Verb Movement and Subject Placement in the Acquisition of Word Order: Pragmatics or Structural Economy?

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Abstract:

This paper reports on a study investigating three children acquiring a dialect of Norwegian (Tromsø). It is shown that, although verb second (V2) word order is attested early in non-subject-initial declaratives and questions, the children produce non-target-consistent word order in these constructions at an early stage, failing to move pronominal subjects past negation or an adverb. This is analyzed within a split-CP model which also assumes the existence of two subject positions in the IP domain, a high one for informationally given subjects and a lower one for subjects conveying new information. A pragmatic account of the child data is considered, but is rejected in favor of an economy-based analysis which includes factors such as input frequency and complexity.

1. Introduction

In the literature on the acquisition of verb movement and verb-second (V2) word order in Germanic languages, sentences such as (1) and (2) have been used to argue for different theories of language development. Clahsen, Penke and Parodi (1993/94) used the verb-initial topicalization construction in (1) to argue for a stage in the language acquisition process of German where certain functional projections are missing. More specifically, within a weak continuity structure-building approach, they claimed that children go through a stage where their clause structure includes an IP, but no CP projection. Under the assumption that negation is attached to the VP, the finite verb has moved to the head position of the only functional projection available. Consequently, there is no specifier position for the subject to move to between the finite verb and negation, and the result is therefore the Neg-S word order exemplified in (1).[1]

(1) darf nich Julia haben. (Mathias, stage II) **((X)-V-Neg-S)**
may not Julia have

[1] It should be noted that while the English translation of example (1) is ambiguous between an epistemic and a deontic reading, the German modal verb *dürfen* only allows a deontic interpretation.

'Julia may not have that.'
Target form: Das darf Julia nicht haben.
(From Clahsen, Penke and Parodi 1993/94: 423)

However, sentences with the opposite word order (S-Neg) have also been attested in non-subject-initial declaratives in early child German. Poeppel and Wexler (1993) found eight such examples (and no counterexamples) in the data of the child Andreas that they investigated, one of which is illustrated in (2).[2] Poeppel and Wexler take these examples to be evidence of the continuity approach to language acquisition, where all functional projections (basically IP and CP) are available to the child from the outset of language acquisition. More specifically, they argue that the S-Neg word order of sentence (2) shows that the subject cannot be inside the VP, and thus that there must be two functional specifier positions above VP, one for the subject (SpecIP) and one for the topicalized element (SpecCP).[3]

(2) den tiegt a nich wieda. (Andreas, age 2;1) **(X-V-S-Neg)**
that gets he not again
'He won't get that back.'
Target form: Den kriegt er nicht wieder.
(From Poeppel and Wexler 1993:23)

In this paper I present similar data from Norwegian child language which I analyze within an economy approach to language acquisition that retains aspects of both continuity and structure-building. More specifically I argue that young children will move elements only as high up in the structure as there is clear evidence for in the input. In Norwegian, the two word orders in (1) and (2) are both grammatical in the adult language, indicating that there are two subject positions available in such constructions. The choice between the two is related to information structure, as the one below negation is preferred with full DP subjects, while pronominal subjects normally occur above negation. Since the behavior of pronominal vs. DP subjects in these constructions is similar to that of object shift in Scandinavian, the construction in (2) could be referred to as 'subject shift'. I will show that children initially prefer the word order in (1) with full DP as well as pronominal subjects, which means that any type of subject may appear in the low subject position at an early stage. The

[2] Poepper and Wexler (1993) investigated one transcript of Andreas at age 2;1 only, altogether 282 complete declarative sentences.

Norwegian child data investigated in this paper (see section 3.1 below) indicate that a change occurs around the age of 2;6-3;0, which causes a preference for the more target-consistent word order found in (2) with pronominal subjects. This is illustrated by the sentences in (3) and (4) from the Norwegian corpus.

(3) nå skal ikke dem sove. (Ole.09, age 2;3.15) **(X-V-Neg-S)**
now shall not they sleep
'Now they shouldn't sleep.'

(4) og no kan æ ikke drikke det. (Ole.19, age 2;10.0) **(X-V-S-Neg)**
and now can I not drink it
'And now I can't drink it.'

The paper is organized at follows: In the next section I give a brief overview of word order in Norwegian and outline the syntactic model that I adopt. Then, in section 3, I present the Norwegian child data, first some general observations about the acquisition of V2, and then an investigation of the children's production in constructions such as (3) and (4). In section 4, I present two possible accounts of the child data; a pragmatic analysis in terms of a lack of the concept of non-shared knowledge, and a structure-building continuity approach which entails a principle of economy of movement. In section 5, I provide several arguments against the pragmatic analysis and discuss some further aspects of the economy-based approach, taking into account factors such as input frequency and complexity. Section 6 provides a summary and conclusion.

2. The Word Order of Norwegian

Like German, Norwegian is a V2 language with the finite verb appearing in second position in all main clauses. This is standardly assumed to be the result of verb movement to the C position of the clause (see e.g. Vikner 1995). Unlike German, however, Norwegian is an SVO language, which means that in subject-initial declaratives, the V2 requirement is only visible if there is a sentence adverb or negation present. This is illustrated in (5), where the finite verb is assumed to have

[3] Poeppel and Wexler (1993) do not discuss the possibility that the pronominal subject in (2) could be a clitic, nor do they provide information about whether the subject in the seven other examples are pronouns or full DPs.

moved across negation. In non-subject-initial declaratives we see verb movement across the subject, as shown in example (6). The V2 requirement generally also holds in main clause questions, which is illustrated by the *yes*/*no*-question in (7) and the *wh*-question in (8).

(5) Jeg liker ikke jordbær /*Jeg ikke liker jordbær. (Standard Norwegian)
I like not strawberries.
'I don't like strawberries.'

(6) Jordbær liker jeg faktisk /*Jordbær jeg liker faktisk.
Strawberries like I actually
'Strawberries I actually like.'

(7) Liker du jordbær?
like you strawberries
'Do you like strawberries?'

(8) Hvilken bok likte du best?
which book liked you best
'Which book did you like best?'

However, there are certain clause types which do not display verb movement in Norwegian, as discussed in Westergaard (in press). These include exclamatives, embedded questions, where there is no verb movement across the subject, and all embedded clauses, where there is no verb movement across adverbs or negation, as illustrated in (9).[4]

(9) Jeg vet [at han ikke liker jordbær].
I know that he not likes strawberries
'I know that he doesn't like strawberries.'

Furthermore, many dialects of Norwegian do not have a strict V2 requirement in *wh*-questions, see e.g. Vangsnes (2004, 2005). In the dialect spoken by the three children in this study (Tromsø), there is a word order distinction based on the length of the *wh*-constituent. As shown in (10) and (11), the finite verb is obligatorily in second position if the question is introduced by full DP *wh*-constituents or one of the long (disyllabic) question words, *korfor, korsen* or *katti* ('why', 'how' or 'when'). In contrast, V2 is not required after the monosyllabic *wh*-words *ka, kem* and *kor* ('what', 'who' and 'where'), as illustrated by the two possible word orders in (12)-(14).

[4] Embedded V2 is possible, but not preferred, in certain embedded clauses in Norwegian, notably in complements to so-called bridge verbs, see Vikner (1995) and Bentzen (2003).

(10) Ka slags bok leste du?/*Ka slags bok du leste? (Tromsø)
what kind book read you/ what kind book you readt
'What (kind of) book did you read?'

(11) Korfor gikk ho?/*Korfor ho gikk?
why went she /why she went
'Why did she go?'

(12) Ka legen sa?/ Ka sa legen?
what doctor.DEF said/ what said doctor.DEF
'What did the doctor say?'

(13) Kor du bor?/ Kor bor du?
where you live/ where live you
'Where do you live?'

(14) Kem den nye læreren er?/ Kem er den nye læreren?
who the new teacher.DEF is/ who is the new teacher.DEF
'Who is the new teacher?'

There does not seem to be any significant difference in meaning between the two word orders in (12)-(14) when the sentences are uttered in isolation. However, in actual discourse, the choice of word order is not random. In Westergaard (2003), a sample of spontaneous speech from an adult in a corpus of child language was investigated, and it was argued that the choice of the two word orders is dependent on the information structure of the sentence, more specifically on whether the subject conveys given or new information in the discourse. This was reflected in certain statistically significant preference patterns for subject and verb types in the two constructions, V2 being preferred with full DP subjects and the verb *være* 'be', while non-V2 is chosen with pronominal subjects and any other verb. Some typical examples from the corpus are provided in (15) and (16). In the terminology used in Westergaard (2005a), V2 word order is preferred when the subject is characterized as [+focus] (informationally new) while non-V2 is used when the subject is [-focus] (i.e. given information).

(15) kor er mitt fly? (INV, file Ole.17)
where is my plane
'Where is my plane?'

(16) kor vi lande henne? (INV, file Ole.17)
where we land LOC
'Where should we land?'

In Westergaard (2005a), the two word orders of *wh*-questions in the Tromsø dialect are accounted for within a type of Split-CP approach to clause structure, inspired by the Split-CP hypothesis of Rizzi (1997, 2001), according to which the CP domain consists of several functional heads expressing aspects such as topic and focus between a high ForceP(hrase) and a low Fin(iteness)P(hrase). The present approach is in many ways different from this, most notably, the ForceP of Rizzi's system is divided into different functional heads for individual clause types; e.g. an Int(errogative) head is present in *wh*-questions, a Pol(arity) head is present in *yes*/*no*-questions, a Top(ic) head is present in main clause declaratives, while embedded declaratives are bare FinPs. Thus the illocutionary force of a clause is reflected in the topmost head. Some of the heads in this model relevant to the data discussed in this paper are provided in (17):

(17) $_{CP}$[$_{ForceP}$[Int° ... Top° ... Pol° ...] ... Foc° Top° ... Fin° $_{IP}$[

V2 word order in this model is the result of an EPP *head* feature on syntactic heads in the CP domain, which attracts the verb.[5] This means that there may be several sources for V2 word order, and this accounts for different V2 grammars. In Westergaard (in press) I show that V2 grammars may differ with respect to the clause types which require V2. For example, unlike Standard Norwegian, Danish has V2 in exclamatives, Belfast English allows V2 in embedded questions, and Icelandic displays verb movement in embedded clauses. In order to explain the two possible word orders in *wh*-questions with monosyllabic question words, Westergaard (2005a, b) refers to the Head Preference Principle of van Gelderen (2004) and argues that in the Tromsø dialect, the monosyllabic *wh*-words are heads and may therefore in themselves fulfil the EPP head requirement on Int°, which then renders non-V2 word order possible. When V2 does occur in *wh*-questions, this is argued to be the result of the requirement of a lower head in the CP domain, e.g. the lower Top° head of Rizzi's

[5] This abbreviation refers to the Extended Projection Principle (EPP) of earlier versions of generative theory (originally from Chomsky 1982), which ensured that all clauses have a subject, Within the Minimalist model, e.g. Chomsky (1995), an EPP feature on a syntactic head will require that this head projects a specifier in order for the uninterpretable EPP feature to be deleted.

(1997) system, see Westergaard (in press).[6] This projection is argued to attract elements with low information value, [-foc], which means that a subject conveying given information may be attracted to the specifier position of this head, and when the subject is [+foc], it is the verb which moves, yielding V2 word order.[7] This then ensures that elements that convey new information stay in lower positions when other elements move up, thus serving as a syntactic spell-out of the well-known pragmatic principle of end focus (see e.g. Firbas 1992).

Finally in this section, we will consider the clause types that were discussed in the Introduction, the subject shift construction. In questions and non-subject-initial declaratives with V2, where there is verb movement across the subject (to the CP domain), two different subject positions become visible if the sentences also contain negation or a sentence adverb. That is, the subject may appear either preceding or following the adverb or negation. Examples illustrating this in non-subject-initial declaratives are given in (18), while similar examples are provided for *yes/no*-questions in (19).

(18) a. Dette kan ikke Peter gjøre.
this can not Peter do
b. Dette kan Peter ikke gjøre.
this can Peter not do
'This Peter can't do.'

(19) a. Kan ikke Peter gjøre dette?
can not Peter do this
b. Kan Peter ikke gjøre dette?
can Peter not do this
'Can't Peter do this?'

As mentioned in the Introduction, this means that the two word orders attested in German child language in (1) and (2) are both grammatical in Norwegian. In Westergaard and Vangsnes (2005), the two subject positions are argued to be distinguished by the information value of the subject; given subjects occurring before and new or focused subjects following negation or a sentence adverb. In accordance with this, full DP subjects will tend to follow adverbs/negation in these constructions, although they may precede if they are already given in the discourse. When the

[6] In Westergaard and Vangsnes (2005) and Westergaard (2005a) the head responsible for the word order in *wh*-questions was argued to be the Foc° head.

subject is a pronoun, on the other hand, the position preceding negation will be preferred, as shown in (20). In fact, the Neg-S word order is extremely dispreferred for pronominal subjects unless they are stressed, as illustrated by (21).

(20) a. Dette kan du ikke gjøre.
this can you not do
b. Kan du ikke gjøre det?
can you not do this

(21) a. *?Dette kan ikke du gjøre.
b. Dette kan ikke DU gjøre.

Syntactically, the two subject positions are in the IP domain of the clause, and in Westergaard (2005a) it is argued that the low position, for informationally new or [+foc] subjects, is the specifier of the T(ense)P(hrase). Informationally given or [-foc] subjects, on the other hand, must move to the specifier of a higher projection in the IP domain, the In(ner)Top(ic)P(hrase). Negation and sentence adverbs are adjoined to TP and thus appear between the two subject positions. This is illustrated in (22). It could be noted that according to Frey (2004), there are two subject positions in the IP domain also in German (the higher one called a medial topic position), but these are only visible in embedded clauses. Likewise, van Kemenade and Los (2006) show that certain discourse adverbs distinguish between given and new subjects in embedded clauses in Old and Middle English.

(22) $_{\text{InTopP}}$[DP[-foc] $_{\text{TP}}$[Sentence Adverbs/Negation $_{\text{TP}}$[DP[+foc] ...

The word order facts surveyed in this section show that children who are exposed to the Tromsø dialect of Norwegian have to acquire a V2 grammar with certain exceptions, notably the 'optional' V2/non-V2 in *wh*-questions, where the variation is dependent on the information value of the subject as [+/-foc]. Likewise, the choice between the two subject positions in V2 clauses is dependent on the same distinction, although syntactically the subject positions are in the IP domain.

In the next section, we turn to the child data on word order, focusing on verb movement and V2, as well as the two different subject positions in V2 clauses.

[7] Recall that the verb in these V2 constructions is often *være* 'be', which is inherently informationally light.

3. The Child Data

3.1 The Corpus

The corpus used for this study was collected in Tromsø in 1997/98. Three children, Ina, Ann, and Ole, who were around 1 year 9 months at the start of data collection, were recorded approximately every two weeks until the age of three. The corpus consists of altogether 70 recorded sessions, most of them lasting about an hour. Table 1 gives an overview of the corpus, specifying the age of the three children and the total number of files and child utterances.[8]

Table 1: Overview of the Norwegian corpus of child language, Tromsø dialect.

Name of Child	Age	Files	No. of Child Utterances
Ina	1;8.20-3;3.18	Ina.01-27	20,071
Ann	1;8.20-3;0.1	Ann.01-21	13,129
Ole	1;9.10-2;11.23	Ole.01-22	13,485
Total			46,685

3.2 The Acquisition of Verb Movement and V2

In other acquisition studies of word order in V2 languages, e.g. Jordens (1990) for Dutch, Poeppel and Wexler (1993) for German, Santelmann (1995) and Platzack (1996) for Swedish, V2 is attested from the earliest occurrences of multi-word utterances. This is also the case in the data from the three children in the Norwegian corpus - as illustrated in (23)-(26), verb movement is attested across negation in subject-initial declaratives, and across the subject in *wh*-questions, *yes/no*-questions and non-subject-initial declaratives.

(23) æ vet ikkje. (Ann.02, age 1;9.18)
I know.PRES not
'I don't know.'

(24) kor e babyen? (Ina.06, 2;1.0)

[8] Apart from 10 files that have been collected and transcribed by the author, the corpus has been collected by Merete Anderssen.

where be PRES *baby.*DEF
'Where is the baby?'

(25) er det båt? (Ina.03, age 1;10.23)
*be.*PRES *it boat*
'Is that (a) boat?'

(26) der er stor stor Ole Brumm. (Ann.01, age 1;8.20)
*there be.*PRES *big big Ole Brumm*
'There is (a) big big Winnie the Pooh.'

Furthermore, the children were found to produce *wh*-questions with both V2 and non-V2 from a relatively early stage. These questions also appear with the same preference patterns for subject and verb types as in the adult grammar. That is, while V2 word order tends to occur with the verb *være* 'be' and a full DP subject, non-V2 constructions are preferred with all other verbs and pronominal subjects, as illustrated in (27) and (28), cp. the examples in (15) and (16) which were produced by an adult. As in the adult data, there is no one-to-one correspondence between subject type (pronoun vs. full DP) and word order, indicating that children are not simply making a distinction between pronouns and full DPs. In Westergaard (2003, 2005a) it was argued that this suggests that children are sensitive to patterns of information structure from a very early age and that they make a syntactic distinction between informationally given subjects and subjects conveying new information.

(27) kor er Ann sin dukke hen? (Ann.04, age 1;11.0)
where is Ann POSS *doll* LOC
'Where is Ann's doll?'

(28) ka du skal finne? (Ina.5, age 2:0.5)
what you shall find
'What do you want to find?'

As we saw in section 2, there is no V2 in embedded clauses in Norwegian. Although there are very few embedded clauses in the corpus, due to the young age of the children, certain cases of overgeneralization of V2 word order are attested, as illustrated in example (29), where the verb precedes the adverb *også* 'also'. This word order is also found in other non-V2 constructions, as in the *wh*-question in (30).[9] Similar examples are attested in the production of somewhat older Norwegian

children in Bentzen (2003).[10] It is notable that this type of overgeneralization only affects verb movement across negation or an adverb, never across the subject (e.g. in embedded questions), see Westergaard and Bentzen (2005).

(29) det er ho mamma som har også tegna. (Ina.26, age 3;2.05)
it be.PRES DET mommie who have.PRES also draw.PART
'It is mommie who has also drawn.'
Target form: Det er ho mamma som også har tegna.

(30) kem som **vil ikkje** være ilag med han? (Ina.25, 3;1.8)
who that will not be together with him
'Who doesn't want to be with him?'
Target form: Kem som ikkje vil være i lag med han?

In the next section I turn to the clause types where there is verb movement across the subject (to the CP domain), viz. non-subject-initial declaratives and questions. When these clauses also contain negation or an adverb, the two subject positions in Norwegian become visible, as was illustrated in examples (17)-(20) in section 2. The child data will show that children initially have certain word order problems in these subject shift constructions.

3.3 Non-subject-initial Declaratives and Questions with Negation/Adverbs

In this section, I present the Norwegian child data on non-subject-initial declaratives and questions containing negation or an adverb - i.e. sentences of the type illustrated in (1) and (2) from German child language. There are a total of 213 examples of these clause types attested in the Norwegian corpus as a whole: Adding up both declaratives and the two question types, the child Ann produces 43, Ole 69, and Ina as many as 101 examples of such sentences.[11] The vast majority of the

[9] This is a subject question, which in the target grammar (the Tromsø dialect) requires the presence of the relative complementizer *som* in second position. Thus, there is no verb movement to the CP domain in these cases.
[10] Even more examples of this kind are elicited in a production experiment described in Westergaard and Bentzen (2005), where it is suggested that children possibly do not "unlearn" this word order until after the age of 6.
[11] The distribution of each construction is the following: In Ina's data there are 4 *wh*-questions, 19 *yes*/*no*-questions and 78 non-subject-initial declaratives, in Ann's data 2 *wh*-questions, 3 *yes*/*no*-questions and 38 declaratives, and in Ole's data 6 *wh*-questions, 7 *yes*/*no*-questions and 56 declaratives. In other words, the three children are similar with respect to the relative frequency of each construction type.

examples contain the negative element *ikkje/ikke* 'not', while sentence adverbs are only occasionally attested.

Most of these sentences occur with pronominal subjects. In fact, only 7 of Ina's, 9 of Ann's and 6 of Ole's sentences of this type have a full DP subject, and all of these 22 examples occur with the expected word order, with the subject following negation. This is illustrated in (31)-(36), examples which have been selected from relatively early as well as late files in the corpus.

(31) der snakke ikkje mannen. (Ina.09, age 2;2.12)
there speak.PRES not man.DEF
'There the man doesn't speak.'

(32) komte ikke reven med mæ # i senga mi? (Ina.18, age 2;8.12)
come.PAST not fox.DEF with me in bed.DEF mine
'Didn't the fox come with me in my bed?'
Target form: Kom ikke reven med mæ i senga mi?

(33) no har ikke Ann mat til han. (Ann.09, age 2;2.19)
now have.PRES not Ann food for him
'Now Ann doesn't have food for him.'

(34) der kom ikke pappaen heller. (Ann.14, age 2;6.0)
there come.PAST not daddy.DEF either
'There the daddy didn't come either.'

(35) der står ikke alle folkan. (Ole.12, age 2;5.18)
there stand.PRES not all people.DEF/PL
'There all the people are not standing.'

(36) korfor kommer ikke mummien sæ laus? (Ole.17, age 2;8.24)
why come.PRES not mummi.DEF REFL loose
'Why is the Mummi troll stuck?'

When these constructions occur with pronominal subjects, on the other hand, the picture is quite different. There is a mixture of the two word orders (Neg-S and S-Neg) attested in the data of all three children, as illustrated by the examples in (37)-(39) with Neg-S and examples (40)-(42) with the opposite word order.

(37) a. nei det må ikkje du gjøre. (Ina.17, age 2;7.22) **(Neg-S)**
no that must not you do
'That you must't do.'
b. har ikkje han fota her? (Ina.13, age 2;5.25)
have.PRES not he foot.PL here
'Doesn't he have feet here?'

(38) a. no kan ikke han sove mer. (Ann.10, age 2;3.9)
now can not he sleep more
'Now he can't sleep any more,'
b. den like ikke æ å se. (Ann.11, age 2;4.0)
that like.PRES not I to see
'That I don't like to look at.'

(39) a. nå skal ikke dem sove. (Ole.09, age 2;3.15)
now shall not they sleep
'Now they shouldn't sleep.'
b. det får ikke æ lov til. (Ole.12, 2;5.18)
that get.PRES not I allowed to
'That I am not allowed to do.'
c. åh går ikke det an å kjøre rundt? (Ole.11, 2;4.21)
ah go.PRES not it PARTICLE to drive around
'Isn't it possible to drive around?'

(40) a. nei, nå må han ikke røre. (Ina.21, age 2;9.18) **(S-Neg)**
no now must he not touch
'No, now he mustn't touch.'
b. korfor gjør han ikke det? (Ina.25, age 3;1.8)
why do.PRES he not that
'Why doesn't he do that?'

(41) a. nei det kan dem ikke. (Ann.17, age 2;8.4))
no that can they not
'No, that they can't do.'
b. men no var det ikke mer. (Ann.19, age 2;9.17)
but now be.PAST it not more
'But now it was all gone.'

(42) a. og no kan æ ikke drikke det. (Ole.19, age 2;10.0)
and now can I not drink it
'And now I can't drink it.'
b. korfor ser æ ikke skoan? (Ole.17, 2;8.24)
why see.PRES I not shoe.DEF/PL
'Why don't I see the shoes?'

Strictly speaking, all the sentences in (37)-(39) could be grammatical, in case the pronominal subjects following negation are stressed. Since intonation and stress is not marked in the corpus, this information is not available. However, most of these sentences with Neg-S order and pronominal subjects seem somewhat odd in the context they occur, indicating that they do represent a non-target word order. The following two examples from Ina's data, recorded around age 2;7, may also express some uncertainty in the child grammar about word order. In (43) the pronominal

subject appears twice, both preceding and following negation, while in (44) there is an instance of the negation *ikke* 'not' on both sides of the pronominal subject.

(43) ... har han ikke han shorts på sæ? (Ina.16, age 2;7.8)
...have.PRES he not he shorts on self
'Doesn't he have shorts on?'

(44) æ [//] kan ikke du ikke hjelpe mæ da? (Ina.16, age 2;7.8)
I.....can not you not help me then
'Can't you help me then?'

More importantly, there is a clear development across the files of the three children with respect to the order of pronominal subjects and negation in these constructions: While the non-subject-initial declaratives and questions with Neg-S word order tend to occur at a relatively early age, the sentences with the more target-consistent S-Neg word order mostly occur in the later files of the three children. This is illustrated in Table 2, where the child data in the corpus are divided into five age periods.

Table 2: The number of non-subject-initial declaratives and questions with Neg-S_{pro} and S_{pro}-Neg word orders in the Norwegian child data.

Period	Age	Ina		Ann		Ole	
		Neg-S	S-Neg	Neg-S	S-Neg	Neg-S	S-Neg
1	1;9-2;3	0	0	0	2	1	1
2	2;3-2;6	7	4	9	7	21	3
3	2;6-2;8	7	4	1	**3**	0	**13**
4	2;8-3;0	10	**36**	0	**12**	6	**18**
5	3;0-3;4	5	**21**				

As we see from the table, the children produce hardly any examples of non-subject-initial declaratives or questions with negation in period 1, before the age of approximately 2;3. In period 2, up until approximately age 2;6, all three children produce more of the non-target-consistent Neg-S than the S-Neg word order. This situation changes for the children Ole and Ann in period 3, when they start producing more S-Neg word order, while Ina at this stage is still producing more non-target forms. Some development is possibly taking place in her grammar at this stage, indicated by the uncertainty expressed by the two examples in (43) and (44). Soon after, Ina catches up with the other two children with respect to the production of target-consistent forms, as there is a major change in the relative frequency of Neg-S vs. S-Neg word order in period 4 (age approximately 2;8 to 3;0), and this situation is

stable into period 5 (up to age 3;4), for which the corpus only contains data from Ina. This development is illustrated in Figure 1 for all three children, where it is clearly displayed that the Neg-S word order (represented by solid lines) is more frequent in the early files of all three children, while the target-consistent S-Neg word order (represented by broken lines) gradually takes over. The two lines for Ann and Ole cross between Periods 2 and 3, suggesting that a certain change has occurred in their systems, while the lines for Ina's development indicate that the change takes place somewhat later in her grammar.

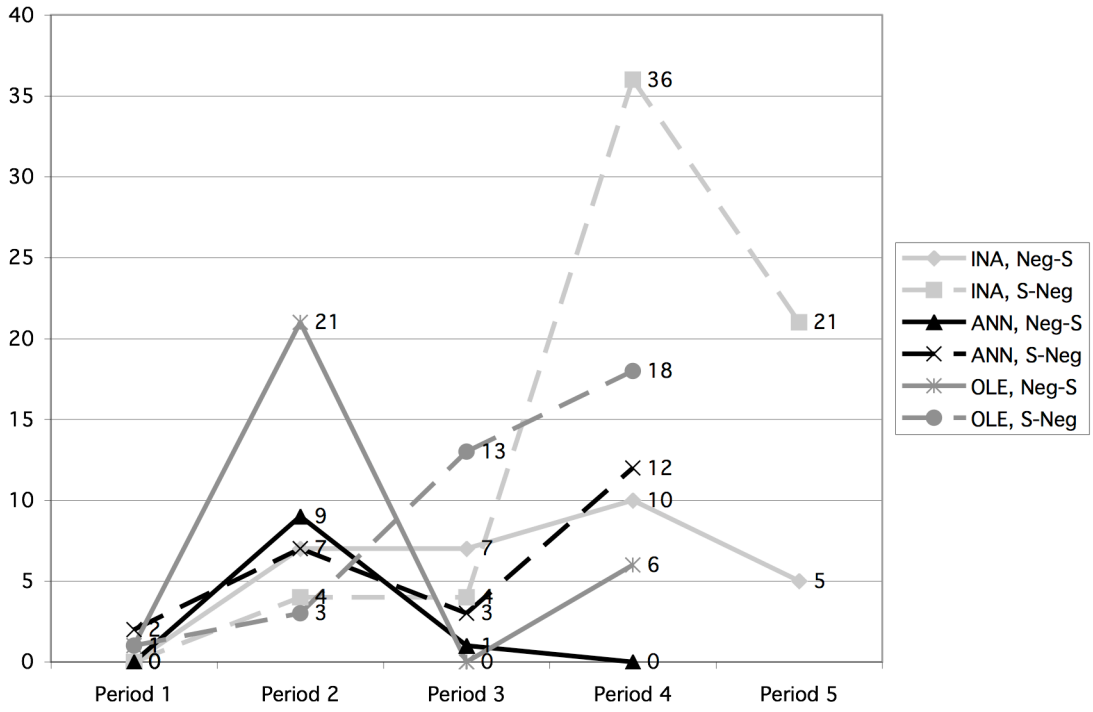

Figure 1: The development of Neg-S_{pro} word order (solid lines) and S_{pro}-Neg word order (broken lines) in non-subject-initial declaratives and questions with negation in the Norwegian child data.

Since the two subject positions involve a distinction between informationally given and new subjects, a possible account of the developmental pattern in the Norwegian child data is that the children in the early stages have not yet mastered the pragmatic issues related to information structure. Another possible analysis of these data is that there is an economy principle at play in early child systems, ensuring that syntactic movement will only take place if there is clear evidence in the input. These two analyses are outlined in the next section.

4. Two Possible Analyses: Pragmatics vs. Economy

4.1 Delay in Pragmatic Competence

It has often been argued in the language acquisition literature that syntax is early, but pragmatics is late. This is presumably because much of syntactic structure is assumed to be given by UG, while pragmatic principles need to be learned by language in use and will therefore take some time. Thus, aspects of child language that remain unexplained by syntactic principles are often referred to as children's problems with pragmatic issues, e.g. in the Optional Specificity analysis of Hyams (1996). Similarly, in a discussion of null subjects in various child languages, Rizzi (2005) evaluates both grammatically based (parameter missetting) and extra-grammatical explanations and claims that there need not be a contradiction between the two. More specifically, he argues that early subject drop is a genuinely grammatical option in child languages, which may be used to alleviate an immaturity in the production system, and concludes that "language development is grammatically based, but performance driven" (p. 102).

Other examples of this are Chien and Wexler (1990), who, reporting on experiments done with English-speaking children on the binding of reflexives and pronouns, argue that children's early grammars have all the relevant syntactic principles. To explain younger children's non-target-consistent performance on the binding of pronouns in their experiments, they suggest that children lack a pragmatic principle, thus arguing for a dissociation between syntax and pragmatics. In similar work on the acquisition of binding principles in Russian, Avrutin and Wexler (1992) identify a pragmatic principle (Principle P), which is responsible for the contraindexation of pronouns with potential antecedents. They show that children's behavior with respect to the syntactic elements of the Binding Theory is adult-like, while young children have major problems with the interpretation of sentences where Principle P is involved. Again, this is taken as evidence for the modular structure of the language faculty, and they claim that "the syntactic submodule is far ahead of its pragmatic counterpart" (p. 303). Finally, Batman-Ratyosyan and Stromswold (2002), in experimentation studies on word order in Turkish, found that while the inclusion of discourse context in their examples improved the performance of older children in the

study (3-, 4- and 5-year-olds), it had the opposite effect on younger children (2-year-olds). On the other hand, the 2-year-olds benefited from morphosyntactic cues (case marking). Referring to the concept of Theory of Mind, the authors suggest that "acquiring discourse/pragmatics requires that one be aware of the intentions and knowledge states of others" (p. 803), and conclude that learning morphosyntax is easy, while discourse/pragmatics is hard.

This means that pragmatic issues such as information structure are often also assumed to be acquired late, as children have to reach a certain age before they are able to judge e.g. what is considered to be given information for their interlocutors. Schaeffer (1995), working on the acquisition of scrambling in Dutch, finds that young children sometimes fail to scramble (especially pronominal) objects when it is required in the target grammar. In Schaeffer (2000), scrambling is argued to be driven by referentiality, which can only be grammatically marked if a distinction is made between discourse-related and non-discourse-related objects. In order to make this distinction, it is necessary to take the knowledge of the interlocutor into account, which requires what Schaeffer calls the "Concept of Non-shared Knowledge". This is a pragmatic principle which young children (2-year-olds) are argued to lack, and this accounts for their failure to produce the target-consistent word order in scrambling contexts.

However, studying the acquisition of Russian, where the distribution of null elements is dependent on contextual requirements, Gordishevsky and Avrutin (2003) find that information structure is generally available to children at a very early age. Nevertheless, they find a certain overuse of null subjects in early child language, and in order to explain this, they hypothesize that young children lack the concept of non-shared knowledge mentioned above. For the data they discuss, this means that young children tend to treat arguments as given information, even when that is inappropriate in the discourse situation - that is, the children are assuming that these are given information also for their interlocutors.

Based on this previous research which supports pragmatic analyses of certain delays in children's acquisition, the Norwegian child data presented in section 3 could be given a similar analysis: That is, if young Norwegian children lack the concept of non-shared knowledge, this should make them unable to distinguish between informationally given and new subjects in discourse. This would then cause them to treat all subjects as identical in information value and place them in the low subject

position at the early stage. Only after the children have acquired the distinction between informationally given and new subjects would they be able to move the former to the higher subject position.

4.2 Economy of Movement

In Westergaard (2005a), Norwegian children's acquisition of V2 word order was analyzed within a continuity model which includes structural economy. The continuity aspect of this approach is taken care of by a universal pool of possible functional categories, where rules for their relative order are given by UG. In the process of language acquisition, children select categories from this universal set, based on UG principles and cues in the input, as stated in (45).

(45) Children build clause structure based on
- UG (universal pool of categories+various rules/constraints)
- input cues

The cues in this model are assumed to be pieces of I-language structure which are expressed in the primary linguistic data that children are exposed to, as in Lightfoot's (1999, 2006) cue-based approach to language acquisition and change. As an example, the cue for V2 syntax, according to Lightfoot (2006:86) is formulated as in (46), which is a piece of structure "where a phrasal category occurs in a Specifier of a CP whose head is occupied by a verb." In a similar fashion, the cue for subject shift could be formulated as in (47), which would be a piece of structure where a [-foc] subject occurs in the specifier of the highest projection in the IP domain, i.e. the InTopP (above negation).

(46) Cue for V2 syntax: $_{CP}[XP\ _{C}V...]$ (from Lightfoot, 2006: 86)

(47) Cue for subject shift: $_{InTopP}[\ DP\ _{[-foc]}\ ...]$

Within this model it is assumed that UG provides children with the information that all clauses have a CP domain, minimally a FinP, which is necessary for clause typing. Furthermore, UG will match a syntactic head with the illocutionary force of the sentence, and children therefore need no input information to know that e.g. a *wh*-

question is an IntP and a non-subject-initial declarative a TopP.[12] However, the presence of certain other functional projections must be triggered by primary linguistic data. For example, Norwegian children need input in order to project a TopP in subject-initial declaratives, as it is not the case that all languages universally have this structure. This means that children take an economic approach to structure building and that they will not build more structure than is triggered by input. This idea is similar to the principle of structural economy in the Lexical Learning Hypothesis of Clahsen, Eisenbeiss and Penke (1996), originally from Safir (1993). Related to this, it is also argued that children's movement operations target the lowest possible position in the structure that is compatible with the input, as stated in (48).[13]

(48) Structural economy
- children only build as much structure as there is evidence for in input
- children only move elements as far as there is evidence for in input

An economy approach to movement is in line with much work within the minimalist program of Chomsky (1995), and has been used extensively by Platzack (1996) in the argumentation for the "Initial Hypothesis of Syntax", which basically argues that children will start out assuming that all features in the language they are acquiring are weak (while only strong features trigger movement). It also corresponds to what is often seen in child language data, viz. that when children produce non-target-consistent word order, this virtually always involves lack of movement or less movement than in the adult language, not an overgeneralization of movement, see e.g. Barbier (2000) on the lack of scrambling and object shift in Dutch and German, Josefsson (1996) on the lack of object shift in Swedish, or Radford (1994) on the lack of inversion in some English-speaking children's *wh*-questions.

Economy of movement has also been attested in the production of the three Norwegian children in this corpus. In Westergaard (2004) it was shown that in addition to the non-subject-initial declaratives with target-consistent V2 word order illustrated in (26) in section 3, the children produce occasional examples without verb

[12] Within the Split-CP model sketched in section 2, Westergaard (in press) argues that cues may be linked to particular clause types, so that there are e.g. separate cues for V2 depending on the the functional head involved (Int°, Top°, Pol°, etc.).

[13] If one assumes the extension condition of the minimalist program (Chomsky 1995), where movement is always argued to expand the tree, then the lack of movement may be subsumed under the more general principle of structural economy.

movement, as shown in (49) and (50). Similar examples are also attested in Swedish child language by Santelmann (1995) and Platzack (1996).

(49) der Ann har et. (Ann.08, age 2;1.28)
there Ann have.PRES one
'There Ann has one.'
Target form: Der har Ann et.

(50) på øyan æ har solbrilla. (Ole.02, age 1;10.22)
on eyes.DEF I have.PRES sunglasses
'On my eyes I have sunglasses.'
Target form: På øyan har æ solbrilla.'

Furthermore, in Westergaard (2006) I show that the Norwegian children in the corpus also occasionally fail to move a pronoun in object shift constructions. These are very similar to the constructions involving pronominal subjects outlined in section 2, in that pronominal objects are required to move across negation or an adverb in the adult grammar unless they are stressed. The example from Ina's file 13 in (51) indicates that the children have similar problems with object shift constructions in that there is lack of movement.

(51) eg finn ikkje han. (Ina.13, age 2;5.25)
I find.PRES not him
'I don't (can't) find it.'
Target form: Eg finn han ikkje.

But if children's production of non-target word order is the result of economy of movement, we may then ask why the children seem to overgeneralize verb movement across adverbs and negation in the embedded contexts illustrated in (29)-(30) in section 3. In Westergaard (2005a) and Westergaard and Bentzen (2005) this is in fact also argued to be due to economy of movement, in the following way: As mentioned above, in the syntactic model assumed here, UG does not provide Norwegian children with the information that subject-initial main clauses are TopPs with verb movement to Top° and subsequent subject movement to SpecTop. That means that this must be learned from input. Unfortunately, there are no clear cues in subject-initial declarative main clauses that the verb (and accordingly also the subject) moves all the way to the TopP. Nevertheless, there should be ample evidence in the input that there is verb

movement across negation in these sentences.[14] Therefore, children apparently realize very early that finite verbs move across negation and adverbs in main clauses, and they produce target-consistent word order from the first appearance of relevant constructions, such as sentence (23) from section 3, repeated here.

(23') æ vet ikkje. (Ann.02, age 1;9.18)
I know.PRES not
'I don't know.'

Given children's economy approach to language acquisition, it is argued that the they will only move the verb as high as there are clear cues for in the input. Since sentence adverbs and negation are adjoined to TP, as indicated by the structure in (22) in section 2, the lowest possible projection in the clause structure that will ensure that the verb occurs to the left of negation is the InTopP, and verb movement to this head is in accordance with the children's economy approach to structure building. This will result in V-Neg word order and thus correspond to what is found in the adult language. But the syntactic representation of a sentence like (23) in the child's grammar will differ from that of the target grammar, in that the child version of the sentence is a simple FinP with verb movement to InTop° (i.e. V-to-I movement in traditional terminology), while the corresponding adult structure is a full TopP.

If this analysis is correct, we would expect to verb movement to the InTopP in embedded clauses and other non-V2 contexts. Recall that in the syntactic model adopted here, embedded clauses are bare FinPs, which means that they have an InTopP, but embedded declaratives do not normally have a TopP.[15] Consequently there is no verb movement in Norwegian embedded clauses in the adult grammar. If the verb moves to InTop° in the child grammar, the children should also produce a word order with the verb preceding negation and other adverbs in constructions which do not have verb movement to the CP domain. And this is exactly what we saw in

[14] In an adult sample investigated in Westergaard (in press), there are 43 such examples, which makes up 6.4% of the total number of complete sentences. However, in the extended cue-based model it is assumed that children only focus on the relevant clause type for word order cues, in this case subject-initial declaratives, which means that the evidence for verb movement is attested in as much as 35% of the relevant triggering contexts.

[15] The TopP is assumed to be present in embedded clauses only in cases of embedded topicalization, as in sentence (i). In accordance with Vikner (1995), I consider this some kind of CP recursion, with the difference that the topmost CP is a bare FinP (like other embedded declaratives).

(i) Hun sa $_{FinP}$[at $_{TopP}$[denne boken hadde hun aldri lest]].
she say.PAST that this book.DEF have.PAST she never read
'She said that she had never read this book.'

section 3: an overgeneralization of V2 word order from main clause declaratives to embedded clauses and non-V2 *wh*-questions, as was illustrated in (29) and (30). The children's overgeneralization patterns in embedded clauses provide evidence for verb movement to a lower head in main clause declaratives and can therefore be considered to be the result of an economy principle of movement .

Based on the syntactic model, which combines continuity and structure building, as well as the children's non-adult-like production in other clause types, it could be argued that Norwegian children's delay in target-consistent word order in the subject shift construction is due to economy of movement. In the next section I discuss the two analyses outlined in this section, and I will argue in favor of this latter approach, rejecting the pragmatic account of the child data in terms of a lack of the concept of non-shared knowledge.

5. Discussion

In this section I first present three sets of arguments against a pragmatic account of the delay in subject shift constructions. Then I will discuss some further factors supporting an economy approach to the child data, focusing on aspects such as input frequency, complexity and non-saliency of the landing site of the subject pronoun.

The first set of arguments against a pragmatic account concerns the fact that the two subject positions seem not only to be both present (cf. Table 2), but also to be treated differently from early on. It is not clear that the non-target-consistent forms presented in section 3 indicate that the children's grammars do not distinguish between given and new information at an early stage of development. If that were the case, one would expect to see pronouns and full DPs occurring in both subject positions, without a clear pattern. As we saw in section 3, however, full DP subjects are always placed in the position for informationally new subjects, after negation. The developmental data suggest that as soon as children realize that certain subjects are required to move to the high subject position, only informationally given subjects undergo this movement. The following example from Ole, where he produces both a pronoun as well as a full DP subject, illustrates how the two are placed in the appropriate positions with respect to the adverb:

(52) nå vil han også bamsen sove. (Ole.09, age 2;3.15)
*now will he also teddy.*DEF *sleep*
'Now he the teddy will also sleep.'

Furthermore, it does not seem to be relevant to explain these facts by referring to the children's lack of a pragmatic principle such as the concept of non-shared knowledge. The way this is used by Gordishevsky and Avrutin (2003), children are argued to overuse null subjects because they erroneously treat them as given information in the discourse situation, i.e. as knowledge that is shared between speaker and hearer. In the Norwegian data presented here, on the other hand, the situation is that the given information seems to be treated as if it were new, i.e. pronouns occur in a position that would normally be reserved for new information.

The second set of arguments is related to the non-simultaneity of constructions which could be argued to be due to the lack of the principle of non-shared knowledge. Since subject shift has been shown to be very similar to object shift constructions, the two should then both be accounted for by the same principle, and the prediction would be that both constructions should fall into place at the same time. In Westergaard (2006), however, I show that object shift seems to be a considerably later acquisition. According to economy of movement, on the other hand, non-target production in the two constructions may initially be due to the same economy principle, but one may be more persistent than the other for various other reasons. In Westergaard (2006) it is suggested that an extreme lack of object shift constructions, both in child-directed speech and in the children's own production, could be a contributing factor here.

Likewise, a similar delay in subject movement is attested in Schönenberger (2002), where two girls acquiring Swiss German are found to overgeneralize V2 word order in embedded contexts until the age of approximately five. At the earliest stage of the recordings (approximately age 3;10-4;03) all subjects appear below the verb in these embedded clauses, while around age 4;04 the children start distinguishing between pronouns and full DPs, moving pronominal subjects to a higher position above the verb. It could of course be argued that Schönenberger's data indicate that the two children discover the principle of non-shared knowledge around 4;04 and that this accounts for the change in word order (note that input could not account for this change, as the children are still producing non-adult-like word order). However, in my opinion it seems odd that such a general principle should be acquired so much later by

the Swiss German children than the Norwegian ones, and I think that an account that takes syntactic complexity and possibly also frequency into account is more likely. Thus, the fact that the Swiss German data are attested in embedded clauses, which are arguably both more complex and less frequent than the main clauses in the Norwegian child data, could be one alternative explanation.

The third set of arguments concerns children's early acquisition of information structure in other constructions. Some recent studies come to the conclusion that information structure is in place early. One example is De Cat's (2003) study of French acquisition data, where word order in the target grammar is dependent on the topicality of an element. She shows that French children abide by pragmatic requirements on syntactic structure, and argues that the competence to encode topics is available to them from the earliest stages of language acquisition. Finally, the children in this study are found to distinguish between informationally given and new subjects in the two types of *wh*-questions allowed in their dialect of Norwegian at an early age (see Westergaard 2003). Recall that the choice of word order in these questions in the adult grammar is dependent on information structure, more specifically on whether the subject is [+/-focus], as was illustrated in examples (15)-(16) in section 2. If it were the case that pragmatic principles are acquired late, we should expect children to experience certain problems in the acquisition of the subtle word order distinctions in *wh*-questions. However, as mentioned in section 3.2, the children in this study very early produce both V2 and non-V2 word orders in a systematic way, i.e. only after those *wh*-words which allow it, and with the same preference patterns for subject and verb types as adults. These patterns were illustrated in (27) and (28) above and repeated here. The fact that children so early distinguish between given and new subjects with respect to verb movement indicates that young children are extremely sensitive to patterns of information structure.

(27') ka du skal finne? (Ina.5, age 2:0.5)
what you shall find
'What do you want to find?'

(28') kor er Ann sin dukke hen? (Ann.04, age 1;11.0)
where is Ann POSS *doll* LOC
'Where is Ann's doll?'

Moreover, the non-subject-initial declaratives without verb movement that were illustrated in (49)-(50) in the previous section, are similar to the non-V2 *wh*-questions with respect to subject and verb types, while the early target-consistent forms with V2 normally appear with *be* and full DP subjects (see Westergaard 2004). Thus, the children seem to be distinguishing between informationally given and new subjects, even in the absence of input for such a distinction.

Based on the argumentation presented so far, I would like to discard the pragmatic account of the Norwegian child data on subject shift. But then one might ask how a principle of economy of movement fares better? Why is subject movement delayed when other types of movement, e.g. V2, seem to fall into place much earlier? And why is target-consistent word order in object shift constructions a later acquisition than subject shift? If all movement operations are affected by the same economy principle, one would also expect simultaneous acquisition. However, the economy principle of movement must obviously be overridden by evidence in the input. Thus, a delay in acquisition should take the following factors into account when answering these questions: the input frequency of the sentence types that express the cue, the general complexity of the construction, and finally, the saliency of the landing site.

The cue for subject shift was formulated in (47) in the previous section, and this should be expressed in all questions and non-subject-initial declaratives which also contain negation or an adverb. In a small sample of adult speech investigated in Westergaard (2005) (from a one-hour recording in the Norwegian child language corpus corpus), there were 42 relevant examples, comprising 6.3% of all complete clauses in the sample (see also Westergaard, in press). The examples in the input sample also show that the distinction is not simply a matter of pronoun vs. full DP, as there is no one-to-one correspondence between subject type and word order. Out of the 42 relevant examples, the majority of them being non-subject-initial declaratives, 28 occur with the subject preceding negation, which means that the cue for subject shift is attested in 4.2% of all complete clauses in the sample, while 14 have the opposite word order. While all the 28 subjects preceding negation are pronominal (i.e. typical examples of given information), the 14 subjects following negation are divided equally between pronouns (presumably stressed) and full DPs. This means that the cue for subject shift has a relatively low frequency in the input, although not inconsiderable. There are even sentence pairs in the input sample that should clearly

reveal the nature of these subject types to the children, thus being responsible for the eventual acquisition of these constructions. Examples are provided in the two *yes/no*-questions containing negation in (53) and (54), which occur adjacent to each other in the corpus.

(53) har han ikkje et dyr? (INV, file Ole.14)
has he not an animal
'Doesn't he have an animal?'

(54) har ikkje han Postman Pat en kattepus? (INV, file Ole.14)
has not DET *Postman Pat a kitty*
'Doesn't Postman Pat have a kitty?'

In comparison, the evidence for verb movement in non-subject-initial declaratives are attested as much as 19.6% in the input sample, considerably more than the evidence for subject shift. When considering object shift, which seems to fall into place somewhat later than subject shift, the input sample contains only 3 examples, which makes up as little as 0.4%. Thus it could be said that there is massive (and consistent) evidence for V2 in the input, and this could to a certain extent account for the earlier acquisition of target-consistent word order in these constructions. Likewise, the even later acquisition of object shift could be related to the extremely low frequency of this in the input.

However, input frequency alone can presumably not explain the different types of delay related to economy of movement. As argued in Westergaard and Bentzen (2005), input frequency may only have an effect in connection with other factors, e.g. complexity. I would like to argue that questions and non-subject-initial declaratives are quite difficult for young children, involving not only verb movement to the CP domain (resulting in V2), but also movement of a non-subject element or a *wh*-constituent to initial position. The third movement operation required in these constructions, movement of an informationally given ([-foc]) subject across negation, then adds a further complexity to the construction. Another not inconsiderable factor is that there are other cues for subject placement in the language which are competing with the cue for subject shift.

Finally, I would like to point out that this type of subject movement does not involve a particularly salient landing site, compared to e.g. subject-initial declaratives, where the subject is attested in initial position as soon as multi-word utterances appear

in the data. This is the case regardless of e.g. the presence of negation or the finiteness of the verb, as illustrated in (55). This, I would argue, is due to the general saliency of the initial position in the input. There is also a relatively high frequency of subject-initial declaratives in the primary linguistic data that children are exposed to. In the adult sample studied in Westergaard (2005a) this construction makes up 21.9% of all complete sentences, while in a much larger study of child-directed speech in Swedish, Josefsson (2004) finds that subject-initial declaratives represent on average 27% of all main clauses containing a verb.

(55) æ ikke låne. (Ole.03, age 1;10.22)
I not borrow.INF
'I will not borrow (it).'

Because of the argumentation provided in this section, I argue that the brief delay in the children's movement of a [-foc] subject to the InTopP is simply due to a general economy principle of movement, and that it is not linked to children's failure to distinguish between informationally given and new subjects. That is, the original cause of the non-adult-like word order is that children will not move subjects to the higher position unless there is clear evidence for this in the primary linguistic data. The persistence of this non-target behavior in the child data is then related to factors such as input frequency, complexity, and the non-saliency of the landing site.

7. Conclusion

In this paper I have investigated the acquisition of word order in so-called subject shift constructions in Norwegian child language and attested a certain delay in the children's movement of informationally given subjects ([-foc])to a position preceding negation in V2 constructions, i.e. non-subject-initial declaratives and questions. Within a Split-CP approach to clause structure, which also assumes two subject positions in the IP domain, the higher subject position is argued to be in the In(ner)Top(ic)P. A pragmatic account of this delay in terms of lack of the principle of non-shared knowledge was considered, but argued not to be relevant in this case, mainly because the children are found to distinguish between informationally given and new subjects very early in *wh*-questions. Instead, I outlined a model of structural

economy in language acquisition, where children are assumed to build clause structure based on a universal set of functional categories and cues in the input. Within this approach, various kinds of non-target-consistent word order in the children's production were argued to be due to economy of movement, e.g. certain cases of lack of V2 in non-subject-initial declaratives, object shift constructions, as well as overgeneralizations of V2 in embedded contexts. The economy principle is then argued to also be responsible for the delay in movement of pronominal subjects to the higher position in non-subject-initial declaratives and questions. Finally, the persistence of this delay is related to the input frequency of the clause types where the cue for subject shift is expressed, the general complexity of the constructions, and the non-saliency of the landing site of pronominal subjects.

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