

# Rethinking auxiliary doubling in adult and child language: how verb-movement turns propositions into illocutionary acts

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## 1 Introduction

We have known for fifty years that English-acquiring children sometimes double auxiliaries when forming questions, as in (1).

(1) Can he can go? 4;8, Menyuk (1969)

Such examples have been variously analysed as errors stemming from processing difficulties<sup>1</sup>, difficulty asking negated questions<sup>2</sup>, or difficulty inverting particular auxiliaries.<sup>3</sup> All of these analyses have treated the structure as deriving from copying and moving the auxiliary verb without deleting the lower copy; an attractive solution that provides explicit support for the view that auxiliary movement derives from copying plus deletion.

Nonetheless, this analysis does not confront two deeper theoretical questions: why are polar questions formed via inversion? And what does the child mean when she produces a sentence like (1)?

In addressing the first question, we observe that every other form of question in English is linked to a *wh*-word in SpecCP such as *what*, *who*, *when* or, in the case of embedded polar questions, *whether*. Why is this marker of polar questions not also deployed in matrix clauses to produce the sentence in (2)?

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<sup>1</sup>Crain & Nakayama (1987).

<sup>2</sup>Bellugi (1971), Guasti et al. (1995), Thornton (1995), Xu & Snyder (2011).

<sup>3</sup>Stromswold (1990), Rowland & Theakston (2009).

- (2) \*Whether he can come? [Intended meaning = Can he come?]

We look to account for this fact using basic principles, specifically by considering how inversion might deliver interrogative meaning in the absence of an overt operator. Moreover, we take as a goal of theory to account for the fact of acquisition, while the acquisition path can reveal the nature of the operations and details of the theory that the final state grammar may mask. Consequently, we will focus what children mean by uttering questions like (1) and develop a syntax-discourse interface account for these child questions that can contribute to our understanding of adult questions. We claim that auxiliary doubling serves a semantico-pragmatic purpose as it conveys a specific meaning different from an adult-like question that has subject-auxiliary inversion and a trace in T. This entails that cases of auxiliary doubling are not errors at all.<sup>4</sup> We will implement recent ideas about verb movement to C that have mostly focused on the discourse interpretation of different clause types in German (Gärtner 2002, Truckenbrodt 2006, Antomo & Steinbach 2010, Lohnstein this volume) and apply them to English, introducing a featural account of verb movement using an Assertion feature, a theory of speech acts manifested in syntax, and a theory of how movement to CP determines pragmatic options for the utterance in the discourse. Our principal claims are as follows:

- (3) a. The CP layer is the exclusive locus of the link between syntax and discourse properties (following Rizzi (1997))  
b. Illocutionary force is marked in syntax and is satisfied in the CP layer  
c. Tense bears both a Tense feature [ $\pm$ TNS] and an Assertion feature [ $\pm$ ASR]  
d. The different feature values of [TNS] and their interplay with [ASR] lead to different syntactic structures and different expressions of illocutionary force  
e. Typically, an utterance may only contain one expression of illocutionary force, but may in certain circumstances contain two separate expressions of illocutionary force (cf. Krifka (2014), Woods (2016b))

Where, then, do the acquisition facts fit in? We argue that [TNS] and [ASR] are bundled together and expressed together in adult English, but that children may exceptionally express them separately to both assert and question a proposition at once.

In adult English, cleft questions embed presuppositions under questioning illocutionary force to refine how much of a proposition is accepted as true and how much is being questioned; compare (4a) and (4b).

- (4) a. What did he eat?  
*Illocutionary force = question*  
*Presupposition = none*<sup>5</sup>  
b. What is it that he ate?

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<sup>4</sup>This is not to say that other factors, for example negation, are not in some way connected to auxiliary doubling, particularly in younger children (see also connectionist modelling approaches such as East (n.d.)). We will highlight these issues and their interplay with our analysis as they arise.

<sup>5</sup>Although this has been debated in the philosophical literature, the fact that *What did he eat?* can be answered with *nothing* but *What is it that he ate?* cannot shows that the former does not carry a (relevant) presupposition. See also Fitzpatrick (2005).

*Illocutionary force = question*  
*Presupposition = he ate something*

Because young children lack true clausal recursion, they lack the ability to form cleft questions. Consequently, they unbundle [TNS] and [ASR] to create a monoclausal approximation of a cleft question; they leave the auxiliary in T to retain some proposition and insert another in C to satisfy the requirement for a tensed element in C to form a question. Although we do not ultimately pursue a movement account for the satisfaction of C, we will use the terminology of movement in parts of this paper to ensure ease of exposition.

- (5) What did he did eat?  
*Illocutionary force = question*  
*Presupposition = he ate something*

The analysis has the potential to conform to proposals that two positions with slightly different properties can be simultaneously dominated by a single higher node (cf. Citko (2005), Johnson (2012), Walkow (2012), Fox & Johnson (2016) *inter alia*).

In this setting, it will be claimed that children utilise multiple auxiliaries in one clause in order to both ask a question and leave some information presupposed, similarly to cleft questions and “how come” questions in adult English. It will be shown that auxiliary doubling emerges at a later stage of child language because it requires sophisticated manipulation of knowledge, specifically of how children determine the question under discussion (QUD) and restrict and order possible answers to this QUD. In summary, the above independently motivated proposals will show children’s auxiliary doubling to be a natural and efficient form of expression, where each auxiliary plays an independent role.

This chapter is structured as follows. We will first present a range of data detailing the nature of auxiliary doubling in child language, as well as briefly examining examples of doubling of tensed elements in adult languages. We will then present our analysis of Tense and Assertion as separate syntactic features and suggest that the motivations for subject-auxiliary inversion have both featural and semantic motivations before concluding.

## 2 Data

### 2.1 English

The data on auxiliary doubling in child language shows substantial variation, which in turn calls for a subtle analysis to capture it. There are few, but persistent, examples of auxiliary doubling in spontaneous speech corpora: Stromswold (1990) found 20 clear examples<sup>6</sup> in 40,600 questions from 14 children in the CHILDES database (MacWhinney 2000) and our own search of the Manchester corpus (Theakston et al. 2001, 12 children) found 15 clear examples<sup>7</sup>. This has led some to suggest that auxiliary doubling is simply a production

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<sup>6</sup>8 negative, 12 non-negative; ‘clear’ in this context means non-contracted auxiliaries.

<sup>7</sup>8 negative, 7 non-negative.

error, and a rare one at that. A non-exhaustive sample of spontaneous auxiliary doubling from CHILDES and other sources is shown in (6)-(13).

- (6) Father: Do you want to go outside?  
Child: No! (to friend:) **Do you don't want to go outside?** 4;0 (Roeper 2009)
- (7) LOI: Anymore furniture in the bag?  
CHI: Was this is the bag? Peter, 2;5 (Bloom 1970)
- (8) CHI: Yes I want scrambled eggs.  
**CHI: Is these are yours?** [picks up hairpins]  
LYN: No, they're not mine.  
CHI: Whose are? Peter, 2;7 (Bloom 1970)
- (9) CHI: Were you little?  
MOT: Once.  
MOT: A long time ago.  
**CHI: Was Daddy was?**  
...  
MOT: Daddy was little once. Joel, 2;10 (Theakston et al. 2001)
- (10) *Context: child and family have been walking for a long time and not yet reached their destination.*  
**Where are we are?** 3;8 (Roeper 2009)
- (11) CHI: There is a rabbit.  
CHI: These are?  
**CHI: What are these are?**  
CHI: Hey! Joel, 2;4 (Theakston et al. 2001)
- (12) CHI: Was this is the boat we saw? Sarah, 4;2 (Brown 1973)
- (13) CHI: What this is?  
INV: I tell you what that is, it's XXX.  
CHI: What that big thingy is?  
CHI: What this is and that?  
INV: What do you think it is?  
CHI: A tree.  
...  
CHI: What this is?  
INV: That's a little tiger baby I think isn't it?  
CHI: yes.  
...  
CHI: There's a horsie.  
CHI: And there's a giraffe.  
CHI: And there's a, there's a bear.  
**CHI: What is this is?**  
...  
MOT: It's a seal isn't it?  
...

We argue that the lack of auxiliary doubling in spontaneous speech is a simple sampling error. This is supported by the high proportions of auxiliary-doubled questions that have been elicited in studies of the production of English matrix questions by children.

Crain & Nakayama (1987) tested children aged 3;2-4;7 on non-negative questions containing relative clauses. 37% of the questions produced by the children contained auxiliary doubling, which was the most common error type overall. Guasti et al. (1995) tested children of a similar age, between 3;8-4;7, eliciting negative questions. 40% of these negative questions were produced with auxiliary doubling. Rowland & Theakston (2009) elicited both positive and negative questions from children aged 2;11-3;5. At age 2;11, 41% of questions produced with auxiliary doubling, with a significant effect of negation. At age 3;2, 29% of questions were produced with auxiliary doubling and at age 3;5, 20% of questions were produced with auxiliary doubling, but negation was not a significant factor at either age.

Examples of elicited auxiliary doubling are shown in (14)-(17).

- (14) Can Piglet can't ride the bike? 2;11-3;5, Rowland & Theakston (2009)  
 (15) Is Piglet can push the pram? 2;11-3;5, Rowland & Theakston (2009)  
 (16) Won't Piglet won't push the pram? 2;11-3;5, Rowland & Theakston (2009)  
 (17) Is the boy who's watching Mickey Mouse is happy?

4;7, Crain & Nakayama (1987)

Both the experimental studies and the spontaneous data show that auxiliary doubling occurs across a wide range of ages, from 2;4 to around 5;0—surprisingly late if we are to believe that they are the result of processing errors, particularly given the relative lack of complexity of some of the spontaneous examples, such as (10), uttered at 4;8.

These findings are corroborated in a case study of one child from the Manchester corpus, Becky. We chose Becky because she was the most frequent user of doubled questions in the Manchester corpus. We searched for all questions uttered by Becky using a *kwal* search for *?*, returning 3,068 hits. Each of these questions was coded<sup>8</sup> according to the syntactic structure<sup>9</sup> used by Becky and, based on the surrounding dialogue, the discourse use<sup>10</sup> of

<sup>8</sup>The data was coded by the first author and checked by the second author.

<sup>9</sup>The structures identified are: NOAUX (no auxiliary, no wh), INVCONTAUX (inversion with a contracted auxiliary), INV (inversion), SUBJ (subject wh-question), SUBJCONTAUX (subject wh-questions with contracted auxiliary), INVSUBJ (structures that are ambiguous between subject and inverted wh-questions, e.g. *what is it?*), INVSUBJCONTAUX structures that are ambiguous between subject and inverted wh-questions with a contracted auxiliary), NOINV (auxiliary present without inversion), WHONLY (wh-word, no auxiliary), DOUB (two full auxiliaries), DOUBCONTAUX (two auxiliaries, first is contracted), PRT (response particles e.g. *yeah*), EMBED (embedded questions), REP (exact repetition of preceding utterance) and XXX (unclear).

<sup>10</sup>The discourse uses identified are: RHET (rhetorical; including questions to self, questions left unanswered and abandoned when child continues the turn), INFO (neutral information-seeking; including requests, questions within a game), CLAR (clarification), REP (repetition of preceding adult utterance), TAG (tag question), VOC (call for attention), CONF (confirmation), PREVINFO (querying assumed previous information, includes biased questions), CONTRAST (contrastive focus question), REPORT (reported question), INCONC (inconclu-

the question. The dataset can be found at <https://rebeccalwoods.wordpress.com/research/>. Becky produced 6 auxiliary-doubled questions with two full auxiliaries (18), and 8 auxiliary-doubled questions in which the first auxiliary is contracted (19), together constituting less than 1% of the questions asked by Becky.

- |      |    |                                 |                                  |
|------|----|---------------------------------|----------------------------------|
| (18) | a. | Does he don't fit on there?     | 2;6,19                           |
|      | b. | Does he don't fit?              | 2;6,19                           |
|      | c. | Does he don't want to go there? | 2;6,29                           |
|      | d. | Do you don't like spiders?      | 2;9,13                           |
|      | e. | Why do you don't want it?       | 2;11,08                          |
|      | f. | Is the cat food can go there?   | 2;11,15 (last recording session) |
| (19) | a. | What's is this?                 | 2;1,30                           |
|      | b. | What's is that?                 | 2;4,19                           |
|      | c. | How's you are?                  | 2;5,01                           |
|      | d. | Where's are it?                 | 2;5,08                           |
|      | e. | What's was that?                | 2;5,29                           |
|      | f. | What's is this?                 | 2;5,29                           |
|      | g. | What's is this one?             | 2;5,29                           |
|      | h. | What's did I do?                | 2;9,06                           |

Several important points are evident here. Firstly, both structures are extremely infrequent in Becky's speech. Secondly, auxiliary doubling with contracted auxiliaries precedes auxiliary doubling with uncontracted auxiliaries and they barely overlap, with only one example of auxiliary doubling with a contracted auxiliary occurring after the emergence of auxiliary doubling with uncontracted auxiliaries. Note that there is an average of just 10 days between recordings of Becky (Snyder 2007, p. 53), which suggests that the switch from doubling contracted auxiliaries to doubling full auxiliaries is quick and, given the coverage of Becky's language use, very rare, hence it may be a stage that recordings of other children simply miss. Thirdly, it is notable that Becky is already two-and-a-half years old before she uses any doubling with full auxiliaries. Fourthly, if we consider how Becky is using each type of question, we see that auxiliary doubling with contracted auxiliaries is used exclusively for information-seeking questions and is often used for out of the blue questions (5 out of 8 cases) in the sense that the question introduces a brand new question under discussion (QUD) to the discourse. Of the six cases of auxiliary doubling with full auxiliaries, four are used to question previously mentioned or assumed information and two are used to contrast some aspect of a previous statement or question ((18d) and (18f)); none are uttered out of the blue with respect to the preceding discourse as they only introduce refined versions of the current QUD, referred to as sub-QUDs in Roberts's (1996, 2012) original version of the QUD framework. Moreover, we know that Becky is aware of the importance of interlocutor attention and sharing of knowledge due to the number of tag questions she asks; 72 tag questions are used (2.3% of all questions asked) from as early as 2;1,24. Finally, Becky uses other structures (e.g. adult-like inversion, non-inversion, etc.) to perform all of the aforementioned question functions, as well as others (see Appendix 1).

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sive).

We therefore conclude that auxiliary doubling with contracted auxiliaries is a production error that Becky stops making before the recordings end,<sup>11</sup> whereas auxiliary doubling with full auxiliaries is an option in Becky’s grammar with a particular pragmatic purpose that she exploits at least until the end of the recording sessions, and possibly later.

Based on the data above and taking into account both context and elicitation method, we claim that children employ auxiliary doubling with full auxiliaries as a pragmatic alternative to non-doubled questions in order to express or narrow focus, similar in many cases to adult cleft questions, where the embedded clause is presuppositional (Kiss 1999).<sup>12</sup> This is illustrated in the adult-language paraphrase of (6), repeated below as (20).<sup>13</sup>

- (20) Do you don’t want to go outside?  
 ≃ Is it the case that you don’t want to go outside?

In the first instance this seems to be a very broad claim, and not all examples can be paraphrased using cleft sentences. The reason for this can be seen in the spontaneous examples in (6)-(13) and (18), as three uses for auxiliary-doubled questions emerge in this small sample.

- (21) a. Simultaneously questioning and asserting, searching for confirmation (similar to cleft questions; examples (6), (7), (12), (18a)-(18b), (18d)-(18e) maybe (8))  
 b. Narrowing the set of possible answers towards a more specific set, in the sense of adverbs such as “exactly”<sup>14</sup>, which are highly uncommon in child speech (examples (10), (18f))  
 c. Contrastive focus<sup>15</sup> (examples (9), (11), (13),(18c))

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<sup>11</sup>We expect auxiliary doubling with contracted auxiliaries, as in (19), to have a structural rather than pragmatic basis, but this is not the focus of this paper.

<sup>12</sup>Note that children continue to use other question strategies, both inverted and non-inverted, alongside doubling structures—this is clearly illustrated in (13). This supports the idea that children are really choosing to double—it cannot purely be attributed to the inability to invert in an adult-like manner.

<sup>13</sup>Rong Yin in an unpublished (2016) paper claims that auxiliary doubling examples cannot be clefts because of the availability of examples like (i) in which a plural auxiliary is doubled (compare with the ungrammatical cleft in (ii) and the grammatical, if redundant-sounding, cleft in (iii)).

- (i) What are these are? Joel, 2;4 (Theakston et al. 2001)  
 (ii) \*What are they that these are?  
 (iii) What is it that these are?

We want to stress that we do not claim that child auxiliary doubling is clefting, but that the interpretation is similar. It is clear that child auxiliary doubling is a monoclausal strategy due to argument structure and intonational contour.

<sup>14</sup>Traugott (2006) calls adverbs such as “exactly” and “precisely” *particularizing focus modifiers*, “the prime function of which is to particularize or identify the focus under discussion, independently of the semantics of the focus” (Traugott 2006, p. 349), that is to exclude other potential alternatives that could be introduced by focus, either scalar or non-scalar (Traugott 2006, pp. 347,349).

<sup>15</sup>Hiramatsu (2003) makes reference to anecdotal reports that auxiliary doubling conveys contrastive focus, but does not say any more about the provenance of such reports. She tests whether contexts favouring contrastive focus prompt auxiliary doubling and concludes that they do not. However, she reports examples of auxiliary doubling in contrastive focus contexts (p. 104) as well as in contexts without contrastive focus.

There are common factors behind all three uses of auxiliary doubling; they all contain exhaustive or identificational focus (cf. Kiss (1998)) and they all contain some presupposed information. Moreover, the use of auxiliary doubling appears to introduce overt assumptions on the part of the child about the expected answer, thereby adding further complexity to their use and interpretation that could in part explain their later appearance in child language. It is evident that parents interpret this assumption in children’s auxiliary-doubled questions, as the dialogue in (22), taken from a shopping game, shows:

(22) *Context: Becky and her mother are playing at food shopping. Her mother has already said that she might not want the shopping because Becky has been nibbling at it; this is repeated by by the investigator who is also present. Becky and her mother exchange play money then mother says:*

MOT: I’ll take that home when I go home ?

CHI: yeah .

CHI: why do you don’t want it ?

MOT: I do want it .

Becky, 2;11,08

Becky interprets her mother’s first comment as a rejection of the item that Becky is offering, perhaps because her mother delays taking possession of the item. Becky therefore makes explicit her assumption about her mother’s action by producing the question *why do you don’t want it?*. Her mother’s response with the use of assertional *do* suggests that she interprets Becky’s question as meaning *Why is it that you don’t want it?* To frame this exchange in QUD terms, Becky has moved from the main QUD *Do you want this?*, which has not been explicitly answered in the dialogue, to a sub-QUD she considers relevant, namely *Why do you don’t want it?*.<sup>16</sup> Direct answers to this sub-QUD will confirm the negative answer (that Becky believes she has evidence for) to the main QUD. Instead, however, Becky’s mother challenges Becky’s belief that she doesn’t want the item, entailing a different answer to the main QUD than the one Becky believes to be true.

Now, we have already proposed that focus is narrowed in auxiliary-doubled questions in a number of ways, meaning that the set of alternative answers is smaller than it might be for a “neutral” question. Our discussion of Becky’s utterance above adds a second level of complexity, that the set of alternative answers is further restricted according to the presuppositions of the speaker as made explicit in their question. In the example above, Becky expects that the answer to her question in (22) will also contain, explicitly or

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We believe that this is because contrastive focus is one of a set of factors that can prompt doubling, but alone is not sufficient to prompt doubling. Moreover, in her grammaticality judgment task, some of the doubling examples do not reflect the auxiliary doubling that monolingual English-acquiring children produce, for example the stimulus “What did Cabbage Patch Girl don’t like?” should read “What did Cabbage Patch Girl doesn’t like?” with agreement between the subject and the lower auxiliary (though see example (60b) for a similar example in an English-Japanese bilingual child).

<sup>16</sup>Note that this sub-QUD does not have exactly the same meaning as *Why do you not want it?*, which does not carry a presupposition—see below for further discussion of Fitzpatrick’s (2005) work on how *why* questions seem to, but do not actually, contain a presupposition. It is very similar in meaning to the biased question with high negation *Why don’t you want it?*, with the interesting difference that in all child auxiliary-doubled questions with negation, the negation is pronounced low (in one case referenced here, (16), it is pronounced in both T and C). This is undoubtedly of interest but we do not have space to develop the impact of this in this paper.



anaphorically, the negated proposition “I don’t want that”, contrary to fact as it turns out.

The combined factors of focus and presupposition explain the high rates of doubling in the experimental studies mentioned above. Crain & Nakayama (1987), like Bellugi (1971), instructed the child to ask a puppet (in their experiment Jabba the Hutt) specific questions based on a set of pictures, which were visible to the child but not to the puppet. The experimenter’s prompts were structured as embedded questions under an imperative, as in (23).

(23) Ask Jabba if the boy who is watching Mickey Mouse is happy.

Crain & Nakayama (1987, p. 528)

Guasti et al. (1995) similarly use embedding in their prompt, embedding the propositional content under a non-interrogative intensional verb such as *hear*, as in (24).

(24) I heard the snail doesn’t like some things to eat.  
Ask him what. Guasti et al. (1995)

Alternatively, they make an existential statement followed up by an imperative in the same way as (24).

(25) There was one place Gummi Bear couldn’t eat the raisin.  
Ask the snail where. Guasti et al. (1995)

Rowland & Theakston (2009) make use of a similar technique. A puppet (Piglet) performs an action behind a screen watched by a second puppet (Dobbin) but not by the experimenter or the child. The experimenter speculates out loud about Piglet’s action and prompts the child to ask Dobbin a question about Piglet’s action. An example of the full experimenter’s prompt is given in (26).

(26) Oh no; somebody is kissing Piglet. I think it’s the doctor. Ask Dobbin if the  
doctor is kissing Piglet. Rowland & Theakston (2009, p. 1476)

In all of these scenarios the child has some kind of privileged information about the answer to the question that they are forming. For Crain & Nakayama (1987), the child is fully aware of the answer that the puppet ‘should’ give due to the pictures used. For Guasti et al. (1995) and Rowland & Theakston (2009), the use of epistemic verbs to subordinate the proposition at issue leads to a potential experimental confound: it is well known that children below the age of 4 treat embedded clauses under verbs of propositional attitude as true even if there is evidence otherwise (Abbeduto & Rosenberg 1985, de Villiers 1997, Schulz 2003). Hence they could also be said to know the answer to the question that they asked to form (in Rowland & Theakston (2009)) or at least that the proposition on which the question is based does hold of something (in Guasti et al. (1995)).

These states of affairs are exactly the kind of contexts in which cleft questions and similar strategies occur in adult language—when the truth of the proposition is already established and/or if confirmation is sought. Unsurprisingly, then, doubling in adult language can be found in similar contexts to express focus on some previously mentioned

linguistic object; examples include affirmative verb doubling in European Portuguese (27) and focus verb doubling in languages such as Gungbe (28).

- (27) O João comprou o carro, comprou.  
the João bought the car bought  
“João *did* buy the car.” Martins (2007, p. 81)
- (28) [Xó] Sená ná nó [xó] wémà ná Kòfi  
buy Sena FUT HAB buy book for Kofi  
“Sena will habitually BUY a book for Kofi.” Aboh (2006, p. 44)

Finally, examples of doubling in adult English matrix questions are rare but do exist.

- (29) Is you is or is you ain't my baby? UEng, Louis Jordan and Billy Austin, 1944
- (30) What's the view going round the table—do we correct, do we *don't* correct?

BrEng, Michael Rosen, *Word of Mouth*, BBC Radio 4, 4th Oct 2016

Note that both examples involve alternative questions and that again, focus is created.

If this interpretation of auxiliary doubling as a focus strategy in child language is right, then we can work towards a better understanding of the (differing) frequencies of auxiliary doubling in spontaneous and elicited production, as well as a tendency to double auxiliaries in negative questions. In spontaneous adult speech cleft-questions and similar locutions are rare<sup>17</sup> and we would expect the same, if not even greater rarity, in child speech due to the complexity of the syntax and the need for a specific discourse context.<sup>18,19</sup>

However, in elicited production, we have already shown that the child is not asking naïve (non-biased) information-seeking questions in the studies examined here. As the child has reason to believe the proposition being questioned is the true answer, the necessary discourse context for a cleft question is formed.

Finally, questions with constituent negation are interpreted with a bias towards the negation of the proposition being true (Romero & Han 2004, Krifka 2012), which could also lead to a higher proportion of cleft-like questions in these cases.

This entire discussion of focus implies that children are able to manipulate information structure from a young age if they are using auxiliary doubling as a mechanism for marking and narrowing focus. There is independent evidence that children are aware of information structure and sensitive to it from an early age (de Cat 2009, 2011). With respect to focus specifically, Hiramatsu (2003) shows that children use contrastive stress to respond to prompts which themselves contain contrastive stress. Other evidence shows that children can restructure discourse: in our study of the Manchester corpus, children who

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<sup>17</sup>The Wall Street Journal contains only 42 cleft sentences in a corpus of 1 million words and the Switchboard corpus contains 12 cleft sentences constituting less than 0.1% of all utterances (Roland et al. 2007); the ICE-GB corpus contains 46 cleft sentences or 2.2 tokens per 10,000 sentences (Lange 2012).

<sup>18</sup>We found no examples at all of cleft sentences in the child data in the Manchester corpus (Theakston et al. 2001). They were not absent from adult speech, however; a conservative count shows 84 cleft constructions in the mothers' speech in the same corpus.

<sup>19</sup>Note also that cleft sentences are not easily elicited, as English-acquiring children consistently prefer to use prosody to mark contrastive stress (Hornby & Hass 1970, Hornby 1971).

spontaneously use auxiliary doubling also use other methods of modulating assertions and ensuring discourse cohesion, in particular tag questions.<sup>20</sup> The numbers of both tag questions and auxiliary doubling are very small, but the correlation in use is suggestive of a link between awareness of discourse structure and auxiliary doubling.

## 2.2 Other Germanic

Examples of auxiliary doubling in spontaneous child German are rare, with CHILDES yielding only one example:

- (31) Weil das, wo der Haifisch hat diese Zahnschmerzen hat  
 Because that where the shark has these toothaches has  
 “Because the shark has this toothache.” Leo, 2;10, Behrens (2006)

Leo’s example in (31) shares key information-structural characteristics with the examples in the previous section. It was uttered in the context of talking about lots of different sea animals and their various characteristics and Leo appears to focus the shark with respect to its toothache.

Schönenberger (2001) notes a number of spontaneous Swiss German examples<sup>21</sup> in her data from two children:

- (32) a. Wil er hät chalt hät.  
 because he has cold has  
 “because he is cold.” 5;1
- b. Weisch du dass ich han en Fingerring han?  
 know you that I have a ring have  
 “Do you know that I have a ring?” 5;0
- c. Wemmir wemmir zwe sind am glische Verschtecktis mitenander sind  
 if-we if-we two are on.the same hiding-place together are  
 “If we’re in the same hiding place.” 5;7
- d. Wenn’s isch ebe fescht gregnet hät.  
 when-it is PRT heavily rained has  
 “When it rained heavily.” 4;8, all Schönenberger (2001)

Obviously, these examples cannot be interpreted in the same way as the English examples because they are not interrogative clauses. Before presenting our claim, let us first review the similarities between English matrix interrogatives and embedded V2 clauses, which may not be apparent at first glance (or to those unfamiliar with the debate on embedded V2 *qua* assertion).<sup>22</sup>

The constructions of interest contrast with English matrix declaratives and embedded verb-final clauses in that verb movement brings about a change in their interpretation and their impact on the discourse. Verb movement in English matrix questions converts a

<sup>20</sup>Two children use tag questions before auxiliary doubling, one uses auxiliary doubling first, one uses both in the same transcript.

<sup>21</sup>We have not been able to ascertain the context in which these examples were pronounced.

<sup>22</sup>For more on this, see part I of this volume.

statement into a question: statements in English are typically interpreted as assertions, though they need not be, whereas questions are the expression of some kind of ignorance on the part of the speaker with respect to the relevant proposition. According to Antomo & Steinbach (2010), verb movement in embedded verb second clauses leads to the interpretation that the verb second clause is also asserted by the speaker—it is not opaque.<sup>23</sup> The same is true in matrix clauses; verb second matrix clauses are asserted but verb final matrix clauses are not (see Truckenbrodt (2006, pp. 268-270)). We understand this to mean that the speaker commits to the truth of a verb second clause whereas they do not make any such commitment to a verb final clause (Krifka 2014).

Although the pragmatic subtleties are not yet fully explained, our claim is that movement of the tensed element correlates with the overt expression of illocutionary force in English as well as in German; that is the relationship between the speaker and the proposition at issue. If there is no movement of the tensed element, then there is no syntactically-marked illocutionary force and pragmatic methods of interpreting the utterance must be relied on. Concomitantly, we claim that doubling only occurs in contexts with overt illocutionary force and adds to this meaning. Exactly what is added will become clearer when we examine the feature structure of CP and TP.

## 2.3 Summing up

To summarise the data in this section, we have covered classic studies which show that auxiliary doubling in English child language is uncommon in corpora yet seemingly easily elicited. Our empirical claim is that it can be used in specific pragmatic situations to achieve exhaustive or identificational focus; more specifically, it is a monoclausal strategy for narrowing a set of focused alternatives and potentially simultaneously questioning and presupposing the truth of a proposition in a similar way to cleft questions. In V2 languages auxiliary doubling appears to be restricted to embedded clauses<sup>24</sup> but can occur in child language, once more to mark focus. Our theoretical proposal, therefore, is that doubling may occur when illocutionary force is overtly marked by movement of the tensed element in comparable adult constructions. We will elaborate on the link between tense and illocutionary force, as well as how this gives rise to child auxiliary doubling, in the next section.

# 3 Analysis

## 3.1 Introduction

In this section we will examine the tight mechanical connections between syntax and the domain of discourse. We use a simplified version of Farkas and Bruce’s (2010) conversational model to explore how utterances enter the discourse—as assertions or as

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<sup>23</sup>See Part I of this volume for more discussion of embedded verb second.

<sup>24</sup>V2 emerges early (around 2;0) but isn’t obligatory until subordinate clauses emerge (Müller 1996, p. 1000). There is some evidence of verb doubling around age 3;0, e.g. “und macht boum macht”/“jetzt sagt der das sagt” from Müller (1996, p. 1011) but this child is bilingual French-German and we have not found any further evidence from monolingual German-acquiring children.

presupposed material—and how their syntax bears on this. The model contains five main components, of which we will focus on four:<sup>25</sup>

- (33)
- a. A list of propositions in the discourse to which interlocutor A is publicly committed
  - b. A list of propositions in discourse to which interlocutor B is publicly committed
  - c. A Discourse Table to which propositions are added and stacked, as well as the “sentence radicals” which denote them, marked with the clause type used
  - d. A common ground (CG) consisting of a set of propositions  $s$  to which all discourse participants are publicly committed (such propositions may have passed over the Table, or may follow from propositions that have passed over the Table)

To illustrate, when a polar question is produced, the following steps occur:

- (34)
- a. The proposition being questioned enters onto the table along with an index indicating the syntactic form (clause type) used in the utterance—the utterer A takes public responsibility for the utterance
  - b. Any presupposed information must already be in the common ground of the conversation *or* it will be accommodated (see Bruce & Farkas (2007)), bypassing the Table and updating the common ground directly.

The polar question “Is Sam home?” can be represented as in table 1.

Table 1: A asks B “Is Sam home?” (Farkas & Bruce 2010, p. 95)

A	Discourse Table	B
$\emptyset$	$\langle \text{‘Sam is home’}[I]; p, \neg p \rangle$	$\emptyset$
CG: $s' = s$		

Table 1 shows us that neither the speaker nor the addressee at this point publicly commit to the proposition or its negation, and no presupposed material exists to be added to the Discourse Table, so the common ground is the same as in the input context.

In contrast, a polar cleft question such as “Is it Sam that is home?” both asks a question about the proposition “It is Sam that is home” and presupposes that “Someone is home”. If we call the first proposition  $p$  and the second  $q$ , the cleft question will enter into the discourse as follows:

Note that in both of the cases above, the proposition placed on the Discourse Table was originally expressed with the tensed element in C and the proposition originally expressed with the tensed element in T was not placed on the table in its own right. We will now use this model to examine how the position of the tensed element in an utterance impacts on whether the proposition it expresses is entered onto the Discourse Table or not.

<sup>25</sup>The fifth component is a projected set (PS) of common grounds that provides canonical methods for dealing with issues on the Table; its contents are computed according to the contents of the Table stack. We will not focus on this here as we are not concerned with the ongoing dynamics of the conversation, but simply how an utterance enters into the conversation in the first place.

Table 2: A asks B “Is it Sam that is home?” (Farkas & Bruce 2010, p. 95)

A	Discourse Table	B
$\emptyset$	$\langle \text{‘It is Sam that is home’}[I]; p, \neg p \rangle$	$\emptyset$
CG: $s' = s \cup q$		

### 3.2 Motivating an interface account for understanding inversion

Recall from section 1 that we are also interested in how inversion forms questions apparently independently of any overt question operator. Traditionally it is assumed that there is a silent *wh*-operator in Spec,CP that attracts the tense-bearing element to C. However, this does not explain the full paradigm of inversion, including various types of embedded inversion, as illustrated in (35)-(36), and one case of matrix non-inversion in Standard English (37).

- (35) a. I asked him would he cook tea for me tonight. Woods (2016*b*, p. 198)  
 b. Patsy asked if, when he was sent to college, was it for a clergyman or a solicitor. McCloskey (2006)
- (36) I asked him from what source could the reprisals come. McCloskey (2006, p. 87)
- (37) How come everyone came? Fitzpatrick (2005, p. 142)

Cases like (35) and (36) are not covered under traditional assumptions because the embedded operator has long been assumed not to attract the tensed element in languages like English, not least because the complementiser *if* fills C in typical embedded questions. Note, though, that in (35b) there is both subject inversion and the overt complementiser *if*, which cannot both be realised in the same position to satisfy the same requirements of [+Q]. Finally, the lack of inversion in *how come* questions like (37) is attributed to their inclusion of presupposed material (Fitzpatrick 2005), a pertinent point to which we will return later.

Investigating this data using an illocutionary-force related approach reveals interesting facts, however. There is evidence for a illocutionary force related head above CP in utterances such as (35)-(36); these utterances can be interpreted as requests and the illocutionary force marker *please*, which marks requests (Woods 2015), can be inserted into these embedded clause (38a), despite it being typically unavailable in embedded contexts (38b). As shown in (38c), it is incompatible with the overt complementiser *if*.

- (38) a. I asked him please would he cook tea for me.  
 b. \*I asked him if please he would cook tea for me.  
 c. \*I asked him if please would he cook tea for me.

Cross-linguistic evidence also points in this direction. It is possible in German to form matrix interrogative verb final clauses using the complementiser *ob* ( $\simeq$  “whether”).

- (39) Ob der Peter das gemacht hat?  
 whether the Peter that done has  
 “I wonder whether Peter has done that.” Truckenbrodt (2006, p. 268)

However, examples like (39) differ from matrix questions formed using inversion in that they do not automatically<sup>26</sup> carry the illocutionary force of “true” questions; it is perfectly felicitous for the addressee not to answer the question as they are interpreted similarly to indirect questions, as indicated by the English translation of the sentence in (39).

We will pursue the idea that inversion *qua* question-forming operation is intimately linked to the overt expression of illocutionary force as opposed to purely clause-typing; to be specific, we claim that movement is required to mark illocutionary force in English and German. We will also pursue the idea that overt illocutionary force affects how an utterance enters the discourse situation—utterances without overt illocutionary force are not automatically committed to by the speaker or placed on the Discourse Table (in the sense of the conversational model outlined in 3.1).

In investigating this idea, we make the uncontroversial assumption that TP is the domain of propositional content and doesn’t interface with the discourse context. The interface between the proposition and the discourse happens in the CP-layer (cf. Rizzi (1997), Lohnstein (2016)). More controversially, we will claim that some types of syntactic movement may have a concomitant semantic motivation. Similarly to van Valin (2002) and Fiengo (2007), we claim that movement of Tense out of TP avoids interpretation of the utterance as a “just” a proposition, forcing it to be interpreted according to some discourse context, whether this results in some kind of non-truth-conditional utterance such as a question or conditional (see Fiengo (2007)) or an utterance that carries more than just a proposition, namely a strong assertion. In fact, we will see that this assertion often involves reversal of polarity of the proposition in TP, which we will touch on briefly.

### 3.3 Evidence for an Assertion feature

The Assertion feature proposed in the previous section is not a new proposal; much evidence has been recently provided for it by a range of scholars. However, it appears to be inextricably linked to morphemes marking tense in many languages, including English. Conversely, the interpretation of Assertion morphemes in languages like Vietnamese are conflated with (usually past) tense interpretations (Duffield 2007, pp. 804-805).

Klein (1998, 2006) proposes a number of data sources that suggest Assertion to be a feature of natural language, focusing particularly on do-support for verum focus (40) and apparent scopal interaction between the tensed element and time adverbials (41) resulting in changes in the felicity of a proposition; while (41a) is perfectly felicitous given the permanent state of death, (41b) seems to suggest that death is not a permanent state but

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<sup>26</sup>An anonymous reviewer notes that *ob*-questions *may* be used to elicit information in dialogues like the following:

- (i) Hast du mich verstanden? Ob du mich verstanden hast?!  
 have you me understood/ whether you me understood have  
 “Do you understand me? I’m asking you if you understand me!” *The Same Sky*, Netflix, Episode 5

Native German speakers report that the ‘ob’ clause in (i) is still not an information-seeking question in a standalone sense but that it adds emphasis to the preceding V2 question (H.-M. Gärtner, p.c.). We will not be able to investigate the fine detail of *ob*-questions here but maintain that they differ in pertinent ways from matrix questions in both distribution and interpretation.

that John is or will only be dead for the length of time expressed in the adverbial in topic position.

- (40) a. He DID love her!  
 b. He WAS a dancer when he was younger.<sup>27</sup>
- (41) a. John has been dead for two weeks.  
 b. ?#For two weeks, John has been dead.

There is also evidence from German, independent of inversion, for the expression of assertion and other illocutionary forces in the vP layer; specifically from discourse particles like *ja*, illustrated in (42).

- (42) Er kann **ja** schon schwimmen  
 He can PRT already swim  
 “He can already swim (it is evident/as you know)”

Coniglio & Zegrean (2012, p. 231)

Finally, Duffield (2007, 2013) provides evidence for a low (TP level) Assertion head in Vietnamese by analysing the interplay between the optionally-expressed morpheme *có* and apparently underspecified elements whose interpretations differ according to whether they are within or outside of the scope of the Assertion head.

- (43) a. Hôm qua anh ấy đã không có đến nhà chị.  
 yesterday PRN DEM ANT NEG ASR go house PRN  
 “He didn’t go to your house yesterday.”  
 b. Hôm qua anh ấy đã có đến nhà chị không?  
 yesterday PRN DEM ANT ASR go house PRN NEG  
 “Did he go to your house yesterday?”

Duffield (2007, p. 778)

Although inversion is typically associated with question force, data from English dialects show that it can also mark—indeed, be a crucial factor in achieving—assertive force.

- (44) A: I’m a big fan of Steph Curry.  
 B: I know—can he ever play basketball! US English
- (45) Am I fuck going to that party!

cf. Sailor (2015, 2016, this volume)

(44) and (45) are interpreted as assertions, the former with affirmative polarity and the latter with negative polarity. We will not go into the details of these structures here, other than to note that verb movement to C in the absence of an overt operator in SpecCP is closely related to the expression of assertive force as well as questioning force.

<sup>27</sup>Note that when both negation and verum focus are present, either (a) *do* is stressed and clitic negation must be used or (b) constituent negation must carry the stress. This suggests that Assertion, if it may be separately represented from Tense and Negation, lies somewhere between the two.



Another example in standard English of inversion marking non-interrogative force is inverted conditional structures:

- (46) Conditionals  
Had John been at the party, he'd have met the Queen.

The first part of (46) asserts that John was not at the party and is therefore similar to (45) in that assertive force and polarity reversal are bundled together in the effects of inversion. We know that *Had John been at the party* is asserted rather than presupposed or entailed as it can be directly challenged:

- (47) A: Had John been at the party, he'd have met the Queen.  
B: But you're mistaken—he was at the party. He spent all night by the oven.

We claim that (44), (45) and (46), when uttered, are all placed directly onto the Discourse Table and are marked as publicly committed to by their speaker. Unlike declarative clauses without movement of tense, pragmatic factors and intonation do not affect whether or not they are placed onto the Discourse Table—their overtly moved tensed element marks them as automatic placements on the Table.<sup>28</sup> In fact, we can say that there is another layer to understanding illocutionary acts that has not been fully articulated yet: though the tradition in speech act theory has been to treat illocutionary force categories as sharply delineated between assertion, questions, exclamation and so forth, it is not actually so clear that the grammar makes such fine-grained distinctions. Instead, the grammar seems to recognise the difference between placement of a proposition or set of propositions on the Discourse Table via verb movement on the one hand, and lack of movement leaving a (set of) proposition(s) off the Table in the first instance. Further distinctions between illocutionary acts may come from the lexicalisation of certain heads and from extra-syntactic methods such as intonation, but the most basic distinction is between placing the proposition(s) on the Discourse Table or not.

Before moving on, let us return to the question of why inversion is generally lacking in embedded contexts. It is broadly agreed that embedded clauses do not have independent illocutionary force, meaning that the speaker does not overtly express commitment towards the truth of the proposition (in the case of an embedded declarative) or the need to know the answer (in the case of an embedded interrogative). Assuming that pragmatic factors are in place to interpret matrix declarative clauses as assertions, this can be illustrated in the conversational model as in Tables 3 and 4<sup>29</sup>.

In both Tables 3 and 4, the embedded clause may be challenged (as if it were a matrix

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<sup>28</sup>There is a possible counterexample to the argument here, as certain exclamatives may also be marked by inversion:

- (i) Isn't HE a charmer?! Negative exclamatives, Taniguchi (2016)

Taniguchi claims that the force of inversion exclamatives directly derives from their question-like structure, such that they are effectively questions that come simultaneously with their own answer. They are clearly a complex case that we will not attempt to deal with here but leave for future research.

<sup>29</sup>Note that this illustration does not capture indirect question readings; we will not deal with the mechanism for such interpretations here.

Table 3: A asserts “John said that phases were introduced in Chomsky 1995” to B

A	Discourse Table	B
$p$	$\langle \text{‘John said that phases were introduced in Chomsky 1995’}[D]; p \rangle$	$\emptyset$
CG: $s' = s$		

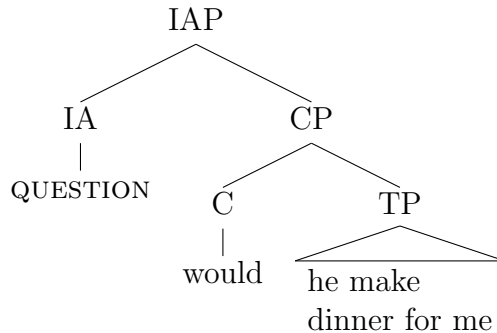
Table 4: A asserts “Mary asked if Sam is home” to B

A	Discourse Table	B
$p$	$\langle \text{‘Mary asked if Sam is home’}[D]; p \rangle$	$\emptyset$
CG: $s' = s$		

assertion) or answered (as if it were a matrix question) but this is achieved through pragmatic means and does not mean that the embedded clause has syntactically-marked illocutionary force. If it did, it would be forced to be interpreted as such.

When embedded illocutionary force does occur, recent work by Krifka (2014) and Woods (2016*a,b*) suggests that there must be an extra layer of structure present, namely an Illocutionary Act phrase. This is illustrated for an embedded inverted question in (48).

- (48) a. I asked him [would he make dinner for me]  
 b.



The interpretive consequence of the presence of the IAP is that the embedded clause is interpreted as open for discussion and/or answering in some relevant discourse. We invite the reader to visit the works above for more detail as to how this interpretation obtains.

One last note; Krifka (2014) notes that embedded illocutionary force is typically considered dialectal or non-standard, judgments which he puts down to a preference for one illocutionary act per utterance even though two are technically possible. The uncertain grammaticality status of such utterances was confirmed by a small-scale experiment in Woods (2016*b*), who found that speakers would produce embedded inverted questions despite judging them ungrammatical. In fact, this seems to be another point of parallelism between tense and illocutionary force, as multiple instantiations of tense in a single clause tend also to be confined to dialects (for example multiple modals in African American and Scottish Englishes). Hiramatsu (2003) suggests that children too sense some tension between the doubling structures they produce and their knowledge of the adult target as they tend not to judge auxiliary doubling structures as grammatical, but we will not explore this idea further in this paper.

### 3.4 Breaking down T

Now to the mechanisms behind the claims we have outlined above. Klein’s original proposal is that Finiteness is composed of both Tense and Assertion. This applied to all declaratives and did not interact with movement to C. We will capture this claim differently—we assume that the unaltered clause (i.e. with Tense in T) has no specified illocutionary force; it is forceless.<sup>30</sup> It is therefore open to alteration by intonation and discourse context, allowing question and assertion interpretations to arise through these means.

To capture all the interface properties we project two features on the T head: interpretable Tense and interpretable Assertion, both of which may bear a plus or minus valuation. Assertion may bear a zero value. We will not concern ourselves with any configuration in which Tense is negatively valued in this paper, instead focusing on the different values of the Assertion feature.

The paradigm is as follows:<sup>31</sup>

- (49) a. When T = [+TNS, -ASR], T moves to C.  
b. When T = [+TNS, +ASR], T moves to C.  
c. When T = [+TNS, 0ASR], T remains in situ.

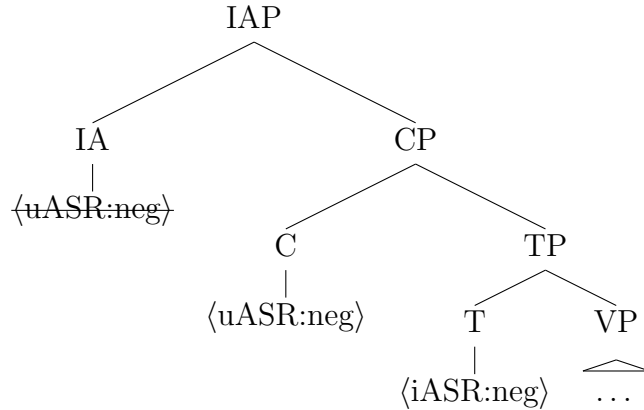
Movement to C renders [ASR] interpretable because C carries an uninterpretable [ASR] feature following inheritance of discourse features from a higher illocutionary act (IA) head (Woods 2016*b*), in the same way that T inherits Nominative Case when it is selected by C. This is illustrated in (50).

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<sup>30</sup>*Forcelessness* is essentially very similar to opacity, to compare it with an older term, but has the advantage of being more specific about why embedded clauses (both complements and, for example, relative clauses, as well as some matrix clauses) lack commitment by the speaker, tying this interpretation in to the syntactic form of the clause. It also brings the same phenomenon in root and embedded clauses together, where opacity is traditionally only applied to embedded contexts. See also Truckenbrodt (2006) and Lohnstein (this volume) on this point.

<sup>31</sup>An anonymous reviewer notes that the paradigm in (49) is not compatible with Klein’s and Duffield’s analyses of emphatic *do*, where the auxiliary remains in situ. However, as Duffield (2013) discusses, emphasis and assertion do not seem to be the same beast as polarity emphasis can occur on a number of items in different positions and not solely tensed *do* (Duffield 2013, p. 260). Moreover, it seems plausible that phonological strategies can be used in place of movement, at least in certain situations. A pertinent example of such a case is classroom/quiz-style questions where the *wh*-word can be left in situ and tends to be stressed, but a response is still required, as in *Copernicus claimed that the Earth revolved around what?* For reasons of space we simply assume this is so and leave the details of this claim for future research.

(50)



The syntactic result of an interpretable [ASR] feature is movement of T to C; the discourse result is that the proposition asserted, questioned or exclaimed is placed on the Discourse Table for the other interlocutor(s) to respond to. This is the manifestation of a tight connection between Tense and the discourse context, in that the movement of Tense to C places the matter of  $p$  or  $\neg p$  on the discourse table (Lohnstein 2016, this volume) but we claim that this is only an apparent interface between *Tense* and the discourse context. In actual fact, the discourse context is determined by the movement of [ASR], which in many languages (including German, as Lohnstein shows) is parasitic on the tensed element.

However, if there is no interpretable [ASR] feature, tense will stay in situ and the discourse effect of the utterance will be either default (assertion) or indirect. This entails the claim that declaratives in English do not have a specified illocutionary force and can only be put on the Discourse Table through pragmatic means. Typically they are interpreted as assertions, but this interpretation may be subject to other forces. For example, if tense stays in situ and a *wh*-item is present, an echo question interpretation is returned. In an echo question like (51a), the proposition expressed is not necessarily asserted by the speaker, and in any case lacks some pertinent information. It is, through pragmatic means, interpreted as a request for clarification of the identity of the element that has been replaced by a *wh*-word. In another example, given the right intonation, a declarative clause may be interpreted as a question, as in (51b) from Gunlogson (2001, p. 1).

- (51) a. Maryam did *what*?  
 b. It's raining?

In the case of embedded clauses, a lack of T-to-C movement results in a typical forceless embedded clause that the speaker does not express any commitment to.<sup>32</sup> This perspective also helps explain why inversion is dispreferred or marginal in embedded contexts. It follows that if inversion is for the determination of illocutionary Force, then it should not occur where a clause should be forceless, such as typical embedded clauses without the IAP projection.

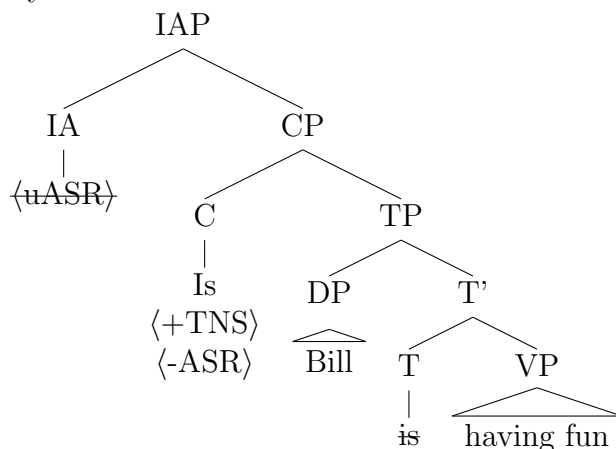
<sup>32</sup>Remember, however, that embedded clauses can in many cases be treated *as if* they have been placed onto the Discourse Table, as they can still be questioned and rejected, contrary to traditional claims about the opacity of embedded clauses. An examination of how embedded clauses are integrated into discourse is a huge topic that we could not do justice to in this paper.

## 3.5 Bringing it back to doubling

### 3.5.1 English matrix questions

The typical formation of questions in English-speaking adults is schematised in (52). [ASR] and [TNS], bundled together on T, move to C and satisfy the uninterpretable [ASR] feature inherited from the IA head.

(52) Adult auxiliary movement



The utterance in (52) may only be interpreted as placing a question on the discourse table.

However, if there are two features then they can be split, just as theories of split IP and split CP show. The origins of auxiliary doubling in child language lie in this theoretical innovation. If auxiliary doubling is a case of feature-splitting, then the child data provides unique evidence that it is a ‘psychologically real’ process and not simply a theoretical representational device.

Our model leads to the claim that the tensed element could remain in T, but [-ASR] moves to be represented in C alone. The presence of [-ASR] in C, on the other hand, means that questioning illocutionary force is fully interpretable, hence the utterance will be interpreted as placing a question on the Discourse Table.

What exactly happens when the child articulates a second tensed auxiliary in C? We have dispensed with the copy analysis and claim that the higher auxiliary is a new externally Merged element. [ASR] is then present as [-ASR] on the new externally-merged high auxiliary and the original auxiliary merged in T is not marked for [ASR], rendering it forceless. It is also now the case that the two auxiliaries need not have the same phonological form as they are separately merged lexical items, permitting observed examples such as (53).

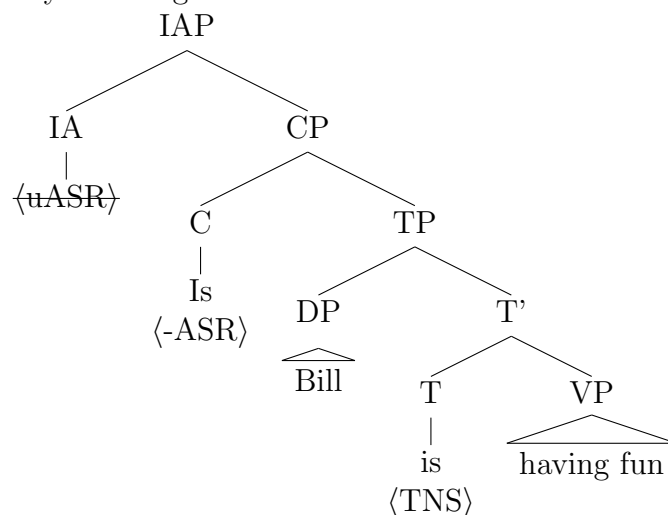
(53) Is the boy can jump? Crain & Nakayama (1987)

Note that we do not have a recursive auxiliary, as evidenced by the lack of cases like (54) outside of dialects already known to permit multiple modals.

(54) a. \*Piglet is can sing.  
b. \*I can may come.

The child tree is schematised in (55).

(55) Child auxiliary doubling



As a result, a question is formed by the high [-ASR] auxiliary in C while a full proposition is still presented, possibly presupposed, but not asserted, by the low [ASR]-less auxiliary in T. Hence we see utterances like (18d), repeated here as (56).

(56) CHI: Do you don't like spiders? Becky, 2;9 (Theakston et al. 2001)

In this case, the utterance simultaneously contains a question and a presupposed proposition, similar to a cleft question in adult English. Note that it is not a reduced cleft structure—plural auxiliaries can obtain in auxiliary doubling (see (11)) where the matrix auxiliary in a cleft can only be singular by agreement with the expletive *it*. Moreover, we have already seen that a range of auxiliaries may obtain in C in auxiliary doubling where only a form of *be* is permissible in adult cleft questions.

In the case that the proposition in TP is not complete due to *wh*-movement, it will be interpreted like (13), repeated below as (57).

(57) CHI: What is that is? Courtney, 3;4 (Henry 1995, Wilson & Henry 1998)

In this case, the matrix proposition that “that” is real and present is assumed to hold, precluding the response *Nothing* to this question.

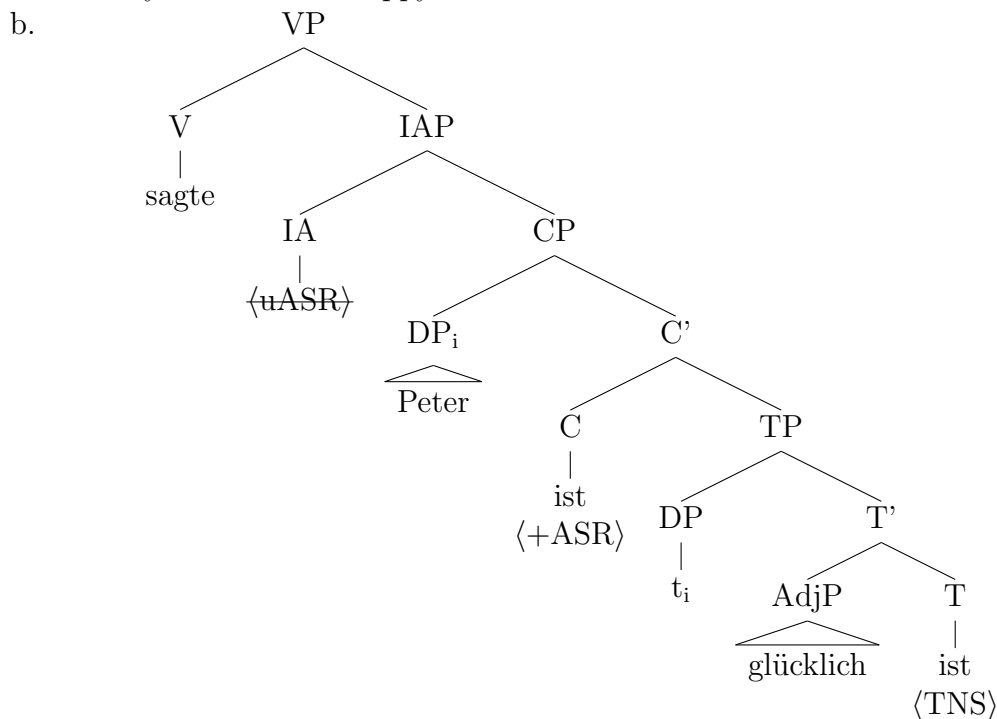
It follows that the different interpretations of auxiliary-doubled questions in child language divide along the same lines as polar and *wh*-questions; the “cleft” interpretation obtains when doubling occurs in polar questions and the “presupposition” interpretation obtains when doubling occurs in *wh*-questions. The reason is clear; in the *wh*-question case, there is a gap in the proposition because the *wh*-item has moved out of TP. However, the fact that tense remains in T means that there is some truth that holds of the subject but that it is not yet defined. Note, moreover, that no examples exist in the literature in

which an adjunct *wh*-question contains auxiliary doubling.<sup>33,34</sup> This is because a full tensed proposition is found in TP in such cases, hence it already is treated as a presupposition by the child (see Fitzpatrick (2005) for details on how such questions are treated like presuppositions even by adults, despite not being strictly presuppositional). The child therefore has no need to double the auxiliary in such questions because the desired interpretation is already available.

### 3.5.2 German embedded declaratives

Turning now to German embedded declaratives which exhibit doubling, we analyse the structure of such embedded clauses as in (58).

- (58) a. Mary sagte, Peter ist glücklich ist  
 Mary said Peter is happy is  
 “Mary said Peter is happy.”



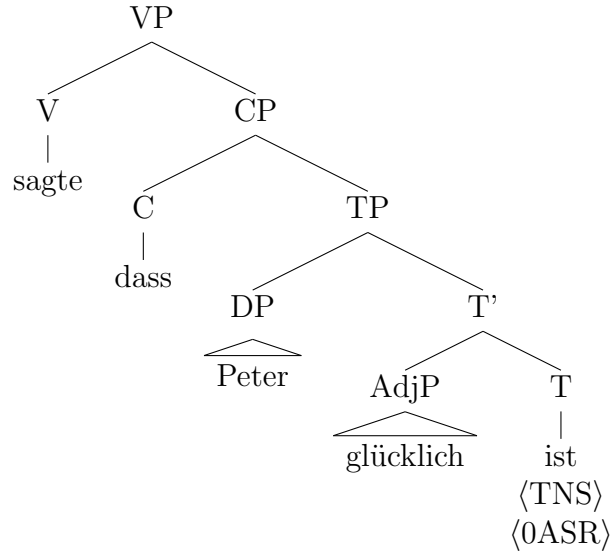
This contrasts with typical target verb final embedded clauses as in (59).

- (59) a. Mary sagte, dass Peter glücklich ist  
 Mary said that Peter happy is  
 “Mary said that Peter is happy.”

<sup>33</sup>This is not to say that they categorically do not occur, but at the very least are vanishingly rare, for the pragmatic reasons to follow.

<sup>34</sup>Note also that children are delayed in their production of *why*-questions with adult-like inversion, despite interpreting *why*-questions in an adult-like manner (Conroy & Lidz 2007). There is therefore evidence for asymmetries between argument and some adjunct questions in terms of child production.

b.



Because C attracts [ASR] in embedded verb second clauses, we have the IAP projection in (58). While [+ASR] is moved into C, [+TNS] remains low, as in typical embedded clauses. The interpretative result of this movement is that there is focus on the fronted auxiliary, much like in verb-doubling constructions like those in Gungbe (Aboh 2006). Without the presence of the IAP, as in (59), there is no uninterpretable [ASR] on the embedded C and movement of the tensed element into C is impossible.

### 3.5.3 Understanding doubling in light of adult non-doubling

We have not yet adequately explained why the narrowed focus interpretation obtains in auxiliary doubling structures. If we compare adult cleft questions then we find that there are also two instantiations of tense in this method of obtaining focus; one in C in the matrix clause and one in T in the embedded clause, leading to a proposition embedded within a question. This recursive structure leads to the embedded proposition being treated by default as presupposed, but this does not help us understand child doubling as this is a monoclausal structure.

Kiss (1998) argues that movement appears to be crucial to achieve identificational focus (as opposed to informational focus) in English; according to her analysis, some constituent, usually a DP, moves into the specifier of a Focus Phrase above the CP containing the rest of the proposition. An expletive subject and agreeing auxiliary are then merged above the Focus Phrase to form a cleft sentence.

As we have already noted, children who use auxiliary doubling are of such an age that we can predict that they have not yet acquired all relevant forms<sup>35</sup> of self-embedding recursion in their language beyond basic recursive merge (see de Villiers et al. (1990), Perner et al. (2003), Hollebrandse et al. (2008) *inter alia*), so the mechanism outlined above is not available to them, at least in their earliest examples of auxiliary doubling. There are clause-internal focus positions in English, but these are restricted to *wh*-words and contrastive foci. Hiramatsu (2003) shows that children as young as 3;5 are sensitive to

<sup>35</sup>For example, we know that children around 5 do not necessarily have recursive deverbal compounds, e.g. [[[coffee] maker] maker], and recursive possessives, e.g. [[John's] father's] hat].



contrastive focus, so perhaps children know that they cannot simply move the focused element to the left periphery to achieve (all types of)<sup>36</sup> identificational focus.

One part of the mechanism outlined by Kiss (1998) is available to recursionless children, however—there is a head in which another auxiliary may be merged; namely C. However, if the auxiliary in T is simply moved to C, this results in a typical information-seeking question that does not carry the presupposed information also needed to achieve identificational focus. There is evidence both from adult language and child language that typical questions with inversion are not presuppositional: Fitzpatrick (2005) shows how interpretive differences between *why* and *how come* questions illustrate the presuppositionality of the latter but not the former; while Conroy (2006) notes that children are adult-like in their interpretation of the presuppositions in *how come* questions despite apparently lacking adult-like semantico-pragmatic knowledge in other areas, such as scalar implicatures (Chierchia et al. 2001, Tieu et al. 2016) and universal quantification (Crain et al. 1996). We therefore postulate that the acquisition path for implicatures is more complicated than the acquisition path for manipulation of presuppositions, though our data, especially Becky’s case study, suggest that this latter is also far from immediate. We leave the study of the link between these paths for future research.

As a result, auxiliary doubling resembles adult clefting due to the presence of two auxiliaries. Moreover, strictly speaking, auxiliary doubling is not so much *doubling* as merging two auxiliaries with different featural compositions.

In short, we claim that children’s early auxiliary doubling is an instantiation of making maximal use of the minimal grammatical means available to them (Biberauer 2017). Evidence from verum focus, target-like questions, target-like negative sentences, and even the cleft sentences in their input means that children are aware that auxiliaries in languages like English are intimately linked to expressions of polarity and illocutionary force. They therefore exploit this knowledge to form monoclausal questions with identificational force, a pragmatic necessity whose adult solution is unavailable to the child.

We must then consider why children would stop using auxiliary doubling, meaning that they stop spelling out Tense and Assertion separately, despite the apparent pragmatic and grammatical efficiency of such techniques. We could predict that children stop using auxiliary doubling once clausal recursion emerges in their grammar, as this means that target-like clefts are now possible in their grammars. However, it is not clear exactly what types of recursion structures would be necessary to trigger this,<sup>37</sup> and our data (CHILDES and reported examples) do not suggest this would be the case anyway; children around 5;0 are expected to have more or less adult-like clausal recursion, but may still produce auxiliary doubling (see examples (1) and (32b)). Alternatively, we can consider why adult English does not allow auxiliary doubling (the examples in (29) and (30) notwithstanding). If our analysis is right, the lack of auxiliary doubling represents the loss of an expressive option compared with the child grammar. This is not unfamiliar, see for example how children overcausativise to useful effect (e.g. Bowerman (1982), *inter alia.*) However, principles of economy acting on the multiple spell-out of heads in a chain are ultimately

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<sup>36</sup>See Kiss (1998) for arguments that some, but not all, cases of identificational focus in English are contrastive.

<sup>37</sup>Thanks to an anonymous reviewer for pointing this out to us.

stronger than expressive power of individual constructions and so, as in other areas of ‘standard’ adult English such as the ban on double modals and restrictions on resumptive pronouns, auxiliary doubling too becomes strongly dispreferred. By decoupling auxiliary doubling from the acquisitional processes it is coupled with in existing accounts, we therefore predict that some children may continue to use auxiliary doubling alongside adult-like questions, cleft questions and recursive structures for some time for pragmatic purposes; an anonymous reviewer provides some evidence for this from a bilingual Heritage English-Japanese child who produced the following utterances between the age of 8 and 10 years:

- (60) a. Why does he doesn’t like to go uphill?  
b. Why does John don’t want Mutley in his room?  
c. What is Isaac’s father’s job is?

The same child also in the same period shows evidence of other structures analysed as movement for the purposes of marking illocutionary force, namely embedded inverted questions:

- (61) a. Can you tell me where is it gone?  
b. This is where are we, right?

Incidentally, this child moved to Japan—and thereafter received reduced exposure to English—at 4;3, an age at which English-acquiring children in English-speaking environments may still produce auxiliary doubling (cf. examples (1), (6) and (12)). This further suggests that the child’s gradual withdrawal from auxiliary doubling is not dependent on the acquisition of specific further structure, but that it is a result of increased awareness of economy principles in operation in English; principles that may be in conflict with expressive power.

## 4 Conclusion

The main claim in this chapter is that subject-auxiliary inversion engages discourse structure and ideas of propositionality in the syntax they use. To this end we made four sub-claims:

1. Auxiliary doubling in questions in child language produces a structure with a unique meaning; children use this structure to express their beliefs in the same utterance as asking a related question.
2. There is a connection between T-to-C movement and the expression of overt illocutionary force that adds to the work of Klein (1998, 2006) and Duffield (2007, 2013) in calling for a distinction between Tense and Assertion features in natural language.
3. Formal linguistic theory and the study of language acquisition must not be kept separate as each is crucial for highlighting and tackling subtleties in the other. The

spontaneous production of auxiliary doubling in acquisition provides insight into problems that cannot be approached through intuition and grammaticality judgements in the adult language but are no less significant for concepts in linguistic theory.

4. Principles of economy and efficiency in narrow syntax tend to override expressive power of a given construction with respect to how copies and feature bundles are pronounced.

Subject-auxiliary inversion is not simply a question of a rule of copying or of abstract feature-checking. We have utilised feature splitting to allow a child to represent Assertion and Tense features separately by merging a different auxiliary for each feature. The original auxiliary in T and the higher auxiliary position in C then exist independently. These operations in turn engage the prerequisites for automatic question interpretation of the whole utterance as well as a forceless interpretation of the proposition in TP. The result is a mapping between CP structure and the discourse. However, the use of Farkas and Bruce's (2010) Discourse Table model has also shown that although we may think of clause and illocutionary act types as being fairly well-defined, there are subtle refinements that need to be made and may be made by taking syntactic structures used by both children and adults into account. The core architecture of the interface between syntax and pragmatics guides the most basic acquisition process and our adult language too, though we also show evidence for a truly abstract syntactic economy principle at work: English-acquiring children make expressive use of doubled auxiliaries yet economy eliminates this from their eventual adult grammar.

Finally, we have shown that quite young children interpret and manipulate complex questions under discussion in their conversations; we believe that the investigation of exactly how they learn to do this is a rich and promising area for future research.

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