L2 knowledge at the Mapping of Syntax and Discourse

Roumyana Slabakova

University of Iowa and IKERBASQUE (Basque Foundation for Science)

In this article, I will present partial results of three experiments that deal with the second language (L2) acquisition of the same phenomenon: Clitic Left Dislocation (CLLD) in Spanish and Bulgarian by native English speakers. This is the phenomenon where an object that is previously mentioned in the discourse (a Topic) moves to the beginning of the sentence, and is doubled by a clitic agreeing with it in person, number, and gender. Because the acceptability of this word order depends on the previous discourse, this linguistic construction is evaluated at the interface of syntax and discourse. The Interface Hypothesis (Sorace & Serratrice, 2009; Sorace, 2011) argues that acquisition of such constructions present possibly insurmountable problems even in very advanced L2 speakers. I will discuss findings from Valenzuela (2005, 2006), Ivanov (2009), and Slabakova, Kempchinsky & Rothman (in revision), which demonstrate successful acquisition of Bulgarian and Spanish topicalization constructions. I will show that all these findings argue against a strong version of the Interface Hypothesis, and I will discuss why acquisition of this type is interesting to study.

1. Introduction

The interaction of structure and language use has been a neglected area of study for most of the 80ies and 90ies in the generative framework. However, these days we are witnessing increased interest in form-function mapping. There is a growing understanding that attention only to narrow grammatical properties in L2 acquisition is not sufficient, that it is important and interesting to study grammar-discourse integration. We owe a lot of this new scrutiny to the Interface Hypothesis (to be elaborated below), which has firmly brought attention to whether L2 knowledge of a syntactic construction immediately translates into knowledge of the context in which this construction is appropriate.

This new interest into the "mind / context divide" fits well into the big picture of L2 acquisition theory development. A central issue in the formal approaches to SLA in the last decade has been: What is easy and what is hard in L2 acquisition? A second question that is fundamentally related to the first one is: What are some principled reasons for differential difficulty?

Why are these questions important? There are practical as well as theoretical reasons. On the practical side, teachers can pay more attention to the difficult things in the language classrooms, and not waste time teaching the easy stuff, which will come to the learners for free. Knowing what is easy to acquire and what may not be so easy will certainly improve teaching and learning efficiency. On the theoretical side, differential difficulty as signaled by differential accuracy over the learning span addresses the cognitive divide between grammar, parsing, and integrating external information into the parse. The generative approach to SLA is in a good position to contribute substantially to this debate.

2. What is an interface?

The language faculty consists of a number of discrete modules (among which syntax, semantics, phonology), each with their own structural and hierarchical organization. Linguistic rules and

processes can be of two types: first, those functioning within one module of the language faculty: morphological rules, or syntactic rules, and second, those that work to relate the different modules of the grammar: syntax and semantics, morphology and phonology, etc. Structures at linguistic interfaces are such structures that are sensitive to the rules of two interacting linguistic subsystems. The language architecture proposed by Jackendoff (2002) and Reinhart (2006) among others (see also Ramchand & Reiss, 2007), postulates that an interface rule is a rule that takes information from one linguistic module and translates it into information relevant to the other module, allowing for integration and transfer of information through the whole system. By definition, such an interface rule is more complex than an intra-modular rule, hence it uses up more processing resources. Note the language architecture representation provided by Reinhart (2006), slightly modified in Figure 1, as one example of such an architecture.

Figure 1: Modular design of the language faculty, following Reinhart (2006)
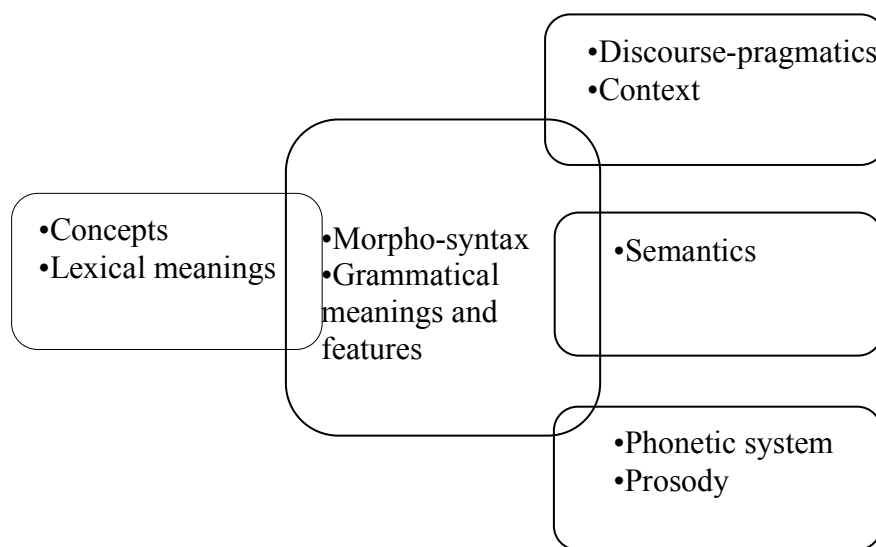
3. The Interface Hypothesis

The Interface Hypothesis (Sorace & Serratrice, 2009; Sorace, 2011) postulates that there is a principled distinction between *internal interfaces*, those that link domains within the language system itself (e.g., syntax-semantics, syntax-lexicon, etc), and external interfaces, those that link linguistic information with external systems such as discourse context, knowledge of the world (within the realm of pragmatics) and the articulatory-perceptual system. A primary example and one that has garnered the most attention is the syntax-discourse interface. I will discuss the merits of this theoretical proposal before going on to examine the evidence for it from acquisition.

Recently, there has been a fruitful discussion in the literature (see the *Lingua* special issue on acquisition at the interfaces, 2011, volume 121, issue 4) on whether a speaker can produce any utterance without engaging all the interfaces. Montrul (2011), for example, argues that the division between external and internal interfaces is flawed because most grammatical properties involve multiple interfaces. "Ultimately, every single utterance we utter involves

discourse[1] and must be read off at all linguistic interfaces." (Montrul 2011: 592) She gives examples from articles (in English and Spanish), whose successful usage has to rely on information from morpho-syntax, phonetics-phonology, semantics, the lexical meaning of the accompanying noun, and crucially also from the discourse context of the specific utterance. Direct object marking in Spanish serves as another example of the same. At the same time, it is common practice in science, and a necessary procedure of the Scientific Method, to isolate properties (as much as possible) in order to study them profitably without confounding factors. In the spirit of this endeavor, generative L2 researchers have been engaged in identifying properties that rely on the immediate context of the utterance for their appropriateness and in studying their acquisition.

The primary evidence for the Interface Hypothesis comes from studies on the acquisition or attrition of language phenomena that rely on contextual information. Pronoun reference, usage of overt versus null subjects, Verb-Subject versus Subject-Verb orders, and dislocations marking Topic and Focus are all seminal topics of investigation. Sorace and her colleagues have argued that these linguistic phenomena present both "residual optionality" in advanced L2 speakers and "emerging optionality" in native speakers in language contact situations (child bilinguals and adults experiencing language attrition). How can we conceptualize optionality, whether residual or emergent? Here is a citation from Sorace (2000): "Optionality can be defined as the coexistence within an individual grammar of two or more variants of a given construction which:

  1. make use of the same lexical resources;
  2. have the same meaning." (Sorace, 2000: 93)

To take an example from a property studied by Belletti and Leonini (2004) and Belletti, Bennati and Sorace (2007), consider subject questions of the type *Who screamed?* or *Who arrived?* Italian native speaker position the new information (Focus) subject after the verb 93% of the time, while in the rest of the cases (7%) they stress the subjects and use SV order. So Italian allows for two strategies in answering subject questions, but native speakers prefer one of them. The SV strategy with stressing the subject is the only possibility in English. The authors found that near-native L2 learners of Italian used the English strategy 71% of the time. Thus, they allow for the coexistence of the two strategies in their Italian L2 grammar, and display residual optionality.

Other studies to date documenting optionality or delays at the syntax-discourse interface include Sorace & Filiaci (2006), who studied pronoun reference differences between near-native L2 speakers and native speakers. Belletti, Bennati & Sorace (2007 recorded difficulties in the interpretation of null/overt subjects in Topic Shift environments in near-native L2 speakers (as well as answering subject questions). Tsimpli, Sorace, Heycock & Filiaci (2004) attested difficulties with overt subject expression in contrastive, focused and Topic Shift environments, in cases of L1 attrition. Serratrice, Sorace, Filiaci & Baldo (2009) found protracted delays associated with the use of pronominal subjects in the development of young bilingual children.

What are the underlying reasons for the delays and the residual optionality revealed in these studies? The short answer is: Bilingualism. In its current form (Sorace, 2011), the Interface Hypothesis attributes the performance differences noted in these different bilingual populations to processing. Essentially, the Interface Hypothesis maintains that there is a cognitive cost to

---

[1] To understand the importance of context appropriateness, imagine a perfectly formed, grammatical sentence such as *My name is Mari* uttered in a situation where all the participants know the person's name, for example, at a family gathering. The utterance would not constitute normal language use in that situation. See Grice (1989) for a conceptualization of context appropriateness.

having more than one grammar represented in the mind, drawing on the concept of Inhibitory Control (e.g., Green, 1986, 1998). Inhibitory control refers to the cognitive deactivation or inhibition of the first grammar in the mind when the other grammar is needed for a given linguistic task. Linguistic inhibition is necessary for bilinguals under the generally accepted idea that all grammars in the mind of bilinguals are simultaneously activated (Kroll, Bobb, Misra, & Guo, 2008; Marian & Spivey, 2003; see Bialystok, Craik, Green & Gollan, 2009 for a review). Taking adult L2 acquirers as one particular case of bilingualism, these L2ers must use some cognitive resources to suppress their L1 grammar when engaged in the L2, thereby taxing memory systems, executive function and attentional resource allocation. It thus stands to reason that even in the case that underlying L2 linguistic representations are native-like, there will still be some target-deviant performance, with a lot of variability. The Interface Hypothesis builds on this bilingual cognitive effect, predicting that even the most advanced learners (i.e., near-natives) will have some residual optionality in performance.

While there is general consensus for developmental delays at the syntax-discourse interface, ultimate attainment findings are to date inconclusive. In general, findings which are problematic for the Interface Hypothesis should be of two types: findings documenting delays and difficulties at other interfaces, and findings documenting successes at this interface. Both types of findings have been attested.

Kras (2011) is a study exposing significant differences between native and near-native speakers of Italian at the syntax-lexicon interface, an internal interface. On the other hand, quite a number of studies attest success at the syntax-discourse interface. For example, Rothman (2009), using different tests and examining Contrastive Focus with null/overt subjects as opposed to Topic Shift uncovered apparent native-like competence for Contrastive Focus (in contrast with the results found on Topic Shift by Belletti et al, 2007). Bohnacker (2010) examined the acquisition of discourse-sensitive clause initial properties in L2 Swedish. Her data demonstrated substantial increases in clause-initial expletive subjects, clefts and lightweight given elements as L2 proficiency increases, which she interpreted as being indicative of development towards the target. Donaldson (2011 a and b, 2012) examined among other properties, clitic right dislocation (CLRD) and clitic left dislocation (CLLD) in near-native L2 French, and also showed that residual optionality at external interfaces is not inevitable. Finally, Iverson, Kempchinsky and Rothman (2008) investigated discourse-sensitive mood alternations (indicative vs. subjunctive) with epistemic predicates in advanced L2 Spanish, showing that some learners perform like native speakers. In the rest of the article, we will see three further examples of such studies.

4. Clitic Left Dislocation

As there are comparatively few studies examining the syntax-discourse interface beyond null/overt subject distribution and pronoun reference, it may be useful to turn to some studies on the status of dislocated and clitic-doubled objects in Spanish and Bulgarian. First, let me illustrate the construction itself.

(1)   Context: Where did you buy these shoes?
        a. These shoes, I bought in Madrid.   (English)

        b. Estos zapatos, **los**   compré en Madrid   (Spanish)

these shoes,   Cl-pl I-bought in Madrid
'These shoes, I bought in Madrid'

c. Tezi obuvki **gi**   kupix v Madrid.   (Bulgarian)
these shoes, Cl-pl I-bought in Madrid
'These shoes, I bought in Madrid'

The shoes are already mentioned in the context, so we will call them a "discourse antecedent."
The Topic object refers back to the discourse antecedent and is fronted; the new information, the
Focus, comes in sentence-final position. Note that in English this topicalization does not take a
clitic doubling the moved object next to the verb, because English does not have clitics.
However, in Spanish and Bulgarian, there is a clitic agreeing with the fronted object in person,
number and gender. Note also that these sentences are not the only way to answer the question
"Where did you buy those shoes?" but they are contextually appropriate way to answer it
(supported with the correct intonation).
　　　On the other hand, consider the opposite context: the question this time is about the
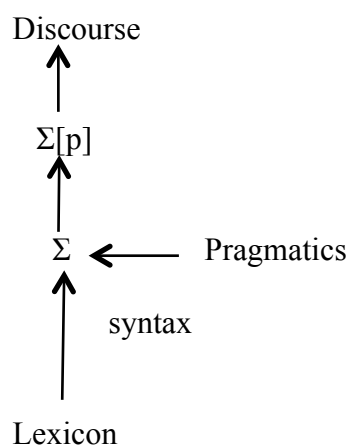object, so the object is new information.

(2)　　Context: What did you buy in Madrid?
　　a.　　#These shoes, I bought.   (English)
　　b.　　I bought these shoes.
　　c.　　Estos zapatos, (#**los**) compré.   (Spanish)
　　　　　these shoes,   #Cl-pl I-bought
　　d.　　Compré estos zapatos.
　　　　　bought   these shoes.
　　　　　'I bought these shoes.'
　　e.　　Tezi obuvki (#**gi**)   kupix.   (Bulgarian)
　　　　　these shoes, #Cl-pl I-bought
　　　　　'I bought these shoes.'

It is infelicitous in English to move the focused object to the beginning of the sentence (see 2a),
because the default focus position is the sentence-final one. It is infelicitous in Spanish and
Bulgarian to double the fronted object with a clitic. The preferred Spanish word order is VO,
while in Bulgarian both Vo and OV are fine, as long as there is no doubling clitic. Slabakova and
Ivanov (2011) argued that the Spanish and Bulgarian CLLD constructions are amenable to a
common analysis, and assumed Lopez's (2009) proposal for a syntactic treatment. I will not go
into the details of the analysis here, referring the reader to the original publication.
　　　Although the details of the syntactic analysis do not matter for the acquisition claims I
want to make here, it is important to ascertain one fact: that these constructions do belong to the
syntax-discourse interface. Let's consider English first. The OSV word order in (1a) is
acceptable when the fronted object is Topic, but unacceptable when it is Focus. In Spanish and
Bulgarian, it is not the word order so much as the doubling clitic that marks the type of context:
the clitic signals the topicalization of the object and is unacceptable in Focus contexts. It follows
that in processing these sentences, the speaker considers their acceptability in the context, not
their grammaticality, because they would be grammatical in another context. This is precisely the
reason why we can assert that these sentences are judged at the syntax-discourse interface. Their

narrow syntax is fine either way. Now, any analysis of such sentences would have to take this context-appropriateness into account. An approach as in Rizzi (1997) captures context-appropriateness in functional categories (TopP and FocP) at the left periphery of the sentence. An account as in Lopez (2009) inserts the discourse consideration after every phase, as illustrated below. After the narrow Syntax module has finished building each phase, a vP or a CP (Chomsky, 2001), the Pragmatics module inspects the syntactic object Σ thus assembled, and assigns the relevant discourse features to constituents located in syntactic positions at the phase edge, yielding the information structure $\Sigma_{[p]}$. These pragmatic structures are subsequently assembled into longer units of text in the discourse module, in the form of Discourse Representation Structures.

(3)   The syntax-discourse relationship (López 2009: 23)

$$
\begin{array}{c}
\text{Discourse} \\
\uparrow \\
\Sigma[p] \\
\uparrow \\
\Sigma \longleftarrow \text{Pragmatics} \\
\uparrow \quad \text{syntax} \\
\\
\text{Lexicon}
\end{array}
$$

Lopez's approach may not be the right one ultimately, but it underscores the need for *any* analysis to deal with contextual appropriateness features, over and above the narrow syntax features, locating them in some other module superseding the syntax module.

Another message to keep in mind is that languages may use different morpho-syntactic realizations of the pragmatic features. English uses word order (sparingly) but mostly intonation; Spanish uses word order, intonation and clitics to signal Topic and Focus. In essence, we are dealing with a (type of) form-meaning mismatch that has always been identified as a bottleneck for acquisition (see Slabakova, 2008). In the next sections, we shall see partial results of three different experimental studies dealing with the L2 acquisition of this form-meaning mismatch.

5. Three studies on the L2 acquisition of the syntax-discourse interface
5.1. Valenzuela (2005, 2006)

The aim of Valenzuela's study was to test near-native speakers of Spanish acquiring CLLD: its syntax, discourse appropriateness, and semantic constraints. Fifteen L1 English speakers of L2 Spanish participated in the experiment. Their first exposure to Spanish was after puberty, and they were originally from England, Canada and the US, but were living in Spain at the time of testing. Valenzuela used White & Genesee's (1996) procedure to ascertain that the participants were indeed near-native speakers: they were taped in a free monologue on a pre-set topic, then the speech samples were intermingled with similar samples from native speakers. Two native

judges ranked all the speakers for syntax, morphology, pronunciation, vocabulary, and overall fluency on a scale of 1 to 10. Learners and native speaker range was from 8.5 to 10. This has become the more or less standard procedure for ascertaining native-speaker-like proficiency (see Montrul & Slabakova, 2003, Belletti et al, 2007).

Next, Valenzuela used an oral Grammaticality Judgement task (without context) to ascertain that the learners had the grammatical knowledge of clitics. Clitics were tested in main clauses, embedded clauses, and *wh*-islands. All participants reliably distinguished between grammatical and ungrammatical topicalizations with clitic-doubling. Valenzuela's main tasks probing for discourse appropriateness were an oral sentence selection task and a written sentence completion task, both presenting sentences in context. In this article, I will only discuss the conditions in her two main tests that are comparable to the other two experiments I will discuss later. Here is an example from the sentence selection task:

(4) Ayer por la mañana, Eva se fue a la universidad y vio a su amigo Pedro y a su amiga Inés, pero como tenía muchas cosas que hacer...
'Yesterday morning, Eva went to the university and saw her friend Pedro and her friend Inés, but since she had many things to do...'

a. A Pedro,   no **lo** saludó.   DESIRED RESPONSE
Acc. Pedro, not CL greeted
'Pedro, she didn't greet.'

b. A Pedro,   no saludó.
Acc. Pedro, not greeted
'Pedro, she didn't greet.'

c. Ni a ni b
  'Neither a nor b.'

d. Ambas a y *b*
  'Both a and b'

The test included 5 specific topics (e.g., names as above and full DPs) in main clauses, 5 generic topics (e.g., *water, air*) in main clauses, the same number in embedded clauses and in wh-islands, plus 10 distracters, for a total of 40.

Next, consider an example from her written sentence completion task. After a brief context in Spanish, a sentence fitting that context was provided with a blank for the verb. Participants had to finish the sentence with a verb and a clitic.

(5) Cristina tuvo una fiesta en su casa anoche con sus amigos. Hizo entremeses deliciosos que ofreció a todos los invitados. Uno de ellos le dice:
Cristina had a party with her friends at her house last night. She made delicious appetizers, which she offered to all the guests. One of them tells her:
"Esta tortilla de patatas,__*la quiero probar*__ porque me han dicho que está exquisita."
This:fem.sg tortilla of potatoes, CL.fem.sg want to try because CL.acc have said that is delicious.

"This Spanish tortilla, I want to try because I've been told it is delicious."

Table 1: Percentage of choosing/providing **specific** fronted objects doubled with clitics in Valenzuela (1005)

	Sentence selection task		Sentence completion task	
	Near-natives	Controls	Near-natives	Controls
Main clause	89	100	100	94
Embedded clause	96	99	100	93

Table 1 provides the accuracy percentages of the near-natives and the controls on both tests. The only significant contrast is one between near-natives and controls on the sentence selection task with main clauses ($F(1,38) = 6.441$, $p = 0.015$). However, the learners are not different from the natives on the more complex embedded sentences ($F(1,38)= 1.701$, $p = 0.2$), suggesting that their knowledge of the discourse appropriateness of clitic-doubled objects is not affected by the complexity of sentences. Both groups are statistically equally accurate on the sentence completion task. Neither learners not controls are as accurate with the generic fronted objects, but there are additional considerations for that choice, for more discussion see Slabakova and Ivanov (2011).

5.2. Ivanov (2009)

Ivanov'e experiment brought a new language, Bulgarian, into the study of this interface. Until his experimental study, most L2A investigations involved Romance languages. His aim was to test knowledge of the same construction in L2 Bulgarian, keeping all the objects definite and specific. An extension of his study was testing accusative as well as dative objects and placing them under Topic and Focus contexts, a 2 X 2 design. Twenty-four native speakers of English participated, divided into two groups – 10 advanced and 14 intermediate learners of Bulgarian. A cloze was used to ascertain test proficiency, and the advanced learners scored in the range of the native speakers. All participants had started studying Bulgarian after the critical period of acquisition. The advanced participants had a mean age of exposure to Bulgarian of 12.7 years. They had lived in Bulgaria for a number of years and all but one of them were still living there at the time of the experiment. Some of them had Bulgarian spouses and Bulgarian native-speaking children. I will only give the results of his advanced speakers here, because they were directly comparable to Valenzuela's near-native speakers. It is true that Ivanov did not go through the near-nativeness procedure for lack of time. However, the profiles of most of his advanced learners are compatible with near-native knowledge of the language.

Ivanov tested his learners on a range of narrow-syntactic clitic properties: clitics are pre-verbal, which is a non-argument position; they cannot be separated from the verb; they cannot be sentence initial; clitic have a specific order when in clusters; they do not coordinate with full NPs or strong pronouns, and some verbs always require clitic doubling. In Table 2, these properties are numbered as P1 to P6.

Table 2: Accuracy (%) on grammatical knowledge of clitics

	P1	P2	P3	P4	P5	P6
Controls	99	99	100	100	99	99
Advanced	97	98	100	98	95	92

Importantly, there was no statistical difference in the judgments of the control and the advanced group. Based on these results, Ivanov assumed that the advanced learners of Bulgarian had established syntactic knowledge of clitics in their grammar.

Ivanov's main task was a context-sentence evaluation task. A situation was described in English to ensure comprehension, followed by a dialogue: a question (immediate context) and four answer options. Participants had to provide appropriateness evaluation on a scale from 1 to 5 (5 = acceptable and 1= unacceptable). The tokens appeared written on the screen but were also spoken by two native speakers. Each spoken test item included both the question and the answer, produced with natural conversational intonation without any emphasis. All the answers were perfectly grammatical sentences but could either be appropriate in the context or not. An example from the test item presentation follows

(6)   Q: Poluči   li koleta   ot   Peter?
        receive-2.sg.past Q package from Peter
        'Did you receive the package from Peter'
        Answers:
        Option 1. Koleta go   polučix minalata sedmica. [+Obj. fronting] [+Clitic doubling]
                 package Cl.ACC receive-1.sg.past   last week
                 'I received that package last week'
        Option 2. Minalata sedmica go polučix koleta.   [−Obj. fronting] [+Clitic doubling]
        Option 3. #Koleta polučix minalata sedmica.   [+Obj. fronting] [−Clitic doubling]
        Option 4. #Minalata sedmica polučix koleta.   [−Obj. fronting] [−Clitic doubling]

Four conditions with 10 tokens in each in a 2 by 2 design were tested: Topic x Focus and Accusative x Dative objects and clitics.

Figures 2 and 3 present the mean accuracy of the controls and the advanced speakers in the Topci and Focus accusative conditions. Note that the infelicitous options are marked with a # in the graphs.

In the Topic condition, a post-hoc Tukey HSD comparison revealed statistically significant differences between the felicitous options (1 and 2) and the infelicitous options (3 and 4) for both the control and the advanced group. There was no statistically significant difference between the evaluations of the two felicitous options for either group. The neutral SVO word order (option 4) received an evaluation around 3, which was to some extent expected as a lot of the participants felt they had to give credit to the grammatical correctness of the sentence. Most important, however, is the fact that those evaluations were significantly lower than the evaluations of the felicitous options both for the control and the advanced group.

In the Focus condition, the most important contrasts were found to be between the felicitous options, O3 and O4, and the infelicitous ones, O1 and O2. In addition, there were statistically significant differences between the two felicitous options in the evaluations of the control group as they preferred the SVO order for focal constructions better than the option of

fronting with no doubling. The evaluations of the advanced group for the felicitous options were not statistically significant.

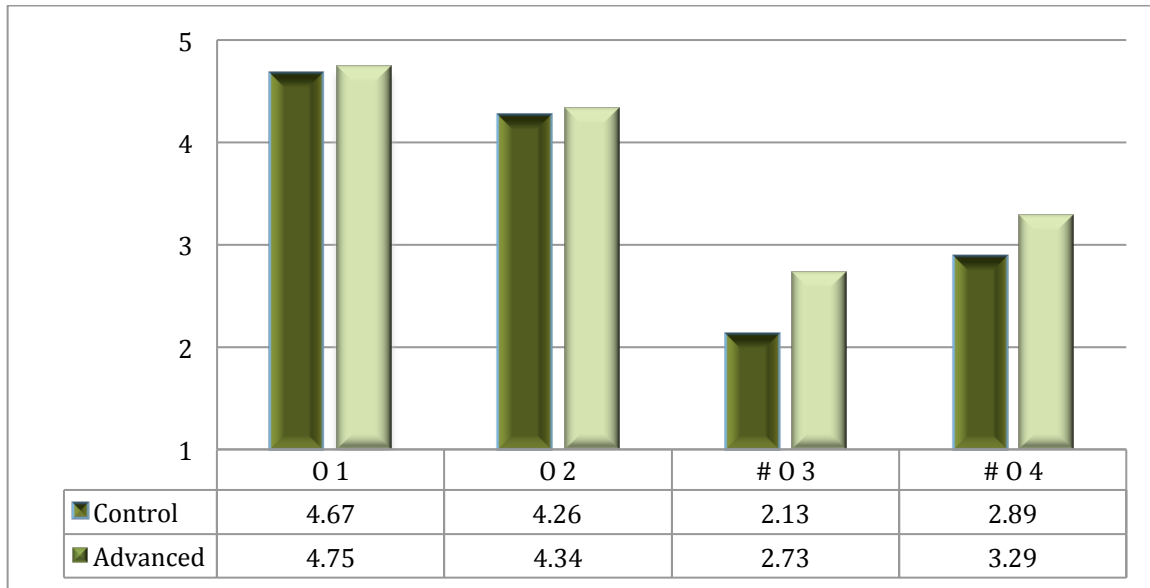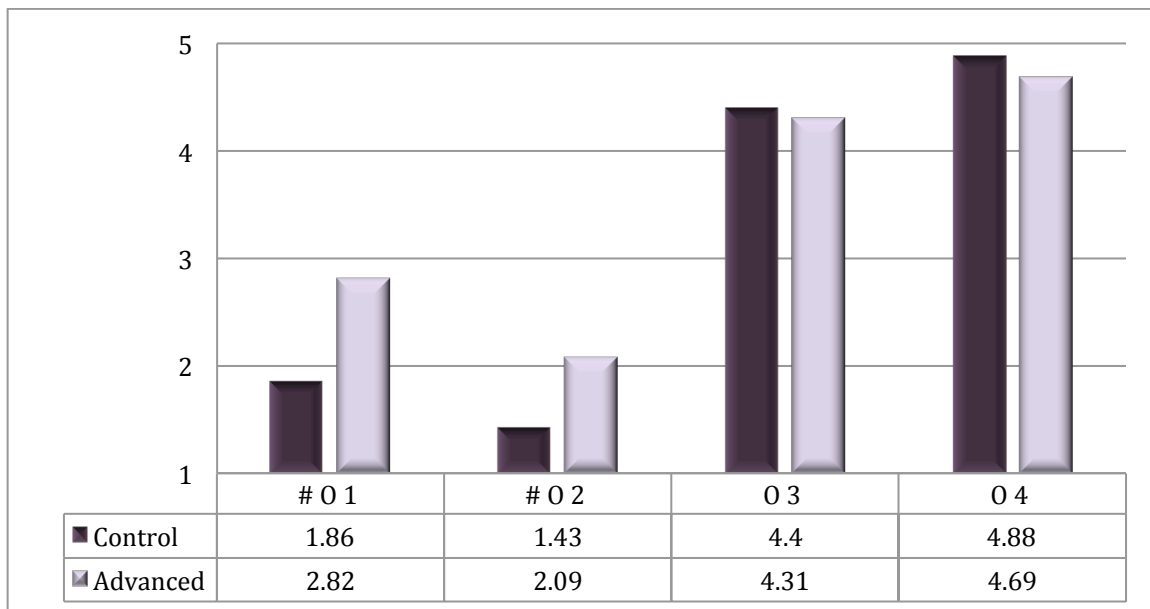Figure 2: Mean rates of acceptability in the Topic Accusative condition

	O 1	O 2	# O 3	# O 4
Control	4.67	4.26	2.13	2.89
Advanced	4.75	4.34	2.73	3.29

Figure 3: Mean rates of acceptability in the Focus Accusative condition

	# O 1	# O 2	O 3	O 4
Control	1.86	1.43	4.4	4.88
Advanced	2.82	2.09	4.31	4.69

Thus both Valenzuela's (2005) and Ivanov's (2009) experiments, as compared and reinterpreted in Slabakova & Ivanov (2011) point to mastery of the clitic-doubling construction with topicalized objects. I have compared only the conditions where specific objects were tested, specific being defined as "known to the speaker; identified, unique and noteworthy to the speaker". Acceptability of such test sentences depends on consideration of the preceding context.

The near-native Spanish speakers and the advanced Bulgarian speakers were indistinguishable from native speakers in their acceptance of this construction. We turn to the last study next.

5.3. Slabakova, Kempchinsky and Rothman (2011)

Luckily, there is no need to repeat the main properties of CLLD in Spanish. However, in the third study we will consider here, an additional semantic property was tested over and above the discourse-related ones. In Spanish CLLD, the fronted object can be subset, superset, part/whole of the discourse antecedent:

(7) [context: What did the movers do with the furniture?]
     Las sillas **las** dejaron en el pasillo, pero no sé dónde están las mesas.
     'The chairs they left them in the hallway, but I don't know what they did with the tables'
                                                                    [superset-set]
(8) [context: What can we do with this table? It doesn't fit through the doorway]
     Mira, las patas **las** podemos doblar.
     'Look, the legs we can fold them.'   [whole-part]

Thus the learning tasks for English natives acquiring L2 Spanish in this particular experiment involved: syntactic knowledge of clitics and syntactic knowledge of fronting operations; the discourse appropriateness of the clitic-doubled dislocations; knowledge that a fronted object should be clitic-doubled; and semantic freedom of the antecedent-fronted object relationship.
       The experiment used a standardized proficiency test to establish proficiency groups. In addition, a forced-choice clitic-knowledge test (n=10) was used as a criterion for inclusion of participants in main test. The latter was a Felicity Judgment Task (a short dialogue in context) with 40 context-test sentences combinations. We will only consider here the 10 CLLD items. In 5 of them, the discourse antecedent was the superset and the dislocated object was the set; in the other five the relationship was one of complete identity.
       Context stories and test sentences were presented both aurally and visually. Participants were asked to judge sentences as felicitous or infelicitous in the context of the story on a scale of 1 to 4 or "I don't know." Two answers were presented below each story, one with a clitic and one without a clitic, counterbalanced. Participants had to evaluate both answers in the context of the same story. An example of a test item follows:

(9)   A Alfredo no le gusta comer ensalada. Su mamá Mónica lo tiene que obligar a comerla.
         Para el almuerzo, le dejó preparada una ensalada. Desde su oficina, Mónica llama a la
         casa y le pregunta a Alfredo:
         *Alfredo doesn't like to eat salad. His mother, Monica, has to make him eat it. For lunch,
         she left a salad prepared. From her office, Monica calls home and asks Alfredo:*
         Mónica: ¿Te comiste la ensalada?
                   'Did you eat the salad?'
    Answer 1 Alfredo: La lechuga **la** comí. No me gustaron los tomates.
                   the lettuce   it I-ate. I didn't like the tomatoes.
    Answer 2 Alfredo: *La lechuga comí. No me gustaron los tomates.
                     The lettuce I-ate. I didn't like the tomatoes.
                     'I ate the lettuce. I didn't like the tomatoes.' (both answers)

Twenty-one native speakers of Spanish from various countries, 22 near-native learners of Spanish, 22 advanced learners and 23 intermediate learners participated. Figure 4 gives the mean judgments of all groups on the relevant properties.

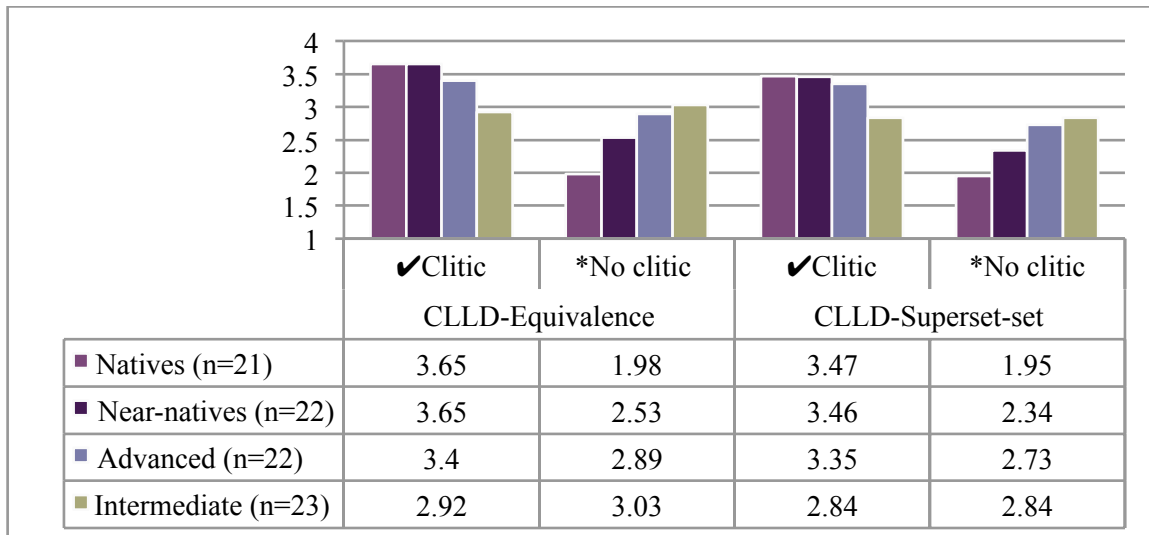Figure 4: CLLD felicity judgments: group means

	✔Clitic	*No clitic	✔Clitic	*No clitic
	CLLD-Equivalence		CLLD-Superset-set	
■ Natives (n=21)	3.65	1.98	3.47	1.95
■ Near-natives (n=22)	3.65	2.53	3.46	2.34
■ Advanced (n=22)	3.4	2.89	3.35	2.73
■ Intermediate (n=23)	2.92	3.03	2.84	2.84

Table 3: Intra-group comparisons between mean ratings of sentences with clitics and w/o clitics, significance set at the 0.05 level

	Equivalence √	Superset-set √
Natives	$p < 0.0001$	$p < 0.0001$
Near-natives	$p < 0.0001$	$p < 0.0001$
Advanced	$p = .04$	$p = .02$
Intermediate	$p = .61$ ns	$p = .9$ ns

There are two important results to notice in the Figure 2 and Table 3. First of all, all the participant groups up to the Intermediate level are aware of the fact that topicalization without clitic doubling is unacceptable, and the natives, near-natives and advanced speakers show a significant contrast. This contrast does not appear at the intermediate level of proficiency. Secondly, the semantic freedom of the CLLD construction in terms of antecedent-dislocate relationship has also been acquired by all learners except the intermediates.

Table 4: Individual results. Number (percent) of subjects with a numeric difference of 1 between sentences with clitics and sentences without clitics, in the right direction

	Equivalence √	Superset-set √
Natives (n=21)	20 (95%)	18 (86%)
Near-natives (n=22)	13 (59%)	9 (41%)
Advanced (n=22)	7 (32%)	8 (36%)
Intermediate (n=23)	3 (13%)	6 (26%)

Individual results were calculated in the following way: If a participant had felicity scores differing by a full 1 point, in the right direction, s/he was considered aware of the expected distinction. As can be ascertained in Table 4, the majority of the native speakers make the cut. This means that speakers demonstrate sensitivity to the need to clitic-double in constructions with a fronted topic object. A good percentage of the near-native and advanced learners, and even some intermediate learners, also exhibit this sensitivity in their individual grammars.

Summarizing the results of this experiment, one could say that syntactic clitic knowledge has been acquired, since it was a condition for inclusion in the discourse test and even the intermediate learners were at least 70% accurate on it. One can also argue that the property at the syntax-discourse interface, knowledge that a construction with a fronted topic object needs clitic-doubling has also been acquired by all groups but the intermediate learners. Finally, the syntax-discourse-semantics constraint, knowledge that CLLD allows a free semantic relation between antecedent and dislocate has been acquired by all groups but the intermediate learners. A considerable percentage of individual learners, over 30% of advanced and over 40% near-natives, have knowledge comparable to the natives' in all conditions.

6. Discussion

What do these experimental results tell us about the mapping of syntax and discourse? We have just reviewed results of four different off-line tests of similar design examining the same construction, CLLD, in two languages (Spanish and Bulgarian). Surely findings of success across the board should be sufficient to conclude that CLLD is *not an impossible* construction to master in a second language. Is this construction unique in this respect, and how can we square this with the findings in support of the INTERFACE HYPOTHESIS? I will discuss possible reasons below.

6.1 It's a matter of interpretation
It could be the case that different researchers are interpreting their findings in different ways (glass half full/glass half empty types of interpretation). The INTERFACE HYPOTHESIS predicts that "…narrow syntactic properties are acquirable completely in a second language, even though they may exhibit significant developmental delays, whereas interface properties involving syntax and another cognitive domain **may not be** fully acquirable. Let us refer to this as the 'interface hypothesis." Sorace and Filiaci 2006 p. 340. Notably, the probability of something that **may** happen is about 50%; that is, as much as the probability of something that **may not** happen. The findings of the three studies, then, illustrate the negative side of Sorace and Filiaci's (2006) prediction: some properties at external interfaces do not remain vulnerable to variation in L2. It seems that we have found a construction that possibly does not suffer inevitable residual optionality. But what is the predictive value of a hypothesis which uses the modal verb "may"?

To be fair, the INTERFACE HYPOTHESIS is about comparing the acquisition success of properties at narrow syntax and at the external interface. Residual optionality could be thought of as not 'inevitable' nor 'insurmountable': it is just less *likely* to be found for structures that require fewer extra-syntactic conditions. This prediction can be challenged only if internal interface properties and external interface, discourse-related properties are tested head-to-head. However, there is a major confound in this type of design: one can never prove that the

properties chosen would be of similar grammatical, or even cognitive complexity. This renders such a comparison questionable.

Be that as it may, we can still gain understanding of bilingual acquisition if we look for *principled* reasons why some properties at the syntax-discourse interface are easier than others.

6.2. Different methodologies?

Let us compare methodologies across studies that support and studies that challenge the INTERFACE HYPOTHESIS. Of course, we will be comparing off-line studies. Belletti et al (2007) use a Picture Verification task to elicit judgments from their near-native participants on Topic Shift sentences like (10) and (11) below.

(10) La vecchietta$_i$ saluta la ragazza$_j$ quando $\varnothing_{i\,/\,*j}$ attraversa la strada.
　 the old lady greets the girl　　 when　　 crosses the street
　 'The old lady$_i$ greets the girl$_j$ when she $_{i\,/\,j}$ crosses the street.'

(11) La vecchietta$_i$ saluta la ragazza$_j$ quando *lei*$_{*i\,/\,j}$ attraversa la strada.
　　 the old lady greets the girl　　 when　she　 crosses the street
　 'The old lady$_i$ greets the girl$_j$ when she $_{i\,/\,j}$ crosses the street.'

As the gloss of (10-11) suggests, the English equivalent is ambiguous, though there may be a preference for the main subject antecedent. Italian is not ambiguous: the null subject refers back to the main clause subject while the overt pronoun refers to the main clause object. This is known as Topic Shift. In processing sentences such as (11), Italian near-native speakers (with English L1) were found to interpret the overt pronominal subject of the embedded clause as coreferential with the lexical subject of the main clause 30% of the time, while the natives only interpreted it in this way 5% of the time, a significant difference, $p < .0006$.

But let us look at the actual task at more detail. Participants read sentences as in (10) and (11) and interpreted them (without the benefit of a story). To signal their interpretation, they had to choose one of three pictures on the screen that corresponded to the meaning of the sentence. Each picture represented a different referent for the null or overt pronominal subject of the subordinate clause: (i) the matrix subject, (ii) the complement of the main clause and (iii) an external referent. As there was no context, in choosing the correct referent, participants had to come up with three different interpretations, then check which one of those three is the most likely one they would use. I submit that this task is much harder on the processing system than the tasks examined above, which provide a context and then look for a fit between a sentence and that context. So it is possible that differences are just a task effect. This possibility squares with Sorace's recent prediction (Sorace, 2011) that residual optionality is more likely to be found in tasks that tax bilingual cognitive resources and less likely to be found in simpler offline tasks.

6.3. Input and salience?

In Spanish and Bulgarian, clitic doubling of Topics is very frequent in spoken language, so there is abundant input available to advanced and near-native learners, who have had considerable exposure to the language. The fact that intermediate learners do not exhibit proficiency with the

structures may very well be the effect of insufficient exposure. Clitic doubling may be argued to be more salient as compared to Topic Shift, because there is a clitic as well as a fronted object, two 'change' signals instead of one. Another reason could be that it takes more resources and attention to notice Topic Shift, because the comprehender has to observe an extralinguistic situation, identify the referent, and map the mention of the overt subject in the subordinate clause to a referent that is object in the main clause. Both of the above differences can be having an effect, as well.

6.4. Methodological difference in interpreting the results

Imagine the acceptability ratings of any construction X as plotted in Figure 5, although I have modeled this after the results of the Belletti et al (2007) Picture Verification task discussed in section 6.2. If the native and near-native participants are equally accurate in accepting the correct construction, but not equally accurate in rejecting the wrong construction, there are two ways to view these results. If we compare the native and near-native accuracy in rejecting the unacceptable constructions, as indicated by the red arrow, we would be committing the Comparative Falacy of Bley-Vroman (1983), basically comparing apples and oranges, or monolinguals and bilinguals. We should be comparing the acceptance rates of the two constructions within the grammar of the near-natives (as indicated by the green arrow). We should be asking ourselves if the near-natives distinguish reliably between these two types of sentences White (2003). Sorace and her colleagues frequently discuss clear preferences for the target realization (at the near-native level), alternating with a non-target option significantly more often than in native speakers. Thus, it has been the case that the research arguing in support of the INTERFACE HYPOTHESIS has been committing the Comparative Falacy.

Figure 5: Percent Acceptance on Construction X
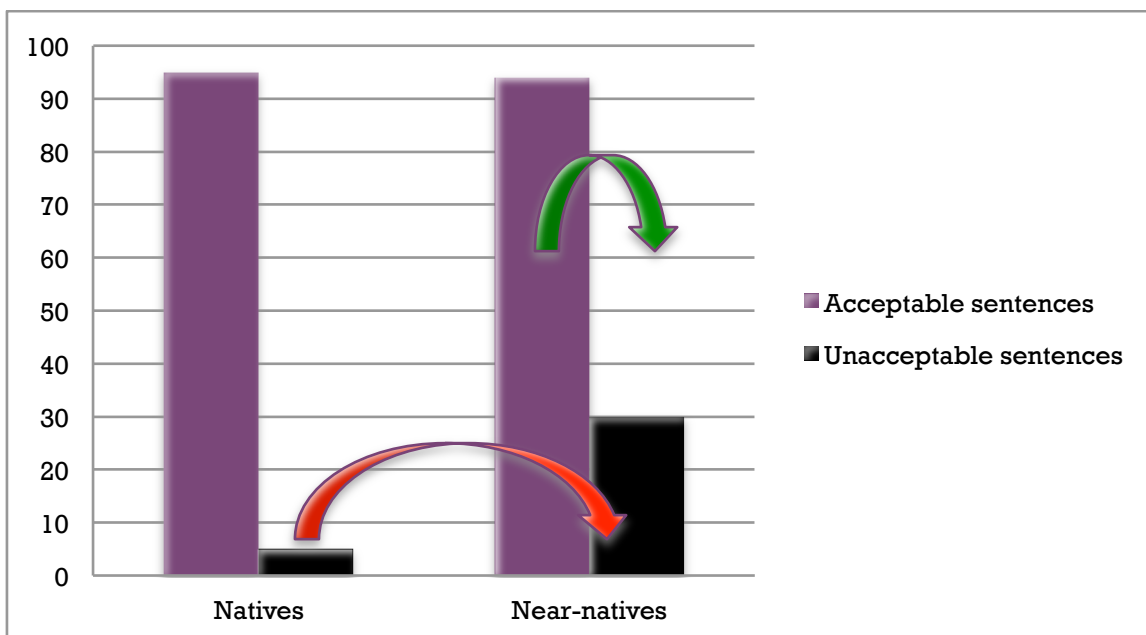
6.5. Why don't all our near-natives perform as natives?

The most recent version of the INTERFACE HYPOTHESIS (Sorace & Serratrice, 2009; Sorace, 2011) offers very specific reasons for residual optionality, attributing it to bilingual processing and attention allocation resources. Given the off-line methodology of the three studies surveyed, it is hard to claim that there are no such difficulties for our near-native learners. Slabakova et al's very advanced speakers accept the felicitous clitics as much as the natives do and they do have significant contrasts within their grammars, but they do not reject the clitic-less sentences as resolutely as the natives do (see the previous section). These residual differences may certainly be attributed to bilingual processing. The INTERFACE HYPOTHESIS predicts that to the extent that optionality may be due to fluctuating processing resources, not all bilingual speakers will be the same and there will be individual variation: this variation is typically washed out in analyses that use group means. That is why it is imperative to look at individual performance with these properties.

7. Conclusion

In this article, I have been discussing research addressing the Interface Hypothesis. However, it is important to remember that research of properties at the mapping between syntax and discourse addresses not only the Interface Hypothesis, but also many of the major research questions in second language acquisition theory, such as ultimate attainment, age effects and critical periods, L1 transfer and L2 access. What is more, it highlights the interesting tension between competence and processing. What if learners have acquired competence at the syntax-discourse interface, but cannot demonstrate it fully within the more complex conditions of discourse-informed processing? What if the more complex processing of these structures somehow precludes the attainment of competence? We need to investigate other properties and other language pairs at this interface, adding methodologies that can address language processing, and hopefully separate it from competence. My goal in this article was to convince you that research on the interaction of structure and language use is fascinating!

References
Belletti, A., E. Bennati & A. Sorace. 2007. Theoretical and developmental issues in the syntax of subjects: evidence from near-native Italian. *Natural Language and Linguistic Theory* 25
Belletti , A. & Leonini C. (2004) "Subject inversion in L2 Italian.", in S. Foster-Cohen, M. Sharwood Smith, A. Sorace, & O. Mits eds., *Eurosla Yearbook* 4, 95-118, Amsterdam: John Benjamins

Bialystok, E., Craik, F. I. M., Green, D. W., and Gollan, T. H. (2009). Bilingual Minds. *Psychological Science in the Public Interest 10*, 3, 89–129.

Bohnacker, U. (2010). The clause-initial position in L2 Swedish declaratives: Word order variation and discourse pragmatics. *Nordic Journal of Linguistics 33*, 105-143.

Donaldson, B. (2011a). Left-dislocation in near-native French. *Studies in Second Language Acquisition 33*, 3, 399– 432.

Donaldson, B. (2011b). Nativelike right-dislocations in near-native French. *Second Language Research 27,* 3, 361–390.

Donaldson, B. (in press, 2012). Syntax and discourse in near-native French: Clefts and focus. *Language Learning 62,* 1, pages.

Green, D. W. (1986). Control, activation and resource. *Brain and Language 27*, 210-223.

Green, D.W. (1998). Mental control of the bilingual lexico-semantic system. *Bilingualism: Language and Cognition 1*, 67-81.

Kraš, T. (2011). Acquiring the syntactic constraints on auxiliary change under restructuring in L2 Italian: Implications for the Interface Hypothesis. *Linguistic Approaches to Bilingualism 1*, 4, 413-438.

Ivanov, I. 2009. Topicality and clitic doubling in L2 Bulgarian: A test case for the interface hypothesis. In M. Bowles, et al., eds., *Proceedings of the 10th GASLA*, pp. 17–24. Somerville, MA: Cascadilla Press.

Iverson, M., Kempchinsky, P. & Rothman**,** J. (2008). Interface Vulnerability and Knowledge of the Subjunctive/Indicative Distinction with Negated Epistemic Predicates in L2 Spanish. *EUROSLA Yearbook 8:* 135-163.

Kroll, J.F., Bobb, S.C., Misra, M.M., & Guo, T. (2008). Language selection in bilingual speech: Evidence for inhibitory processes*. Acta Psychologica 128*, 416–430.

López, L. 2009. *A Derivational Syntax for Information Structure*. Oxford University Press.

Marian, V., & Spivey, M. J. (2003). Competing activation in bilingual language processing: Within-and between-language competition. *Bilingualism: Language and Cognition 6*, 97–115.

Ramchand, G. & C. Rice (2007). *The Oxford Handbook of Linguistic Interfaces*. Oxford: OUP.

Rothman, J. 2009. Pragmatic deficits with syntactic consequences? L2 pronominal subjects and the syntax-pragmatic interface. *Journal of Pragmatics* 41: 951-973.

Serratrice, L., A. Sorace, F. Filiaci, & M. Baldo. 2009. Bilingual children's sensitivity to specificity and genericity: evidence from metalinguistic awareness**.** *Bilingualism: Language and Cognition* 12: 1-19.

Sorace, A. & F. Filiaci. 2006. Anaphora resolution in near-native speakers of Italian. *Second Language Research* 22, 339–368.

Sorace, A. & L. Serratrice. 2009. Internal and external interfaces in bilingual language development: Beyond structural overlap. *International Journal of Bilingualism* 13: 1-16.

Tsimpli, I.-M., A. Sorace, C. Heycock & F. Filiaci. 2004. First language attrition and syntactic subjects: a study of Greek and Italian near-native speakers of English. *International Journal of Bilingualism* 8: 257–277.

Wakabayashi, S. (2002) The acquisition of non-null subjects in English: A minimalist account. *Second Language Research* 18.1: 28-71.

Valenzuela, E. 2006. L2 end state grammars and incomplete acquisition of Spanish CLLD constructions. In R. Slabakova, et al, eds., *Inquiries in Linguistic Development*, pp. 283-304. Amsterdam: Benjamins.