

The acquisition of apparent optionality: Word order in subject and object shift constructions in Norwegian

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Abstract

This paper discusses the word order of object shift and so-called subject shift constructions in Norwegian child language. Corpus data from young children (up to the age of approximately 3) show that they produce non-target-consistent word order in these contexts, failing to move pronominal subjects and objects across negation or sentence adverbs. Furthermore, the findings show that target-like word order in subject shift constructions falls into place relatively early (around age 2;6-3;0), while the delay is more persistent in object shift constructions. The paper also provides results of experimental data from somewhat older children, which confirm these findings. Various factors are considered to explain these child data, e.g. pragmatic principles, prosody, syntactic economy and effects of frequency in the input. The paper concludes that the delay in movement can best be explained by a principle of economy, while the difference between the two constructions is accounted for by reference to input frequency.

Keywords: optionality, input, object shift, subject placement, acquisition

1. Introduction

Language-internal optionality has recently become a topic of great interest for language acquisition research. Word order variation is a highly relevant area, as natural languages exhibit numerous examples of this phenomenon. In this paper we address this topic by focussing on the acquisition of the position of subjects and objects in clauses with negation by Norwegian-speaking children. These are so-called subject and object shift constructions, in which the position of subjects

and objects may vary depending on whether they are pronouns or full DPs. Weak pronominal subjects and objects are obligatorily shifted to a position preceding negation in both constructions, as shown in (1a) and (2a), respectively. Full DPs, on the other hand, occur in the position following negation. This word order is optional for the subject shift construction and obligatory for object shift, as shown in (1b-c) and (2b), respectively.

- | | | | |
|-----|----|--|----|
| (1) | a. | Igår leste han ikke boka. | SS |
| | | <i>yesterday read.PAST he not book.DEF</i> 'Yesterday he didn't read the book.' | |
| | b. | Igår leste ikke Jon boka. | |
| | | <i>yesterday read.PAST not Jon book.DEF</i> | |
| | c. | Igår leste Jon ikke boka. | |
| | | <i>yesterday read.PAST Jon not book.DEF</i> 'Yesterday Jon didn't read the book.' | |
| (2) | a. | Jon leste den ikke. | OS |
| | | <i>Jon read.PAST it not</i> 'Jon didn't read it.' | |
| | b. | Jon leste ikke boka . | |
| | | <i>Jon read.PAST not book.DEF</i> 'Jon didn't read the book.' | |

In this paper we would like to explore how children deal with such word order variation in the input. This study aims to answer the following questions: (1) Is the distribution of variable word order an unproblematic aspect in language acquisition or do children experience problems acquiring the various word order options? (2) Are there developmental delays in the form of non-target-like subject or object placement? And (3), are both constructions acquired more or less at the same time or is there a discrepancy between the two? Furthermore, our goal is to establish what factors may influence the acquisition process.

In order to answer these questions we have investigated spontaneous child language in a corpus of three children from the age of 1;9 to 3;3. In addition we have performed a pilot elicitation experiment with four children in the age group 3;8-5;8. Both types of data reveal a certain delay in the acquisition of both subject and object shift, as both pronominal and full DP elements tend to occur in the non-shifted position at an early stage. More importantly, both types of data converge in showing that the object shift construction is acquired later than the subject shift construction. Several factors are considered in order to account for the children's non-target-consistent placement of pronominal subjects and objects as well as for the delay in the acquisition of object shift as compared to subject shift. With regard to the former, a pragmatic account is rejected in favor of an explanation in terms of structural economy. Input frequency is also argued to play a role for the extended delay in object shift constructions.

The paper is organized as follows. Section 2 describes the positions of subjects and objects in Norwegian in more detail. In section 3 some previous research on the acquisition of similar constructions in other languages is considered. Section 4 presents the analysis of the corpus data. Section 5 considers certain methodological issues and presents the results of the experimentation. In section 6 the results are discussed in the context of prosody, pragmatics, clitic movement, syntactic economy, and frequency effects in the input. Section 7 provides a summary and conclusion.

2. The positions of subjects and objects in the target language

As illustrated in examples (1) and (2) above, subjects and objects may either precede or follow negation in Norwegian. Object shift is well-known in the literature as an operation that moves a pronominal object across an adverb or negation in certain contexts (Holmberg 1986). Pronominal subjects also typically precede an adverb or negation, and this phenomenon has been labelled subject shift (Westergaard 2008a). However, there are certain differences between these two phenomena. In this section we briefly outline the target patterns of subject and object shift in Norwegian.

Although the term subject shift is not well established, the existence of multiple subject positions in Scandinavian has been extensively discussed in the literature (Holmberg 1993, Bobaljik and Jonas 1996, Bobaljik and Thráinsson 1998). Norwegian is an SVO language that displays verb second (V2) word order in finite main clauses. Subject shift is observed in non-subject-initial main clauses, as we saw in (1) above. Full DP subjects may either precede or follow negation, (1b-c), whereas unstressed pronominal subjects obligatorily precede negation, (1a).

The various subject positions have been linked to interpretation. In Nilsen (1997), Svenonius (2002), and Bentzen (2007), it is observed that subjects with a strong, specific reading tend to precede negation and adverbs, whereas subjects with a weak, non-specific reading tend to follow these elements. In a similar vein, Westergaard and Vangsnes (2005) have linked the position of subjects to information structure. According to them, informationally given subjects (typically pronouns) precede negation and adverbs, whereas informationally new or focussed subjects tend to follow these elements. This is supported by the observation that, unlike unstressed pronominal subjects, pronominal subjects with contrastive focus can follow negation, as shown in (3).

- (3) Igår leste ikke **HAN** boka.
yesterday read.PAST not he book.DEF
 'Yesterday *he* didn't read the book.'

Assuming that adverbs and negation occur in relatively fixed positions (e.g. along the lines of Cinque’s hierarchy, Cinque 1999), one may refer to the observed subject positions as high(er) and low(er). From a theoretical perspective the exact location of these positions is an important issue. A central question concerns whether the high and low positions are in the same domain or not. One view maintains that both high and low subjects occur in the IP domain (cf. Cardinaletti 2004, Westergaard and Vangsnes 2005), while another argues that the higher position is either between the IP and the CP domain (Kiss 1996, Mohr 2005) or in the CP domain of the clause (Wiklund et al. 2007, Bentzen 2007). For the current study, the precise location of the various subjects is not crucial, and the two positions will simply be referred to as high and low.

Now let us turn to object shift. Whereas full DP objects obligatorily follow negation and adverbs, (2b), unstressed pronominal objects have to precede these elements, (2a). Object shift can only occur in conjunction with verb movement of the lexical verb. This is known as *Holmberg’s Generalization* (Holmberg 1986). As a consequence, object shift is not permitted in embedded clauses (which lack verb movement) or in main clauses where the moving verb is an auxiliary, as illustrated in (4a) and (4b), respectively.¹

- (4) a. De spurte om Jon {*den} ikke likte {den}. (Norw.)
they ask.PAST whether Jon it not liked it
 ‘They asked whether Jon didn’t like it.’
- b. Jon har {*den} ikke lest {den}.
Jon has.PRES it not read it
 ‘Jon hasn’t read it.’

Various proposals have been made to account for what triggers object shift. One view argues that it is related to case assignment. According to this view, only elements that have been morphologically marked for case may undergo object shift (cf. Holmberg 1986, Vikner 1994, Holmberg and Platzack 1995). Alternatively, object shift may be associated with interpretation. Recall that subject shift appears to be closely linked to information structure. In a similar way, informationally given objects precede negation and adverbs, while informationally new objects follow these elements. A further indication that objects, like subjects, are sensitive to information structure is illustrated by the fact that contrastively focussed object pronouns follow negation, as in (5a), which is parallel to (3) above. This can also be seen in the behaviour of non-specific indefinite object pronouns,

¹ Subject shift, in contrast, is not closely correlated to movement of the lexical verb. Subject shift across negation and adverbs occurs in non-subject-initial main clauses. Recall that Norwegian obligatorily displays V2 in main clauses, independently of whether this is ensured by an auxiliary or a lexical verb. Furthermore, subject shift across negation and adverbs is also found in embedded clauses, which generally lack verb movement in Norwegian. However, as we will not discuss embedded clauses in the current paper, we will not go further into this here.

which, unlike other non-focussed pronouns, cannot undergo object shift, as in (5b) (cf. Diesing 1996: 76, Vikner 1997: 11-12, 2006: 424).

- (5) a. Jon leste ikke **DEN**.
Jon read.PAST not it
 ‘Jon didn’t read it.’
- b. Jeg skulle gjerne ha gitt deg en sjokolade,
I should gladly have given you a chocolate
 men jeg har {*en} ikke {en}.
but I have.PRES one not one
 ‘I would gladly give you a bar of chocolate, but I haven’t got one.’

With respect to the landing site of the object in object shift constructions, several analyses have been proposed. In some of the earlier accounts, shifted objects are taken to appear in an adjoined position, for example adjoined to (the highest) VP (Holmberg and Platzack 1988, Vikner 1989, 1994). More recent approaches, on the other hand, assume the object to shift into the specifier of some higher functional projection above VP/vP. This landing site has been associated with various projections: AgrOP (Déprez 1989, Chomsky 1993, Bobaljik 1995), TP (Bobaljik and Jonas 1996, Bošković 2004), or some IP-internal TopicP (Jayaseelan 2001, Josefsson 2001). As with the question of the position of shifted subjects, the exact landing site of pronominal objects is not crucial for the current study, and we will again simply refer to the two positions as high and low.

The leftward movement of objects is fairly common cross-linguistically. West-Germanic languages such as Dutch and German exhibit leftward movement of various types of elements, including objects, as illustrated in (6) ((6a) is from Schaeffer 2000:3; (6b) is from Vikner 2006:403, our emphasize).

- (6) a. Jan heeft **het boek**_i niet t_i gelezen. (Dutch)
Jan has the book not book read
 ‘John didn’t read the book.’
- b. Ich habe **für das Buch**_i nicht t_i bezahlt. (German)
I have for the book not paid

This phenomenon is referred to as scrambling and is often compared to object shift. The two phenomena share the characteristic that they involve leftward movement of objects, and in both cases, the choice of position seems to be governed by properties of the object DP. However, there are also differences between the two phenomena, as object shift is a more restricted operation than scrambling. First, scrambling, unlike object shift, is not limited to objects, as seen in (6b), and it has several possible landing sites, whereas object shift is argued to have a fixed

landing site (cf. e.g. Haider 2000 and Vikner 2006).² Furthermore, as discussed above, object shift is dependent on movement of the finite main verb, and as illustrated in both (6a-b) this is not the case for scrambling.

In the next section, we briefly outline some of the previous research on the acquisition of SS and OS-like phenomena, before we turn to our own investigations.

3. Some Previous Acquisition Research

From an acquisition perspective, the questions that need to be considered with respect to phenomena such as subject and object shift and scrambling are to what extent children exhibit target-like placement of the pronominal elements, and if not, how this can be accounted for. In this section, we review some studies that have addressed these issues. As the acquisition of scrambling in German and Dutch has been studied much more extensively than the acquisition of subject and object shift, we will start by considering some of these studies.

In a study of child Dutch, Barbier (2000) discusses object shift and scrambling as separate phenomena in the target language. The former involves negation and the shifting of the object is obligatory to ensure a wide scope interpretation of the negation as sentential rather than constituent negation, while the latter involves the leftward movement past an adverb. Barbier (2000) argues that object shift, which is claimed to be triggered by the need to check a Case feature, is in place at a very early stage, while scrambling, which is motivated by the presence of a [+focus] feature, lags behind. However, as the example in (7) illustrates, the constructions that Barbier refers to as object shift are not equivalent to object shift in the Scandinavian languages, because these constructions occur independently of the movement of the lexical verb (Barbier 2000:41).

- (7) ik wil **dat boek** niet lezen. (Dutch)
I will that book not read
 'I do not want to read that book.'

In another study on the acquisition of scrambling, Schaeffer (2000) claims that in Dutch, referential DPs obligatorily have to move past negation, while non-referential noun phrases have to stay low. Schaeffer (2000) carries out an experimental study of direct object scrambling, showing that before the age of three, Dutch children prefer to have negation preceding definite direct objects (names and common nouns). A relevant example is given in (8):

² One exception is the adverb *der* (there), which may undergo object shift in Icelandic and must do so in Danish when it is unstressed and defocussed (cf. Vikner 2006:422). In Norwegian, however, this is not the case.

- (8) Ernie gaat niet **die banaan** opeten. (M 2;4) (Dutch)
Ernie goes not the banana up-eat
 'Ernie is not going to eat the banana.'
 Target form: Ernie gaat **die banaan** niet opeten.

Similar results are obtained for indefinite DPs; children younger than three move indefinites past negation 33% less than the adult controls.³ Thus, Schaeffer argues that Dutch children below the age of three optionally scramble direct objects in contexts where scrambling is obligatory in the target language. The reason for this optionality in child language is that referentiality, which Schaeffer claims drives object scrambling, is optionally marked in child language.⁴ This is a reflection of an inability to consistently distinguish the knowledge of the interlocutor from the child's own. Schaeffer argues for the existence of a pragmatic principle referred to as the Concept of Non-Shared Knowledge, which states that speaker and hearer knowledge are independent of each other. The observed failure in young children to scramble indefinites is argued to be a reflection of this concept not being part of their grammars. In a more recent study of object scrambling, Mykhaylyk and Ko (this volume) consider the phenomenon with regard to English-Ukrainian bilingual children. They argue that object scrambling in adult Ukrainian is optional with specific objects, but ungrammatical with non-specific objects. Consequently, specific objects may or may not scramble, while non-specific object must remain in situ. The child language study reveals that English-Ukrainian bilingual children, like their Dutch peers, scramble objects less frequently than adult speakers. However, Mykhaylyk and Ko argue against a pragmatic account of the lower rate of scrambling in child language. This is based on the observation that while the children do not scramble specific object as often as adult speakers, they never illegitimately scramble non-specific objects, which would be expected if the underlying problem were pragmatic in nature. Rather Mykhaylyk and Ko suggest that the under-application of scrambling is the expression of a failure to consistently associate a syntactic EPP feature with the semantic notion of specificity.

As far as we know, there is only one study of the acquisition of object shift proper in Scandinavian languages, Josefsson (1996). According to Josefsson, only sporadic examples of object shift are found in corpora of Swedish child language. This made her question whether the lack of these structures in child corpora could be the result of an avoidance strategy. In order to test this, Josefsson (1996) carried out an elicited imitation experiment, in which children were supposed to repeat eight examples of object shift. In the study, which involved fifteen children

³ In fact, Schaeffer tried to provide both referential and non-referential contexts for indefinites in her experiments to test whether the children were sensitive to this distinction. However, it turned out that even the adults struggled to determine whether indefinites were referential or not, so in the end the results for indefinites were collapsed for both children and adults. However, the results clearly reveal that adults scramble more than children.

⁴ However, this conclusion seems to be problematic given that Schaeffer actually collapses referential and non-referential indefinites.

between the ages of 2;5 and 7;4, only two of the participants were able to correctly imitate all eight examples. Six of the children produced between four and seven target-like structures, while the remaining seven managed to successfully repeat between zero and three instances of object shift. The non-target structures were of several different kinds, including unshifted pronouns, as in (9a), doubling of negation, as in (9b), and deletion of the pronoun or the negation, as in (9c) and (9d), respectively (Josefsson 1996: 159-160).

- (9) a. Adult: Ser du **mej inte**? (Swedish)
see you me not
 ‘Can you not see me?’
 Child: Ser du **inte mej**? (Pia, 2;5)
see you not me
- b. Adult: Hör du **mej inte**?
hear you me not
 ‘Can you not hear me?’
 Child: Hör du **inte mei in....te**? (Fanny, 3;3)
hear you not me not
- c. Adult: Jag vågar **det inte**.
I dare it not
 ‘I don’t dare.’
 Child: Jag vågar **inte**. (Anna, 5;2)
I dare no
- d. Adult: Jag ser **dej inte**.
I see you not
 ‘I can’t see you.’
 Child: Jag ser **dej**. (Josef, 4;3)
I see you

Hamann and Belletti (2006) also found a similar kind of avoidance of object clitic constructions in French child language. In their study they found that clitic objects were partly replaced by lexical objects. Similarly, it has been observed that children acquiring Italian frequently omit and hence use a low proportion of object clitics (see e.g. Guasti 1994 and Schaeffer 2000).

To our knowledge, there are no studies of the acquisition of subject shift. Josefsson (1996) very briefly comments on the acquisition of subject shift by stating that all the children except one in Söderbergh’s naturalistic corpus (Söderbergh 1973) seem to display the adult pattern at once. However, the use of low as opposed to high subjects have been used as evidence for both the weak continuity/structure building approach (Clahsen, Penke and Parodi 1993/94) and the strong continuity/full clause hypothesis (Poeppel and Wexler 1993), as illustrated in (10a) and (10b) respectively:

- (10) a. darf **nich Julia** haben. (Mathias, stage II) (German)
 may not Julia have
 ‘Julia may not have that.’
 Target form: Das darf Julia nicht haben.
- b. den tiegt **a nich** wieda. (Andreas, age 2;1)
 that.ACC gets he not again
 ‘He won’t get that back.’
 Target form: Den kriegt er nicht wieder.

In (10a), the subject DP follows negation in the topicalized structure. Clahsen et al. (1993/94) argue that this is a consequence of the clause structure in child language being smaller than in adult language at this stage, i.e. it contains IP but not CP. Thus, the presence of a topic makes it impossible for the subject to precede negation, as there is no landing site available. Poeppel and Wexler (1993), on the other hand, claim that the target-like topicalized structure in (10b) provides evidence that the full clause structure is available to children at an early stage, as the example has both a topic and a subject preceding negation, indicating that there are two specifier positions above the VP (i.e. both IP and CP are present).

As we have seen in this section, there is very little research into the acquisition of subject and object shift. The results of the one study of object shift suggest that this is a very problematic area in acquisition, and it was proposed that the construction is produced in a non-target-like manner for a prolonged period (Josefsson 1996). In Italian, children also omit or avoid object clitics, which, like pronominal objects in the Scandinavian languages, are found in a higher position in the clause. In Dutch, children younger than the age of three tend not to scramble direct objects in contexts where this is obligatory in the adult language, and it has been suggested that this is because they lack a pragmatic principle which enables them to distinguish speaker and hearer knowledge.

Thus, at the outset of the current study, there are several open questions with respect to the acquisition of object and subject shift. For example, will a study of Norwegian reveal the same as the Swedish study in the sense that object shift is a problematic area in acquisition? If so, what kinds of non-target-like patterns can be observed and when do the target-like patterns emerge? Does the acquisition of object and subject shift develop at the same rate or is subject shift acquired earlier, as indicated in Josefsson (1996)? To address these questions, the next two sections will present the results from a study of the acquisition of subject and object shift by Norwegian-speaking children.

4. The Norwegian corpus data

The corpus that has been used to investigate Norwegian children’s early acquisition of subject and object shift consists of 70 files of three normally developing

monolingual children, two girls and one boy, in spontaneous conversation with an investigator and to some extent also their parents.⁵ The children are acquiring the Tromsø dialect of Norwegian. Recordings started around the age of 1;9, when the children were just beginning to produce multi-word utterances, and were carried out approximately every two weeks until the children were around three years of age (slightly longer for one of the children). Table 1 gives an overview of the corpus, providing information about the age span for each child, the number of recordings and the total number of child utterances.

Table 1: Overview of the Norwegian corpus of child language, Tromsø dialect (Anderssen 2006).

| Name of Child | Age | Files | 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 |

The next two subsections investigate the three children's spontaneous production of the subject and object shift constructions found in the corpus. The data on subject shift are also published in Westergaard (2008a).

4.1 Subject shift

As mentioned above, the context for subject shift is found in all non-subject-initial declaratives, all *yes/no*-questions as well as those *wh*-questions that appear with V2 word order.⁶ The sentence must also contain negation or an adverb, so that the relevant structures are the following:

- (11) (XP/*wh*) V_{fin} SUBJECT Neg/Adv
 (XP/*wh*) V_{fin} Neg/Adv SUBJECT

There are altogether 213 such contexts found in the corpus, 43 produced by the child Ann, 69 produced by Ole, and as many as 101 produced by Ina. Table 2 gives an overview of the children's production of these clauses, with a specification of type of subject (pronoun or full DP) appearing with the two word orders, Neg-S for unshifted subjects, S-Neg for subjects that have been shifted to the higher position.

⁵ Each file corresponds to approximately one hour of recording.

⁶ The children are growing up in Tromsø and are acquiring the local dialect. This variety of Norwegian shares with many other dialects the feature that certain *wh*-questions also allow non-V2 word order, see e.g. Vangsnes (2005), Westergaard (2003, 2005a).

Table 2: Overview of the number of full DP and pronominal subjects in questions/non-subject-initial declaratives with negation, with Neg-S and S-Neg word order (213 examples in total).

| Child/Word order: | Neg-S | | S-Neg | | Total |
|-------------------|-------|----------|-------|----------|-------|
| | DPs | Pronouns | DPs | Pronouns | |
| Ina.01-27 | 7 | 29 | 0 | 65 | 101 |
| Ann.01-21 | 9 | 10 | 0 | 24 | 43 |
| Ole.01-22 | 6 | 28 | 0 | 35 | 69 |
| Total | 22 | 67 | 0 | 124 | 213 |

The first striking observation that can be made about the data in Table 2 is the uneven proportion of pronouns vs. full DP subjects. There are 22 full DPs, making up only 10.3% of the total number of subjects involved in this construction (22/213). Furthermore, none of these DPs appear in the high subject position, but always follow negation in a target-consistent way. This is illustrated in examples (12) and (13), one from a relatively early file, the other from a relatively late file.

- (12) der snakke **ikkje mannen**.⁷ (Ina.09, age 2;2.12) **Neg-S**
there speak.PRES not man.DEF
 ‘There the man doesn’t speak.’
- (13) 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?’

Out of the remaining 191 pronominal subjects, 67 follow negation, while 124 have been shifted to the higher position. Examples of both word orders produced by all three children are provided in (14)-(19).

- (14) har **ikkje han** fota her? (Ina.13, age 2;5.25) **Neg-S_{PRO}**
have.PRES not he feet here
 ‘Doesn’t he have feet here?’
- (15) 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.’

⁷ The children in the spontaneous corpus use two different forms of the negation, *ikke* and *ikkje*. The latter is the original regional form, while the former represents the standard and is steadily taking over for the regional form. The children in the corpus are relatively young and hence probably more likely to be influenced by the parents’ language, which is characterised both by originating in the rural regions around Tromsø and being one generation older. In addition, the recordings for the Tromsø corpus were made between March 1997 and November 1998, and as such represents the Tromsø dialect ten years ago. This is relevant here because, as we will see in the experimental study, which was carried out at the end of 2007, the (slightly older) children in this study consistently use the standard form, *ikke*.

- (16) det får **ikke** æ lov til. (Ole.12, 2;5.18)
that get.PRES not I allowance to
 ‘That I am not allowed to do.’
- (17) nei, nå må **han ikke** røre. (Ina.21, age 2;9.18) **S_{PRO}-Neg**
no now must he not touch
 ‘No, now he mustn’t touch (it).’
- (18) nei det kan **dem ikke**. (Ann.17, age 2;8.4)
no that can they not
 ‘No, that they can’t do.’
- (19) 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?’

A closer investigation of these 191 examples shows that both word orders are available from early on. Furthermore, the ones with unshifted word order generally appear in early files, while the examples with shifted subjects become more frequent at a later stage. Thus, there seems to be a clear development from non-target-consistent to target-consistent word order during the time of data collection. In Table 3, the child data have been divided into five periods based on the age of the three children. In Period 1, up to the age of 2;3, there are very few relevant examples in the data. In Period 2, all three children produce more of the non-target-consistent word order than the target-like shifted one. This changes for two of the children in Period 3 (Ann and Ole), and for the third child in Period 4 (Ina), when the shifted word order is produced in the majority of cases. Note that once the target-consistent word order takes over, this situation seems to be stable, lasting into the next time period for all three children.

Table 3: Overview of Neg-S_{PRO} / S_{PRO}-Neg word order in non-subject-initial declaratives and questions with negation/adverbs in the Norwegian child language corpus.

| Child | Period 1 (age 1;9-2;3) | Period 2 (age 2;3-2;6) | Period 3 (age 2;6-2;8) | Period 4 (age 2;8-3;0) | Period 5 (age 3;0-3;3) |
|-------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Ina | 0/0 | 7/4 | 7/4 | 10/36 | 5/21 |
| Ann | 0/2 | 9/7 | 1/3 | 0/12 | |
| Ole | 1/1 | 21/3 | 0/13 | 6/18 | |

Thus, we have attested a certain delay in the acquisition of subject shift in the Norwegian child data; young children have a preference for the low subject position both for full DP and pronominal subjects. However, this construction seems to fall into place around the age of 2;6-2;8 for two of the children, and only slightly later for the third child.

4.2 Object shift

In this section we investigate the spontaneous production of object shift in the Norwegian child language corpus. Recall from section 2 that the context for object shift is a sentence with a single finite (transitive) verb plus negation or an adverb, i.e. the following structures:

- 20) ... V_{fin} Neg/Adv OBJECT or:
 ... V_{fin} OBJECT Neg/Adv

There are altogether 259 examples of such contexts in the corpus, again most of them produced by the child Ina, 141 examples, while Ann and Ole have produced 51 and 67 examples respectively. Table 4 provides an overview of the types of objects produced in this construction with the two relevant word orders, i.e. object preceding or following negation.

Table 4: Overview of full DP and pronominal objects in sentences with single finite verb and negation (259 examples in total).

| Child/Word order | Neg-O | | O-Neg | | Total |
|------------------|-----------------|---------|-------|---------|-------|
| | DPs/ <i>det</i> | Pronoun | DPs | Pronoun | |
| Ina.11-27 | 121 | 16 | 0 | 4 | 141 |
| Ann.11-21 | 46 | 2 | 0 | 3 | 51 |
| Ole.11-22 | 57 | 7 | 0 | 3 | 67 |
| Total | 224 | 25 | 0 | 10 | 259 |

As much as 86.5% (224/259) of the examples have objects that are either full DPs or demonstrative/expletive *det*, which is exactly the opposite of the situation for subject shift contexts, where the majority of subjects were pronouns (89.7%, 191/213). Again, all these elements occur in the low object position, i.e. they follow negation in a target-consistent way. Examples are provided in (21) and (22).

- (21) æ har **ikkje smykke(t)**. (Ina.12, age 2;4.28) **Neg-O**
I have.PRES not necklace(.DEF)
 ‘I don’t have (the) necklace.’
- (22) æ trur **ikkje det**. (Ina.25, age 3;1.8)
I think.PRES not it
 ‘I don’t think so.’

Only 35 of the 259 objects are pronouns (including referential *det* ‘it’). Out of these, 25 follow negation, while there are only 10 target-consistent examples where the pronominal object has shifted to the higher position. In order to check whether there is any development, the data were again divided into five time peri-

ods, as illustrated in Table 5. Because there are so few examples overall, data from the earliest files were not checked. In Period 2, all three children produce a few examples, all with non-target-consistent word order. In Period 3, a few target-consistent examples of object shift appear, and this is the situation also in Periods 4 and 5, but two of the children still produce more examples of the unshifted word order even at this stage.⁸ Some examples of both word orders are provided in (23)-(28).

Table 5: Overview of sentences with Neg-O_{PRO} / O_{PRO}-Neg word order in the Norwegian child language corpus.

| Child | Period 1 (age 1;9-2;4) | Period 2 (age 2,4-2;6) | Period 3 (age 2;6-2;8) | Period 4 (age 2;8-3;0) | Period 5 (age 3;0-3;3) |
|-------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Ina | Not checked | 2/0 | 6/2 | 3/2 | 5/0 |
| Ann | Not checked | 2/0 | 0/0 | 0/3 | |
| Ole | Not checked | 3/0 | 1/1 | 3/2 | |

- (23) eg finn <ikkje han> [>]. (Ina.13, age 2;5.25) **Neg-O_{PRO}**
I find.PRES not him
 ‘I can’t find him.’
 Target form: Eg finn han ikkje.
- (24) æ [I] æ får **ikke den** løs. (Ann.13, age 2;5.10)
I I get.PRES not it loose
 ‘I can’t get it off.’
 Target form: Æ får den ikke løs.
- (25) åh æ klare **ikke det**. (Ole.12, age 2;5.18)
oh I manage.PRES not it
 ‘Oh, I can’t do it.’
 Target form: Æ klare det ikke.
- (26) ho har **den ikkje** på sæ. (Ina.24, age 2;11.26) **O_{PRO}-Neg**
she have.PRES it not on REFL
 ‘She doesn’t have it on.’
- (27) æ kom **meg ikke** ut. (Ann.19, age 2;9.17)
I come.PAST me not out
 ‘I couldn’t get out.’
- (28) æ hold **mæ ikke** fast! (Ole.22, age 2;11.23)
I hold.PRES REFL not tight
 ‘I am not holding on (to it).’

⁸ Note that the child Ann produces three target-consistent examples in Period 4, and no unshifted ones. This child’s production is extremely target-consistent also in other parts of the grammar at an early stage (see e.g. Westergaard 2003), and it could therefore be the case that the object shift construction is in place already at this stage in her grammar. However, there are so few examples in the corpus that it is impossible to draw any firm conclusions.

This means that a certain delay is also attested in the acquisition of object shift. However, unlike the situation for the subject shift construction, object shift does not seem to be in place by the end of data collection (around the age of three) – at least for two of the children. Furthermore, object shift is also extremely infrequent in the child data, as only 10 target-consistent examples are attested, compared to 124 for subject shift. This is similar to Josefsson's (1996) findings from Swedish child language. Nevertheless, many questions remain.

The dearth of relevant examples in young children's spontaneous production therefore makes it necessary to elicit experimental data from somewhat older children in order to determine the following issues: (1) is there a real difference between subject and object shift constructions?, (2) when does the object shift construction fall into place?, and (3) are young children avoiding the object shift construction, producing full DPs instead of pronominal objects? In the next section we turn to the experimental data.

5. The experimental data

In this section we examine data from two experiments conducted with four normally developing children, one boy and three girls: Are (3;8.7), Linn (4;5.21), Gry (4;6.15), and Mia (5;8.14). The children are monolingual speakers acquiring the Tromsø dialect of Norwegian. Although the data sets from the two experiments are not very large, there are some clear tendencies. Importantly, the results of the experimentation are in general consistent with the findings from the spontaneous production in the corpus: (1) Subject and object shift seem to be different in that the former is acquired somewhat earlier than the latter; (2) object shift is not fully acquired until the age of approximately five, considerably later than subject shift; and (3) the children are not trying to avoid the object shift construction.

Two elicited production tasks were designed by the authors to elicit subject and object shift constructions. The tasks were carried out in one session with a break in between. In both tasks the children were shown pictures on a computer screen. In the subject shift task, the pictures were used to elicit *why*-questions containing a non-clause-initial subject and negation, whereas in the object shift test, the intended elicitation was transitive declarative clauses with a pronominal object and negation. The subject shift task preceded the object shift task for all the children. Two experimenters were engaged in each task, and their roles are specified below. The tasks were carried out in one of the children's home. The materials (colored pictures of children and objects) were obtained at Microsoft Office Online (<http://office.microsoft.com/en-au/clipart/default.aspx>) and modified in accordance with the purpose of each task. Before the actual experiments took place, they were piloted with two older children (aged 5;10 and 8;8), who showed target-consistent behaviour in both tasks. The results of the pilot test thus confirmed that the experimental set-up triggered the appropriate kind of responses.

5.1 Subject shift: The experiment and results

The first task was designed to elicit *wh*-questions, more specifically, *why*-questions containing a non-clause-initial subject and negation. One of the experimenters conducted the procedure and the other played the role of a puppet called Elmo, whose task was to provide funny answers to the *why*-questions asked by the child. To encourage children to ask questions, Elmo was described as a shy creature who refused to talk to adults.

The task was divided into two conditions. Each condition had twelve test contexts (two initial trial items and ten test items) and four fillers (follow-up *wh*-questions without negation). In the first condition, pronominal subjects were elicited. In the introduction the experimenter explained the task to the child and presented the two trial items. The first picture shown on the computer screen portrayed two children, a boy and a girl. They were introduced without names in order to ensure pronominal subjects in the children's responses. Then each character was shown separately. First, the child was shown a picture on the screen of a boy performing some action, e.g. playing with a ball. Next, an identical picture which was crossed out was added on the screen. The experimenter then explained to the child that the crossed-out picture indicated that the action did not happen. Specifically, in the preamble, the experimenter showing the pictures proceeded as follows: *Her ser vi at han leke med ballen sin. Han lekte med ballen i dag, men ikke i går. Så han lekte ikke med ballen sin i går.* [Here we see him playing with his ball. Today he played with the ball (pointing at the non-crossed-out picture), but not yesterday (pointing at the crossed-out picture). So he didn't play with his ball yesterday.] Then the experimenter showed only the crossed-out picture and asked the following elicitation question: *Kan du spørre han Elmo korfor det?* [Can you ask Elmo why?] The intended response was as follows: *Korfor lekte han ikke med ballen i går?* [Why didn't he play with the ball yesterday?] Each time Elmo provided a funny answer to the child's question.

In the second condition, two new characters were introduced. This time, however, the characters were given names, and the child was asked to remember and use their names, since Elmo, who could not see the screen, would not know who the question was about otherwise. Thus we attempted to make the child produce full DP subjects. Apart from this, the second test condition was identical to the first one.

The results for all four children are presented in Table 6. Recall that there were twelve relevant contexts in each condition: two trials and ten test items. The former are included in the table to enlarge the data set. In the test condition eliciting pronominal subjects, both Gry and Mia gave appropriate responses for each test context. Linn produced one irrelevant response (leaving out the subject) and Are produced four irrelevant responses (two instances of left out subjects and two instances of the word order *wh*-S-V-Neg). In the second test condition, none of the children provided appropriate responses with negation and full DPs for all twelve

test contexts. Rather they tended to substitute the proper names of the characters with pronouns. In fact, all the children produced some structures with negation and a pronominal rather than a full DP subject in this condition: Are and Linn four each, Gry and Mia two each. These responses are not included in the table, but it should be noted that they all displayed the target-consistent word order for such structures: $S_{\text{PRO-Neg}}$. In addition, Are produced six other responses in this condition, one which was irrelevant and another five, which we will return to below.

Table 6: The children's placement of pronominal and full DP subjects in *why*-questions with negation.

| Condition: | Condition I: Pronominal subjects | | | Condition II: DP subjects | | |
|---------------|----------------------------------|----------------------|-------|---------------------------|---------------------|-------|
| | Neg- S_{PRO} | $S_{\text{PRO-Neg}}$ | Total | Neg- S_{DP} | $S_{\text{DP-Neg}}$ | Total |
| Are (3;8.7) | 1 | 7 | 8 | 1 | 1 | 2 |
| Linn (4;5.21) | 0 | 11 | 11 | 8 | 0 | 8 |
| Gry (4;6.15) | 0 | 12 | 12 | 10 | 0 | 10 |
| Mia (5;8.14) | 0 | 12 | 12 | 10 | 0 | 10 |
| Total | 1 | 42 | 43 | 29 | 1 | 30 |

With regard to pronominal subjects, it is clear from Table 6 that on the overall level, the children exhibit target-like behaviour, i.e. they tend to shift pronouns across negation. There was only one target-deviant structure with the pronoun following negation in the production of the youngest child, Are, illustrated in (29). The other seven structures in his production were target-consistent, i.e. pronominal subjects preceded negation, as in (30).

- (29) korfor leke **ikke han** med ballen? (Are, 3;8.7) **Neg- S_{PRO}**
why play.PRES not he with ball. DEF
 'Why does not he play with the ball?'
 Target form: Korfor leke han ikke med ballen?
- (30) korfor sykle **han ikke** der? (Are, 3;8.7) **$S_{\text{PRO-Neg}}$**
why bike.PRES he not there
 'Why does not he bike there?'

With regard to full DP subjects, the children show a clear overall preference for the non-shifted position. A relevant example is provided in (31). Again there was only one counter-example to the preferred order, also from Are's production, illustrated in (32).

- (31) korfor fiske **ikke ho Nora?**⁹ (Gry, 4;6.15) **Neg-S_{DP}**
why fish.PRES not she Nora
 ‘Why does not Nora fish?’
- (32) korfor drikk **han Simon ikke kakao?** (Are, 3;8.7) **S_{DP}-Neg**
why drink.PRES he Simon not cocoa
 ‘Why does not Simon drink cocoa?’

As mentioned above, Are produced five non-target-like responses, which merit special attention. In these five clauses a pronominal and a full DP subject cooccur in the same structure. In all these cases, the pronominal element appears to the left of negation, while the DP occurs to the right, as shown in (33). Importantly, the order of the elements in these subject-doubling structures is never switched, i.e. pronouns always precede negation and DPs follow it.

- (33) korfor klatra **han ikke han Simon oppi treet?** (Are, 3;8.7) **Neg-S_{PRO}**
why climb.PAST he not he Simon up.in tree.DEF
 ‘Why does not he (Simon) climb a tree?’

The results of the experiment are thus consistent with the results obtained from the corpus study. The corpus data indicate that the subject shift construction is acquired between the ages of 2;6-3;0. As subject shift is unproblematic for these three-to-five-year-olds, the experimental data confirm that this construction falls into place prior to the age of three. This is arguably true even for the youngest child, Are. Although he only produces two constructions with full DP subjects, one of which exhibits the non-target-consistent word order, his five utterances containing both a pronominal and a DP subject suggest that he also prefers the low position for full DP subjects. Thus, at this stage, all the four children participating in the experiment already have knowledge about the two different subject positions: pronominal subjects are placed in front of negation and full DP subjects follow negation. As in the corpus data, the experimental results reveal that the children have a preference for the low subject position for full DPs.

5.2 Object shift: The experiment and results

The second task was designed to elicit transitive declarative clauses with a pronominal object and negation. This task was presented as a ‘guessing game’. The children were introduced to an unfamiliar character called Bert Bert, and were invited to learn more about his habits. Then the experimenter presented pictures on

⁹ In the Tromsø dialect of Norwegian, as in most varieties of North Norwegian, person names appear with pronominal determiners, i.e. the third person pronouns *ho* ‘she’ and *han* ‘he’ (e.g. *ho Nora*), also called proprial articles (Anderssen 2006).

the computer screen of Bert Bert together with some object, e.g. a toothbrush. The experimenter would then proceed as follows: *Her ser vi en tannbørst. Kan du gjette om han treng den eller ikke?* [Here we see a toothbrush. Can you guess whether he needs it or not?]. There were fifteen test contexts (three initial trial items and twelve test items) and four fillers (guessing contexts not involving negation) in this test. Initially the design was such that the child would make a guess, either responding *Han treng den* [He needs it] or *Han treng den ikke* [He doesn't need it]. This worked well with the oldest child, Mia, who produced twelve responses containing a pronominal object and negation. However, this design turned out to be problematic when we used it with the younger child Gry. She consistently made her guesses by responding with embedded clauses, e.g. *Æ trur han ikke har den* [I think he doesn't have it]. It was not clear whether this was just an individual preference or whether this response pattern was a consequence of the design. In any case, we decided to modify the experiment by introducing a second experimenter who would make the guesses. The child's task now was to judge whether the experimenter's answer was correct or not. In case of a wrong answer, the child was to provide the correct answer. This design was used with Linn and Are. As before, there were fifteen test contexts (three initial trial items and twelve test items) and four fillers. Upon showing and explaining the pictures to the child, the first experimenter would tell the second experimenter to make a guess: *Treng han den eller ikke?* [Does he need it or not?]. The second experimenter would make a guess contained in an embedded clause, in order to be able to use negation without producing object shift: *Æ trur at han (ikke) treng den* [I think that he (does not) need(s) it]. When the second experimenter provided an incorrect answer (which she did most of the time), the screen went blank to indicate to the child that this was wrong. The child was then told to give the correct answer, the target being *Han treng den (ikke)* [He (does not) need(s) it]. Whenever the correct answer was given, Bert Bert appeared on the screen performing some action.

The results reported in Table 7 are from Mia, Linn, and Are, and again, the trial items are included in the table to enlarge the data set. Gry's data had to be excluded as she only produced embedded clauses, not yielding appropriate contexts for object shift. As mentioned above, Mia produced responses containing a pronominal object and negation in twelve out of the fifteen test contexts. Of the remaining three responses, one simply contained the word *Riktig* [Correct] and two responses were positive answers not containing negation. Linn produced eleven responses with a pronominal object and negation. Of her remaining four contexts, one contained only the answer *Ja* [Yes], two were positive answers without negation, and one was an embedded clause with negation. Finally, Are produced five responses containing a pronominal object and negation. His remaining responses included four positive clauses, one clause lacking an object, one clause with the pronoun *noen* [someone/anyone] (see below for a comment on this), and four irrelevant responses.

Table 7: The children's placement of pronominal objects in sentences with negation.

| Condition: | Pronominal objects | | |
|-------------------|-----------------------|----------------------|-------|
| | O _{PRO} -Neg | Neg-O _{PRO} | Total |
| Child/Word order: | | | |
| Are (3;8.7) | 1 | 4 | 5 |
| Linn (4;5.21) | 8 | 3 | 11 |
| Mia (5;8.14) | 12 | 0 | 12 |
| Total | 21 | 7 | 28 |

Even though the children shifted pronominal objects in a target-consistent way in the majority of cases (21/28), there were seven target-deviant structures where pronouns followed negation. Importantly, the errors occurred in the speech of the youngest children, Are and Linn. Recall also from section 5.1 that Are made one error with pronominal subjects, while Linn's production was error-free. Some examples of the children's responses illustrating both word orders are provided in (36)-(37).

- (36) han kjenne **ikke ho**. (Are, 3;8.7) **Neg-O_{PRO}**
he know.PRES not her
 'He doesn't know her.'
 Target form: Han kjenne ho ikke.
- (37) han vanne **den ikke**. (Linn, 4;5.21) **O_{PRO}-Neg**
he water.PRES it not
 'He doesn't water it.'

It does not seem that the children are avoiding object shift constructions, as at least two of them (Mia and Linn) use pronominal objects with negation in the majority of the test contexts. Furthermore, in the two girls' production there are no instances of left out objects or pronominal objects substituted by full DPs. Are, who produced the fewest object shift structures of the three children, only left out the object once, illustrated in (35). In addition, he used one structure containing the pronominal object *noen* [someone/anyone], (34). This is an interesting case, as this pronoun cannot be interpreted as strong or specific in the target language (yielding the reading 'there are someone such that he doesn't know them'). Rather, this pronoun is obligatorily weak or non-specific, yielding the reading 'he does not know anyone', and it has to remain in a low position. In (34), Are thus uses this pronoun in a target-like way.

- (35) han mate ikke. (Are, 3;8.7)
he feed.PRES not
 'He does not feed (him).'
 Intended form: Han mate han ikke. (He does not feed him.)

- (34) han kjenne ikke noen. (Are, 3;8.7)
he know.PRES not someone
 ‘He does not know anyone.’
 Intended form: Han kjenne dem ikke. (He does not know them.)

From the experimental data it can thus be concluded that the object shift construction remains problematic at a later stage, which is consistent with the findings from the children’s spontaneous production, where unshifted word order persisted until the end of the investigated period, i.e. the age of 3;3. The experimental results indicate that this construction does not fall into place until approximately the age of five, as two of the children aged 3;8.7 and 4;5.21 sometimes failed to shift pronominal objects. The situation is only stable for the oldest child, who was 5;8.14 at the time of the experiment.

5.3 Summary of findings

The two types of data examined in this study reveal a difference between the subject and object shift constructions. The results of the experiments are consistent with the results of the spontaneous production data in that it indicates that the object shift construction is acquired later than the subject shift construction. According to the spontaneous production data, the latter falls into place around the age of three. The former is not acquired until approximately the age of five, as indicated by the experimental data. It is thus clear that the initial delay in the acquisition of both constructions observed in the corpus is more persistent with object shift. Finally, even though the children in the spontaneous corpus produced few object shift constructions, this does not appear to be the result of an avoidance strategy, because in the experimental situation, the children used pronominal objects consistently and did not tend to substitute them with full DPs.

6. Discussion

As we have seen, non-target-like behaviour is observed with respect to both subjects and objects. The corpus data show that both pronominal subjects and pronominal objects may remain in an unshifted position in early child Norwegian. Furthermore, the non-target-like pattern for object placement persists for an extended period, as illustrated by the results from the experimental study. Thus, we have demonstrated that there is a discrepancy in the acquisition of subject and object shift. In this section we will discuss (i) why children produce these non-target-like patterns and (ii) why there is a developmental lag in the acquisition of object shift as compared to subject shift. We will first consider three possible explana-

tions: prosody, clitic movement, and pragmatics. All three will be rejected as they can only account for one of the observed behaviours. Instead we will explain the developmental patterns in terms of interaction between economy and input frequencies.

In the acquisition literature, it has been argued that children acquire full syllabic vowels before they acquire reduced schwas (see e.g. Kehoe and Lleó 2001). If we consider this in connection with the previously mentioned fact that stressed pronouns cannot shift past negation, one possible explanation for the existence of unshifted subjects and objects in child language is that it is a side effect of an inability to destress pronominal elements. However, this does not seem to be the case, as the recorded material reveals that the children do not stress their unshifted pronouns. On the contrary, both these pronouns and the shifted ones often occur in a rather destressed form, as illustrated in (38), where the pronoun *den* ‘it’ is reduced to *dn*. Consequently, destressing does not seem to be the problem, and this account can thus be rejected.

- (38) han vask ikke **dn**.¹⁰ (Linn 4;5.21)
 he clean.PRES not it
 ‘He doesn’t clean it.’

Another possible explanation for the existence of unshifted pronouns in child language is that these occur as a result of the negation moving to the V2 position together with the finite verb. Assuming that negation can cliticize onto the verb and subsequently move along with it into a higher position, both the verb and the negation will then end up preceding the pronominal elements, regardless of whether these elements occur in a high or a low position, as in (39). However, there are reasons to reject this analysis as well. First, although the children in the study occasionally produce cliticized negation, it is not the case that they use negation as a clitic whenever they fail to shift pronominal objects across negation, as shown in (40).¹¹

¹⁰ In the Tromsø dialect, the present tense of the verb *å vaske* (to clean) is *vaske* rather than *vask*, which is the form used in (38). This might make us wonder whether it is the final vowel of *vaske* or the initial vowel of *ikke* that is reduced, yielding *vaske’ke* with a clitic form of the negation. However, we feel convinced that it is the final vowel of the verb that is reduced because we see the same reduction in other places, including when the verb is followed by a word with an initial consonant, as in *korfor lek(e) han ikke med ballen?* [why doesn’t he play with the ball] and *korfor hør(e) han ikke på musikk her på bildet da?* [why isn’t he listening to music in this picture then?].

¹¹ In fact, the children mainly produce the full form of the negation, and only occasionally prosodify it as a clitic. When this happens, however, it seem to be in specific contexts, such as after the feminine pronoun *ho* yielding *ho’ke* [she not] or after the verb *er*, which is pronounced *e*, yielding *e’ke* [is not]. As a result of the former type, a clitic negation is more likely to appear when the pronoun has been shifted than when it has not.

- (39) Han så'ke den.
he see.PAST-NEG.CL it
 'He didn't see it.'
- (40) han like **ikke dn.** (Are 3;8.7)
he like.PRES not it
 'He doesn't like it.'

Second, unshifted pronouns can also cooccur with adverbs, as illustrated in (41) below. The adverb *og* 'also' is prosodically prominent in the clause despite being monosyllabic. Consequently it cannot be cliticized onto the verb and clitic movement can be ruled out as an explanation both for the order in (41) and unshifted pronominal elements in general.

- (41) det må og æ vise ho Marit.
it must also I show she Marit
 'I must also show this to Marit.'

Finally, as we have seen, subjects and objects do not behave in the same way, and it is unlikely that the children's grammars would permit negation to move along with the verb when a pronominal subject is involved, but not when a pronominal object is. A clitic movement operation of this kind, involving a verb and clitic negation, should not be sensitive to the other elements that may appear in the clause.

Another potential explanation of the non-target-like production of unshifted pronominal elements is that it is related to an immature pragmatic component. As already mentioned in section 2, the subject and object shift patterns are related to information structure in the target language in the sense that given elements like pronouns are shifted across negation, whereas new or focussed elements like full DPs (or emphatic pronouns) tend to follow negation. It is therefore a possibility that children's errors stem from a lack of pragmatic competence. However, based on a detailed study of the acquisition of subject shift by the children in the current corpus, Westergaard (2008a) argues that such an account of the error patterns is unlikely. For one thing, we see that the errors the children make are not random. Although they sometimes fail to shift pronominal elements across negation, they never shift full DPs to a non-target-like position preceding negation. This suggests that they do have some knowledge of information structure. Furthermore, if the non-target-like production were a result of a pragmatic deficit, one would expect subject and object shift to be equally affected. The same objection applies to Schaeffer's (2000) pragmatically based 'Concept of Non-Shared Knowledge' as an account of the data discussed here.

Having rejected prosody, clitic movement, and pragmatics as adequate explanations for the observed acquisition patterns, we will now give an account in terms of economy and input frequency. The notion of economy is assumed to play an important role in the process of language acquisition. Several models of acquisition have been proposed in which children are assumed to start out with the least

costly grammar in various ways. One such approach is the ‘Initial Hypothesis of Syntax’ (IHS) of Platzack (1996). Platzack suggests that children start out with a grammar in which all features are weak and consequently no movement operations are necessary. Movement will only gradually be acquired if there are substantial cues for this in the input (see Lightfoot 1999, 2006). Another approach with a similar outcome is a weak continuity/structure building model (Clahsen et al. 1993/1994, Clahsen et al. 1996). Children then have access (from UG) to a universal pool of functional categories, but they will only build as much structure as there are sufficient cues for in the input. According to an economy approach to language acquisition, one would therefore expect children to initially avoid costly operations like movement, and only acquire this if exposed to strong and consistent cues for such operations.

If we consider economy as an explanation for the acquisition patterns that we have observed here for subject and object shift, an interesting picture emerges. Recall from section 4 that the children seem to initially prefer not to shift both subjects and objects, something that is consistent with the economy explanation for the non-target behaviour. However, at the same time, both the corpus data and the experimental data clearly show that children start shifting subjects before they start shifting objects. Furthermore, as already mentioned, while pronominal subjects are consistently moved past negation early on, their object counterparts display an inconsistent behaviour for a prolonged period. This is especially surprising considering the fact that the target grammar does permit non-shifted pronominal subjects but not non-shifted pronominal objects. Consequently, we can conclude that even though economy principles can explain the initial lack of leftward movement with pronominal subjects and objects, it is clear that economy alone cannot account for the developmental patterns observed here. If economy were the only constraint at play, we would expect subjects and objects to behave the same way. When they fail to do so, this seems to indicate that we have to appeal to other factors in addition to economy to account for all the data.

A relevant question is whether input frequencies may have an effect on acquisition and possibly shed some light on the distinction found between subject and object shift constructions in the child data. In Westergaard (2008a) a sample of adult data investigated for the frequency of subject shift constructions (INV, Ole.14) showed that out of 42 contexts for subject shift, 35 subjects were realized as pronouns and 28 of these were shifted. An investigation of the same sample for object shift constructions shows that there are only 11 potential contexts for this construction, and only three objects are realized as pronouns, all of which are shifted. It thus seems like subject shift is more frequent (28 vs. 3) in the input, but it is necessary to confirm this by studying more examples of typical child-directed speech. In this paper, therefore, a larger sample of adult data from the corpus has been studied, viz. the production of the investigator (INV) in the files Ina.02-12, 17, and 19, corresponding to approximately 13 hours of recording.

In this sample there are altogether 187 examples of the context for subject shift, i.e. a structure containing an initial XP, the finite verb in second position, and then

the subject and the negation *ikkje* ‘not’ in either order, *XP-V-ikkje-S* or *XP-V-S-ikkje*. By comparison there are only 93 examples of potential contexts for object shift, i.e. a single finite verb followed by an object or negation *ikkje* in either order, $V_{\text{fin}}\text{-ikkje-O}$ or $V_{\text{fin}}\text{-O-ikkje}$. This means that the contexts for subject shift appear more than twice as frequently as the contexts for object shift in the adult data. This is illustrated in the following table.

Table 8: Subject and object shift constructions in a sample of child-directed speech, INV in Ina.02-12, 17, and 19.

| | Subject shift | Object shift |
|----------------------------|---------------|--------------|
| Potential contexts | 187 | 93 |
| Pronominal elements | 176 | 4 |
| Shifted pronominal element | 157 | 3 |

But the major difference between these constructions in the input is to be found in the actual number of examples of the two: In the potential contexts for subject shift, there are only 11 full DP subjects and as many as 176 pronouns. Out of these 176 pronouns, 157 are shifted up to the high position. The realization of objects, on the other hand, is very different: Most of the 93 object are realized as clauses, or full DPs, and only 4 are pronouns, 3 of which are shifted. This means that the number of subject shift constructions in the sample is approximately 50 times higher than the number of object shift constructions (157 vs. 3 examples). From this we can conclude that there is an extreme difference in frequency between subject and object shift constructions in the input. This indicates that the frequency difference between the two constructions in the corpus of child language is not due to an avoidance strategy on the part of the children. In fact, the proportions of the two constructions in the child data (124 vs. 10) more or less match that found in the adult sample, and the difference between the two data sets actually indicates that the children produce somewhat more object shift.

The frequency difference between the two constructions in both the child and adult data seems to be due to a conspiracy of factors. First of all, there are more subjects than objects overall. While all clauses have to have a subject, many lack an object, e.g. those that contain intransitive or unaccusative verbs. This presumably accounts for the difference between the two constructions with respect to the number of potential contexts (187 vs. 93). Furthermore, there seems to be a tendency for negation to appear with modals, both in child-directed speech and in child language, e.g. *will not*, *must not*, *cannot*, etc. This means that the context for object shift disappears in these cases, as the construction requires the presence of a single finite main verb only.

Nevertheless, the most important factor contributing to the frequency difference is the fact that subjects more often convey given information than objects do. Evidence for this is that subjects are predominantly realized as pronouns. Objects, on the other hand, more often convey new information and are thus predominantly

realized as full DPs or clauses. In the adult sample investigated here, the 187 subjects in subject shift contexts are realized by pronouns 94% of the time (176/187), while objects in contexts for object shift are realized by personal pronouns only 4.3% of the time (4/93). These proportions are confirmed in another study of both Norwegian and English child-directed speech (Westergaard 2008b), where it is shown that subjects in general (not only in contexts for subject shift) are realized by pronouns between six and eleven times more often than as full DPs (with some variation across samples). In comparison, objects are generally realized by DPs or clauses 3-4 times more often than as pronouns.

Thus, it seems safe to conclude that input frequency plays a role with respect to the lack of frequency of object shift in the child data as well as the delay attested in target-consistent production of this construction, especially compared to the similar subject shift construction. However, note that we are not arguing that lack of frequency is the cause of the children's delay in target-consistent production. Rather, the error pattern is originally caused by a principle of economy, as outlined earlier in this section. But as also argued in previous work, e.g. Westergaard and Bentzen (2007), we would like to claim that an error pattern that is originally caused by economy or complexity may *persist* for a longer time in children's L-language grammars if the relevant construction is infrequent in the input. Thus, while the subject and object shift constructions are both somewhat delayed due to economy, children's problems with object shift is more persistent because of relatively sparse evidence for it in the input.

7. Conclusion

In this paper we have investigated how children deal with a particular kind of word order optionality in the input. The results of the study of object and subject shift constructions in Norwegian child language suggest that word order optionality is a challenging domain for first language learners. According to the spontaneous and elicited production data considered in this study, there is a developmental delay in the acquisition of subject and object shift constructions. We have found that Norwegian children initially have a strong preference for a non-shifted word order both with pronominal and full DP subjects and objects. Furthermore, we have found that subject shift is in place around the age of three and object shift not until around the age of five. The initial delay in the acquisition of these constructions has been accounted for in terms of structural economy. Specifically, we have argued that children's non-target behaviour is consistent with the assumption that children initially avoid costly operations like syntactic movement. We have also argued that this delay cannot be directly explained in terms of prosody, clitic movement or pragmatics.

The comparison of the results of children's spontaneous and elicited production data has allowed us to conclude that there is real difference between subject

and object shift constructions. Object shift appears to be a more problematic area in acquisition than subject shift, as the object shift construction was produced in a non-target-like manner for a prolonged period of time. Based on the results of the empirical data, we have suggested that the children do not apply an avoidance strategy here. Evidence that appears to support this proposal includes the observation that the children in this study did not tend to omit pronominal objects or substitute them with full DPs. This impression is reinforced by the fact that object shift is infrequent in the adult data as well. Instead, the delay in the acquisition of object shift compared to subject shift is attributed to the former construction being much less frequent in the input.

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