1. Introduction

Natural languages encode which information in a sentence is the most important or informative — the marking of such information has an obvious pragmatic function (Watson, 2010). Focus is directly influenced by the surrounding discourse context as it marks a contrastive relation with antecedent linguistic material (Rooth, 1992). There are crosslinguistic differences in how languages realize focus, which will be the subject of investigation in this paper. In particular, Spanish and English differ in that Spanish uses syntactic means to realize focus whereas English uses prosodic means.

2. Focus

2.1. Stress Shift and Syntactic Movement

Focus has a semantic interpretation, as explained in Rooth (1992). Rooth proposes that a phrase in focus evokes a set of elements which are put in contrast to the focus phrase. Because of this, focus requires a salient antecedent in the discourse to license this contrast. Take the dialogue in (1) as an example.

(1) A: Did John invite Sarah to the party?
   B: No, John invited MARGARET.

In (1B), Margaret is in focus. According to Rooth, this means that the proposition has a secondary semantic denotation in addition to its true-conditional interpretation. Rooth calls this the focus denotation, which in this case is roughly of the form in (2a). The set defined by this lambda function is sketched out in (2b).

(2) a. \[\lambda x \in D. \text{John invited } x\]
   b. \{ John invited Sarah, John invited Bill, John invited Mitt Romney . . . \}

This focus denotation is licensed by the context since there exists a suitable antecedent in the context; namely, an element that belongs to the set in (2b). Conversely, if a focussed element evokes a set which does not find a member in the preceding discourse, the focus leads to pragmatic unsuitability. The focus denotation of (3B) is (4), a function that defines a set to which no element of the discourse belongs, and therefore is not licensed.

(3) A: Did John invite Sarah to the party?
   B: #No, JOHN invited Margaret.

(4) \[\lambda x \in D. x \text{ invited Margaret}\]

In English, a pitch accent is obligatorily placed on the rightmost constituent inside the focus-marked phrase (Truckenbrodt, 1995). As for the syntax, it is assumed that covert movement occurs, raising focussed material to a higher position (FP in Rizzi (1997), c.f. Yoshitaka Erlewine & Kotek (to appear); Wagner (2006, 2009), who do without a functional projection in the syntax).

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In contrast, Spanish requires overt movement in wh-question-answer contexts. In these kinds of contexts, the focussed constituent must appear at the right edge. In (5B), the focussed element (los patos) appears in a position following the verb (nadaron) (Belletti, 2000, 2004).

(5) A: ¿Quién nadó?  
    who swam  
    “Who swam?”  

B: Nadaron [los patos]  
    swam the ducks  
    “The ducks swam.”  

This type of movement is also observed in Italian and other Romance languages and is therefore considered to be a common property of Romance, French notwithstanding¹ — this is in opposition to Germanic languages which tend to shift stress for focus² (Vallduví, 1992).

2.2. Cleft Constructions

In addition to simple syntactic movement and stress shift, languages employ alternative means of focus marking which have more pragmatically constrained uses. Cleft constructions are one such strategy, and although they mark focus, their use is pragmatically marked in most cases. Clefting is found in both English and Spanish and the semantic composition is identical in both languages. In terms of the syntax, clefting involves what looks like relative clause extraction; the resulting DP is the verbal complement of an expletive pronoun (English) or a null pronoun (Spanish). Clefting places the focussed constituent at a clausal boundary, a structurally prominent position.

(6) a. It was [MARY₁ [that Bill saw t₁]]  
   b. pro fue [MARÍA₁ [la que Bill vio t₁]]  
      was Maria which Bill saw  
      “It was Maria who Bill saw”

As was mentioned, the use of cleft constructions is pragmatically constrained. Kiss (1998) proposes that the type of focus marked in a cleft construction is of a specific category which she names identificational focus (also called contrastive focus), which differs from the informational focus seen in wh-question contexts in that it has an exhaustive meaning. Büring & Križ (to appear) further refine this semantic analysis. First they provide a background that shows that the exhaustivity in clefts is not asserted, simply presupposed. In (7), a presupposition of exhaustivity is constructed in the question in A, and a cleft construction seems suitable. When an exhaustive presupposition is not possible, as in (8), a cleft construction is not felicitous.

(7) A: I know that one person passed the test. Do you know who?  
    B: It was MARY who passed the test.  
    B’: MARY passed.  

(8) A: I know that five people passed the test. Do you know who?  
    B: #It was MARY who passed (but I don’t know who else).  
    B’: MARY passed (but I don’t know who else).

The additional presupposition required for cleft constructions means that it is a marked construction and dispreferred in most cases. In simple wh-question-answer contexts, a cleft construction seems unsuitable when no additional context is given, as in (9).

(9) A: Who is swimming?  
    B: The DUCKS are swimming.  
    B’: #It’s the DUCKS who are swimming.

¹French never exhibits overt focus movement.
²Although German and Dutch both allow object scrambling and other types of overt movement.
The sentence in (9) is grammatical with respect to focus antecedence, but is pragmatically strange in most contexts because of the presupposition introduced by the cleft.

3. Focus, Interfaces, Acquisition

To summarize the preceding sections, focus provides the means of the encoding a semantic contrast which is specified by the discourse. In syntactic terms, this implies that focus is an interface feature — the CP, the top functional projection of a sentence, is proposed to be the home of this feature (Rizzi, 1997). As the top level of syntactic representation, the CP interacts with even higher-level elements — it is the “electric plug” which allows a sentence to be inserted into various other structures. Rooth (1992) goes so far as to sketch out an even higher level of representation within the grammar, Discourse, within which sentences are merged, Figure 1.3.

![Figure 1: The structure of discourse, adapted from Rooth (1992)](image)

The generative language acquisition perspective assumes that second language learners (L2ers) follow the principles of Universal Grammar over the course of their development (White, 1989, 2003). Second language (L2) acquisition is therefore presumed to involve stages of grammar that are possible human grammars. Focus obeys the grammatical principles of UG but also involves other cognitive domains. The [Discourse CP CP] configuration is usually considered to involve a special type of cognitive mapping that is distinct from the hierarchical ordering inside the CP (Chomsky & Lasnik, 1993). The theories developed in White (1989) and Schwartz & Sprouse (1996) do not make predictions with respect to discourse phenomenon.

Much attention has been given to the mapping of the grammar to the discourse in recent years in the field of second language acquisition. A recent body of L2 research has centred on the syntactic realization of pragmatically determined phenomena like focus and has led to the development of a hypothesis, known as the Interface Hypothesis (IH), that makes a distinction between the external interfaces, which involve a pairing of linguistic grammar and the discourse, and the internal interfaces, which involve pairings between components of the grammar itself. The IH holds that properties relating to the external interfaces (e.g. syntax-discourse) are never acquired, as compared to those relating to internal interfaces (e.g. syntax-semantics, syntax-phonology) and that the external interfaces are subject to persistent optionality at advanced stages (Sorace, 2005; Sorace & Filiaci, 2006; Sorace & Serratrice, 2009; Sorace, 2011).

Examinations of focus in L2 Spanish and Italian shows that English speakers have difficulty acquiring focus-driven syntactic movement in these languages (Belletti et al., 2007; Lozano, 2006; Domínguez, to appear). In Belletti et al. (2007), it was observed that English speakers instead marked focus with acoustic prominence, suggesting transfer from their first language (L1) — this observation was impressionistic and not based on a detailed acoustic analysis. The task in this experiment was to answer questions based on a video. The questions elicited focus on the subject. The L1 grammar of Italian is similar to that of Spanish in that focussed subjects must appear in a post-verbal position. The L1 controls follow this pattern, producing a VS order in the majority of their responses (93% of all responses). The near-native speakers of Italian whose L1 is English behave differently in that they instead provide an SV order in the majority of their responses (71% of all responses). Lozano (2006) finds a similar pattern in L2 Spanish with speakers with English L1 and with Greek L1. Unergative verbs in Spanish exhibit an SV order in non-focussed contexts and a VS in contexts where the subject is focussed. When rating written sentences for grammaticality, Greek- and English-speakers accept both SV and VS orders at equal rates in focussed (“presentational”) contexts while Spanish speakers show a clear preference for the VS order.

3Rooth (1992) does not make direct reference to the CP; the paper uses the label S in its place.
4. Prosody and the Interface Hypothesis

The studies discussed in the previous section have put emphasis on the syntactic aspects of focus but have not examined prosody. Although it is clear from these previous studies that the syntactic marking of focus is problematic for L2 learners and that these problems persist to late stages of acquisition, it is not clear whether the same can be said for the prosodic marking of focus. There are no studies, to my knowledge, which examine the acquisition of English stress shift, particularly by learners whose L1 marks focus by syntactic means.

The Interface Hypothesis has not make specific predictions as to the prosodic marking of focus — it has, thus far, only made predictions with respect to syntax-discourse interface phenomena. In this paper, I will extend the IH to prosodic phenomena as well. Since prosodic focus is also an external interface phenomenon, the extended IH should predict that the interpretation of prosodic focus will be subject to persisting optionality in L2 speakers and that acquisition of prosodic focus will cause problems at pre-advanced stages. It was intuited prior to the experiment that the IH would in fact be deficient in explaining L2 focus prosody. There is at least one study suggesting that sentence prosody is adaptable within L1 grammars and is sometimes even transferable from the L2 to the L1 (Van der Klok et al., 2011). The “infectious” property of intonational tunes and prominence patterns is predicted to allow for successful acquisition of focus prosody within L2 grammars. This study does not attempt to find evidence regarding optionality at advanced stages, but does observe strong evidence for the correct interpretation of prosodic focus in intermediate proficiency L2ers.4

5. Perception Experiment
5.1. Methods
5.1.1. Conditions and Stimuli

There were four experimental conditions, manipulated according to two dimensions: focus strategy (stress-shift, clefting) and focus suitability (correct focus, incorrect focus). An additional condition manipulated whether focus was elicited on the subject or the object. A sentence with narrow focus on the subject is phonologically distinct while narrow focus on the object is not phonologically contrastive with VP focus or wide focus. It was unknown how this might affect the perceptual salience of these two types of focus; thus, this factor had to be controlled. The conditions are shown in table 1.

<table>
<thead>
<tr>
<th>QUD: Who met David? (Subject focus)</th>
<th>Stress shift</th>
<th>Clefting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct Focus:</td>
<td>LISA met David.</td>
<td>It was LISA who met David.</td>
</tr>
<tr>
<td>Incorrect Focus:</td>
<td>#Lisa met DAVID.</td>
<td>#It was DAVID who Lisa met.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QUD: Who did Lisa meet? (Object focus)</th>
<th>Stress shift</th>
<th>Clefting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct Focus:</td>
<td>Lisa met DAVID.</td>
<td>It was DAVID who Lisa met.</td>
</tr>
<tr>
<td>Incorrect Focus:</td>
<td>#LISA met David.</td>
<td>#It was LISA who met David.</td>
</tr>
</tbody>
</table>

Table 1: Experimental conditions

The stimuli sentences employed 12 high-frequency verbs in order to accommodate for possible lexical deficiencies in the L2er group (call, eat, find, follow, hear, help, lose, meet, open, see, sell, throw). Each verb was used twice, once with subject focus and once with object focus, resulting in a total of 96 (2 * 2 * 2 * 12) experimental tokens.

5.1.2. Participants

Thirty individuals participated in the study; 16 native speakers (NSs) of English and 14 native speakers of Spanish, all residing in Montreal. All participants completed a test of English proficiency

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4Sorace (2011) argues that the effects of the IH should only be seen in the grammars of near-native speakers. However, it has since been argued that this assumption is incorrect and that IH effects should also be seen in earlier-stage L2 grammars (White, 2011). I share this view, and thus maintain that intermediate L2ers form a valid population of study with respect to the IH.
(Cloze test) which was designed to measure lexical and syntactic knowledge in English. Each participant also completed a language background questionnaire which documented, among other details, the age of acquisition of the L2. The Spanish speakers were required to have started learning English after the age of seven. Seven years was used as the cut-off to ensure that the participants had learned English late enough for it to be a second language, not a bilingual first language (White & Genesee, 1996).

5.1.3. Procedure

The Spanish participants were shown a word list at the beginning of the experiment, containing all the words they were to hear and see within the experiment. They were asked to tell the experimenter if any of the words were unfamiliar. This confirmed that each individual had sufficient lexical knowledge to effectively carry out the experimental task. After completing the Cloze test and the language questionnaire, the participants carried out the perception task inside a soundproof booth. Participants were told to listen to the dialogues and rate them as to how natural they sounded on a scale from one to five — the instructions were delivered verbally and also in written form.

The experiment was presented in a Latin-square design and the order of conditions was randomized within blocks. The experiment playlist employed all the verbs, with both object and subject focus (12∗2), but each of these 24 items were randomized to one of the experimental conditions (cleft-correct, cleft-incorrect, stress-correct, stress-incorrect) meaning that the each participant only heard 24 items in total. The playlist cycled through the conditions so that every item was played under all of the 4 conditions over the course of the study.

5.2. Results

5.2.1. Cloze Test

The mean score on the Cloze test for the English NS group was 28.38. The mean for the L2er group was 20.85. The L2er group was further split into two categories for analysis (High intermediate, Low intermediate). This division was made at the median score (21.5).

5.2.2. Experiment

The experimental results are plotted in figure 2. On the whole, sentences with clefting were given a lower naturalness rating than sentences with stress shift, a difference which was statistically significant (Estimate = 1.15, t = 6.85, p < 0.0001). The main effect of strategy (Clefting vs. Stress shift) did not significantly interact with L1 (Estimate = -0.56, t = -1.72, p = 0.11). Sentences with incorrect focus were given lower ratings than sentences with correct focus (Estimate = -0.69, t = -5.66, p < 0.0001) but the interaction with L1 was not significant (Estimate = 0.33, t = 1.35, p = 0.11).

A mixed regression model measured a significant difference between Stress-correct and Stress-incorrect (Estimate = -0.38, t = -3.14, p < 0.0001). The model did not measure a significant interaction between L1 and stress shift (Estimate = 0.42, t = 2.03, p = 0.13). A similar model with different contrasts found a significant difference between Cleft-correct and Cleft-incorrect (Estimate = -1.01, t = -4.84, p < 0.0001) but again, no interaction was found with L1 (Estimate = 0.24, t = 0.65, p = 0.11).

A second analysis was performed based on the Cloze scores rather than L1. A graphical representation of this analysis is shown in Figure 3, which plots on the y-axis the difference between the mean response for stress-correct and for stress-incorrect for each participant, and on the x-axis, the Cloze score for that participant. A regression line shows a positive correlation.

The relationship between proficiency and the mean difference in the stress shift and clefting conditions can be observed in Figures 4 & 5. When the L2er group is split into 2 subgroups, high and low proficiency, the high proficiency subgroup shows a difference between stress-correct and stress-incorrect while the low proficiency subgroup shows no such difference. In the clefting conditions, both the high and low proficiency groups show a distinction between correct and incorrect focus.

A mixed regression model showed that the interaction in Figure 4 between proficiency and stress-correct vs. incorrect was statistically significant (Estimate = -0.05, t = -1.39, p = 0.01). Similar modelling did not come up with a significant interaction for clefting (Estimate = -0.05, t = -1.05, p = 0.72).
5.3. Summary of Results

The results of this experiment show that both L1 English speakers and L1 Spanish/L2 English speakers judge English sentences with incorrect focus to be less natural sounding than sentences with correct focus. There was no statistically significant difference between the two groups with respect to the distinction between correct and incorrect focus marking.

Generally, cleft sentences were judged to be less natural than sentences which marked focus with stress shift. The L2er group did not differ from the NS group in how it judged incorrect cleft sentences in relation to correct ones. Additionally, the L2er group did not differ with the NS group in how it judged incorrect stress-shift in relation to correct stress-shift sentences.

Finally, it was found that within the L2er group, proficiency had a statistically significant effect on ratings within the stress-shift conditions. Higher proficiency subjects made the distinction between stress-correct and stress-incorrect while lower proficiency subjects did not. Proficiency did not affect the distinction between cleft-correct and cleft-incorrect in a statistically significant way.

6. Discussion

The results suggest that the L2 speakers possessed sufficient pragmatic knowledge to evaluate focus denotations. This group successfully distinguished between sentences whose focus denotations properly fit the presupposed meaning in the discourse and those whose focus denotation did not — this overall result did not differ from the NS group. For this reason, it may tentatively be proposed, before examining the rest of the data, that the L2 grammar for focus is convergent with the target grammar. Participants in the L2er group were measured, according to the Cloze test, at an intermediate proficiency level. An implication of the IH, when extended to prosodic focus, is that such pre-advanced speakers should not
The L2er group made a distinction between correct and incorrect focus marking in the stress shift conditions, and were not shown to differ from the NS group in a statistically significant way.

Proficiency was shown to have an effect on the interpretation of stress shift. The lower proficiency group was fully able to distinguish proper and improper sentences in the clefting conditions, indicating that they were properly carrying out the task and simply did not possess the linguistic knowledge to interpret English stress shift. It was only in the case of stress shift where lower proficiency L2ers were shown not to distinguish between correct and incorrect focus marking while the higher proficiency learners did show a distinction. Because there were a number of L2ers who had acquired in the distinction in the data set, the interaction between a participant’s first language and the interpretation of stress shift did not come out as statistically significant.

To relate the results of this study to previous studies in the literature, it seems as though second language acquisition of focus is a nuanced issue. The L2 English results in this study did not at all resemble previous findings in L2 Spanish and L2 Italian (Lozano, 2006; Belletti et al., 2007). However, the findings are in line with what has been shown with Greek (Tsimpli & Sorace, 2006). It is still left to be explained why certain language pairings result in different results with regards to L2 acquisition of focus, but it is clear that the Interface Hypothesis fails to explain these facts.

7. Conclusion

The grammar of focus operates on pragmatic principles; it involves an interface between the internal grammar and broader cognition. The acquisition of English focus prosody provides a new test case for the Interface Hypothesis, which predicts that L2 learners should have problems at the prosody/discourse interface, since it is an external interface. However, in this study, L1 Spanish/L2 English speakers were shown to properly interpret English prosodic focus. The L2 speakers also showed knowledge of other pragmatic phenomena in English such as the presuppositions attached to cleft constructions.
Figure 4: Stress-shift conditions by proficiency (L2ers only)

Figure 5: Clefting conditions by proficiency (L2ers only)
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