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On the learnability of implicit arguments

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It has been argued that the experiencer argument of *seem* is always syntactically projected, and should thus induce an intervention effect even when not overtly produced. The results of our experimental study provide evidence for this claim – English-speaking children perform poorly on raising with *seem*, whether the intervening experiencer argument is overt or implicit. Conversely, Spanish-speaking children show adult-like performance with the raising semi-modal verb *parecer* ‘seem’, which does not take an experiencer argument. This outcome raises questions regarding learnability, i.e. English-speaking children must know to project an implicit experiencer with *seem*, while Spanish-speaking children must not do so with the functional verb *parecer*. In this paper we provide a learning path that resolves this learning challenge.

Keywords: raising, intervention, implicit argument, experiencer, learnability, English, Spanish

1. Introduction

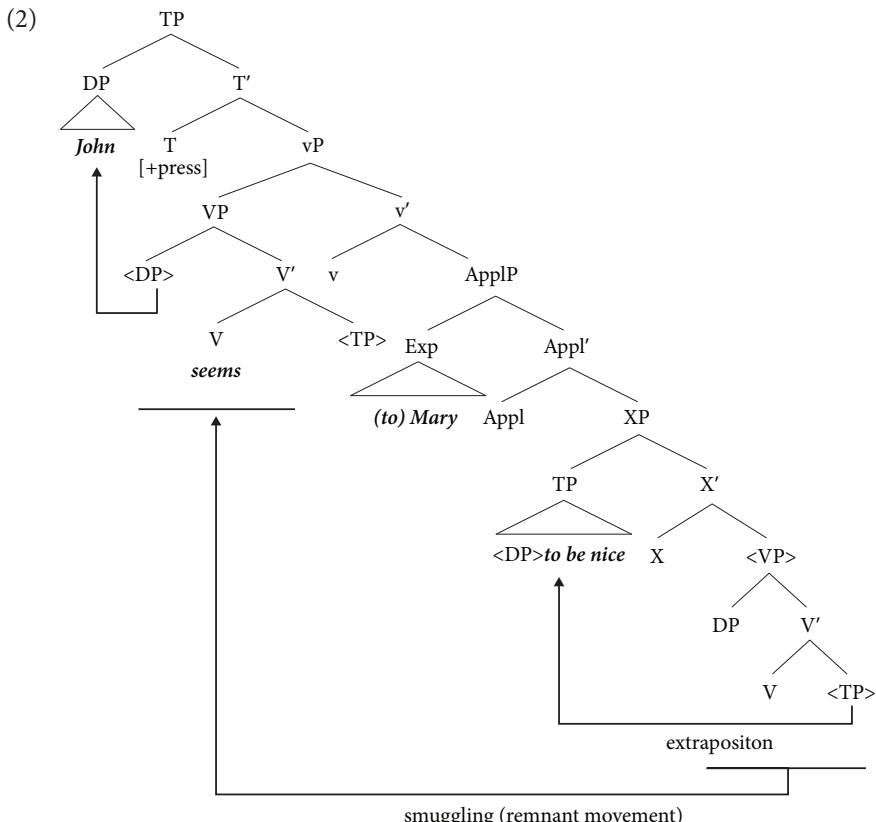
Until the age of six, English-speaking children interpret Subject-to-Subject Raising (StSR) structures with *seem*-type predicates (1) in a non-adult-like manner (see Choe, 2012; Hirsch, 2011; Hirsch, Orfitelli & Wexler, 2007; Orfitelli, 2012, *inter alia*).

- (1) John_i seems (to Mary) *t_i* to be nice.

One prominent account is that the experiencer argument induces an intervention effect, either for grammatical (e.g. Hyams & Snyder, 2005; Orfitelli, 2012; Snyder & Hyams, 2015) or processing reasons (e.g. Choe, 2012; Choe & Deen, 2016). In this paper we compare children’s performance on StSR in English and Spanish. We also show that children have difficulties with raising even when the intervening experiencer is *not* pronounced. Finally, we provide a learning path that addresses the learnability problem presented by implicit arguments in StSR.

1.1 Intervention accounts

One account of children's difficulty with raising is Hyams and Snyder's (2005, 2015) Universal Freezing Hypothesis which proposes that young children do not have access to the smuggling operation that adults use to circumvent the intervening experiencer argument, illustrated in (2) (Collins, 2005a). Thus, for young children A-movement in raising (and passives) is reliably blocked due to minimality constraints.



Similarly, Orfitelli (2012), abstracting away from specifics, argues that children cannot A-move across a structurally intervening argument (Argument Intervention Hypothesis (AIH)). Importantly, both these accounts hypothesize that the experiencer in StSR *seem* is always syntactically projected (see Landau, 2010), even when not overtly produced, similar to the covert external argument in passives (see Baker, Johnson, & Roberts, 1989; Collins, 2005b; Gehrke & Grillo, 2008, inter-

alia). Therefore, children are expected to perform poorly with StSR whether the intervener is explicit or implicit.¹

The diagnostics of implicit argumenthood for the passive *by*-phrase are mostly agent-oriented and hence not available for the experiencer of StSR sentences. However, examples from binding (3a), ‘speaker/experiencer’-oriented modifiers (3b–c), and instrumental phrases (3d) suggest the presence of an implicit experiencer argument. In (3a) the implicit experiencer must be disjoint from *Mary*. In (3b) it is the implicit experiencer who is convinced that James loved the woman. However, when *seem*, the licenser of the implicit experiencer, is removed, as in (3c), the sentence becomes severely degraded. Similarly, in (3d), the diamond is perceived to be of good quality by the implicit experiencer.

- (3) a. John seems {__/to her} to like Mary.
[implicit/explicit experiencer of *seem* ≠ *Mary*]
- b. James killed the woman he so convincingly seemed to love.
- c. ??James killed the woman he so convincingly loved.
- d. This diamond seems to be of high quality, at least to the naked eye.

1.2 Acquisition studies

Previous experimental results on children’s performance on StSR *seem* with a covert (or fronted) experiencer are inconsistent. Hirsch et al. (2007), Hirsch (2011), and Orfitelli (2012) found that four- and five-year-olds do poorly with StSR *seem* without an overt experiencer, and that they often ignore the verb and interpret the sentences as copular constructions. Becker (2006), on the other hand, found that children at that same age were able to understand *seem* sentences when the experiencer was implicit, but failed at raising past an overt experiencer. Similarly, Choe (2012) found that children had difficulty comprehending StSR sentences with an intervening experiencer, but the difficulty disappeared when the experiencer was fronted (see Mateu, 2016, for potential methodological differences that could account for this discrepancy of results).

In our study, we tested the intervention hypothesis in two ways: (1) by giving the same group of English-speaking children both explicit and implicit experiencer conditions, and (2) by investigating the development of raising in Spanish, where the (semi-)modal verb *parecer* ‘seem’ does not select for an experiencer.

1. This is in contrast to processing-based accounts, for example Choe’s (2012) Processing-based Intervention Effects hypothesis, which predicts intervention effects only with overt intervening arguments.

1.3 Spanish *parecer*

The Spanish verb *parecer* represents an interesting test case of the intervention hypothesis because of its dual status as both a lexical and functional verb (see Ausín & Depiante, 2000; Ausín, 2001; Fernández Leborans, 1999; Torrego, 1996, 1998, 2002): F-*parecer* (also known as ‘bare’ *parecer*) is a functional verb (of epistemic modality) with no argument structure (i.e., it does not select an experiencer).² This verb occupies a relatively high position on the functional hierarchy (see Cinque, 2004). By contrast, L-*parecer* (also known as ‘opinion’ *parecer*) is a lexical verb with a meaning closer to ‘think/consider’, which does select an experiencer and in this respect is like English *seem*.

Several sorts of evidence exist for the dual status of *parecer*:³

- a. Both verbs allow for CP complements (4); however, F-*parecer* can select non-finite verbal complements (5a) while L-*parecer* only selects (individual-level) AP (or DP) small clauses (5b):
- (4) a. *Parece que Juan tiene hambre.*
 seems that John has hunger
 ‘It seems that John is hungry.’
- b. *Me parece que Juan tiene hambre.*
 DAT.1SG seems that John has hunger
 ‘I think that John is hungry.’
- (5) a. *Este chico parece {(ser) listo / comer mucho}.*
 this boy seems be smart eat much
 ‘This boy seems {(to be) smart / to eat a lot}.’
- b. *Este chico me parece {(*ser) listo / *comer mucho}*
 this boy DAT.1SG seems be smart eat much
 ‘I think this boy is smart / eats a lot?’
- b. Both F-*parecer* and L-*parecer* can appear in the present and imperfect, but F-*parecer* cannot occur in the preterit, perfect, or progressive (6):
- (6) a. *Juan {parece/ parecía/ *pareció / *ha parecido /*está pareciendo} (ser) listo.*
 John seem-PRS.3SG seem-IMPF.3ZSG seem-PRET.3SG has seemed is
 seeming be smart
 ‘John seems/used to seem/*seemed/*has seemed/*is seeming (to be) smart.’

2. See Cinque (2004) and Haegeman (2006) for a similar analysis of Italian *sembrare* ‘seem’.

3. For reasons of space we provide only a few of these arguments. For a more in-depth discussion see Mateu (2016).

- b. *Juan me {parece / parecía / pareció / ha John DAT.1SG seem-PRS.3SG seem-IMPF.3SG seem-PRET.3SG has parecido / está pareciendo} listo.*
 seemed is seeming smart
 'I think/used to think/thought/have thought/am thinking that John is smart.'
- c. Consistent with a modal analysis of F-*parecer*, it allows clitic-climbing (7) (Torrego, 2002), and "modal stacking" (8a), as is possible with other modals (8b), reinforcing the idea that F-*parecer* occupies a relatively high position in Cinque's (2004) hierarchy.⁴
- (7) a. *Juan parece haberlo resuelto.*
 John seems have-ACC.3SG solved
 'John seems to have solved it.'
 b. *Juan lo parece haber resuelto.*
 John ACC.3SG seems have solved
 'John seems to have solved it.'
- (8) a. *El candidato parece poder hablar zapoteco.*
 the candidate seems may speak Zapotec
 'The candidate seems to be able to speak Zapotec.'
 b. *El candidato debe poder hablar zapoteco.*
 the candidate must may speak Zapotec
 'The candidate must be able to speak Zapotec.'

In sum, evidence from complement selection, tense/aspect/mood selection, among other diagnostics, shows that F-*parecer* is a modal-like verb, which does not select an experiencer (clitic or clitic + full DP) – a property of modals in general, while L-*parecer* is closer to a lexical verb that selects an experiencer argument. Crucially, the appearance of the dative clitic experiencer forces this second 'think' reading, and the absence thereof forces the F-*parecer* analysis. This distinguishing property of the two *parecer* verbs will be central to our learnability analysis (Section 3.2).

1.4 Goals of this paper

Our experimental goal was to use the notion of intervention to determine whether the experiencer of *seem* is always syntactically represented, even when not pronounced. In order to address this question we compared English-speaking children's performance on StSR *seem* with a covert and overt experiencer and

4. These tests do not apply to L-*parecer*, since L-*parecer* does not allow for non-finite verbal complements, regardless of clitic climbing or verb modality.

Spanish-speaking children's performance on F-*parecer* (no experiencer) and L-*parecer* (overt experiencer).⁵ If the hypothesis we are entertaining is correct, we should find English-speaking children perform poorly with StSR *seem* both when the experiencer is overt and when it is covert. However, Spanish-speaking children should only perform poorly with StSR L-*parecer*, but not F-*parecer*, because in the latter case there is no (overt or covert) intervening argument to bypass. In Section 2 we present our experimental study.

To anticipate our results, that is exactly what we find – English-speaking children perform poorly with StSR *seem* without an overt experiencer, while Spanish-speaking children do well on the superficially similar StSR F-*parecer* (no experiencer). Our results then raise the question of how children learn implicit argument structure, especially in light of cross-linguistic and lexical differences. The learnability issue is addressed in Section 3.

2. Experimental study: English *seem* and Spanish *parecer*

2.1 Subjects

A total of 30 monolingual English-speaking children (4;2–6;7) and 36 monolingual Spanish-speaking children (4;5–6;11) participated in this study. Children were equally divided into three age categories: four-, five-, and six-year olds. The English study was conducted primarily in a childcare center in Los Angeles and in an elementary school in Ventura County, and the Spanish experiments were conducted in a preschool and a primary education center in Granada, Spain. Ten native English-speaking adults and 12 native Spanish-speaking adults were tested.

2.2 Material and procedure

We used a Truth-Value Judgment task (TVJT; Crain & McKee, 1985), in which the child observes a story, then a puppet comments on it, and the child indicates whether the puppet commented truthfully or not. Two training trials preceded each test session to ensure the child understood the task and would correct the puppet when the comment was inappropriate. An example story (9) and accompanying set of pictures (Figure 1) are given below.⁶

5. See Mateu (2016) for an extended version of the experimental part of this study.

6. The stories were similar to those employed in Hirsch et al. (2007), Becker (2006), and Orfitelli (2012).



Figure 1. Experiment sample pictures.

- (9) EXP: This is a story about a dog and a parrot. The dog is talking to his parrot friend when he sees a grey light and he mentions that when he stands under it people think he's grey. He decides to walk under it and just then, his cat friend comes by and tells the dog "Oh! I thought you were white! Maybe I was wrong, maybe you're grey!" What happens in this story?
- PUPPET: I know what happens in this story! The dog definitely seems to be grey/white!

Six unique test scenarios involving false appearances were used to keep children engaged in the task. There were five different conditions in English (copula, unraised, raised with covert experiencer, raised with overt short DP experiencer, and raised with overt long DP experiencer; 30 test items total) and 6 in Spanish (copula, unraised, raised with no experiencer + vP, raised with no experiencer + AP, raised with overt short DP experiencer [+ AP], and raised with overt long DP experiencer [+ AP]; 36 test items total). However, for reasons of space we will only discuss the ones included in Table 1. For a complete description, see Mateu (2016).⁷

Crucially, the inclusion in the Spanish study of StSR F-*parecer* allowed us to determine if children could perform well with raising when there is no (overt or covert) experiencer. This is in contrast to English, where the experiencer may be syntactically present but not overtly expressed. Finally, we included a second 'F-*parecer* followed by an AP' condition, because L-*parecer* only allows for small clause APs. This would ensure that any behavioral difference between children's performance on the F-*parecer* and L-*parecer* conditions was exclusively due to the presence of the intervening experiencer and not related to the difference of the complement (i.e. presence/absence of verb *be*).

⁷. The copula condition and the unraised condition ensured that children understood the story as well as the semantic properties of the verb *seem/parecer*. Children scoring less than 5/6 items correct on either the copula or unraised conditions were excluded from the study.

Table 1. Subject-to-subject raising test items for the English and Spanish experiments, with glosses for the Spanish sentences.

Condition	True test items	False test items
<i>English</i>		
Copula	The dog is definitely white.	The dog is definitely grey.
Unraised	It seems that the dog is grey.	It seems that the dog is white.
Raised <i>seem</i> , covert exp.*	The dog definitely seems to be grey.	The dog definitely seems to be white.
Raised <i>seem</i> , overt exp.	The dog seems <i>to the cat</i> to be grey.	The dog seems to the cat to be white.
<i>Spanish</i>		
Copula	<i>El perro es definitivamente blanco.</i> The dog is definitely white	<i>El perro es definitivamente gris.</i> The dog is definitely grey
Unraised	<i>Parece que el perro es gris</i> seem-PRS.3SG that the dog is grey	<i>Parece que el perro es blanco</i> seem-PRS.3SG that the dog is white
Raised F- <i>parecer</i> (no exp., + vP)	<i>El perro definitivamente parece ser gris.</i> The dog definitely seem- PRS.3SG be-INF grey	<i>El perro definitivamente parece ser blanco.</i> The dog definitely seem- PRS.3SG be-INF white
Raised F- <i>parecer</i> (no exp., + AP)	<i>El perro definitivamente parece gris.</i> The dog definitely seem- PRS.3SG grey	<i>El perro definitivamente parece blanco.</i> The dog definitely seem- PRS.3SG grey
Raised L- <i>parecer</i> (exp., + AP)	<i>El perro le parece al gato gris.</i> The dog DAT.3SG seem- PRS.3SG to-the cat grey	<i>El perro le parece al gato blanco.</i> The dog DAT.3SG seem- PRS.3SG to-the cat white

* Following Hirsch et al. (2007), we included *definitely/definitivamente* in the copula to disambiguate between a stage- versus individual-level predicate reading of the copula, i.e. in order to rule out the interpretation in which adults would accept that the dog *is* grey *when* he stands under the light. We added the modifier on the 'raised with a covert experiencer' condition to match the copula condition.

2.3 Results

The English-speaking subjects' performance on the four different conditions is shown in Figure 1. As expected, across all age groups children did well with the 'unraised *seem*' trials ($M = 5.63/6$), but performed poorly in the 'raised *seem* with an overt experiencer' condition ($M = 3.37/6$). Importantly, children also performed rather poorly in the 'raised with a *covert* experiencer' condition ($M = 3.17/6$). In fact, they performed no better in this condition than in the overt

experiencer condition (Wilcoxon signed-rank, $Z = -.8$, $p = .42$).⁸ This result shows that children do in fact have difficulties with movement over arguments even when they are not overtly expressed. This replicates the findings in Hirsch et al. (2007), Hirsch (2011), and Orfitelli (2012).

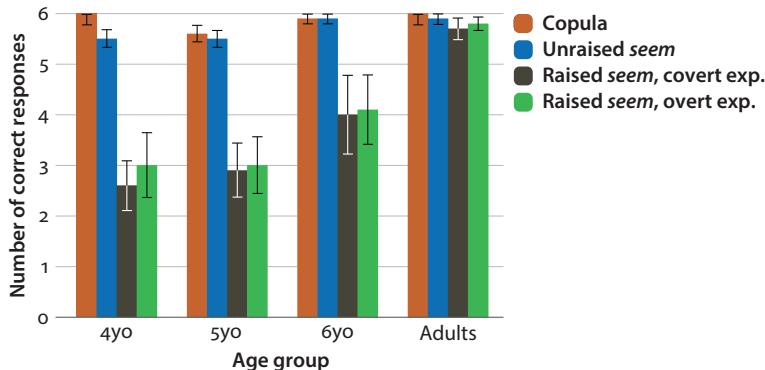


Figure 2. English Subject-to-Subject Raising study results by age group and condition.

In stark contrast to the English-speaking children, Spanish-speaking children did as well in the ‘raised F-*parecer*’ condition ($M = 5.5/6$) as in the unraised one ($M = 5.58/6$) (Wilcoxon signed-rank, $Z = -.456$, $p = .648$). On the other hand, as predicted by the intervention hypothesis, children did worse with ‘raised L-*parecer*’ ($M = 4.5$) (experiencer) as compared to F-*parecer* (no experiencer, AP) ($M = 5.31/6$) (Wilcoxon signed-rank, $Z = -2.726$, $p = .006$). The Spanish-speaking subjects’ performance on the five different conditions is shown in Figure 3.

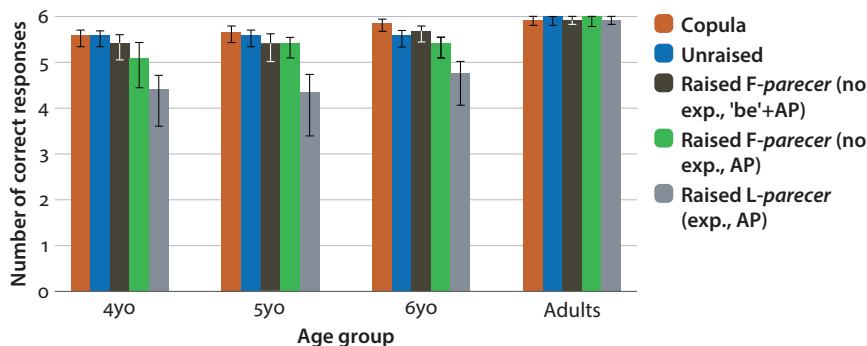


Figure 3. Spanish Subject-to-Subject Raising study results by age group and condition.

8. When children did not provide the correct answer, their response justifications suggest they were analyzing *seem* as a copula (as in Hirsch, 2011; Orfitelli, 2012), and ignoring the experiencer whenever it was present.

Summarizing, in marked contrast to English-speaking children, who perform poorly with raised *seem* in sentences like ‘The dog seems to be grey’ up till the age of six, Spanish-speaking children succeed on superficially analogous sentences with F-*parecer*, e.g. ‘El perro parece ser gris’ by age four. This asymmetry strongly suggests that the covert experiencer argument of *seem* is always syntactically represented in English, inducing intervention effects, as suggested by some grammar-based intervention accounts (Orfitelli, 2012; Snyder & Hyams, 2015). Moreover, these results lend support to the claims in the theoretical literature, outlined earlier, that F-*parecer* and L-*parecer* have different argument structures (Ausín & Depianto, 2000; Ausín, 2001; Fernández Leborans, 1999; Torrego, 1996, 1998, 2002).

3. The learnability problems

The results of our experimental study raise some important questions regarding learnability. Young English-speaking children recognize the presence of an implicit argument in *seem* sentences, and show intervention effects parallel to those seen with an overt experiencer. On the other hand, Spanish-speaking children know that in Spanish ‘what you see is what you get’: no implicit argument is projected with F-*parecer*, and children do well in this condition, in contrast to L-*parecer* which takes an overt experiencer. Thus, our first question is: How do children know to project an implicit argument in English but not Spanish? Second, how do Spanish-speaking children know that there are two (homophonous) *parecer* verbs, one that selects an experiencer and one that does not? Finally, a related question: do they know that F-*parecer* is a functional (modal-like) verb?

In what follows we suggest a route by which children can acquire this knowledge through general principles and input.

3.1 How do children know when to project an implicit experiencer?

We propose the learning principle defined in (12):

- (12) Project Implicit Argument (PIA): An experiencer argument is syntactically projected even when not overtly expressed.

This principle is consistent with the Uniformity of Theta-Assignment Hypothesis (UTAH; Baker, 1997) (see also Baker et al., 1989; Collins, 2005b; Gehrke & Grillo, 2008 for similar assumptions regarding the external argument of passives) and will account for the finding in our study (and others) that English-speaking children have difficulty with raising, both when the experiencer is overtly expressed and when it is not. However, given the cross-linguistic difference with respect to

whether or not a raising verb selects an experiencer argument the child cannot simply project this argument based on its lexical meaning, i.e. “seem” requires someone to experience the seeming. Hence, there must be evidence in the input – in the form of overt experiencers – to inform them of the argument structure: English-speaking children must therefore hear *seem* used with an overt experiencer and similarly, Spanish-speaking children should hear *L-parecer* (but not *F-parecer*) with an overt (clitic [+ DP]) experiencer.

We conducted a CHILDES (MacWhinney, 2000) corpus study to verify that such sentences are in the input to children and that children produce them. We extracted all utterances containing the verb *seem* and (*F-/L-*) *parecer* in all the English and Spanish corpora (as of July 2016).⁹ We did this for both adults and children (younger than 7 years old). Each utterance was then manually coded for: i) whether the subject was unraised or raised, and ii) the presence and the position of the experiencer. We excluded from the analysis only those sentences in which it was not possible to determine whether the construction was raised or unraised, such as interrupted or incomplete utterances. As shown by the results in the Tables 2 (English) and 3 (Spanish), children are exposed to instances of *seem* and *L-parecer* with an overt experiencer.¹⁰

9. We analyzed all 76 American and British English corpora (10,131 files) and all 17 American and European Spanish corpora (1,414 files). To our knowledge, no cross-dialectal differences have been reported for the constructions we analyze in this paper.

10. One striking difference between the two groups concerns the frequency with which children hear overt experiencers. Specifically, English-speaking adults produce *seem* with an overt experiencer approximately once in every 100,000 utterances, while Spanish-speaking adults use *L-parecer* (with a dative clitic or dative clitic + DP experiencer) approximately once in every 1,000 utterances. This difference may explain the results (see Figures 1 and 2) showing that Spanish-speaking children do better with *L-parecer* than English-speaking children do with *seem*.

A reviewer rightly asks: what is the role of frequency under an analysis in which children ability to circumvent intervention (e.g. by acquiring smuggling) is maturational? To the extent that there are languages such as Icelandic, Greek, and Romance that do not permit raising across a non-clitic experiencer (see Collins & Thráinsson, 1996; Torrego, 1996; Anagnostopoulou, 1997) children must receive enough input to tell them they are in a language where this is possible and under what circumstances. Additionally, as shown in Mateu (2016), performance on raising past an experiencer is also affected by verbal working memory capacity. Higher frequency could account for greater ease of computation. The precise nature of the interaction between maturational, processing, and input factors is question for future research.

Table 2. Instances of *seem* produced by adults and children (CHILDES)

Sentence type	Adults	Children
<i>seem</i> , covert exp.	95.8% (1213)	94.1% (64)
Unraised <i>seem</i>	7.5% (91)	23.4% (15)
Raised <i>seem</i>	92.5% (1122)	76.6% (49)
<i>seem</i> , overt exp.	4.2% (53)	5.9% (4)
Unraised <i>seem</i>	41.5% (22)	50% (2)
Raised <i>seem</i>	58.5% (31)	50% (2)

Table 3. Instances of *parecer* produced by adults and children (CHILDES)

Sentence type	Adults	Children
F- <i>parecer</i> , no exp.	40.1% (460)	65.9% (143)
Unraised F- <i>parecer</i>	18.9% (87)	22.4% (32)
Raised F- <i>parecer</i>	81.1% (373)	77.6% (111)
L- <i>parecer</i> , exp.	59.9% (686)	34.1% (74)
Unraised L- <i>parecer</i>	63.7% (437)	75.7% (56)
Raised L- <i>parecer</i>	36.3% (249)	24.3% (18)

Adult examples are provided in (13)–(14), and child examples in (15)–(16).

- (13) a. This seems to me to be a very funny barn.
(Manchester, aran26a.cha, line 741)
 - b. It seems to me to be rather continental.
(Manchester, aran34b.cha, line 823)

- (14) a. *Pero a ellos les parece feo.*
but to them DAT.3PL seem ugly
'But they think it's ugly.'
(Koine, elf3_05.cha, line 433)
 - b. *Ese pueblo no te parece bonito?*
that town not DAT.2SG seem beautiful
'Don't you think that town is beautiful?'
(FernAguado, manoct98n.cha, line 349)

- (15) a. It seemed to me there was something.(4;0)
(Gleason, wanda.cha, line 1722)
 - b. That doesn't seem Chinese to me. (5;2) (Gathercole, 06.cha, line 1587)

- (16) a. *A mí me parece un toro.* (3;5)
to me DAT.1SG seem a bull
'I think that's a bull.'
(Koine, vit4_06.cha, line 448)

- b. *A mí me parece que este papá se va a montar.*(4;0)
 to me DAT.1SG seem that this dad SE go to ride
 'I think this dad is going to ride it.'

(FernAguado, manoct98n.cha, line 349)

Importantly, and assuming PIA, both English- and Spanish-speaking children will project an experiencer argument based on positive evidence from their input and they will infer that when it is not overtly produced, it is nevertheless syntactically projected (e.g. as a bare free variable or as *pro*, see Landau, 2010).

There is, however, an important difference between English *seem* and Spanish L-*parecer*. Spanish psych verbs (including *parecer*) require a dative clitic to license a DP dative experiencer, whether the experiencer DP is overt or covert, so called 'clitic doubling', as illustrated in (17):

- (17) *El chico (*le) parece { a su madre / pro} listo.*
 the boy DAT.3SG seems to his mother smart
 'The boy's mother thinks he is smart.'

It is the overt DP or ec (*pro*) that receives the experiencer theta-role and not the clitic, which is not an argument but a functional head of some sort – head of CIP (e.g. Sportiche, 1996). We must assume, therefore, that what blocks raising for Spanish-speaking children in L-*parecer* structures is not the dative clitic itself but rather the DP experiencer argument (or its covert counterpart *pro*),¹¹ just as in English. Hence, the difference between English- and Spanish-speaking children (wherein the former fail with both an overt and implicit experiencer and the latter only with an overt experiencer) is more apparent than real.

The observation that clitic doubling is required with Spanish psych verbs provides an avenue for addressing a second learnability question:

3.2 How does the Spanish-speaking child know that there is a “second” *parecer*?

As observed above, in Spanish the experiencer argument must be licensed by a dative clitic and the absence of such a clitic means that the verb does not take a dative experiencer argument. Thus, the Spanish-speaking child presented with positive evidence of *parecer* sentences without a dative clitic leads him to infer there must be two different verbs *parecer*, with two different argument structures.

Finally, we ask:

11. Note that children’s performance on L-*parecer* with a clitic experiencer and no overt DP remains to be tested. However, our prediction is that children will perform poorly in this case as well.

3.3 How does the Spanish-speaking child learn that the second *parecer*, F-*parecer*, is a functional (modal-like) verb?

We assume that the two *parecer* verbs represent a “lexical split” in the sense of Roberts and Roussou (2003), i.e. *parecer* is inserted either in V (*L-parecer*) or a relatively high position in the functional hierarchy (*F-parecer*) (e.g. Cinque, 2004). In order to determine that the “second” *parecer* is a (high) functional verb, the learner could in principle appeal to positive evidence in the input. As discussed above (Section 1.3.), *F-parecer*, like other Spanish modals, allows for clitic climbing and modal stacking. However, we did not find a single example of either construction in our CHILDES searches of the adults’ child-directed language.¹² We will therefore appeal to economy principles as the force driving the child to assume a functional analysis of *F-parecer*: In cases of lexical/functional ambiguity, the learner assumes the simplest representation (see Roberts & Roussou, 2003; Clark & Roberts, 1993). An analysis of *F-parecer* as a modal-like verb allows direct merger into (some) FP, as opposed to merging into VP (as for *L-parecer*) and then moving to the higher FP, a less economical derivation. This is consistent with other evidence that children prefer Merge over Move (or copy and displacement) operations (see Jakubowicz, 2004, 2011; Zuckerman et al., 2001).

4. Summary and conclusions

Our experimental results provide cross-linguistic support for the hypothesis that children do not have difficulties with raising *per se*, as suggested by their adult-like performance in the raising F-*parecer* condition (no experiencer). Rather, the difficulty lies in raising *across an intervening argument* (see Orfitelli, 2012; Snyder & Hyams, 2015). Crucially, intervention effects will arise both with overt (e.g. Spanish *L-parecer* and English *seem*) and covert intervening experiencers (e.g. English *seem* and *L-parecer* with *pro* experiencer, the latter still to be tested).

Regarding the important question of learnability, we hypothesized that implicit arguments are projected on the basis of positive evidence provided in the input, i.e. overt experiencer arguments accompanying *seem* and *L-parecer*, paired with a UG principle ‘Project Implicit Argument’ (PIA). This parsimonious principle ensures a verb always selects the same arguments, at least in passives and raising

12. Thanks to a reviewer for pointing out an interesting prediction of ‘knowledge in the absence of experience’: we expect children who allow raising with F-*parecer* should allow – and even produce – clitic climbing with this verb, even if they have no direct evidence of this in the input, especially in light of findings that younger Spanish-speaking children prefer to use clitic-climbing where possible (Rodriquez et al., 2005).

(see relativized UTAH, Baker, 1997). We leave for future research the question of whether a principle of this sort can be extended to implicit arguments in general. Finally, economy considerations push Spanish-speaking children to a dual verb analysis of *parecer*.

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