question to ask is why can functional nodes be metrically invisible in Germanic but not in Romance. The reason stems from the prosodic difference between function words in Romance and Germanic. In Germanic, function words (in particular tense-related function words such as auxiliaries and copulas) are systematically unstressed/reduced, while in Romance they are stressed/unreduced. In conclusion, we contend that *the prosodic nature of function words is at the heart of the Romance/Germanic parametrization with respect to the NSR* (Nava & Zubizarreta op.cit.). Before we turn to the prediction that such a theory of NS placement makes with respect to L2 acquisition, we address briefly another aspect of the Germanic NSR, namely its sensitivity to the argument vs. adjunct distinction. This is important because it shows that the same algorithm that generates main phrasal stress also generates main stress in compounds in languages (like English) in which compounding is a productive process.

2.3. The relevance of the argument-adjunction distinction in the Germanic NSR.

Another important property of the Germanic NS, which is captured by the specific part of the rule in (15), is the primacy of arguments as opposed to adjuncts. This can best be seen in verb final structures, such as the minimal contrast provided by the German examples in (13), due to Krifka 1984. The PP and the Verb are metrical sisters in both examples, yet the argument PP in (13a) attracts NS, while the adjunct PP in (13b) does not and NS goes on the verb instead.

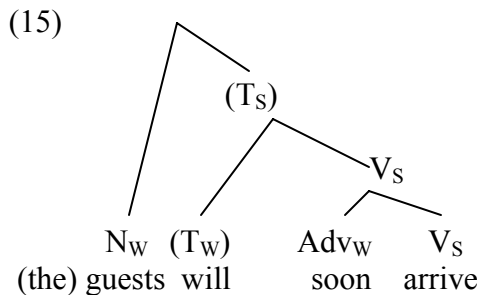
- (13) a. Hans hat an seinem Papier gearbeitet.
 Hans has on his paper worked

- b. Hans hat in seinem Büro gearbeitet.
 Hans has in his office worked

In English, it is hard to see the relevance of the argument vs. adjunct distinction in determining the placement of NS because, at the phrasal level, English is head initial. Thus, in the English counterpart to the above examples, NS falls on the object of the Preposition whether the P is a complement (with NS assigned by the specific-NSR) or an adjunct (with NS assigned by the general-NSR). Nonetheless, the relevance of the argument/adjunct distinction can be appreciated in English in unaccusative structures. More precisely, while NS may fall on the subject in an SV structure (as discussed earlier), this is not possible when an adverb intervenes between the subject and the verb (an observation due initially to Gussenhoven 1984). Thus, compare the SV structures in (3) (with NS on the subject) with the SAdvV structures in (14) from our Q&A study, which were overwhelmingly produced with NS on the verb.⁵

- (14) a. Why are you waiting at the door? The guests will soon arrive. (93%)
 b. Are the kids eating already? Yes, the pizza quickly arrived. (93%)

The NSR in (11) readily accounts for the above NS pattern. Consider the metrical structure of (14b) given below. Whether or not the T is metrically visible (as indicated by the parenthesized T), the presence of the Adverb bleeds the application of the specific-NSR. The general-NSR applies instead, ultimately locating the NS on V.



We can also appreciate the primacy of arguments as opposed to adjuncts in compound structures, which, unlike phrases, are head final in English. If the first element of the compound is unambiguously an argument of the head of the compound, then main stress is on the first element of the compound, as illustrated in (16) (taken from our study).

- (16) a. Does Jill like to visit parks? Oh, yes. She is a bird-watcher. (100%)
 b. What will Tim do in Africa? He will go lion-hunting. (100%)

On the other hand, if the first element of the compound is an adjunct, main stress goes on the head. This can be appreciated with minimal pairs as the ones below (from Selkirk

⁵ The remaining 7% were renditions with emphatic stress on the adverb.

1984). If main stress is on first N, these are interpreted as arguments, but if main stress is on the verb, the first N is interpreted as an adjunct.

- (17) a. tree-eater (someone who eats trees)
- b. tree-eater (someone who eats on a tree)
- (18) a. toy-factory (factory that makes toys)
- b. toy-factory (a toy that is a factory)

The above observations suggest that the same algorithm that determines sentence-level NS also determines NS in compounds in Germanic. Indeed, the same mechanism that gives rise to the two patterns in (13) can also readily account for the two patterns in (17) and (18), namely the NSR as formulated in (11).

3. L2 Acquisition of English NS by Spanish natives. Implications for SLA.

We now turn to the acquisition of English NS by Spanish natives. First, we spell out our hypotheses and predictions based on the theory of NS presented in section 2.

3.1. Hypotheses and Predictions.

The L2 acquisition of Germanic NS patterns involves two aspects: the formal (19a) and the functional (19b).

- (19) a. Acquisition of the specific NSR, which in turn requires acquisition of the metrical invisibility of functional categories, in particular Tense.
- b. Acquisition of NS as a marker of the thetic/categorical distinction.

Furthermore, we make following reasonable assumption:

- (20) Both aspects (the formal and the functional) need to be acquired by the L2er in order for Germanic NS patterns to be produced above chance level.

To investigate (19a), we can measure the acquisition of metrical invisibility of the functional category Tense by determining the amount of reduced auxiliaries (both contracted and unstressed auxiliaries) produced by the L2er. Given the assumption (20), it is clear that the acquisition of the metrical invisibility of Tense is a necessary but not sufficient condition for the production of Germanic NS patterns above chance level. Therefore, the hypothesis in (19a) makes the following prediction:

- (21) If L2ers are (near) native-like with respect to the production of Germanic NS patterns, they must be (near) native-like with respect to the production of auxiliary reduction, but not necessarily vice-versa.

The null hypothesis is of course that there is no connection between Aux reduction and the Germanic NS pattern, in which case we should expect to find L2ers that produce Germanic NS patterns above chance level but that “under-produce” Aux reduction.

To investigate (19b), we can measure the acquisition of the function of NS as a marker of the thetic/categorical distinction by determining the extent to which the L2er makes a distinction between unaccusatives, which are unambiguously thetic, and

unergatives, which have a variable behavior. The hypothesis in (19b) makes a strong and a weak prediction. The strong prediction consists in comparing the L2ers with the English native controls (ENCs). The weak hypothesis, on the other hand, does not require native-like behavior, but requires that the L2ers make a prosodic distinction to a significant extent between unaccusatives (which are unambiguouslythetic) from the unergatives (which are not). The former behavior would signal that the L2ers are prosodically native-like, while the second one would signal that the L2ers are prosodically near-native (but not completely native-like).

- (22) a. If L2ers have acquired the function of NS in Germanic, they should produce SV patterns in the case of unaccusative verbs to the same extent as native speakers (strong prediction).
- b. If L2ers have acquired the function of NS in Germanic, they should produce significantly more SV than SV patterns in the case of unaccusatives verbs, but not in the case of unergative verbs (weak prediction).

3.2. Tests and Participants.

Our participants consisted of 34 English Native Controls (ENC) as well as 47 Spanish L1/English L2 speakers were tested, one of which was discarded because the participant had been raised in a bilingual household. All of the L2ers were tested in Los Angeles except 9 Paraguayans who were tested in their native country. (For further details on the L2ers, see section 5). Proficiency was determined with a Cloze Test (borrowed from Oshita 1997), which consisted of two paragraphs with a total of 75 blanks to be filled out by the participants. Two proficiency levels were identified using a cluster analysis. 27 of the 46 L2ers were identified as high proficiency and 19 as intermediates. The results are summarized in table 2.

Table 2. Results of Cloze Test

Participants	Range	Average
34 ENC	70-75	73
27 L2 High	66-74	70
19 L2 Interm.	58-65	60

To elicit NS production, a Question & Answer (Q&A) protocol was designed, which consisted of a scripted dialogue between experimenter and participant.⁶ The experimental test items consisted of a wide variety of structures in different information structure contexts, and an equal number of fillers. It followed a Latin Square design, with two Question & Answer (Q&A) sets, so that no participant read any given test item more than once. The dialogue was recorded and the sound files analyzed using PitchWorks by two independent coders. The results were coded for presence vs. absence of pitch accent and for location of Nuclear Pitch Accent (which is the pitch accent

⁶ Participants were also asked to read a passage known as the *North Wind and the Sun* in English in the case of the ENC and both in English and Spanish in the case of the L2ers, with the purpose of obtaining a voicing ratio assumed to reflect the stress vs. syllable timing of the languages involved (Dellwo et. al 2007). This part of the protocol will not be discussed here, but see Nava & Zubizarreta in press b for results and preliminary discussions.

associated with the word bearing NS). Furthermore, 22 auxiliaries were identified within the experimental test items and these were coded for presence or absence of vowel reduction. A perceptual judgment of the absence or presence of stress determined the coding of a vowel as full or reduced.

In the next section, we will present the data that is relevant for our present discussion, namely the data from the 12 SV unaccusative structures that elicited typically Germanic NS patterns from the ENC (e.g. (3)) and the 12 unergative SV structures that elicited a variable NS patterns from the ENC (e.g. (4)).⁷ We also include data from 4 OV compounds, given that these (like the unaccusative SVs) elicited almost unanimously a Germanic NS pattern from the ENC (e.g (16)). A within-subjects design yielded two lists, meaning that each participant read 6 SV unaccusatives, 6 unergatives, and 2 OV compounds.

3.3. Results and discussion.

3.3.1. Germanic NS production and Cloze-based proficiency.

We present below the group data obtained, with the L2ers divided into High and Intermediate Proficiency. In table 3, we present the mean percentage for the Unaccusatives and Compounds, which gave rise to a very high percentage of Germanic NS pattern in the ENC. In table 4, we present the mean percentages for the unergatives for both patterns, so as to underscore the variable NS pattern obtained with this verb class in the ENC group.⁸ We can clearly see an effect of the first language in the NS patterns of the L2ers and more strongly so in the case of the intermediates, as shown by the overwhelming patterns of sentence final NS. Note also that for the High Proficiency L2ers, there is a stronger effect of the L1 in the case of the SV unaccusatives than in the case of the OV compounds.

Table 3. Unaccusative, Compounds

	Unacc <u>SV</u> Mean (sd)	<u>OV</u> -compound Mean (sd)
ENC	97% (0.1)	96% (0.1)
L2 High	36% (0.2)	71% (0.4)
L2 Interm.	4% (0.0)	8% (0.0)

Table 4. Unergatives.

	Unergative <u>SV</u> Mean (sd)	Unergative <u>SV</u> Mean (sd)
ENC	42% (0.3)	58% (0.3)
L2 High	39% (0.3)	61% (0.4)
L2 Interm.	16% (0.0)	84% (0.2)

We report in table 5 the statistical results obtained from comparing the three groups with respect to the Germanic NS pattern produced for each structure: Unaccusative SV, OV-compound, and Unergative SV. More precisely, the analysis

⁷ The unaccusative verbs used are: *come (twice), enter, arrive (twice), appear, escape, vanish, broke, close, open, die*. The unergative verbs used are: *bark, roar, swim (twice), talk, dance, sing (twice), smile, run, cry, sneeze*.

⁸ Percentages are rounded off to the nearest whole number and the standard deviations to the nearest tenth.

involved a pair-wise group comparison for the Germanic NS pattern, namely NS on the subject for SV structures and NS on the object in the case of OV-compounds. We note that all the comparisons are statistically significant (<.05).⁹

Table 5. ENC vs. L2 High vs. L2 Intermediate

	Unacc. <u>SV</u>	<u>OV</u> -compound	Unergative <u>SV</u>
ENC vs. L2 High	$\chi^2 = 124.84$ (p <.001)	$\chi^2 = 15.84$ (p <.001)	$\chi^2 = 4.72$ (p = .030)
ENC vs. L2 Interm.	$\chi^2 = 214.77$ (p <.001)	$\chi^2 = 78.93$ (p <.001)	$\chi^2 = 38.87$ (p <.001)
L2 High vs. L2 Interm.	$\chi^2 = 32.22$ (p <.001)	$\chi^2 = 33.63$ (p <.001)	$\chi^2 = 18.20$ (p <.001)

3.3.2. Prosodic Proficiency: Germanic NS pattern and Auxiliary Reduction.

We turn next to the hypotheses in (19a) and the related prediction in (21). This requires a more fine-grained analysis of the data. Recall that the two categories that elicited close to 100% Germanic NS from the ENCs are the unaccusative SVs and the OV-compounds, while the unergatives are highly variable with respect to NS patterns (both across subjects and across tokens). We therefore regrouped the L2ers on the basis of whether they produced a Germanic NS pattern above chance level with unaccusatives and compounds, which means concretely at least 5 out of 8 Germanic NS patterns in the relevant test items. Such individual analysis of the L2 population revealed that there were only 9 L2ers that produced the Germanic NS pattern above chance-level; we refer to them as the +NS group. All the L2ers in this group were High Proficiency as determined by the Cloze test. The rest of the 37 L2ers either did not produce any Germanic NS patterns or did so at chance level or below. We refer to them as the –NS group.

The Auxiliary Reduction data reveals another relevant difference between the +NS and the –NS group. As expected, the ENC group is very close to 100% with respect to Auxiliary (Aux) reduction.¹⁰ When we compare the –NS group and the +NS group with respect to Aux reduction, we see an interesting difference between the groups. The mean for the +NS group is in the 90 percentile for Aux reduction and, furthermore, the range indicates that all of the +NS L2ers have above 75% of Aux reduction production. The mean for the –NS L2 group is significantly lower i.e. 67%. Yet the range indicates that there are –NS L2ers with a very high Aux reduction production (going all the way up to 100%). The –NS group consisted of 18 high proficiency L2ers and all of the 19 intermediates. Thus, +NS vs. –NS is a grouping based on prosodic proficiency, which correlates only partially with general proficiency (as determined by the Cloze test).

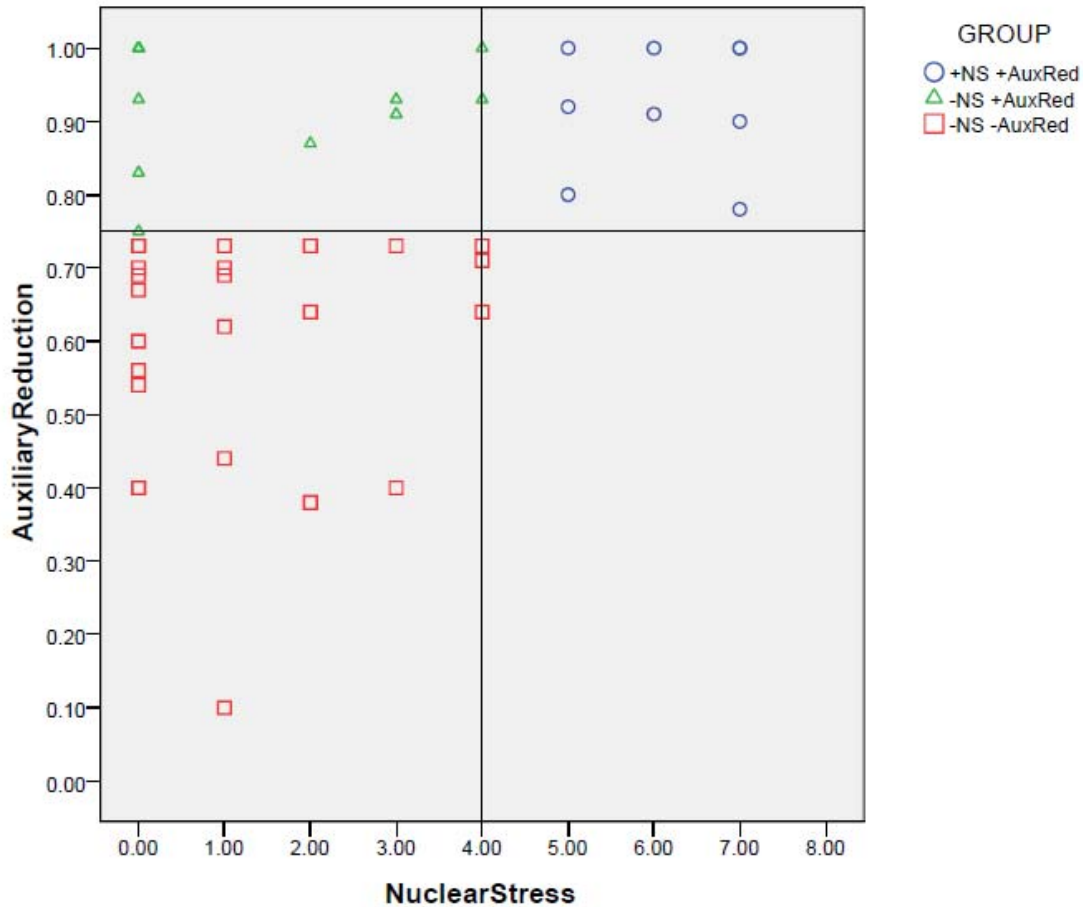
Table 6. Aux reduction.

	Mean percentage	Range
ENC	98%	96-100%
+NS	93%	78-100%
-NS	69%	33-100%

⁹ Chi-square statistics was used because we are dealing with categorical (rather than continuous) data.

¹⁰ Recall that Aux reduction includes both contracted auxiliaries and auxiliaries with unstressed/reduced vowels.

The individual distribution with respect to Germanic NS production and Aux reduction can be better appreciated with a scatter plot. The 9 +NS all have relatively high Aux reduction (above 75%); they all appear on the upper right hand quadrant of the plot.¹¹



We summarize the results obtained so far:

- (23) a. All +NS L2ers have more than 75% of Aux reduction.
 b. There are a significant number of -NS L2ers that have 75% or more of Aux reduction.

The above results lend initial support to the prediction in (21), which amounts to the generalization in (24).¹²

¹¹ There are two L2ers with 7 out of 8 Germanic NS and 100% Aux Reduction superimposed and therefore undistinguishable on the plot.

¹² Definitive support for the generalization in (24) would be provided by a significant one-way correlation between vowel reduction in function words (in particular tense-bearing function words) and Germanic NS patterns (i.e. the latter requires the former but not vice-versa), in contrast with vowel reduction in lexical words (where no correlation is necessarily expected). We are currently investigating this issue with material obtained from recordings of the *North Wind and the Sun*. See footnote 6.

- (24) Acquisition of Aux reduction is a necessary but not sufficient condition for the acquisition of Germanic NS.

To recapitulate, the analysis of the form and function of Germanic NS discussed in section 2 readily accounts for (24). Indeed, Aux reduction is a necessary condition for the Tense category to be analyzed as metrically invisible, an analysis which leads to the Germanic NS pattern in intransitive SV forms. Yet, having a high production of Aux reduction is not a predictor of high production (i.e. above chance level) of the Germanic SV pattern. Reliable production of vowel reduction in function words (in particular in Tense-bearing function words) is a necessary, but not a sufficient condition, for the L2er to produce the Germanic NS pattern (inexistent in the L1 language) above chance level. The reason is that the L2er must also acquire the function of such NS patterns in the target language. More precisely, the L2er must learn that theticity is prosodically encoded in English (namely via NS); see hypothesis (19b). We turn next to this hypothesis and its related predictions.

3.3.3. Prosodic Proficiency: Germanic NS pattern and the Unacc-Unergative distinction.

Recall that the thetic vs. categorical distinction does not affect the truth-conditions of the clause. On the other hand, it does seem that the unaccusative/unergative distinction is correlated to some extent with the thetic/categorical distinction. Namely, due to their lexical semantics, SV unaccusatives tend to appear in thetic statements, while SV unergatives are more variable depending on pragmatic considerations such as predictability and noteworthiness. Based on these conjectures, we postulated the predictions in (22) as a way of testing (19b).

We focus first on the strong prediction in (22a). Are the +NS L2ers as a group native-like with respect to prosodic marking of theticity? To answer this question, we recalculated the mean percentage for each L2 subgroup with respect to the two Germanic NS patterns on the basis of which the prosodic-based grouping was determined, namely the Unacc SV and OV-compound. The results are given in table 7. We repeat the results for the ENC for easiness of comparison.

Table 7. Germanic NS patterns in Unacc and Compounds

	Unacc <u>SV</u> Mean (sd)	<u>OV</u> -compound Mean (sd)
ENC	97% (0.1)	96% (0.1)
+NS L2	65% (0.3)	94% (0.2)
-NS L2	13% (0.1)	33% (0.4)

We report in table 8 the statistical results obtained from comparing the 3 groups (ENC, +NS L2, and -NS L2) among each other. We find that the comparisons are statistically significant in all cases except in one: the difference between the ENC and the +NS L2 group is not statistically significant with respect to the OV-compound (<.05).

Table 8. Results

	Unacc <u>SV</u>	<u>OV</u> -compound
ENC vs +NS L2	$\chi^2 = 36.99$ p <.001	$\chi^2 = .197$ p = .657

ENC vs -NS L2	$\chi^2 = 242.52$ p <.001	$\chi^2 = 60.71$ p <.001
+NS L2 vs. -NS L2	$\chi^2 = 55.05$ p <.001	$\chi^2 = 23.93$ p <.001

The above results do not support the strong prediction (22a), i.e. the +NS L2ers (as a group) are not native-like. We turn next to the weak prediction (22b): are the +NS L2ers (as a group) near-natives? To answer this question, we investigate how the +NS group fares when the SV pattern is compared with respect to the SV pattern in the case of unaccusatives and in the case of unergatives. If these L2ers are sensitive to NS as a marker of theticity, we should find a significant difference between the production of the two patterns with unaccusatives but not with unergatives. We repeat the relevant data in table 9, both for the ENC and the +NS L2ers and the results of the statistical analysis in table 10. These results show that the +NS L2 group produced significantly more SV patterns than SV for unaccusatives but not for unergatives, thus supporting the weak prediction in (22b).¹³

Table 9. NS patterns x Verb class.

	Unergative <u>SV</u>	Unergative <u>SV</u>	Unacc. <u>SV</u>	Unacc. <u>SV</u>
ENC	42%	58%	97%	3%
+ NS L2	58%	42%	65%	35%

Table 10. Statistical results.

	ENC	+NS L2er
Unergative: <u>SV</u> vs. <u>SV</u>	$\chi^2 = 1.088$ p = .297	$\chi^2 = 1.74$ p = .186
Unaccusative: <u>SV</u> vs. <u>SV</u>	$\chi^2 = 107.28$ p < .001	$\chi^2 = 36.99$ p < .001

To summarize, the overall findings indicate that, while the +NS L2 group is near-native with respect to Germanic NS proficiency, it is not native-like. We return to this findings in the general discussion in section 5.

Before leaving this section, we comment briefly on the non-significant difference between ENC and the +NS L2 group with respect to NS production in compounds. This result suggests that L2ers have an easier time acquiring Germanic NS in the case of compounds than in the case of SV unaccusatives. We note that compounds do not contain functional categories and they do not encode a subject-predicate relation; therefore the thetic/categorical divide is irrelevant for this construction. The fact that the L2ers are

¹³ In the case of unergatives, it would have been interesting to explore further the distinction between NS placement in highly predictable/unnoteworthy cases (5) (*a dog is barking, a dolphin is swimming*) vs. NS placement in unpredictable/noteworthy cases (6) (*a dog is singing, a dolphin is talking*). In the case of our 34 ENCs, these yielded 78% of NS on the subject in the former cases and only 25% in the latter cases. Given that we have only 9 Lers in the +NS category and given the the token items were distributed across two Q&A sets and the 9 Lers were unevenly distributed across the two sets, we have very little data for these categories for the +NS Lers and therefore no meaningful comparison can be made. Nevertheless, it is interesting to note that the trend exhibited by this very small set of data (18 renditions of the four token items) is in the same general direction as that of the ENCs: 67% of NS on the subject for the token items in (5) and 44% for the token items in (6).

native-like with respect to NS production in compounds (but not in the case of SV unaccusatives) further lends support to the contention that the form and the function of Nuclear Stress must be kept apart. The +NS L2 group has native-like command of the form of Germanic NS patterns (or the rule that underlie them), but only near-native (but not quite native) command of the function of Germanic NS. We are currently investigating this issue further with a new protocol. If Germanic NS is indeed produced above-chance level in compounds before they are produced above chance level in clauses, it would suggest that acquisition of Germanic NS at the sentence level is bootstrapped from the NS pattern in compounds.

4. Encoding the thetic-categorical distinction via Syntax. The case of L1 English-L2 Spanish.

Given that Spanish lacks the prosodic resources to encode theticity, it uses syntax instead. Spanish being a language with flexible word order, it encodes thetic statements with VS order and categorical statements with SV word order (see 1.1). Note that NS is on the rightmost category, i.e. on S in the VS structure and on V in the SV structure. Given that the S is rightmost and NS is rightmost, NS falls on the S. This should not lead us to the conclusion that Spanish is like English in locating NS on the S in thetic statements. As we noted earlier, existential constructions are thetic statements par excellence. Yet, while existential sentences in the two languages have the same word order, NS may fall on the subject in English but not in Spanish (*There is a dolphin swimming* vs. *Hay un delfín nadando*).

We have seen that the thetic vs. categorical distinction is to some extent sensitive to the lexical semantics of verbs: there is a strong tendency for unaccusative intransitives to encode thetic statements, while unergatives are more variable. In English, this translates into unaccusatives SVs tending to have NS on the subject and unergative SVs tending to have variable NS patterns, depending on pragmatic factors. We would then expect subject and verb ordering in Spanish to also be sensitive to verb class. Indeed, this is a well-known property of Spanish, first noticed by Suñer 1982 and confirmed Hertel 2003's study (with a written production task) and Lozano 2006's study (with a written preference task). As expected, given that unaccusatives sentences tend to be interpreted as thetic, VS order is more common for unaccusatives than for unergatives, and vice-versa SV order is more common for unergatives than for unaccusatives.

We currently lack a full-blown study that concomitantly examines all aspects of the phenomena, namely word order, verb class, and the prosody of intransitive SV sentences in the L2 Spanish of English native speakers. Yet, it is worthwhile examining what is currently available. We choose to present the work by Hertel 2003 in some detail because it is a production study like ours (with the limitation that it involved a written, rather than oral, production task), and we will complement Hertel's results with some observations from Nava 2006/2007's pilot study based on an oral narration task.

Hertel's study was based on a contextualized Q&A written production task with learners at four levels of proficiency: 24 beginners, 15 low intermediates, 18 high intermediates, and 24 advanced. The contexts were presented in English to ensure that beginners understood them. The 18 Spanish native controls, like the L2ers, were living in the US and had an advanced level of English proficiency.¹⁴ The goal of the context story

¹⁴ This of course presents the problem that English can artificially affect the results.

was to manipulate information structure. Each story consisted of a situation in which one of the two characters lacks knowledge of something that happened during his or her absence. The reader participant, which is one of the characters, must respond in Spanish to a question posed by the other character in Spanish. The example given by Hertel is as follows:

- (25) You and your friend Sergio are at a party. Sergio leaves to use the bathroom. While he is in the bathroom, Sara, the life of every party, arrives. When Sergio returns, he notices that everyone seems much more festive.
Sergio asks you: *¿Qué pasó?*
What do you answer? _____

The protocol included 6 tokens meant to elicit wide focus unaccusative sentences (like the one above) and 6 tokens meant to elicit wide focus unergative sentences. Also included were 6 tokens meant to elicit narrow focused subject for each verb class, as well as distractors. Responses were categorized into SV, VS, and “other”. Only sentences that consisted of a subject and an unergative or unaccusative verb were considered for statistical analysis.

We present here only the results for wide focus responses (see section 6 for a summary of the results obtained for narrow focused subjects). For sake of simplicity, we present below the rounded off mean percentages and standard deviations calculated according to individual data. (See Hertel’s table 3 for precise means, standard deviations, and raw proportions based on group data).¹⁵

Table 9. Hertel 2003. Unaccusative and Unergative VS

	Unacc. VS Mean (sd)	Unerg. VS Mean (sd)
Beginner	0% (0)	0% (0)
Low Interm.	6% (12)	0% (0)
High Interm.	9% (15)	1% (6)
Advanced	55% (37)	33% (31)
Natives	39% (31)	6% (11)

The above table shows that the VS order was produced mainly by native and advanced learners; lower proficiency learners produced little or no VS order. While the means indicate that Low Intermediates, the High Intermediates, the Advanced, and the Native speakers produced more VS with unaccusatives than with unergatives, post hoc statistical tests demonstrated that only the advanced learners and natives produced significantly more VS with unaccusatives than with unergatives.¹⁶ The data indicates that advanced learners are not only producing VS in wide focus contexts, but that they are sensitive to the fact that the VS order encodes thematicity in Spanish.

¹⁵ No results for the SV order are reported. Note that SV is not the complement of VS, since there were “other” responses as well.

¹⁶ Note that the natives produced a relatively lower amount of VS with unaccusatives than the advanced learners, which could very well be due to a process of attrition on the part of the natives as noted by Hertel.

The results of Lozano 2006's study (based on a preference task) point in the same direction. In that study, near native Spanish speakers from an English L1 background behave native-like with respect to the unaccusative/unergative distinction: the L2ers (like the natives) prefer the VS order in wide focus contexts in the case of unaccusatives but not in the case of unergatives, again suggesting that the L2ers have command of the manner in which the thematic/categorical distinction is encoded in Spanish.

Nava 2006/2007's pilot study, which involved an elicited production task based on an oral picture narration story, obtained similar results with unaccusatives.¹⁷ The study included 5 non-high proficiency and 5 high proficiency L1 English/L2 Spanish participants. The non-high proficiency speakers systematically produced SV order with unaccusatives in wide focus contexts, while the high proficiency speakers produced VS order in the same context at a comparable rate as native speakers. The speech of low proficiency speakers tended to be disfluent (with pauses and stuttering) and therefore a quantifiable amount of the prosody of their utterances was not obtained.¹⁸ The advanced (native-like) speakers all produced target-like NS patterns, i.e. with NS on the rightmost word to the same extent as native speakers. Nava's results suggest that native speakers of English with an advanced level of Spanish encode thematicity uniquely via word order in their L2 Spanish, rather than prosodically.

5. Marking of the thematic/categorical distinction in L2 speech. Implications of the reviewed SLA studies.

When we compare the Spanish and English grammars with respect to the NSR, the English NSR generates a superset of the NS patterns that the Spanish NSR generates (i.e. the English grammar generates sentence internal NS as well as sentence final NS; the Spanish grammar only generates the latter). On the other hand, when we compare the syntax of the two languages, the Spanish grammar generates a superset of the word order patterns that the English grammar generates (i.e. Spanish generates structures with preverbal and post-verbal subjects, while English only generates the former). Furthermore, we have seen that both languages use patterns in the superset for making thematicity: NS in the case of English and word order in the case of Spanish. Thus, from the formal standpoint both L2 populations must move from a subset to a superset grammar to in order to formally mark thematicity, and must do so based on positive evidence (on the Subset Principle in L1, see Manzini & Wexler 1987 and for an application to L2, see Slabakova 2006). Native Spanish learners of English must do so with respect to prosody (NS patterns) and native English learners of Spanish must do so with respect to syntax (word order patterns). We might then ask whether the two tasks are equally challenging?

While a definitive comparison between L2 Spanish and L2 English would require the use of comparable stimuli and experimental protocols, it is worthwhile to take stock of the implications of our L2 study (presented in section 3) in comparison with the studies on L2 Spanish reviewed in section 4.

Our findings on L2 English shows that acquiring NS as a prosodic marker of the thematic vs. categorical distinction is challenging for English L2ers whose first language marks this distinction syntactically and not prosodically (like Spanish). We examined the

¹⁷ The picture-story mostly depicted unaccusative type events.

¹⁸ A few Germanic-type NS pattern in SV unaccusatives sentences were observed in these speakers. It is unclear at this point whether this is due to calquing or to grammatical transfer.

personal information of the 9 +NS L2ers. First, we note that the cloze test scores of these learners were comparable to that of English natives: 73% average, range 70-75%. Second, the personal data suggests that both *age of exposure and quantity of English are relevant factors*.

As a group, the 9 L2ers had been exposed to English between 3 and 15 years of age. Interestingly, the 3 L2ers that were exposed to English as a foreign language (EFL) at 14 or 15 years of age in high school (with age of arrival in the US at between 18 and 30) produced 5 Germanic NS patterns. The other 6 L2ers produced between 6 and 7 Germanic NS. One was exposed to English at 13 years age, which corresponds to age of arrival in the US. The other 5 L2ers were all exposed to English between the ages of 3 and 5, age at which they began attending a bilingual school in their native country, where the English part of the curriculum was taught mostly by English native speakers. Four out of these five attended a bilingual school from pre-school to 12th grade in their native country (Paraguay), they never spent more than 3 months in an English speaking country, they have not used English in their daily lives after finishing high school (their age at testing ranged between 26 and 52). The fifth one attended a bilingual school in Mexico at the age of 3, and arrived in the US at 18 years of age (and was 23 years old when tested). We summarize this information below.

Table 10.

+NS L2ers.	# of NS (Germanic)	Age of exposure	Formal context of L2 learning	AoA in US	Age at testing
Participant 1	5	14	EFL in HS in native country	30	44
Participant 2	5	15	EFL in HS in native country	23	31
Participant 3	5	14	EFL in HS in native country	18	38
Participant 4	7	13	MS-onward in US	13	20
Participant 5	7	3	Bilingual school in Mexico	18	23
Participant 6	7	5	Bilingual school in Paraguay	N/A	52
Participant 7	7	3	Bilingual school in Paraguay	N/A	26
Participant 8	6	5	Bilingual school in Paraguay	N/A	52
Participant 9	6	5	Bilingual school in Paraguay	N/A	48

As for the 37 –NS L2ers, Age at Exposure ranged from 4 to 50 years of ages. We note that while the majority of these learners were either exposed to English late in life or only started studying English (as a Foreign Language) in Middle or High School, there were four Paraguayans that had done their entire schooling (from pre-school to high school) in the same bilingual school as the other four Paraguayans reported earlier

(participants 6-9 in table 10). This suggests that while age of exposure and quantity of input are indeed relevant factors in acquiring such subtle property as the prosodic marking of the thematic-categorical distinction, it could very well be that the threshold of what counts as sufficient input varies to some extent among learners. Further investigation of this hypothesis is worthwhile pursuing but is beyond the scope of the present study.

To recapitulate, the acquisition of NS as a marker of thematicity by L1 Spanish/English/L2 English learners is clearly challenging; few attain near-native or native-like proficiency. On the other hand, the results of the studies on L2 Spanish suggests that L1 English/L2 Spanish learners are more successful in attaining native-like proficiency in marking thematicity via word order. We know that L2ers can acquire the word order of the L2 language (such as SVO or SOV) even when markedly different from the L1 (e.g. Neeleman and Weerman 1997, Schwartz 1998). English learners of Spanish are no different in this respect. Furthermore, advanced learners in the Hertel-Lozano-Nava studies behaved very much like natives in encoding the thematic/categorical distinction in terms of word order. Note that the thematic/categorical distinction is an interface property, a distinction grounded in the discourse topic-comment relation (partly based on the lexical semantics of the verb and partly on pragmatic notions such as “predictability” and “noteworthiness”). While word order (unlike prosody) is part of L2 instruction, the relation between word order and verb type is not taught (Hertel op.cit., Lozano op.cit). Yet L1 English/L2 Spanish learners do seem to acquire this relation. We therefore conclude that it is not the interface nature of the phenomenon that renders the acquisition of the thematic/categorical distinction difficult for L1 Spanish/L2 English learners (after all the distinction is also available in their native language), but rather the nature of the grammatical marking. It seems that prosody as a marker of the thematic-categorical divide is a subtle property and not easily acquirable, while word order as a marker of that same distinction is a robust property and easier to acquire at a native-like rate. But see section 6.3, where we return to this point.

Section 6. Aligning NS with Narrow Focus.

We turn next to a discussion of narrow focus and NS alignment in English and Spanish. English uses a prosodic mechanism (Anaphoric-deaccenting & NS- Shift) to align a focused subject with NS, while Spanish uses syntax (word order) to align a focused subject with NS. Formally speaking, the acquisition scenario for L1 Spanish/L2 English and L1 English/L2 Spanish is similar to the case discussed in the prior section with respect to the acquisition of thematicity marking: the former population must move from a subset to a superset grammar with respect to prosody, while the latter must move from a subset to a superset grammar with respect to word order, yet the outcome are diametrically different. We suggest that the grammar readily provides an explanation for that difference.

6.1. English vs. Spanish.

In 1.1 we mentioned the well-known fact that many languages of the world (including English and Spanish) require that the word associated with the Nuclear Pitch Accent (or NPA) must be contained within the focused part of the sentence. (Recall that the NPA is associated with the rhythmically most prominent word, which is the word identified as bearing NS). In other words, in such languages:

- (26) The part of the sentence that is focused must contain the word that bears the NPA.

Our view (following a tradition established by Halle & Chomsky 1968's seminal work on the NSR) has been that the NSR generates the NS patterns for wide focused contexts (the so-called unmarked NS patterns). The question then arises as to how the grammar aligns NS with a narrow focused constituent that fails to receive NS via the NSR. English and Spanish resort to different mechanisms (see Zubizarreta 1998, Sosa 1999).

We first spell out some assumptions. It is generally assumed that in languages like English (Pierrehumbert 1980) and Spanish (Sosa 1999), the grammar associates the syllable that receives main lexical stress with a pitch accent. In a language like English, discourse considerations can trigger pitch accent deletion (or significant pitch reduction) at the grammar-discourse interface. In particular, it is well-established that there is a strong tendency in English to deaccent previously mentioned information, due to a rule known as Anaphoric deaccenting -or A-deaccenting (e.g Ladd 1980, 1996, Gussenhoven 1984, Selkirk 1984). This includes cases where the previously mentioned information is contained within the focused or asserted part of the sentence, as in the examples below. (The percentages are the means obtained from our ENC's based on the Q&A protocol described in section 3).

- (27) Why are you buying that old stamp?
Because I collect stamps. (75%)
- (28) Why are these notebooks missing their covers?
Because I'm drawing pictures on the covers. (88%)

In the above examples, the NSR generates NS on the object in the SVO structure and on the PP in the SVOPP structure. A-Deaccenting applies, deaccenting the previously mentioned material, namely the object in (27) and the PP in (28). Deaccenting triggers NS-Shift; indeed a word can bear main sentence prominence iff it is associated with a pitch accent. Therefore, deaccenting of a constituent that contains the word with NS triggers NS onto the metrical sister of the deaccented constituent. In the SVO structure (27), NS is shifted from its original position on the object onto its metrical sister, namely the verb. In the SVOPP structure in (28), NS is shifted from its original position on the PP onto the object.

Consider next cases of narrow focus, such as those below:

- (29) Who bought that old stamp?
Mary bought that old stamp.
- (30) What are you drawing on the cover?
I am drawing pictures on the cover.

Such NS patterns are also generated via A-Deaccenting & NS-Shift. In (29), the VP is deaccented, the NS originally located on the object is shifted onto the subject. In (30), the PP is deaccented and NS originally located on the object of the preposition is shifted onto the direct object. Note, on the other hand, that in the case of an intransitive SV, English

has the possibility of directly generating NS on the subject via the NSR (as we have seen in section 2.)

We turn next to Spanish. First, it is to be noted that Standard Spanish does not deaccent previously mentioned material contained within the focused (or asserted) part of the sentence (e.g. Ladd 1996, Cruttenden 1997, Zubizarreta 1998). Thus, in the literal Spanish translation of (27) and (28), NS falls on the object and the PP respectively.¹⁹

As for cases of narrow focus, Standard Spanish typically uses word order to align the focused constituent with NS (e.g. Contreras 1976, Zubizarreta 1998). Thus, in the case of an intransitive SV sentence, it can use its VS structure to align S with sentence final NS, as in (31), and in the case of a transitive sentence, it can scramble the object immediately to the left of the post-verbal subject, as in (32) (if the answer consists of a full sentence):^{20 21}

- (31) a. Quién llegó? Llegó mi amigo.
Who arrived? Arrived my friend
b. Quién llamo? Llamó María.
Who called? Called María
- (32) Quién compró un sello antiguo? Compró un sello antiguo María
Who bought an old stamp? Bought an old stamp María

6.2. Narrow focus marking in L2 and implications for SLA.

In our own study based on the Q&A protocol described in section 3, we found that L1 Spanish/L2 English speakers, in particular the High Proficiency ones, were remarkably accurate in generating the appropriate NS in cases of narrow focused subjects in English. We present below the data regarding SV intransitives with narrow focused subject, so as to have a minimal contrast with SV intransitives in wide focus contexts discussed in section 3, as well as with L1 English/L2 Spanish data from Hertel's study discussed further below. The mean percentages are based on a total of 4 SV intransitives: 2 unergatives (e.g. (33a)) and 2 unaccusatives (e.g. (33b)). Recall that the study had a Latin Square design, with Q&A distributed into two sets so that all participants read a sentence in one context only. Therefore, each of the 4 SV sentences was elicited both in a narrow subject focused context and in a wide context, but across different participants.

¹⁹ We hasten to add that some Romance languages (such as French and Brazilian Portuguese) do allow for deaccenting (of previously mentioned material) & NS-Shift (see Zubizarreta 1998 and references therein). We have also found Spanish speakers in contact with English that deaccent & NS shift previously mentioned or presupposed information.

²⁰ Native speakers of Standard Spanish tend to perceive non-sentence final NS in Spanish as implying contrast or emphasis. Thus, it is not that the main stress on a preverbal subject as an answer to (27) is impossible, but rather that it gives rise to a contrastive implicature.

(i) MARIA compró un viejo sello (no PEDRO).
'MARIA bought an old stamp (not PEDRO)?'

Contrastive or emphatic stress (indicated in capitals) is not generated by deaccenting & NS Shift, but by an independent rule that can also apply below the word level in Spanish as well as in English: *I said UNwind not REwind, PREnatal, not POSTnatal.*

²¹ While the grammar of Spanish readily generates the VS order, the VOS order requires short-scrambling of the object above the subject and below the verb. See Zubizarreta 1998 for movement driven by prosodic considerations and Belletti 2004 for a syntactic account based on topic and focus feature-checking.

- (33) a. Who was crying? An actress was crying.
 b. Who arrived? My friend arrived.

The mean percentages obtained for each group are summarized in table 11.

Table 11. Narrow focused subject. NS placement.

	SV (sd)
ENC	98% (0.1)
Advanced L2 English	96% (0.1)
Intermediate L2 English	68% (0.3)

The statistical results obtained from between group comparisons are given in table 12. Note that none of the comparisons are statistically significant, except the comparison between the ENC and the Intermediate L2ers, which is significant at a <.05 alpha value.

Table 12. Narrow focused subject. Between group results for NS placement

	SV
ENC vs. High L2	$\chi^2 = .065$ (p = .799)
ENC vs. Intermediate L2	$\chi^2 = 5.20$ (p = .023)
High vs. Intermediate L2	$\chi^2 = 3.29$ (p = .070)

We turn next to Hertel's results on L1 English/L2 Spanish with respect to production of VS order in cases of narrow focused subjects with unergatives and unaccusatives. (See section 4 for a summary of participants and experimental protocol in Hertel's study.) We report below the rounded off mean percentages and standard deviations (see Hertel 2003, p. 291 for exact figures as well as raw scores).

Table 12. Hertel 2003. VS in contexts with narrow focused subjects.

Group	Unaccusative VS Mean percentage (sd)	Unergative VS Mean percentage (sd)
Beginner	0% (0)	0% (0)
Low Intermediate	5.00% (14)	0% (0)
High Intermediate	15% (12)	13% (24)
Advanced	54% (44)	36% (37)
Natives	36% (34)	33% (37)

The group means shows that the beginner and low intermediates basically transferred the SV order from their native English. High intermediates and Advanced learners produced increasingly more VS order with both verb types. Pos-hoc tests revealed that the natives were significantly different from beginners and low intermediates, but not from high intermediates and advanced for both unaccusatives and unergatives. On the other hand, the Advanced learners were statistically significant for both types of verbs from all groups except the natives. The fact that Advanced learners, but not the natives speakers, were statistically significant from the High intermediates in the production of VS with narrow focused subjects suggests that the native speakers in this study (which were living in the US and used English on a regular basis) had undergone a process of attrition, as

suggested by Hertel (see also Sorace 1999, 2000, 2004).²² Had Hertel's L2ers been compared with Spanish monolinguals, it is possible that the results would have been dramatically different. The results of Lozano 2006's preference-based study suggests that this is indeed a plausible scenario.

In Lozano's preference-based study, high proficiency L2ers were not native-like with regards to the alignment of NS with a narrow focused constituent: both SV and VS were equally preferred in cases of narrow focused subjects. Belletti, Benatti, and Sorace 2007 report that near-native speakers of Italian with English as their L1 (unlike the Italian natives) mostly produced SV orders in an oral task that consisted in answering questions based on short video stories. Furthermore, these authors report that in such cases, main prominence was placed on the preverbal subject. Lozano's and Belletti et. al. results both converge in showing that near-natives of Spanish and of Italian are non-native like with respect to the use of word order for the purpose of aligning a narrow focused subject with NS.

6.3. Implications for SLA. A grammatical-based explanation.

We have seen above that Spanish uses syntactic mechanism (in particular word order) to align a focused constituent with NS, while English uses prosodic mechanisms. Thus, in the case of narrow focus, as in the case of wide focus, the English grammar generates a superset of NS patterns in relation to those generated by the Spanish grammar. And vice-versa, the Spanish grammar generates a superset of word order structures in relation to those generated by the English grammar. Formally, this is the same scenario that we have for the L2 acquisition of thetic marking in the two populations. Yet the L2 outcome is very different in the two cases.

In the case of the L1 Spanish/L2 English learners, we have seen that even the +NS L2 group (who produced NS on the subject above chance level in wide focus, thetic statements) comprised only 9 (out of 27) High proficiency learners and these 9 (as a group) were not native-like (i.e. they were significantly different from the ENC). On the other hand, the entire High proficiency group (consisting of all 27 learners) were native-like in producing NS on the subject in sentences with a focused subject.

Note that in both cases, we are dealing with discourse based notions. Indeed, the notion of focus is based on the discourse notion of assertion vs. presupposed information and the notion of categorical statement (as opposed to thetic statement) is grounded in the discourse notion of topic vs. comment. Therefore, it is not a question of difficulty with mapping syntax to discourse-based notions in and of itself that seems to be at issue (Sorace 1999, 2000, 2004, Lozano 2003).

We have reported elsewhere (Nava & Zubizarreta in press b) that this same group of L1 Spanish/L2 English did much better with deaccenting of previously mentioned information, i.e. A-deaccenting & NS-shift, even in wide focus context (of the type illustrated in (27)-(28)). Thus, while only 9 High Proficiency speakers produced Germanic SV patterns above chance level in wide focus contexts, 16 High Proficiency

²² It is also possible that the Advanced learners were more accurate than the natives because once they master a linguistic rule, they pay more attention to the phenomenon and/or correct themselves. But this explanation is unlikely given the results obtained by Lozano with highly proficient learners of Spanish and the results obtained by Belletti et al. 2008 regarding the same phenomenon with near-native Italian L2 learners with English as their first language. See below in the text.

learners and 3 Intermediates produced patterns involving “A-deaccenting & NS-shift” in wide focus contexts, suggesting that “A-deaccenting & NS” is a relatively easy operation for native speakers of Spanish to acquire.

We would like to suggest a grammar internal explanation for the relative easiness of acquiring “A-deaccenting & NS-shift” by L1 Spanish/L2 English, in particular for the purpose of aligning a focused constituent with NS. The reason is that such operation does not interfere with anything fundamental in their L1 grammar. The absence of “A-deaccenting & NS-shift” in the Spanish grammar is not connected to any other (deep-rooted) property of the language; in this respect, it is a contingent property of the language. We advance the proposal that “A-deaccenting & NS-Shift” is a likely candidate for attrition and language change for the same reason, even in cases that involve wide focus contexts (where the deaccented material is part of the assertion). Anecdotal data from native speakers of Spanish living in the US suggests that this might very well be the case (see note 16 and the discussion at the end of the previous section).

Consider next the case of L1 English/L2 Spanish learners. Hertel’s study showed that Advanced learners, like the natives, produced significantly more VS with unaccusatives than with unergatives in wide focused contexts. This indicates successful acquisition of theticity marking via word order by the Advanced L2 learners. In the case of narrow focused subjects, Advanced learners were also comparable to the control Spanish L1 group in their production of VS order and importantly, neither group made a distinction between unaccusatives and unergatives in their production of VS order in this case. This reinforces the conclusion that Advanced learners had learned that theticity is marked via word order in Spanish. On the other hand, as noted earlier, the relatively lower production of VS order in Hertel’s control Spanish L1 group in comparison to the L2ers (possibly due to an attrition process in the case of the native group) makes it difficult to ascertain the relative success of the L2er group between the two types of contexts.

Lozano’s 2006 study is more conclusive in this respect. Lozano’s study suggests that L1 English/L2 Spanish learners have more difficulty shifting from their L1 (prosody-based) mechanism to the L2 (syntax-based) mechanism to express narrow focus than to express theticity (the mirror image of the L1 Spanish/L2 English case). Indeed, while the L2ers in Lozano’s study were native-like with respect to word order in making the thetic-categorical distinction, they were surprisingly non-native-like with regards to the alignment of NS with a narrow focused constituent: both SV and VS were equally preferred for cases of narrow focused subjects. Belletti, Benatti, and Sorace 2008 report similar findings for L1 English/L2 Italian based on an oral production task: the near-natives in that study are reported to be native-like with respect to production of VS with unaccusative verbs in wide focus contexts but not in the case of narrow focused subject contexts. In the latter case, the near-natives produced a significant higher amount of preverbal subject. Furthermore, the authors report that main prominence was located on the preverbal subject in such cases. For the sake of the present discussion, we take the liberty of extrapolating the latter finding to the Spanish L2ers in Lozano’s study.

We would like to advance the same explanation for the above-mentioned behavior of the L1 English/L2 Spanish learners in Lozano’s study (and for the L1 English/L2 Italian learners in Belletti et al.’s study) that we put forth earlier for why the Spanish L1/English L2 learners readily acquire the alignment of the focused constituent with NS. More

precisely, the reason why English learners of Spanish do not easily abandon their L1 (prosody-based) way of marking narrow focused subjects is the same reason why Spanish learners of English easily pick up the L2 (prosody-based) way of marking narrow focused subjects. The reason is that the operation of “A-deaccenting & NS-Shift” is not at odds with the Spanish grammar. It is a mechanism that can easily be incorporated into the Spanish grammar without restructuring any other mechanism in the language.

7. Conclusion.

In this paper we presented the results of our own production study on the English of native Spanish speakers regarding the acquisition of English prosody to mark the thematic-categorical distinction, on the one hand, and to align focus with NS, on the other hand. Furthermore, we compared our results with those obtained by Hertel 2003 and Lozano 2006 regarding the acquisition of Spanish word order for the same purposes that English uses prosody.

The results obtained in our study shows that the English use of prosody to mark the thematic/categorical distinction is hard to acquire by Spanish L2 speakers, or perhaps impossible for those that are not exposed to English at a relatively young age. Yet the English use of prosody to align NS with narrow focus is readily acquired by Spanish L2 speakers. This suggests that L2 prosody in and of itself is not impossible to acquire. The difficulty in the first case could be due to the fact that it requires restructuring the native NSR algorithm in important ways; it requires re-analyzing the functional categories as metrically invisible in order to generate patterns that would allow marking of thematicity via NS. On the other hand, the acquisition of the mechanisms of “A-deaccenting & NS-Shift” in order to align the focused subject with NS does not require altering any native algorithm.

To recapitulate, the results obtained in the Hertel and Lozano study suggests that the Spanish use of word order to mark the thematic/categorical distinction is acquirable by English L2 speakers. On the other hand, Lozano’s study (as well as Belletti et al.’s study) suggests that the use of Spanish (or Italian) VS to align narrow focus with NS is not fully acquired by L1 English speakers. We know independently of the studies under discussion that L2 word order is acquirable by learners of an L1 with distinctively different word order from the L2 (see Schwartz 1998 for a review). And indeed L1English/L2 Spanish do successfully acquire the Spanish word order for marking thematicity. An attempt to mark the distinction in the way English does is not compatible with the grammar of Spanish. Spanish lacks the Germanic NS pattern for reasons that are deeply rooted in its phonotactics, i.e. its functional categories are metrically visible because it lacks vowel reduction in function words (and more generally vowel reduction in its entire vocabulary, including lexical words). On the other hand, the Spanish grammar is not incompatible with “A-deaccenting & NS”; i.e. it can be easily imported into the language without affecting other aspects of its grammar.

The explanation of the data we offered above is imminently grammatical in nature and it presupposes that L2 speakers acquire a grammatical system and not parts and parcels of unconnected patterns. Yet, one might challenge such a view and put forth a functional-based account. A functional explanation could be based on the observation that the thematic vs. categorical marking does not affect the truth-condition of the sentence and therefore the failure to mark such distinction does not lead to communication failure.

On the other hand, the alignment of NS with focus does affect what is interpreted as being presupposed and what is under assertion. Therefore, it could be suggested that it is imminently more important to correctly align the focus with NS for communicative purposes than to mark thethetic-categorical distinction. For this reason, it could be argued that the L2ers are sensitive to the way the target language marks narrow focus prosodically but are not necessarily sensitive to the way the target language marks thethetic-categorical divide. While that explanation might work for the L1Spanish/L2 English case, it is not clear how it can be extended to the L1English/L2 Spanish case. In this case, it is precisely in the acquisition of the target language's way of marking thethetic-categorical divide where the learners are most successful, rather than the target language's way of aligning focus with NS.

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