Embedded Inverted Interrogatives: Investigating the Acquisition of Non-Canonical Embedded Questions*

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1. Introduction

The last thirty or so years have seen important advances made in the understanding of how children, particularly English-acquiring children, form and understand questions, with no small contribution coming out of UMass Amherst, led by Tom Roeper, and Smith, led by Jill and Peter de Villiers. The domain of embedded questions in acquisition has underscored and provided evidence for key theoretical analyses of successive cyclic movement in the formation of wh-questions, as well as shedding light on the linguistic and cognitive advances made by children in their earliest years. In this paper I examine a form of non-canonical embedded question known as embedded inverted questions (EIQs), in which embedded interrogatives feature subject-auxiliary inversion, amongst other properties, as outlined in section 2. In section 3, I give an overview of established knowledge about children's comprehension of embedded questions to highlight areas where recent descriptive and theoretical innovation could shed more light. Focusing on mainstream American English, a dialect in which EIQs are known to be produced but are generally judged ungrammatical by adult speakers, I present in section 4 a small-scale study which shows that children acquiring this dialect interpret and respond to EIQs in the same way that they respond to typical embedded questions: they do not use the inversion inherent in EIQs to interpret embedded questions as islands. Work by de Villiers, de Villiers and Roeper (2011) suggests, however, that there are contexts in which EIQs may

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accelerate adult-like interpretation of embedded questions by children, and the links between their work and this study are discussed in section 5.

2. EIQs: a brief background

Embedded inverted questions are most well recognised as a feature of Irish and Hiberno Englishes, thanks to work by Henry (1995) and McCloskey (2006). The prototypical EIQ may be a polar question or a wh-question that is characterised by embedded inversion under a rogative (*sensu* Lahiri 2002) matrix verb:

(1) a. I asked Jack was she in his class.
b. I wondered what is he like at all. Irish English, McCloskey (2006: 87)

(2) a. *I found out was she in his class.
b. *I usually know what is he like.

EIQs are neither independent clauses nor parenthetical clauses for the following reasons: they do not feature indexical shift, they show sequence of tense effects, they are resistant to exclusively root phenomena[1] such as discourse particles like *huh* and *eh*, and matrix quantifiers can bind into EIQs (see Woods 2016, ch.3). EIQs have been typically described as features of specific dialects of English (including but not limited to the aforementioned Englishes on Eire, African American English in Green 2002, Tyneside English in Stringer 2015, Indian English in Bhatt 2000). However, Woods (2016:274-275) provides data suggesting that EIQs are actually used by a far broader proportion of the English-speaking world, including southern British Englishes and mainstream American English. Moreover, that acceptability judgments vary according to the matrix verb, and prescriptive norms may affect whether speakers of certain (more 'standard') dialects admit to accepting EIQs. This point is important in motivating the acquisition work that follows in this squib.

In addition to the syntactic characteristics outlined above, Woods (2016) makes the following observations about EIQs, confirming their status as neither canonically embedded nor syntactically independent questions. Firstly, EIQs fall somewhere between typical embedded questions and introduced direct quotation with respect to their status as islands for extraction; EIQs are judged less grammatical when wh-items are extracted out of them. In a small-scale grammaticality judgement study with 8 participants, the acceptability of extraction out of EIQs (using a 7-point Likert scale) was ranked as less acceptable than extraction out of typical embedded questions but more acceptable than extraction out of introduced direct quotation. An example of the test items is given in (3); there were six such groups of items totalling 18 stimuli overall. The results are shown in (4):

[1] As Hooper & Thompson's (1973) work shows, certain "root" phenomena can in fact be embedded in a number of special contexts. Here I mention only those root phenomena that resist embedding even in these more permissive contexts.

(3) Scenario: Mary and David were watching their children play. Their friend Jamie walked past. David said hello but Mary was too engrossed in watching the kids. When David said that Jamie had walked by, Mary said, "Oh no, did I ignore Jamie?"

a. Who did Mary ask if she ignored?	Typical embedded question
b. Who did Mary ask did she ignore?	EIQ
c. Who did Mary ask, "Did I ignore?"	Introduced direct quotation

(4) *Grammaticality judgements on extractability of arguments from different types of speech report (7-point Likert scale; from Woods 2016:274)*

Typical embedded question	EIQ	Introduced direct quotation
5.43	4.33	2.5

There was little inter- or intra-speaker variation in the judgements, despite the representation of both prototypical EIQ dialects (e.g. Belfast English) and non-prototypical EIQ dialects (e.g., Yorkshire English).

Secondly, the contexts in which EIQs are felicitous, and the pragmatic (conventional) implicatures[2] they carry, also differ from both typical embedded questions and introduced direct quotations. Typical embedded questions can represent both speech and thought acts, the latter including wordless situations and cases in which a proposition is pondered without being discussed. Introduced direct quotations typically represent speech acts and imply a faithful re-presentation of that act,[3] though they may also be used to represent thought acts on the basis of self-knowledge or interpretation of another's actions. Woods (2016) argues that while EIQs seem to represent both speech and thought acts, there must be some question under discussion (QUD, see Roberts 1996, 2012) that has been overtly addressed in the relevant prior discourse. Assuming that QUDs can be introduced non-verbally, which is probably true, EIQs may represent questions originally expressed in non-verbal acts but discussed thereafter verbally. The contrast between the three types of questions is illustrated below:

(5) Everyone wanted to know: "Is Joe coming to the party?"
→ Implies that the question about Joe's attendance was actually asked

(6) Everyone wanted to know whether Joe could come to the party
→ No requirement that anyone actually discussed Joe's attendance

[2] For more evidence that these implicatures are real conventional implicatures, see Woods (accepted).
[3] Of course, this does not mean that the direct quotation *is* in fact faithful to the original speech act, but that is the typical interpretation of the use of direct quotation.

(7) Everyone wanted to know could Joe come to the party
→ Implies that Joe's attendance was discussed in some form
Woods (2016:87)

Finally, Woods argues that the interpretation of perspectival elements in EIQs is more like the interpretation of such elements in direct quotation than in typical embedded questions. Although indexical shift is not present in EIQs (8), elements such as speaker-oriented adverbs and epithets undergo a process similar to interrogative flip (see Garrett 2001), whereby they are interpreted not with respect to the current speaker or context but are attributed to the original speaker or context. This is shown in (9), where subscript "report" marks that the epithet is interpreted according to the reporting/current context and interlocutors, whereas subscript "original" marks that the speech act adverb is interpreted according to the original context and interlocutors.

(8) They$_i$ said what did we$_{j+k}$ want to be [and] I$_j$ said a library lady.
(British English, BNC[4], GUM 333)

(9) The oddball$_{report}$ said seriously$_{original}$ could we help him with the dinner.

In sum, EIQs share characteristics with both typical embedded and introduced directly quoted questions, in addition to displaying behaviours that are uniquely theirs. This raises the following questions: how do children comprehend EIQs? How do children use EIQs? To what degree is variation in EIQs' use and comprehension attributable to input? This squib will focus on the first of these questions and provide directions for future research.

3. Embedded questions in acquisition

Existing work on embedded questions in acquisition has revealed a developmental path in which children initially do not interpret them in an adult-like way (de Villiers, Roeper and Vainikka 1990, Thornton 1990, McDaniel, Chiu and Maxfield 1995, *i.a.*). One notable difference is that young children interpret sentence-initial wh-words as originating from the embedded clause, even when the embedded clause resists wh-extraction. Weverink (1991) and Hollebrandse (2007) show that inversion in the embedded clause, i.e. in introduced direct quotation, is not used as a cue by standard American English-acquiring children aged 3-4 for either the island status of such embedded clauses (their resistance to wh-extraction) or for a shift in perspective (to the original speaker). In examples like (10), these children respond with an answer concerning the manner of bike riding rather than the manner of asking:

(10) How did Deanne ask, "Can I ride a bike?"

[4] Data cited herein have been extracted from the British National Corpus, distributed by the University of Oxford on behalf of the BNC Consortium. All rights in the texts cited are reserved.

Hollebrandse (2007) goes on to show that children aged 5-6 continue to extract out of direct quotes even though they interpret "I" as coreferential with "Deanne" in (10); that is to say, they recognise a shift in perspective and indexicality yet still fail to treat direct quotes as islands for extraction. This is shown in (11).

(11) How$_i$ did Deanne$_j$ ask [CP can I$_j$ ride a bike e$_i$?] Hollebrandse (2007:1903)

Hollebrandse (2007:1906) concludes that "the tight relation between the system of perspective taking and the syntactic system of domains, which is strong in adult English, is not that strong in Child Language." This is a particularly interesting finding, given that we can assume that these children of 5 or 6 have adult-like Theory of Mind (de Villiers and de Villiers 2000, i.a.) and therefore their answers are not confounded by a lack of adult-like comprehension of embedded clauses more generally.

A related long-standing observation is that children may answer the medial (i.e. embedded) wh-word in examples like (12) (Thornton 1990, McDaniel et al. 1995, de Villiers and Pyers 2002, i.a.):

(12) Q: How did she ask what he saw?
A: By whispering. (matrix-wh answer)
A': A dog. (medial-wh answer)

However, de Villiers, de Villiers and Roeper (2011) found that data from the Dialect Sensitive Language Test (DSLT) seemed to predict variation in children's performance on examples like (12) modulated by their dialect and, particularly, their own production. The children were required to report on six speech acts, of which two were requests, and answer several wh-questions, of which four contained medial-wh items (de Villiers, de Villiers, and Roeper 2011:361-362). African American English-acquiring children gave significantly fewer medial-wh answers (such as 12A') than mainstream American English-acquiring children and these types of answers persisted longer in the latter group (de Villiers, de Villiers, and Roeper 2011:364). De Villiers and colleagues attribute this to the presence of EIQs in African American English, a view supported by the observation that within the African American English group, children who consistently produced EIQs gave significantly fewer medial-wh answers than those who did not (de Villiers, de Villiers, and Roeper 2011:364). Note further that African American English and mainstream American English children did not differ on points of grammar unrelated to embedded questions, such as comprehension and production of matrix negative imperatives. This leads towards a refinement of and caveat to Hollebrandse's work. Where Hollebrandse found that English-acquiring children take years to recognise inversion as indicative of islands for extraction, de Villiers et al. claim that exposure to and use of inversion in truly embedded contexts in certain English dialects may increase sensitivity to wh-extraction domains in children acquiring such dialects.

4. The current study: methods and data

Given the sociolinguistic, theoretical and empirical work above, the study presented here is predicated on the following question: how do children interpret EIQs in comparison with other question types? Note that the children in de Villiers et al.'s study only produced two examples of reported requests and that, even amongst children acquiring "EIQ dialects", both typical embedded questions and direct quotations would have been perfectly felicitous responses in at least three of the contexts provided.[5] Furthermore (though not surprisingly), EIQs were not included in the comprehension portion of the DSLT.

This small-scale comprehension study therefore aims to examine how children interpret EIQs and whether they interpret them differently from typical embedded questions, focusing on children for whom EIQs are not a sociolinguistically salient[6] part of the dialect that they are acquiring. The study was conducted in Western Massachusetts (Amherst and Northampton) with 7 children ranging from 4;9 to 11;0 in age (6 females, 1 male). All children were identified by their parents as acquiring mainstream American English, a dialect in which EIQs can be found, especially in informal speech, yet are generally considered ungrammatical.

A question-answer methodology was employed in which the child was told a story, supported by a storyboard and toys, and asked questions during the telling of the story. The question sets comprised 16 experimental items and 5 fillers. The 16 experimental items are distributed according to the following variables: (in the embedded clause) Inversion, Polar/WH, Do/Modal and (in the matrix clause) WH-word in a 2x2x2x2 design. Although the key variable under consideration is Inversion, we wanted to ensure that Polar and WH questions were treated similarly due to possible medial-wh effects and check whether do-support also added to the complexity of the task. Examples of questions containing each type of variable, and the story leading up to those questions, are shown below:

(13) Story: Sam was very excited. He likes to visit the park on the weekends, but today was extra special – there would be lots of stands and people with things to sell there. He bounced out of bed and shouted really loud downstairs to Mom, "Mom! Can we go to the park on our new bikes today?" She said, "Yes of course! But quiet down now Sam, or you'll wake your baby sister!"

Question:	How did Sam ask if they could go to the park?	
Adult-like response:	By shouting.	
Embedded response:	On bikes.	(How/Polar/No inversion/Modal)

(14) Story: After lunch Sam played a ball game at a yellow tent. He played the game very well. To find out if he had won a prize, he had to go over to a red wooden hut. At the red hut, Sam asked, "What did I win at the yellow tent's ball game?"

[5] Three of the medial-wh items were embedded under *ask;* the fourth was embedded under *learn*. No item effects are discussed.

[6] We are, of course, still unclear as to what aspects of their input are *a priori* more or less salient to the child, even before frequency and statistical considerations such as the Tolerance Principle (Yang 2002 et seq.) come into play.

Question:	Where did Sam ask what did he win?	
Adult-like response:	At the red hut.	
Embedded response:	At the yellow tent.	(Where/WH/Inversion/Do)

There were two story lists, pseudorandomised according to the Inversion variable. Inverted items on list A were non-inverted on list B and vice versa. The 5 fillers were embedded question structures containing only one wh-item, designed to test adult-like long-distance extraction.

The children's answers were coded as follows:

(15) *Possible answers to the question "How did Sam ask if they could go to the park?"*

Response	Code	Example
Short distance wh-construal	SD	By shouting down the stairs
Long distance wh-construal	LD	On their bikes
Embedded question	EQ	Yes
Indirect speech report	QI	He asked if they could go to the park on bikes.
Direct speech report	QD	Mom, can we go to the park on our bikes?
Other	OT	

Adult-like responses to the test items consist of SD answers, and QI/QD answers as long as the relevant adjunct (manner or place) is included. All other answers are non-adult like. In this sense, if children are adult-like, there will be no difference in interpretation between EIQs and typical embedded questions.

I propose the following hypotheses:

Hypothesis 1: Children aged below 6 will give LD answers to typical embedded questions. Despite the extra overt syntactic cue in EIQs that they are more "quote like", we do not predict an earlier decline in LD answers to EIQs than to typical embedded questions, in line with Hollebrandse's (2007) findings.

Hypothesis 2: Responses to the embedded question, i.e. medial-wh responses or yes-no answers to polar questions, are predicted to be equally common in both conditions, in line with de Villiers et al.'s (2011) findings.

Hypothesis 3: We may find a training effect, given that these children are not speakers of a dialect in which EIQs are generally thought to be acceptable and therefore may not receive many EIQs in their input.[7]

If hypothesis 3 is supported, the training effect may manifest in one of two ways: (1) a differentiation over the course of the experiment between EIQs and typical embedded questions or (2) responses becoming more adult-like over the course of the experiment due to the influence of the EIQs. If we find (2), this may suggest a syntactic-bootstrapping

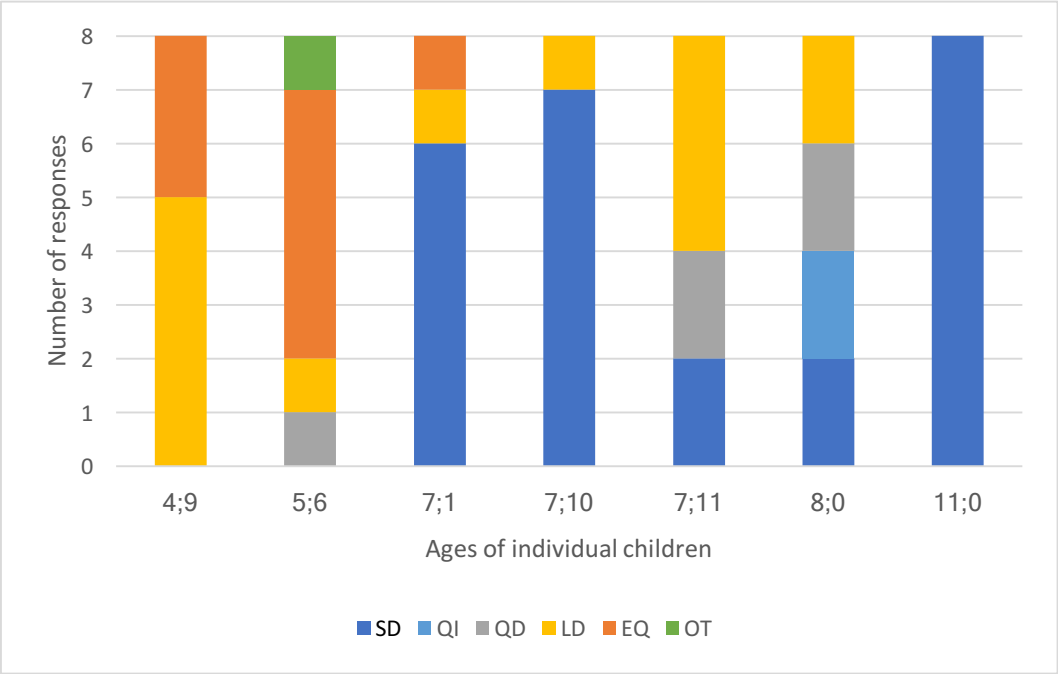
[7] Though, if Woods (2016) is right, they may well hear more EIQs than either they or their interlocutors are aware of.

effect; the use of EIQs with overt inversion in the same contexts as typical embedded questions without inversion may help bring the child to the realisation that embedded clauses are islands for extraction.

The results are presented below with a largely descriptive analysis, due to the small number of children taking part and the range of ages covered.

The children generally move from non-adult-like responses to adult-like responses to non-inverted typical embedded questions, as shown in (12), though we see some individual variation in the three children clustered between 7;10 and 8;0.

(16) *Responses to typical embedded questions (No Inversion)*



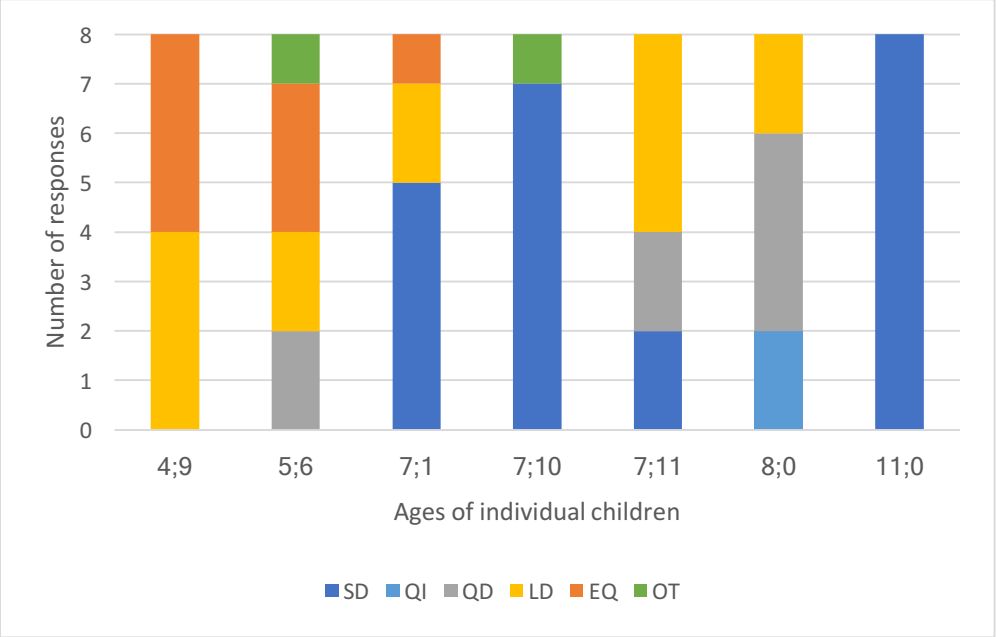
In (16), we see the same trajectory for responses to EIQs as for typical embedded questions; younger children give long-distance interpretations of matrix-wh words (LD) or respond to the embedded polar question (EQ). Hypothesis 1 appears to be supported by this data;[8] while our 5;6 child gives one more adult-like response (a direct quote, QD) than in non-inverted questions, our 7;1 child gives one more non-adult-like response (a long-distance reading). The latter is particularly unexpected if inversion in EIQs serves as a reliable cue for the islandhood of EIQs.

A greater propensity to respond to EIQs using a QD is also found in our 8-year-old. These responses are interesting, as EIQs are analysed by Woods (2016) as being closer to direct quotation, particularly with respect to the way in which they orient to the perspective and affective stance of the original speaker. Notably, all of the QD responses by each of

[8] In this case and all other discussions of the hypotheses, it must be remembered that the sample size and number of stimuli are small, so all observations are preliminary and require further testing.

the 3 children who produce them are to questions containing the matrix wh-word "how" and were, to some degree, 'performed' by the children as if they were the story character.

(17) *Responses to EIQs (Inversion)*



With respect to the other variables at issue, we see a replication of the finding that younger children (4;9 and 5;6) answer the medial-wh (Embedded question or EQ responses), with these errors disappearing over time, and we do not find similar embedded question responses to polar questions (only one instance), instead finding more long-distance responses in the child of 4;9 and "other" responses in the child of 5;6. The child of 7;1 produces 3 LD responses in embedded polar question contexts and 2 medial-wh responses in embedded wh-question contexts, suggesting that she too has not entirely learned to treat the embedded clause as an island for extraction. There are no consistent patterns to report with respect to the Auxiliary variable.

Turning to Hypothesis 2, we find that the only embedded response to a polar question is in a non-inverted context, but in wh-questions we find as many medial-wh responses to inverted as non-inverted embedded questions across the three children who produce these responses, so again, Hypothesis 2 is tentatively supported by this data.

Finally, looking at Hypothesis 3, we see some support for the idea of an effect across the time course of the experiment. Focusing on the children whose responses are the least consistently adult-like or non-adult-like[9]—the children aged 7;1, 7;11 and 8;0—Gant charts show that, at least in the case of children 7;1 and 8;0, they become more consistent in their answers over time and, crucially, these answers become more adult-like. Indirect and direct quotation (QI/QD) responses are collapsed as they are equally "adult-like".

[9] The charts for the remaining 4 children can be found in the appendix (§6).

Readers may notice that child 7;11 received a different list (A) from children 7;1 and 8;0 (list B), so a list effect cannot be ruled out.

(18) *Child 7;1 responses by items in order of presentation*
(blue = non-inverted stimuli, orange = inverted stimuli)

SD																
QI/QD																
LD																
EQ																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

(19) *Child 7;11, responses by items in order of presentation*

SD																
QI/QD																
LD																
EQ																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

(20) *Child 8;0, responses by items in order of presentation*

SD																
QI/QD																
LD																
EQ																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Taking all children into account, we can also examine how different answer types are dependent on inversion or non-inversion, as in (21).[10]

(21) *Answer types in (non-)inversion contexts by child*
(blue = non-inverted stimuli, orange = inverted stimuli)

	SD		QI/QD		LD		EQ		OT	
4;9					6	4	2	4		
5;6			1	2	1	1	5	3	1	2
7;1	6	5			1	2	1	1		
7;10	7	7			1					1
7;11	2	2	2	2	4	4				
8;0	2		4	6	2	2				
11;0	8	8								

[10] Thanks to Petra Schulz for this suggestion.

The table in (21) suggests that LD answers are marginally more likely in non-inverted contexts across the children, though child 8;0's only SD answers are also in non-inverted contexts. This appears, however, to be due to child 8;0's increased use of quotation responses in inverted contexts; that 4 of those 6 quotation responses are direct quotes could reflect that child 8;0 is more sensitive to the perspective shift that EIQs share with root inverted questions. To counter this, however, child 8;0's 4 quotation responses to non-inverted stimuli consist of 2 indirect and 2 direct quotes, so child 8;0 is as likely to use an indirect quote response to an inverted stimulus as to a non-inverted stimulus.

However, the tables in (18-21) overall suggest that the children do not clearly differentiate EIQs from typical embedded questions, and we cannot definitively say it is the presence of EIQs that allows them to bootstrap onto a more adult-like interpretation of embedded questions as islands. The children's trend towards more adult-like answers as the experiment progresses is not clearly explained and deserves further scrutiny.

5. Discussion and future directions

The results of the small-scale study presented here show that children acquiring mainstream American English behave in line with previous research on canonical embedded questions when faced with non-canonical embedded questions with inversion: they do not recognise inversion as a cue for syntactic islandhood, providing long-distance interpretations of matrix wh-words, and younger children faced with medial wh-words may answer these instead of the matrix wh-word. However, there is the possibility that slightly older children may use EIQs as evidence for syntactic islandhood and become more adult-like in their responses both to EIQs and to typical embedded questions. In order to test whether a syntactic bootstrapping effect of this kind is actually active, we would want to present the stimuli in blocks, whereby half the children receive a block of EIQ stimuli followed by a block of typical embedded questions while the other half receive the opposite. If we see adult-like responses in the second block of the first scenario, but not in the second block of the reversed set-up, this would indicate that embedded inversion without indexical shift may provide the necessary input to become more adult-like in interpreting embedded questions given sufficient exposure.

As it stands, the data that we have, along with existing data, suggests that wh-islandhood (or the conditions that bring it about) are not part of the child's grammar and that this restriction on movement takes a substantial amount of exposure over time to acquire. If we want to avoid suggesting that the child lacks access to principles in adult grammar such as Relativised Minimality (Rizzi 1990), which is desirable if we assume some form of continuity between child and adult grammars,[11] the findings in this squib could support an approach to islands such as that by Abrusán (2014). She proposes a semantic rather than syntactic basis for wh-islands, based on complex interactions between presuppositions, context, and modality. Recent and ongoing work is extending our understanding of how children compute presuppositions (e.g., Schulz 2003, Aravind 2018)

[11] See also Goodluck 2010.

and interpret modality (e.g., Cournane 2015) and shows that the developmental paths for these phenomena are complex. The concept of integrating acquisition evidence in the development of theory has been advanced for many decades by Tom Roeper and his collaborators and indeed, bringing recent acquisition work on presuppositions and modality to bear on wh-islandhood could be fruitful both for understanding children's interpretation of wh-islands but also understanding the ontology of such conditions on movement.

Moreover, the current work dovetails with the existing literature in suggesting that the interfaces between syntax, semantics and pragmatics are key to understanding the acquisition of embedded wh-questions due to the distribution of different types of responses (see example 21). As Roeper and de Villiers (2011) note, pragmatics and syntax do not operate entirely exclusively of each other, but syntactic expression of perspective and point of view are acquired later in languages like English that do not directly mark such features. This squib makes clear that studies of EIQs in acquisition have the potential to disentangle the contribution(s) of syntax, semantics and pragmatics in acquisition, so further future work should include conducting the experiment in this squib with children acquiring African American English or another variety[12] in which EIQs are, on a sociolinguistic level, saliently part of the dialect that they are acquiring. I will refer to these children as EIQ-acquiring children. If de Villiers et al.'s (2011) observations hold, we predict that (by analogy with the hypotheses above):

Hypothesis 1: EIQ-acquiring children will be sensitive to inversion as a cue for syntactic islandhood. They will not give LD answers to EIQs and will cease to give LD answers to typical embedded questions earlier than non EIQ-acquiring children, if they ever do.

Hypothesis 2: EIQ-acquiring children will not give medial-wh or embedded question responses to any type of embedded question (i.e. a replication of de Villiers et al. 2011).

Hypothesis 3: EIQ-acquiring children will not treat EIQs differently from typical embedded questions in this experiment (except the very youngest children; see Hypothesis 1).

In addition to testing the EIQ-acquiring group, we will want to test how Woods's (2016) description of the pragmatic differences between EIQs and typical embedded questions fare with children. To do this, a truth value judgment task in which the original discourse situation is manipulated would be designed. We would also want to examine how children interpret EIQs under different matrix verbs including *say*, which Woods finds is the most widely accepted EIQ-taking matrix verb across dialects, and *wonder*, which

[12] Of interest for a further reason would be children acquiring Belfast English, as inversion in the embedded clause can be triggered by successive cyclic wh-movement even in the context of embedded declarative clauses:

(i) I'm not sure which one I think should we buy. Henry (1995)

Careful pragmatic consideration of this construction has not been done, so I make no speculation as to its structure. However, cases like (i) could render inversion in the embedded clause ambiguous as it is no longer straightforwardly a marker of syntactic islandhood but instead overtly marks wh-movement out of the clause.

reports on thought rather than speech acts. Finally, a production task such as that developed by Pozzan (2011) is also necessary to examine de Villiers et al.'s (2011) claims about a link between use and comprehension.

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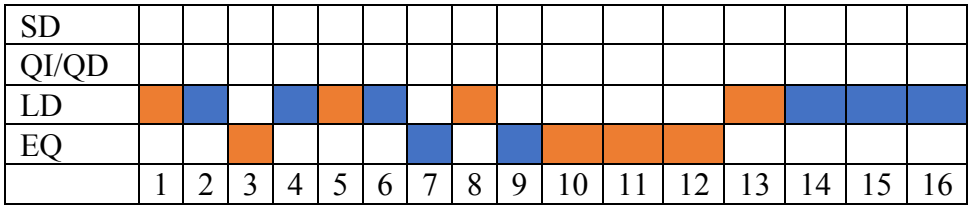
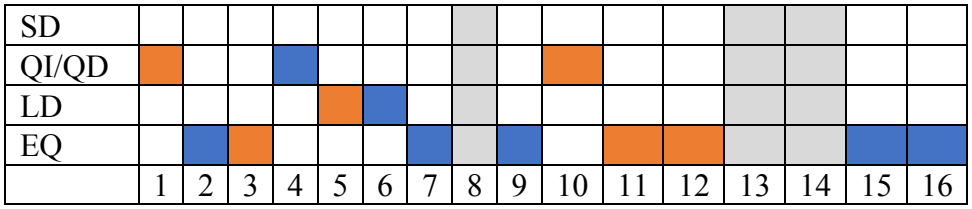
Appendix 1

The remaining Gant charts for each child are displayed below. Blue marks non-inversion and orange marks inversion. Greyed-out columns mark "other" responses.

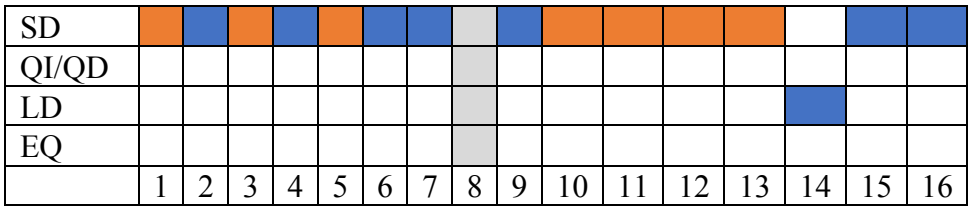
(22) *Child 4;9, responses by items in order of presentation*



(23) *Child 5;6, responses by items in order of presentation*



(24) *Child 7;10, responses by items in order of presentation*



(25) *Child 11;0, responses by items in order of presentation*