The Acquisition Path of 'High' Negation in English

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1. Introduction

"High" negation questions in English—that is, interrogative sentence forms in which the negation clitic *n't* is realised on the fronted auxiliary—are much studied, yet there is little consensus on their semantics and syntax. Moreover, their production by children is known to be non-target-like in the earliest stages but again, accounts as to why and how this happens vary. In this paper, we examine evidence from acquisition to help adjudicate between theoretical approaches to the structure and meaning of high negation question forms. We also take seriously the different *uses* of high negation question forms in English, claiming that this, in part, explains children's non-target-like production and reveals two acquisition paths: one syntactic, and one pragmatic.

2. Core data and previous approaches

The four high negation question forms that we will focus on in this paper are negative tag questions (TagQs, 1)[1], high negation biased questions (HiNegBQs, 2), negative polar exclamatives (3) and suggestion questions (4). We will additionally consider low negation biased questions (LowNegBQs, 5), where the negator *not* is internal to the proposition. All examples below are taken from the CHILDES database (MacWhinney 2000):

(1) Close to Rachel's feet, wasn't it? Anne, 1;11, Manchester corpus
(2) There, don't you see it? Ross, 2;4, MacWhinney corpus
(3) Isn't it sweet. Anne, 2;5, Manchester corpus
(4) Don't you want a zoo game for me to play? Abe, 3;10, Kuczaj corpus
(5) Have we not got no more cards? Becky, 2;5, Manchester corpus

All of these forms can express speaker bias towards a particular response or answer but do so in different ways. While TagQs and negative polar exclamatives

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[1] In this paper we are exclusively concerned with TagQs containing high negation. The tag data in this paper therefore comprise only a subset of the possible types of TagQ in English.

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are typically considered to be more assertion-like, biased questions express (optionally in the case of LowNegBQs) that a speaker believes a particular answer to their question to be more likely, and suggestion questions are interpreted more like commands, especially in child-directed contexts where a parent might say on attempting to leave the house: "Can't you just put your shoes on?"

Previous approaches to the syntax and semantics of high negation question forms tend to lead to the following groupings. TagQs are often considered to be elided HiNegBQs (Sailor 2012, Bill and Koev in prep, i.a.; see Jamieson 2018 for a thorough overview), which are themselves analysed quite straightforwardly as interrogative clauses (in mainstream generative grammar, CPs). In such accounts, which we exemplify using Romero's (2015) analysis, HiNegBQs form non-biased polar questions in that the negation they contain stands in for a special FALSUM operator in the IP which manages the information shared by both speaker and addressee by marking that the speaker is tacitly asking whether the addressee "has fully convincing evidence for adding [the proposition]" to this body of shared knowledge (Romero 2015: 506).

(6) a. Isn't Jane coming too?
b. LF: [Q [FALSUM [$_{IP}$ Jane is coming]]] (40), Romero 2015: 507

In the same paper, Romero claims that the FALSUM operator is not unique to HiNegBQs, showing that it also accounts for subjunctive conditionals, but does not extend its use to other interrogative forms containing negation. Despite the surface syntactic similarity between TagQs and HiNegBQs, Jamieson (2018), building on Domaneschi et al (2017), argues that TagQs are pragmatically distinguished from HiNegBQs in terms of the pragmatic contexts they are preferentially used in: TagQs are preferred where the speaker receives some negative evidence for the proposition in the anchor, where HiNegBQs are preferred in contexts where there is no evidence either way (and only speaker belief motivates the asking of a biased question).

In a second approach to both TagQs and HiNegBQs exemplified by Krifka (2015), the negation in HiNegBQs (7) is not propositional but operates in a higher set of syntactic projections concerned with discourse management, specifically a commitment phrase (CommP). CommP is headed by an operator ⊢ that contributes the proposition that some interlocutor is committed to the truth of the relevant proposition. CommP is dominated by an ActP which distinguishes between questions and assertions by identifying who it is that is committed: the speaker (assertions, marked with a period) or the addressee (questions, marked with a question mark; Krifka 2015:333). This approach combines syntactic and pragmatic concerns by locating the latter in the syntactic structure.

(7) Didn't I win the race? (39), Krifka 2015: 340
[$_{ActP}$ [$_{Act}$? Did] [$_{CommitmentP}$ n't [$_{Commitment}$ ⊢] [$_{IP}$ I t_{did} win the race]]]

TagQs, in turn, are disjoined speech acts comprised of a positive assertion and a question containing low (IP-internal) negation, though Krifka (2015: 343) also claims his account to be compatible with questions with high (discourse-level) negation.

(8) I have won the race, haven't I? (45), Krifka 2015: 343
[$_{ActP}$ [.] [$_{CommP}$ [$_{Comm}$ ⊢] [$_{TP}$ I have won the race]]] ⋁
[$_{ActP}$ [? haven't] [$_{CommP}$ [$_{Comm}$ ⊢] [$_{TP}$ [[$t_{n't}$] [$_{TP}$ I t_{have} won the race]]]]]

Suggestion questions are rarely addressed in the existing literature, though Romero and Han (2004) touch on them briefly. They claim that negation in suggestion questions are compatible with PPIs and with a second *not* negator, suggesting that the negation they contain is somehow 'shielded' from the rest of the proposition. As such, they assume the same syntax for suggestion questions as HiNegBQs but propose that pragmatic reasoning applies differently.

Negative polar exclamatives are treated separately from biased questions and FALSUM-type constructions in recent accounts such as Taniguchi (2017). This is in part on the grounds of the response that these exclamatives elicit—Taniguchi (2017) argues that they are true questions that are self-answered, rather than exceptional assertions or questions that actually require a response from the addressee. Taniguchi achieves this using an Excl(amative) operator, again with the function of managing the discourse, in conjunction with a biased question force head, which excludes the addressee from responding to the question:

(9) Isn't this spicy!
[[EXCL] [[Q] [n't]] This is spicy] Taniguchi 2017: 131

The predictions that the above accounts make for high negation question forms are clear. In the case of a Romero-style account, TagQs, HiNegBQs and suggestion questions should emerge at the same time in a given child, modulo the availability of the relevant pragmatic contexts. We may therefore expect to see fewer suggestion questions than TagQs and HiNegBQs as the relevant context is plausibly less common, but no discrepancy in the use of TagQs and HiNegBQs. A Romero-style account makes no prediction with respect to negative polar exclamatives but if Taniguchi's (2017) account is correct, negative polar exclamatives require an operator unique to that structure, EXCL, which may be more difficult to acquire than FALSUM as FALSUM is also available in other constructions. Krifka's (2015) account makes a different prediction, as the structures of HiNegBQs and TagQs are distinguished. We might expect that HiNegBQs emerge earlier than TagQs because both are contingent on the high discourse projections that Krifka proposes, and because the question part of a TagQ in Krifka's approach exhibits more movement operations (as both the negation and the auxiliary move into those discourse projections).

3. Acquisition data

It is well reported that children produce negative utterances later than their positive counterparts and that non-target-like forms are common (see Thornton and Tesan 2013 for an overview). We also observed in the course of previous work (Woods and Roeper 2020) that tag questions in child language emerge earlier and are much more frequent than high negation question forms. As suggested in section 2, this does not follow from syntactic accounts in which TagQs are derived from HiNegBQs, and is not rescued by Jamieson's pragmatic distinction either, because children produce TagQs accurately while making errors on HiNegBQs. Nor is this observation compatible with Krifka's (2015) approach, whether negation is analysed as high or low. We discussed the predictions made by a low negation Krifka-style analysis in section 2, and a high negation Krifka-style analysis makes the same predictions as a Romero-style account, thereby falling foul of the same issues.

To confirm our earlier observation and to address the issue of the differences between TagQs and HiNegBQs, we set out to establish how children produce each of the four types of high negation question form in (1-4), plus low negation questions like (5). We used Wang's CHILDES browser to access 44 English language corpora, searching for 12 forms of HAVE/BE/DO + *n't* (for high negation question forms) or *not* for low negation questions. These searches returned upwards of 20,000 hits produced between ages 1;7 and 16, from which we removed declaratives, non-inverted questions, utterances without an overt subject (as subject-auxiliary inversion could not be established), wh-questions unanchored tags (as these could plausibly be true elided HiNegBQs), imitations, repetitions, and song lyrics. We also restricted our results to utterances produced before age 4;0, and only to corpora coded for both year and month of the child's age[2] This left 650 utterances, which we then tagged for the type of act they were used to perform. This was done by checking all 650 utterances in context, using 5 lines of preceding and following discourse.

The results are shown in table 1 below[3], where we see that generated, original TagQs are used frequently from children's earliest multiword utterances, comprising almost 71% of children's utterances that contain both subject-auxiliary inversion and negation (77% of all high negation question forms)[4]. TagQs precede both LowNegBQs and HiNegBQs, which themselves precede polar exclamative and suggestion Qs, though HiNegBQs are around five times more frequent than LowNegBQs at all ages. All forms (apart from TagQs) are

[2] This excludes, for example, the three-year-olds from the Fletcher corpus (Fletcher and Garman 1988), as their ages were recorded simply as 3.

[3] All TagQs in this table have *n't* negation as no tag with *not* negation was produced by the children surveyed. The "Other" category includes imperatives with overt subjects, acts that neither rater could clearly determine and, in the case of Adam (Brown corpus, Brown 1973), the occasional neutral unbiased question.

[4] TagQs, HiNegBQs, negative polar exclamatives, suggestions and 24 "Other" utterances.

relatively rare in child language, though the prevalence of TagQs suggests that the discourse conditions necessary for felicitous biased questions do occur in child discourses.

Table 1. Negated questions by age and form/act; solid line marks increase in use of given forms to >7% of negative forms produced

	TagQ	HiNeg	Excl	Sugg	LowNeg	Other	Total
<2;0s	9	2	0	0	0	1	12
2;0-2;5	31	5	1	0	3	4	44
2;6-2;11	268	25	5	1	5	31	335
3;0-3;5	94	15	14	1	1	12	137
3;6-3;11	57	27	16	2	6	14	122
Total	459	74	36	4	15	62	**650**

Our initial observation is therefore confirmed and the data pose questions for both the Romero-style and Krifka-style approaches to the syntax of TagQs, as we would not expect such a disparity in the production of either TagQs and HiNegBQs (according to Romero's approach) or TagQs and LowNegBQs (according to Krifka's approach). Moreover, when we examine the individual utterances in the LowNeg and HiNeg groups, we also find more non-target-like features in the children's negative question forms, including double negation (like in 5) and auxiliary-doubling (6):

(10) Does he don't fit on there? Becky, 2;6, Manchester corpus

With respect to polar exclamatives, notice that their rate of use is much more similar to that of HiNegBQs by age 3;0 (15 vs 14), and the use of both polar exclamatives and HiNegBQs outstrips use of LowNegBQs. The use of suggestion questions lags behind at all ages, but we believe that this may be attributed to our search strategy, which did not include modal auxiliaries. It is not clear whether suggestion questions more typically involve modal auxiliaries compared with HAVE/BE/DO, but it is a possibility given child directed utterances like (11):

(11) Can't you just take him in here, Becky? INV, Manchester corpus (Becky)

These observations lead us to make the following proposal: TagQs are not elided HiNegBQs or LowNegBQs, but have a different structure from both of these things. On the other hand, we will claim that HiNegBQs, polar exclamatives and suggestions do share a syntactic structure, but that they differ crucially in terms of the semantics of the operators they contain, which has a concomitant effect on how they are interpreted and deployed in discourse by children who are developing in both syntactic and pragmatic competence. The theoretical descriptions we outline involve several invisible abstract operators which, at first, seem intuitively implausible. We will show, however, that when understood and linked to specific variations in the acquisition of these structures, these mechanics

exactly capture the acquisition variation and thus become an argument that the abstractions are real. Of critical importance is that if the operators are separable and real mental entities, they account for discernible steps on the acquisition path.

4. Reanalysing high negation question forms

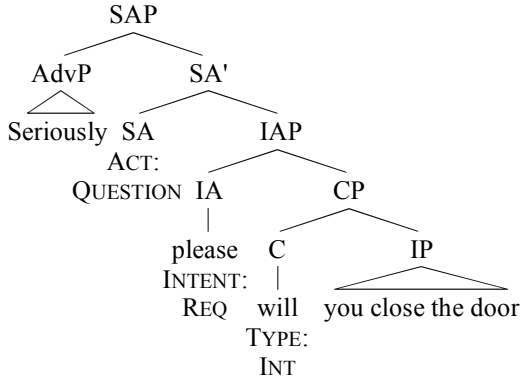
In this section we will outline the syntactic framework that we adopt, then we present our proposal for TagQs on the one hand and fully-spelled out high negation question forms on the other.

4.1. Adopting a speech act syntax framework

We adopt a version of speech act syntax as proposed by Woods (2016, 2020). According to this framework, the highest syntactic projection in the propositional domain (CP) is not the highest syntactic projection in the utterance. CP, which is responsible for syntactic clause typing, is selected by an illocutionary act phrase (IAP), which hosts markers of speaker perspective. The IAP is in turn selected by a speech act phrase (SAP), which hosts elements that structure the discourse according to interlocutor commitments.

(12) a. Seriously, please will you close the door? Woods 2020: 13

b.



The structure in (12b) shows how request markers such as sentence-initial *please* are compatible with both interrogative and imperative clause types, but not declaratives, hence illocutionary force (REQUEST) and clause-type (INTERROGATIVE) cross-cut each other and may be represented by separate lexical items (cf. Coniglio and Zegrean 2012). For full justification of the structure in (12b) we direct the reader to Woods (2020). Note that the structure proposed here is very similar to that of Krifka (2015) as it comprises two discourse-structural projections, but the IA head in our structure is not concerned with interlocutor commitment, but with speaker intention–that is, how the propositional content should be interpreted in the discourse. The IA head might overtly and directly define the type of act that should be performed using the

propositional content (hence the request marker "please" in 12b) or it might indicate that a particular, usually canonical, interpretation need *not* apply.

An example of this is the Romanian discourse particle *oare*, which marks interrogative sentences as optional question acts, in the sense that the speaker does not necessarily expect a response:

(13) Oare Petru a sosit deja?
PRT Peter has arrived already
"Has Peter arrived already? (…I wonder)" (14), Farkas and Bruce 2010: 96

A further divergence from Krifka's account is that where he separates commitment and actor across the two discourse projections, we claim that they are expressed on the same SA head. We propose that there are three types of SA head expressing three different types of commitment that cover the extent of expressible commitments in English and, potentially, in human language. We will claim that all the different 'speech acts' that can be performed across languages are derivable from these three expressions of commitment in conjunction with different IA heads and clause-typing markers. An informal description of the three SA heads is shown in (14).

(14) a. ASSERT: the speaker commits to taking responsibility for the truth in the discourse world of the proposition expressed in the IAP (cf. Farkas and Bruce 2010, Krifka 2014).
b. QUESTION: the speaker expects the addressee to take responsibility for the truth in the discourse world of some true answer to the question expressed in the IAP (cf. Farkas and Bruce 2010)
c. COMMAND: the speaker expects the addressee to take responsibility for making the property expressed in the IAP true in the discourse world (cf. Portner 2004)

Therefore, although our account is very similar to Krifka (2015), the differences outlined above allow for a far wider range of illocutionary information to be expressed at the level of IAP by different types of lexical items. We argue that this will allow us to better characterise the structures that children must acquire in order to produce high negation question forms. We will also propose further differences in the case of TagQs in particular, to which we now turn.

4.2. The structure of TagQs

The structure we propose for TagQs is shown in (15):

(15) a. John is coming, isn't he?
b. [$_{SAP}$ ASSERT [$_{CP}$ DECL [$_{IP}$ J. is coming]] ∨ [$_{CP}$ Q Is [$_{IP}$ n't [$_{IP}$ J. ~~t$_{is}$ coming~~]]]]

In (15) two separate clauses are disjoined under one speech act head ASSERT. It is crucial to understand that this is different from *speech act* disjunction, as when the disjunction is overtly expressed, as in (16), both the bias profile and the canonical response pattern change.

(16) John is coming, or isn't he? *No bias; speaker requires a YN answer*

Rather, the bias of a TagQ is, we claim, derived from the interaction between the anchor and the tag, contra a Romero-style analysis, where the tag alone contributes the bias due to its being an elided biased question. In (15), the speaker asserts the proposition in declarative form that John is coming—so far, so canonical—but then also asserts (takes responsibility for the truth of) the polar question "Isn't he (coming)?". What does it mean to assert this question? We assume, following Krifka (2015), that polar questions (positive or negative) are *not* sets of propositions but query a single proposition, i.e. they overtly query whether some proposition is true, and the possibility that the polar opposite proposition is true instead comes for free. Essentially, monopolar questions are inherently modal, specifically expressing possibility, with respect to the eventual truth of some proposition in the discourse world. It then seems that to assert a question is for the speaker to take responsibility for the *possibility* that that the proposition expressed in interrogative form holds true in the discourse world.

As such, this leads us to be more precise about the difference between TagQs on the one hand and HiNegBQs on the other, despite solid evidence (discussed by e.g. Bill and Koev in prep) that their bias profiles are very similar—the bias is towards the positive proposition, it is obligatory and it is weak (compatible with the adjunct *by any chance*). Where HiNegBQs check whether "the addressee has fully convincing evidence for not adding p [the positive proposition] to the [common ground]" and require an answer" (Romero 2015: 508), TagQs check whether the addressee has fully convincing evidence for not adding the *negative* proposition to the common ground, as it is the negative proposition that is asserted by the speaker to *possibly* be true. This is also commensurate with Jamieson's (2018) finding that TagQs are preferred over HiNegBQs specifically in contexts where the speaker perceives there to be some evidence that the negative proposition is the case. Finally, compare the response patterns for HiNegBQs and TagQs (along with a simple assertion as a control):

(17) A: Isn't John coming?
B: Yes (he is); Yes (he isn't); No (he isn't), #Right; #[silence].
(18) A: John is coming, isn't he?
B: Yes (he is); ??Yes (he isn't); No (he isn't); Right; #[silence]
(19) A: John is coming.
B: Yes (he is); #Yes (he isn't); No (he isn't); Right; [silence]

A final note on our proposed syntax for TagQs: the negation in these cases is propositional. We have (agnostically) adjoined it to IP, but the key factor here is

that it applies at the propositional level, not at the constituent level or the illocutionary level. It does not apply at the constituent level because we do not see LowNegBQs at high rates in child language, nor did we find any TagQs with *not* negation in our dataset. We now turn to what it means for negation to apply at the illocutionary level and how this is relevant for other high negation question forms.

4.3. The structure of HiNegBQs, polar exclamatives and suggestion questions

The structure we propose for HiNegBQs, polar exclamatives and suggestion questions is as follows:

(20) a. Isn't John coming? *HiNegBQs*
b. [$_{SAP}$ QUESTION [$_{IAP}$ NEG [$_{CP}$ Q [$_{IP}$ John is coming]]]]
(21) a. Isn't John amazing! *Polar exclamative*
b. [$_{SAP}$ ASSERT [$_{IAP}$ NEG [$_{CP}$ Q [$_{IP}$ John is amazing]]]]
(22) a. Can't you just put your shoes on? *Suggestion question*[5]
b. [$_{SAP}$ COMMAND [$_{IAP}$ NEG [$_{CP}$ Q [$_{IP}$ You can just put your shoes on]]]]

As will be clear, we are proposing that all three constructions have the same syntactic structure, differing only in the identity of the SA head. They are all clause-typed as questions and contain illocutionary-level negation.

Having claimed that IAP is the locus of speaker perspective and intention, it might be surprising to see us claiming that polarity operators can be merged there. We propose that to do this is a move on the part of the speaker to, quite overtly, mark that they are using a given clause type (here interrogatives) in a non-canonical way. We should also note at this point that while the syntax of subject-auxiliary inversion can be accounted for quite straightforwardly in any flavour of mainstream generative syntax, e.g. via a mechanism of local spec-head Agreement, a general semantics of inversion remains elusive in the sense of understanding *why* it has the information structural effects that it has in English (though see Truckenbrodt 2006 and Lohnstein 2020, i.a. for approaches concerning the meaning of V-to-C in German). Subject-auxiliary inversion is not limited to forming canonical questions in English, but also appears in (amongst other constructions) event repetition with ellipsis, which emphasises the repeated event. Children who use subject-auxiliary inversion in questions also use these latter structures in an adult-like way:

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[5] Note that only (22a) is compatible with utterance-initial (i.e. illocutionary marker) *please* as seen in (12), though the example improves without negation:

(i) ??Please can't you just put your shoes on?
(ii) Please can you just put your shoes on? Cf. Woods 2020: 18

This is potentially indicative of the complementary distribution of illocutionary negation and illocutionary force markers, which is positive for our approach.

(23) And my grandma stayed and read and mommy took me and you took me and so **did grandpa**. Ross, 3;0, MacWhinney corpus

This suggests that inversion can trigger an abstract notion of non-canonical (that is, non-informationally-neutral) semantics.[6]

Returning to the issue of negation specifically, the negation in the IAP scopes over the monopolar question in the CP (e.g. Is John coming?), negating specifically the modality inherent to a monopolar question that does so much work in TagQs (see section 4.2)—that is, the possibility that the proposition [John is coming] is true. The eventual interpretation of such an utterance then depends on the allocation of commitment (by the SA head) and some additional pragmatic reasoning. We work through this below for HiNegBQs in terms of the content, propositional and inferred, that is contributed at each stage of the derivation:

(24) Isn't John coming? *HiNegBQ*

a. [$_{IP}$ John is coming]
   Propositional content: John is coming
b. [$_{CP}$ Q [$_{IP}$ John is coming]]
   Propositional content: It is possibly true that John is coming
   Inferred content: It is possibly true that John is not coming
c. [$_{IAP}$ NEG [$_{CP}$ Q [$_{IP}$ John is coming]]]
   Propositional content: The speaker does not want to express that it is *possibly* true that John is coming
   Inferred content: The speaker expresses that they believe it is (probably) true that John is coming
d. [$_{SAP}$ QUESTION [$_{IAP}$ NEG [$_{CP}$ Q [$_{IP}$ John is coming]]]]
   Propositional content: the speaker wants the addressee to take responsibility for the truth of the proposition that it is not *possibly* true that John is coming
   Inferred content: the speaker wants the addressee to take responsibility for the truth of the proposition that John is coming (or, in more Romero-style terms, the speaker is checking that the addressee has no reason for not confirming that John is coming)

At every level of the derivation from CP there is both propositional and inferred content for the addressee to interpret, and the scope of the negation over the possibility of truth of the proposition in IP also has to be correctly understood. As such, it is easy to see why children would acquire these structures later than the TagQs in section 4.2, where the pragmatic workload is far less.

Bear in mind further that HiNegBQs as we characterise them are a case where the commitments expressed by the SA head and the syntactic clause type actually

[6] See Bauke, Santos, and Roeper (in preparation) for discussion of how L2 Chinese, German, and Spanish speakers fail to grasp the difference between "so did I" and "so I did", which may be traceable to Speech Act ambiguity.

align in the sense that they canonically co-occur—QUESTION commitments typically occur with interrogative clauses. The difference between these questions and non-negative polar questions, however, is the intervening illocutionary negation, which indicates overt rejection of the typical meaning expressed by an interrogatively-typed clause. In the case of negative polar exclamatives and suggestion questions, we claim that there is a non-canonical alignment of commitments and clause types, given that speaker commitments to truth and addressee commitments to make a proposition true are not prototypically expressed using interrogative forms.[7] We briefly sketch the meaning of the structures in (21-22) below:

(25) a. Isn't John amazing! *Negative polar exclamative*
[$_{SAP}$ ASSERT [$_{IAP}$ NEG [$_{CP}$ Q [$_{IP}$ John is amazing]]]]
b. Explicit meaning: The speaker takes responsibility for the truth of the proposition that it is not *possibly* true that John is amazing
Inferred meaning: The speaker takes responsibility for the truth of the proposition that John is amazing

To clarify once more the relationship between the explicit and the inferred meaning in the polar exclamative in (25), it is not the case that negation is *reversed* in order for the positive proposition [John is amazing] to be asserted; rather that the negation operates over the contribution of the interrogative clause type, which is the meaning that it is possibly true in the discourse world that the proposition holds. By negating the modality inherent in this meaning, the indirect assertion that John *is* amazing (it's not only possible, but the case) can be made.

(26) a. Can't you just put your shoes on? *Suggestion question*
[$_{SAP}$ COMMAND [$_{IAP}$ NEG [$_{CP}$ Q [$_{IP}$ You can just put your shoes on]]]]
b. Explicit meaning: The speaker wants the addressee to make true in the discourse world that it is not *possible* that they put their shoes on
Inferred meaning: The speaker wants the addressee to make true in the discourse that world that they put their shoes on

Again in the suggestion question (26), the speaker's suggestion that the addressee put on their shoes falls out from the negation operating over the contribution of the interrogative clause, such that it is expressed that the speaker is in no doubt that the addressee is capable of putting on their shoes in the discourse world.

[7] It could be argued that an interrogative clause is a prototypical form for the speaker to express that an addressee should commit to making some proposition true of the discourse world because they are canonical forms for requesting. We would argue, however, that (most) requests of the form "Can you put your shoes on?" are indistinguishable in terms of their syntax from information-seeking questions (i.e. "Are you able to put your shoes on?") without supporting context, so do not canonically, in and of themselves, align with the commitments expressed by COMMAND—only imperatives fit this bill. Note that we do not deal here with issues of intonation, leaving this for future work.

The reader may have inferred that we are essentially drawing parallels here between SA heads and clause types—ASSERT canonically aligns with declarative clause typing, QUESTION with interrogatives and COMMAND with imperatives. This is intentional as while SA heads are overtly expressible through lexical, intonational and grammatical means, they are often not overtly expressed. Moreover, while languages typically mark these three clause types in some way, very few appear to mark different speech act types using the same means, relying instead on discourse particles, adverbials or a combination of different grammatical and phonological markings to indicate that a particular interpretation of an utterance is intended. For this reason, and our earlier claim that there are in fact a highly limited number of ways in which any given speech act can actually be responded to (in terms of who takes responsibility for the 'fit' between content and the discourse world), we claim that it is economical theoretically and more plausible from the point of view of acquisition that speech act operators and clause-typing mechanisms should map onto each other in this way.

This entire system claims that there is a virtue to creating separate speech acts which are subject to composition. Our acquisition arguments are, we believe, critical evidence for the separability of speech act operators from illocutionary operators from clause-typing operators because they lead to discernible stages in the acquisition path (or rather, multiple interrelated acquisition paths). These items are, thus, not conglomerates like feature bundles with non-discernible parts that tend not to allow for a stepwise acquisition path. In the next section, we will argue that distinct steps on the acquisition path distinguishing TagQs from other high negation question forms such as HiNegBQs and negative polar exclamatives are the most direct argument for an analytic structure for these otherwise apparently semantico-pragmatic factors.

4.4. Back to acquisition: consequences for our analysis

The structures that we propose above make certain predictions about what we should see in acquisition, which are borne out by the data in section 2. Firstly, they predict that the acquisition of TagQs should proceed on a different path to that of other high negation question forms. We expect that TagQs are acquired before all other kinds of high negation question forms because they are fundamentally different in their syntax (propositional rather than illocutionary negation) and their pragmatics. To understand and use TagQs the child has to consider why a speaker would both assert some proposition but also assert that the opposite is possibly true. This does not require direct recourse to relevance, scalarity or similar principles, but rather the ability to understand that competing sources of information exist in the world—plausibly a process more like false belief. As the ability to correctly interpret non-verbal false belief is in evidence from around 15 months (Onishi and Baillargeon 2005), it is plausible that these processes can be marshalled to understand TagQs. However, we would also predict that TagQs will follow the earliest positive polar questions in a child's

production on syntactic grounds, as the inclusion of propositional negation introduces added syntactic complexity. This too is borne out.

HiNegBQs, negative polar exclamatives and suggestion questions, on the other hand, are expected to be acquired later on both syntactic and pragmatic grounds. While TagQs could plausibly be acquired before the instantiation of the IAP/SAP projections, these projections are key for the comprehension and production of the other three high negation question forms we present here, as the negation is first merged in the IA head and they are differentiated at the level of SAP. The pragmatic workload required of these structures is also greater, as we've already seen, and in fact, we claim that this differentiates between the three structures as well. To understand HiNegBQs, negative polar exclamatives and suggestion questions, the child must essentially interpret them as scalar implicatures: by marking that some proposition is not *possibly* true, the speaker must be making the stronger claim that it *is* true. How plausible is it that children are capable of such implicatures at the age that we see these structures emerge? Abe, the child recorded for the Kuczaj corpus, provides an indication that this could be the case: he first demonstrates the ability to understand possibility modals and their related implicatures in an adult way between 2;6 and 3;2 (Kuczaj 1982) but according to our corpus search does not use any high negation question forms other than TagQs until 3;3, where he uses the HiNegBQ *Don't you see?* The fact that, in individual children and across the cohort, negative polar exclamatives follow HiNegBQs is also accounted for by our proposal, as HiNegBQs feature a canonical alignment of SA head and clause-type (QUESTION and interrogative), in contrast to negative polar exclamatives and suggestion questions, which have surface interrogative forms but non-QUESTION SA heads.

Though this would also fall out from adopting a Taniguchi-style analysis where a completely different type of operator must be acquired for negative polar exclamatives, it is important to note that negative polar exclamatives do not trail HiNegBQs for long chronologically (Abe's first negative polar exclamative, *Wasn't that silly?*, appears just 10 days after his first HiNegBQ) and once they start to appear, are used at similar rates across the cohort. This weakly supports a proposal where the syntactic difference between HiNegBQs and negative polar exclamatives is minimal. We reiterate here that our current dataset does not allow us to say much about suggestion questions, because we believe that the rate of suggestions questions may be higher in a dataset that includes modal auxiliary verbs. We leave this for future research.

5. Conclusions

In this short paper we have argued that TagQs have fundamentally different structures from high negation question forms, despite the tag part of a TagQ appearing to be exactly one such form. TagQs are composed of two clauses underneath one speech act operator, with no element modifying or specifying illocutionary force. The relationship between clause-type and speech act operator

is part canonical (ASSERT and the declarative anchor) and part non-canonical (ASSERT and the interrogative tag). The syntax of TagQs are quite straightforward, then, but they are pragmatically more complex than declarative assertions or typical interrogative polar questions.

HiNegBQs, in contrast, are monoclausal and feature an additional operator at the illocutionary level, namely illocutionary negation. Negative polar exclamatives and suggestion questions are also monoclausal, also feature illocutionary negation, and they feature a non-canonical relationship between syntactic clause type and speech act. These three types are therefore predictably harder to acquire both on the level of syntax and semantics (the addition of illocutionary negation) and pragmatics (clause type and speech act mismatch).

This was motivated by an observation from acquisition—that children acquire and use adult-like TagQs before adult-like HiNegBQs— but is also supported by empirical data concerning the contexts in which TagQs are used (Jamieson 2018) and the response patterns to TagQs compared with HiNegBQs in particular. We also demonstrated, again using acquisition and other empirical evidence, that an analysis of a TagQ as an elided biased question cannot be saved by appealing to them as elided LowNegBQs.

We have also demonstrated that the still-relatively-early acquisition of high negation question forms suggests that, TagQs apart, they can be accounted for by a unified syntactic analysis, for which we have provided descriptive semantics and pragmatics. HiNegBQs, negative polar exclamatives and suggestion questions are all fundamentally monopolar questions where the speaker's belief in the likelihood of the truth of a proposition is marked through overt morphosyntax (illocutionary negation) in combination with pragmatic inference, driven by a small set of speech act operators that are not unique to these structures.

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