

# Acquisition and Change: On the Robustness of the Triggering Experience for Word Order Cues

## Abstract

Focusing on word order variation mainly from present-day Norwegian dialects, this paper discusses mixed verb second (V2) both synchronically and diachronically and develops a theory of language acquisition and change which is based on the existence of micro-cues expressed in the input. Data from child-directed speech are investigated with respect to frequencies of particular clause types and examples requiring exceptional word orders (related to specific lexical elements). Child language data from Norwegian are presented to show that mixed V2 is acquired early, regardless of the different input frequencies, even in exceptional cases. Within a split-CP model of clause structure, it is argued that the search domain for word order cues is not the overall input, but restricted to individual clause types and other linguistically relevant categories and subcategories that children must be sensitive to in the acquisition process. Consequently, several micro-cues for V2 are identified. With respect to language change, this means that diachronic development should affect one micro-cue at a time, giving the impression that change is gradual.

*Keywords:* acquisition, change, micro-cues, Norwegian, input frequency, verb-second, word order

## 1. Introduction

In this paper I consider both the acquisition and loss of verb-second (V2) word order, discussing some synchronic data from Norwegian dialects against the backdrop of some evidence from the history of English. In both cases, there is a certain word order optionality, in that there are some clause types which require V2, while others require or allow non-V2.<sup>1</sup> Furthermore, within clause types there are certain elements (adverbs or *wh*-words) which display an exceptional behavior with respect to the word order generally required in the clause type. Explaining such (apparent) optionality is problematic for any syntactic theory which is based on the existence of major parameters and which recognizes economy of movement as an important principle. The acquisition of mixed word order systems poses a further challenge to such theories. Within a cue-based approach to language acquisition and change, I therefore consider the following questions: How can the word order of mixed V2 systems be learnable? And what is the critical level of robustness with which the cue must be expressed in the input? Based on frequencies in some adult and child data from a dialect of Norwegian, I show that very little input seems to be needed for children to acquire mixed word orders, both in cases where the distinctions are dependent on different clause types or other linguistically relevant categories and subcategories, as well as in truly exceptional cases. Based on this, the paper develops an extension of the cue-based approach to acquisition and change that recognizes the existence of micro-cues in the children's I-

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<sup>1</sup> The term non-V2 is used in this paper to refer to word orders that have often been described as V3. However, V3 is a bit of a misnomer, since, if adverbs are present in these constructions, the verb may in fact appear in a position even further to the right.

language grammars. This entails that children must be sensitive to different clause types and other linguistically relevant distinctions that cause differences in word order. In accordance with this, I argue that the critical level of input frequency for acquisition must be considerably lower than what has previously been suggested. A consequence of this is that gradual development from one word order to another in historical data, which in traditional accounts is often considered to be a reflection of grammar competition between two major parameter settings or two conflicting cues, may now be looked upon as the loss of one micro-cue after another. When major historical changes are split up into several minor ones, there may be a variety of causes involved, but this issue is not addressed in the present paper.

The paper is organized as follows: In the next section I outline Lightfoot's (1999, 2006) theory of cue-based acquisition and change in relation to the mixed V2 data found in the history of English, briefly introducing the concept of grammar competition. In section 3 I provide data from a present-day Norwegian dialect (Tromsø), showing that there is considerable word order variation across clause types, and that mixed V2 is thus not only a historical phenomenon. Furthermore, I point out several exceptions to V2 related to specific lexical elements (certain adverbs or *wh*-words). In order to investigate whether input frequency has an impact on the order of acquisition, section 4 makes a detailed study of a sample of child-directed speech with respect to the frequencies of V2 and non-V2. However, in section 5 I show that children produce both word orders in appropriate contexts at an early stage, regardless of the different input frequencies, also in exceptional cases. Section 6 outlines a split-CP model of clause structure and a corresponding theory of micro-cues, arguing that the relevant search domain for these cues is restricted to individual clause types or to even finer linguistically relevant distinctions. Section 7 points out that the consequences of this model for language change is that diachronic development should typically take place in small steps, reflecting the loss of individual micro-cues. Finally, section 8 contains a brief summary.

## 2. V2 and a Theory of Cue-Based Acquisition and Change

In much of the work of David Lightfoot (e.g. 1999, 2006), he develops a theory of cue-based language acquisition and change. Generally, this theory argues that in the acquisition process, children are sensitive to designated cues for particular syntactic configurations that may or may not be expressed in the input they are exposed to. Thus, a cue is a piece of structure in the children's I-language; e.g.  $_{VP}[DP V]$  is the cue for OV word order, while  $_{SpecCP}[wh-]$  is the cue for *wh*-movement to clause-initial position. The former is expressed in the input to children acquiring German (typically considered to be an OV language), but not to children acquiring English, while the latter is expressed both in German and English, but not in Chinese (which has *wh*-elements in situ). It is important to note, however, that cues are not surface strings. Rather, they are abstract pieces of structure that are formed in the children's I-language grammars in the acquisition process, and they are expressed by certain sentence types in the E-language that children hear around them. This means that a German child exposed to a sentence such as (1a) may only be able to analyze this input string by using the  $_{VP}[DP V]$  cue, while an

English-speaking child hearing sentences such as (1b) may only form an I-language analysis of this by making use of the  $_{\text{SpecCP}}[\text{wh-}]$  cue.<sup>2</sup>

- (1) a. Thomas hat die Milch getrunken. (German)  
Thomas has the milk drunk  
'Thomas drank the milk.'
- b. What did Thomas drink?

Thus, the input sentences themselves are not the cues. Rather, the set of sentences a child hears is the triggering experience for cues, which are mental representations in the child's I-language that result from parsing these sentences. In the words of Lightfoot (1986: 78), a sentence "EXPRESSES a cue if the cue is unambiguously required for the analysis of the sentence." According to this model, then, language acquisition is not merely an input matching process.

Nevertheless, input plays a major role in this model. Because of differences in language use among speakers, different children will be exposed to different input, and the frequency of the (unambiguous) expression of a particular cue may vary. Certain external or language-internal factors may also cause statistical shifts in the input to children. If the frequency of a particular cue falls below a certain level, children may ignore it and the corresponding syntactic configuration will be lost from the language of the next generation. In this way, much of language change is related to language acquisition, according to Lightfoot's theory. The gradualism sometimes seen in historical development is then argued to generally be due to E-language phenomena. True language change, on the other hand, should not be gradual, but abrupt and, in Lightfoot's terminology, 'catastrophic', these catastrophes reflecting I-language differences between two generations of individual speakers.<sup>3</sup>

All Germanic languages except English are traditionally considered to be V2 languages. This means that the finite verb must appear in second position, as illustrated by the German *wh*-question in (2a) and the Norwegian declarative in (2b). The standard syntactic account of this (e.g. den Besten 1977, Vikner 1995) involves verb movement to the head of the clause, i.e. to the C position.

- (2) a. Was **liest er**? (German)  
what reads he  
'What is he reading?'
- b. Aviser **leser han** aldri. (Norwegian)  
newspapers reads he never  
'Newspapers he never reads.'

V2 is also found in the history of English, as illustrated by the sentence in (3) from early Old English (OE). However, this word order is usually assumed to have been lost

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<sup>2</sup> This means that cues are similar to parameters in that they are abstract properties of speakers' internalized grammars. In fact, Lightfoot (2006: 78) argues that there is no need for an independent notion of parameter, given that variation between possible grammars may be taken care of by arguing that certain cues are found in only some languages and not others. However, he also suggests that if cues are stated more abstractly than in the current version of the model, then parameters may be used to state the metatheoretical relationship between cues, e.g. languages having complements to the left or to the right (Lightfoot 2006: 84).

<sup>3</sup> For a discussion of E-language vs. I-language, see Chomsky (1986) and Lightfoot (1999, 2006).

in declaratives during the Middle English (ME) period, as we see in (4), which is produced about 500 years later.

- (3) Ða he onweg adriften wæs, **cwom he** to Cent. (Early OE, V2)  
 when he away driven was came he to Kent  
 ‘When he was driven away, he came to Kent.’
- (4) Soo **the kynge returned** hym to the toure ageyne. (Late ME, Non-V2)  
 so the king returned him(self) to the tower again  
 ‘So the king returned to the tower again.’ (Bech 2001: 53/56)

V2 word order is typically assumed to be the result of a major parameter within generative syntactic theory, on a par with the head parameter (whether heads appear to the left or the right of their complements) or the pro-drop parameter (whether a language allows null subjects). One of the core ideas behind parameters is that they should explain the speed and ease with which children acquire language. That is to say, a child would only need to be exposed to a few examples of a particular structure in the input to set a parameter for the right value (e.g. + or –prodrop or + or -V2), and many other aspects of the child grammar (that are subsumed under the same parameter) would immediately fall into place, even without exposure.

A similar idea is found in the cue-based approach to V2. According to Lightfoot (2006: 86) the cue for V2 syntax should be formulated as in (5), which is a piece of structure “where a phrasal category occurs in the Specifier of a CP whose head is occupied by a verb.” This means that the cue will be expressed in non-subject-initial clauses, since subject-initial clauses are ambiguous with respect to a V2 or an SVO grammar (i.e. whether the initial XP is in the CP or in the IP domain).

- (5)  ${}_{CP}[XP {}_C V \dots]$

For learnability reasons, Lightfoot (1999: 93) argues that there must be a UG requirement that the verb is obligatorily in C in this syntactic configuration. If a child learning a classical V2 language, e.g. present-day Swedish or Dutch, adopts (5) as an optional structure and as a result produces V2 word order only sometimes, negative evidence in the form of correction of non-V2 structures would be required for this child to reach the target grammar. Since negative evidence is generally assumed not to be available to children in the acquisition process, Lightfoot thus considers this a typical poverty-of-stimulus situation, where UG must be invoked to explain the facts. With respect to the mixed V2 systems that are discussed in the present paper, the idea of an obligatory cue formulated as (5) is problematic, and as we will see below, a model of micro-cues seems to better account for the facts.

Lightfoot further argues that cues must be robustly expressed in the input for the corresponding structures to be acquired; as just mentioned, a low frequency may cause children to ignore the cue and develop an I-language grammar that is different from that of the previous generation. Lightfoot (1999: 156) then suggests that the critical level of input frequency for V2 may be somewhere between 17 and 30% (of all matrix clauses).<sup>4</sup>

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<sup>4</sup> It should be noted that, according to Lightfoot (1999: 154), there is no reason to believe “that there is anything magical about the 30 percent figure”, nor that there is “a general, cross-cue definition of robustness.” This means that other cues may have a different level of robustness for acquisition.

He bases this figure on the following factors: Frequency counts of conversational speech in present-day V2 languages show that non-subject-initial clauses (the ones which express the cue for V2) are attested around 30% of the time (see also Lightfoot 1993). This is apparently enough for e.g. Dutch or German children to acquire a V2 grammar. He then discusses some historical evidence from English, more specifically, one text from *Sawles Warde* (early 13<sup>th</sup> century), which shows a frequency of non-subject-initial declaratives (with V2) of only 17% (26 out of a total of 152 matrix clauses); these data are attributed to Ans van Kemenade. He suggests that this percentage was possibly not robust enough for children to pick up the cue, as V2 was lost in the middle of the following century, the change normally being dated to around 1350, see e.g. Bech (2001). In section 6 below I argue that input frequencies cannot be calculated like this, but must be considered only in relation to relevant contexts that may provide evidence or counter-evidence for the cue in question.

Returning to the history of English, there was a time when both V2 and non-V2 word orders were attested in declaratives; in fact, it seems impossible to find a stage which is exclusively V2, see e.g. Swan (1994). This is shown by the two word orders in (6) and (7), both from the OE period, which also illustrate the often noted fact that V2 tended to be used when the subject was a full DP, while non-V2 mainly occurred with pronominal subjects (see e.g. van Kemenade 1987, Pintzuk 1991, Kroch and Taylor 1997, Bech 2001 and Westergaard 2005a). However, with certain initial elements, e.g. the adverbs *þa/þonne* ‘then’ or the negative element *ne*, V2 word order was obligatory, also with pronominal subjects, as illustrated in (8).

- (6) 7 of ðære mægðe **com se mære mann Abraham** (V2)  
and from that tribe came the famous man Abraham  
‘and from that tribe the famous man Abraham came.’ (Bech 2001: 109)
- (7) Nu **ge habbað gehered** hu se hælend be him sylfum spræc (Non-V2)  
now you have heard how the saviour of himself spoke  
‘Now you have heard how the Saviour spoke of himself.’ (Bech 2001: 55)
- (8) Þa **siglde he** þonan suðryhte be lande (V2)  
then sailed he from-there southwards along coast  
‘Then he sailed southwards from there along the coast.’ (Bech 2001: 3)

A common generative account of this is that pronouns are clitics that appear in a higher position than the moved verb, so that sentences such as (7) are in fact also instances of V2 (see e.g. van Kemenade 1987, Pintzuk 1991, Kroch and Taylor 1997). Elements such as *þa/þonne* are then considered to be operators (like *wh*-elements and *ne*), which attract the verb to a higher position than the clitic subjects. Other more recent accounts of word order in the history of English point out various problems with the clitic hypothesis (e.g. van Kemenade 2000, Bech 2001, Westergaard 2005a), and the latter two argue that the word order in (6)-(8) illustrates a mixed V2 system which is based on information structure.

Mixed word orders are often considered to be the result of competition between coexisting grammars (e.g. Pintzuk 1991, Kroch and Taylor 1997, Lightfoot 1999, Pintzuk and Taylor 2006). If we now assume that the word orders in (6)-(8) represent a mixed system and that individual speakers used both word orders, we may argue that we have a situation referred to as “internalized diglossia”. According to Lightfoot (1999:

92), “learners have two or more grammars when the triggering experience leads to incompatible analyses.” Although these grammars are presumably learnable at some stage, this incompatibility will be eradicated over time, due to economy restrictions in the acquisition process. In this way, grammar competition may be used to explain language change. The concept of grammar competition seems to be used to describe at least two different situations: On the one hand, grammars are often considered to be in competition if they are regional, sociolinguistic or stylistic variables of each other – this seems to be the idea underlying the discussion in Lightfoot (1999: chapter 4), referring to Kroch (1994). On the other hand, grammar competition is also used to explain situations where languages display variation that is dependent on linguistically relevant categories (e.g. Pintzuk and Taylor 2006, discussing factors influencing the choice of OV vs. VO). It is this latter understanding of grammar competition that I argue against in this paper, as this type of variation does not generally seem to represent conflicting evidence to the language-learning child.

Given the obligatory nature of the cue for V2 as formulated in (5), it is an important question how the grammar of earlier versions of English could be learnable. It seems that children must have been exposed to conflicting input evidence, for V2 in *wh*-questions and certain declaratives, and for non-V2 in other declaratives. For the acquisition perspective of competing grammars, Lightfoot discusses morphological doublets such as *walked* and *welk* in the history of English (which seem to be clear examples of grammar competition) and cites Kroch (1994: 185) who states that, in the case of competing forms,

speakers learn one or the other form in the course of basic language acquisition, but not both. Later in life, on exposure to a wider range of language, they may hear and come to recognize the competing form, which for them has the status of a foreign element. They may borrow this foreign form into their own speech and writing for its sociolinguistic value or even just because it is frequent in their language environment.

This seems to imply that only one of the competing forms may be part of the core grammar, while the other is added later, and the two compete until one wins over the other. This kind of grammar competition corresponds to what is often seen in children’s acquisition of morphology, e.g. past tense. Children typically master the main rule first, e.g. *-ed* in English, and produce correct regular forms early, such as *walked* and *asked*. They also overgeneralize this to the irregular forms and produce examples such as *comed* and *goed*, often for an extended period of time. Pinker (1999: 199) has provided evidence that the order of acquisition of the individual irregular verbs is a function of their frequency in the input, and very infrequent irregulars are therefore vulnerable to change. According to Lightfoot (1999: 100), Kroch’s (1994) approach to morphological doublets is also used to account for language-internal syntactic variation. That is, if we extend this idea of grammar competition to the acquisition of syntax, we would expect children who are confronted with conflicting input evidence for word order to be influenced by the most frequent patterns first, then possibly overgeneralize them, and finally discover that there are exceptions to the general rules. However, a closer investigation of word order patterns found in early child language gives no indication that children acquire the syntax of V2 in this way. This will be explored in section 5 below.

In the next section, I show that mixed V2 systems such as the one found in OE is not just a historical phenomenon, but are attested also in present-day V2 languages. Focusing on a dialect of Norwegian, I show that there are some clause types that require V2, while others either require or permit non-V2. Furthermore, there are some clause types that allow both word orders, depending on information structure or the presence of certain lexical elements (adverbs or *wh*-words). That is, the variation between the two word orders is not random, nor does it seem to be based on stylistic or sociolinguistic factors only. Instead the word order variation is due to relatively minor, but linguistically relevant distinctions. In my view, it should therefore not be necessary to refer to the concept of grammar competition in this case.

### 3. The Word Order of Norwegian (Tromsø)

Norwegian is generally considered to be a typical V2 language with the finite verb appearing in second position in all main clauses. This is illustrated by the classical examples of V2 in the subject-initial declarative in (9), where the finite verb is assumed to have moved across negation, and the non-subject-initial declarative in (10), where there is verb movement across the subject. The verb also moves across the subject in *yes/no*-questions, see (11).

- (9) Kristin **liker ikke** norsk vær /\*Kristin ikke liker norsk vær.  
Kristin likes not Norwegian weather  
'Kristin doesn't like Norwegian weather.'
- (10) Italiensk mat **spiser hun** ofte/\*italiensk mat hun ofte spiser.  
Italian food eats she often  
'Italian food she often eats.'
- (11) **Leser hun** ofte bøker?/\*Hun leser ofte bøker?  
reads she often books  
'Does she often read books?'

However, as discussed in Westergaard (2006), there are some clause types which require non-V2 word order in Norwegian. Sentence (12) illustrates that there is generally no verb movement across an adverb or negation in embedded clauses,<sup>5</sup> and sentence (13) that there is no verb movement across the subject in embedded questions. Exclamatives also require non-V2, as shown in (14).

- (12) Det er noen studenter [som **aldri leser** bøker/\*som leser aldri bøker].  
it are some students who never read books  
'There are some students who never read books.'
- (13) Jeg lurer på [hva **hun liker**]/[\*hva liker hun].  
I wonder on what she likes  
'I wonder what she likes.'

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<sup>5</sup> A word order where the verb precedes negation/adverbs is possible, but generally not preferred, in certain embedded clauses in Norwegian, most commonly in complements to so-called bridge verbs (see e.g. Vikner 1995 and Bentzen 2005).

- (14) Så fin **du er!**/\*Kor fin er du!  
so nice you are  
'How nice you look!'

The word order of these clause types is something that varies from language to language within the V2 family: Icelandic generally has verb movement across negation and adverbs in embedded contexts, Modern Spoken Afrikaans (MSA) displays verb movement across the subject in embedded questions, and Danish is V2 in (certain) exclamatives, see (15)-(17). Thus, the word order in all these clause types does not come 'for free' with a V2 grammar, but must be learned from input.

- (15) Ég velti því fyrir mér [hvort hún **sé ekki** lögð af stað]. (Icelandic)  
I wonder whether she is not gone away  
'I wonder if she hasn't left.'
- (16) Ek wonder [wat **het hy** vandag weer aangevang]? (MSA, Biberauer 2002: 37)  
I wonder what has he today again done  
'I wonder what he has been up to today.'
- (17) Hvor **er han** sød! (Danish)  
where/how is he sweet  
'How nice he is!'

In this perspective, also present-day English displays certain V2 properties. First and foremost, subject-auxiliary inversion in *yes/no-* and *wh-*questions, often referred to as residual V2 (Rizzi 1996), may be considered to be part of a mixed V2 grammar. Furthermore, certain varieties of English have V2 word order in other clause types: Indian Vernacular English (IVE) and Belfast English both have verb movement in embedded questions, as illustrated in (18) and (19), and the latter variety also in Imperatives, see (20).<sup>6 7</sup>

- (18) They know who **has Vijay** invited tonight. (IVE, Bhatt 2004: 1020)
- (19) They asked me **was I** going to the party. (Belfast English, Henry 1994: 275)
- (20) **Bring you** that with you! (Belfast English, Henry 1994: 274)

Returning to Norwegian, I would also like to point out the relatively well-known fact that many dialects do not have a strict V2 requirement in main *wh-*questions, see e.g. Åfarli (1986), Sollid (2003), Vangsnes (2005), Westergaard (2003, 2005b) and Westergaard and Vangsnes (2005). There is considerable variation across the dialects, generally related to the length and function of the *wh-*element, and it has been argued that this variation represents stages in a diachronic development from V2 to non-V2

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<sup>6</sup> Interestingly, IVE does *not* display V2 in main clause questions, as illustrated in (i). This means that this variety of English is similar to Norwegian dialects in this respect (see below).

(i) What **he has** eaten? (IVE, Bhatt 2004: 1020)

<sup>7</sup> Note that in Imperatives, also lexical verbs may move across the subject in Belfast English, while verb movement in embedded questions is restricted to auxiliaries and *be*. Given that lexical verbs do not seem to undergo movement at all in other clause types, this indicates that verb movement in Imperatives may involve a lower head than the one that attracts auxiliaries and *be* in main and embedded questions.

(Vangsnes 2005, Westergaard 2005b).<sup>8</sup> Certain dialects do not have obligatory V2 in any type of *wh*-question, e.g. the Nordmøre dialect spoken in the Western part of the country; this is illustrated in (21) and (22).

- (21) Kåles bil **kjøpte du?**/Kåles bil **du kjøpte?** (Nordmøre, V2/Non-V2)  
which car bought you  
'Which car did you buy?'
- (22) Kåin **lika du** best?/Kåin **du lika** best?  
who like you best  
'Who do you like best?' (Áfarli 1986: 98, 100)

In the Tromsø dialect, which is the variety of Norwegian spoken by the children and adults in the present study, there is a word order distinction based on the length of the *wh*-constituent, monosyllabic *wh*-words behaving differently from disyllabic ones and long *wh*-phrases. While the latter *wh*-elements require V2, this word order seems to be optional after the monosyllabic *wh*-words *ka*, *kem* and *kor* ('what', 'who' and 'where'), as illustrated in (23) and (24), which are excerpted from a corpus of spontaneous speech (adult data in a corpus of child language, see sections 4 and 5 below).

- (23) kor **er mitt fly?** (INV, file Ole.17) (Tromsø, V2)  
where is my plane  
'Where is my plane?'
- (24) kor **vi lande** henne? (INV, file Ole.17) (Tromsø, Non-V2)  
where we land LOC  
'Where should we land?'

In Westergaard (2003), it was argued that the choice of word order in questions with the monosyllabic *wh*-words is dependent on information structure, V2 being used with new/focused subjects (often full DPs) and informationally light verbs (mainly *være* 'be') and non-V2 with discourse given subjects (often personal pronouns) and all other verbs. Syntactically, this is argued to be the result of subject or verb movement to a low TopP in the CP-domain, which attracts elements with low information value (Westergaard 2006). Note that this situation is similar to the distribution of subjects in OE/ME declaratives, cf. examples (6) and (7) above. This means that V2 word order in Norwegian is not always the result of verb movement to the highest head of the clause.

As already mentioned, in questions introduced by long *wh*-constituents, the verb is always required to appear in second position, no matter what the subject is, as shown in (25). The long *wh*-elements thus have a special status in *wh*-questions, somewhat similar to *þa/þonne* 'then' in declaratives in OE, which also obligatorily trigger V2, cf. example (8) above.

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<sup>8</sup> This argument is generally based on the nature of the present-day variation: For example, while many dialects restrict variability to the monosyllabic *wh*-elements, others allow both word orders also with long *wh*-phrases. There are, however, no dialects that exhibit variability with the long *wh*-elements and not with the short ones. Thus, it is assumed that the change starts with the short ones and then spreads to the long ones (see below).

- (25) Korfor **kom han** ikkje?/\*Korfor han ikkje kom? (Tromsø, V2)  
 why came he not  
 ‘Why didn’t he come?’

In Westergaard (2005b) it is argued that the variation between the Tromsø dialect and dialects such as Nordmøre is that the diachronic change from V2 to non-V2 starts with the monosyllabic *wh*-elements and only later affects the longer ones. This is explained in terms of van Gelderen’s (2004) Head Preference Principle, which is an economy principle argued to be operative diachronically. In my view, it must thus be related to preferences in the acquisition process. Within a Minimalist framework, the principle is based on the argument that head-head checking is more economical than spec-head checking, and for this reason an element will behave (and move) as a head, if possible.<sup>9</sup> With respect to the *wh*-elements in Norwegian, then, Westergaard (2005b) argues that the monosyllabic ones are affected by this principle first, since they are the most head-like elements. This means that the *wh*-word itself may move to the head position of the functional projection hosting interrogative features, and in this way verb movement to this head is blocked. The ‘optional’ verb movement that we see with the monosyllabic *wh*-words is therefore argued to involve a lower functional head, one to which movement is dependent on information structure, as outlined above.

In this paper I want to show that other clause types also exhibit exceptions to V2 word order in Norwegian. While main clause declaratives are generally V2, see example (10), there are certain adverbs that display an exceptional behavior in this clause type. These adverbs trigger what one might consider ‘pockets of non-V2’. The perhaps most familiar example involves the adverb *kanskje* ‘maybe’ in initial position, which may occur with either V2 or non-V2, as illustrated in (26). There does not seem to be any meaning difference between the two word orders.

- (26) Kanskje **kongen kommer**./Kanskje **kommer kongen**.  
 maybe king.DEF come.PRES  
 ‘Maybe the king is coming.’

The historical origin of this adverb is that it was once a verb, *kan skje* ‘may happen’, and this is presumably the cause of the unusual word order diachronically. That is to say, these verbs appeared in a main clause structure followed by an embedded clause, which would obviously not display V2 (*det kan skje at + non-V2 ...* ‘it may happen that’ + non-V2...). I would argue that it is highly unlikely, however, that present-day speakers have such an analysis of this adverb in their grammars, especially since the pronunciation of the adverb is different from that of the two verbs in combination (with a retroflex rather than a dental or palatal nasal). This adverb has the same exceptional status in Icelandic and Swedish, which suggests that this is a property that has persisted throughout several centuries. Note, however, that the corresponding adverb *vielleicht* in German (which is historically unrelated to *kanskje*) does not allow non-V2, as we see in (27). Again, we must conclude that the exceptional word order with this adverb in Norwegian must be learned from input.

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<sup>9</sup> The principle is in fact simply stated as follows (van Gelderen 2004:11):

(i) Head Preference or Spec to Head Principle: Be a head rather than a phrase.

- (27) \*Vielleicht der König kommt./Vielleicht **kommt der König**. (German, V2)  
maybe the king come.PRES  
'Maybe the king is coming.'

Another type of exceptional adverb triggering non-V2 in Norwegian is discussed in Nilsen (2003). These are so-called focus-sensitive adverbs, or focus particles, that may occur in front of the verb in subject-initial declaratives. This results in the non-V2 word order S-Adv-V, illustrated in (28). Note that the usual V2 word order is also grammatical. The most common ones of these focus particles are *bare* 'just' and *nesten* 'almost', but Nilsen also mentions *simpelthen* 'simply', *utelukkende* 'exclusively' and a few others. In (29), we again see that the corresponding adverb behaves differently in German. The variation across different languages thus shows that a child acquiring these word order facts must to a large extent rely on the input.

- (28) Han **bare smilte**./Han **smilte bare**. (Norwegian, non-V2/V2)  
he just smiled
- (29) \*Er **nur lächelte**. (German, V2)  
he just smiled

Summarizing this section, we can conclude that there are some clause types in the Tromsø dialect that require V2 and some that require or permit non-V2. Furthermore, there are certain elements (adverbs or *wh*-words) which are used with a different word order than other similar elements within the same clause type (declaratives and *wh*-questions). This means that children learning the language are exposed to input that only sometimes forces the child to analyze it with a structure where the finite verb is in C. That is, the cue for V2 as formulated in (5) does not seem to be obligatory, as argued by Lightfoot (1999). In the next two sections I consider the learnability of these word order inconsistencies by comparing frequencies in adult data with the accuracy and order of acquisition of these constructions in the corresponding child data. It is shown that both word orders are in place early in the relevant constructions, irrespective of the various input frequencies, and this is used to argue against grammar competition in the case of mixed V2 systems.

#### 4. Frequencies in Child-directed Speech

If the word order variation discussed in the previous section is due to grammar competition between a V2 and a non-V2 grammar, one would expect one word order to be acquired before the other, cf. the quote from Kroch (1994) above. According to the discussion in section 2, it should presumably then be the most frequent word order that is acquired first. Recall also that in Lightfoot's suggestion for the robustness of the cue for V2 (between 17 and 30%), he calculates the input frequency based on the total number of main clauses in the sample. If a similar approach is taken to the word order data in present-day Norwegian, it should be possible to isolate overall frequencies of the two word orders in child-directed speech and then compare them to children's acquisition of V2 vs. non-V2. (In section 6 below I present a different approach to input frequencies which is based on a model of micro-cues, arguing that only individual clause types are relevant for this kind of comparison between adult and child data).

In order to investigate the frequencies of the two word orders in typical input to children, a sample of approximately 2,600 utterances of the adult material from a corpus of child language has been investigated in detail.<sup>10</sup> A somewhat smaller sample of the adult data was investigated in Westergaard (2006). The present sample consists of the production of three adults taken from four one-hour files, two from one of the mothers at an early stage (age of child 1;10.23-1;11.22), and one each of two investigators (age of the children 2;6.21 and 3;1.8). One-word utterances and sentence fragments have been excluded, while all remaining matrix and embedded clauses have been classified according to clause type and calculated in terms of input evidence for V2 or non-V2. Not all clause types are relevant for this distinction, however, e.g. imperatives or subject-initial declaratives without negation or an adverb, which provide evidence for neither word order. Because of this, percentages do not add up to 100%. An overview of the clause types that do provide evidence for V2 vs. non-V2 is displayed in Table 1, together with their frequency of occurrence in the input sample.

**Table 1: Word order in a sample of child-directed speech (2,627 utterances), with percentages relative to the total number of clauses (matrix and embedded, N=2,097).**

Evidence for V2		Evidence for non-V2	
Subject-initial declaratives with adverbs/negation	6.2% (130)	Subject-initial declaratives with focus-sensitive adverbs (e.g. <i>bare</i> 'just')	n/a (0)
Non-subject-initial decl.	13.6% (286)	Non-subject-initial decl. w/ <i>kanskje</i> 'maybe'	1.9% (39)
<i>Yes/no</i> -questions	30.8% (645)	Exclamatives	0.4% (9)
Certain <i>wh</i> -questions	3.5% (73)	Certain <i>wh</i> -questions	5.2% (110)
Embedded clauses with adverbs/negation	0.1% (3)	Embedded clauses with adverbs/negation	0.5% (14)
		Embedded questions	1.6% (34)
Total	54.2% (1137)	Total	9.6% (206)

As we see in Table 1, if we combine the various types of V2 constructions, there is as much as 54.2% (1137/2097) evidence for V2 in the input sample, with *yes/no*-questions and non-subject-initial declaratives making up the major part of this. This is considerably more than the 30% Lightfoot (1999) estimated as a typical proportion of V2 in the input to children acquiring present-day V2 languages. In fact, if we only consider main clauses, which Lightfoot does in his calculations (as, according to the concept of degree-0 learnability, embedded contexts are argued never to provide cues for children), the evidence for V2 is even more robustly attested.<sup>11</sup> The total number of

<sup>10</sup> The corpus of child data used for this study consists of 70 recorded sessions of three children growing up in Tromsø (age 1;9-3;3), altogether 46,685 child utterances, see Table 3 below. The adult data consist of the speech of the parents as well as two investigators, all speaking northern dialects of Norwegian. Apart from 10 files that have been collected and transcribed by the author, the corpus has been collected by Merete Anderssen.

<sup>11</sup> Degree-0 learnability claims that learners scan the environment for cues only in simple syntactic domains, i.e. unembedded contexts (see e.g. Lightfoot 1999: 167-174, where this is used to explain the development of VO word order in the creole language Berbice Dutch, which is based on Dutch and Ijo, both OV languages with verb-second in main clauses). However, this concept is not adopted in Westergaard & Bentzen (2007), who argue that many

main clauses in the sample is 1713, and the 1134 examples with V2 (1137 minus the 3 examples of V2 in embedded clauses in Table 1) thus make up as much as 66.2% of this. The reason for the discrepancy is presumably that Lightfoot's calculations are based on conversations among adults and not child-directed speech, which, as we see in Table 1, contains an extremely high number of questions, especially *yes/no*-questions.

In comparison, the evidence for non-V2 word order in the sample is much more sparse, altogether only 9.6% (206/2097). Most of the non-V2 clause types are represented in the input with only minor percentages, e.g. exclamatives 0.4% or embedded questions 1.6% (see also Westergaard and Bentzen, 2007).

For clause types with mixed word order we find that main clause *wh*-questions appear with non-V2 5.2% and V2 3.5%. The latter figure includes a small number of questions introduced by disyllabic *wh*-elements (only 7 examples, corresponding to 0.3%), which, as mentioned in the previous section, require that the verb appear in second position. There is a considerable difference between the eight adult speakers in the corpus with respect to the relative proportions of the two word orders, ranging from 68.4% V2 (67/98) to as little as 2.5% (3/118). This variation is discussed in Westergaard (submitted).

In declaratives, there are 39 examples of non-V2 following the adverb *kanskje* 'maybe', making up 1.9%. In comparison, there are only two examples of this adverb with V2, which means that the three adults in the sample have a clear preference for non-V2 word order with this adverbs (95.1%, 39/41). Given the variation among speakers with respect to the word order in *wh*-questions, it would be interesting to check a larger sample of adult speakers for the word order in declaratives with initial *kanskje* 'maybe'. I therefore checked the NoTa corpus of spoken Norwegian (Oslo dialect), which consists of spontaneous conversations between pairs of speakers, altogether 166 speakers of different ages and backgrounds. In this corpus there is a total of 131 examples of initial *kanskje*, as many as 125 of them appearing with non-V2 word order. This corresponds to a preference of 95.4%. The similarity between this and the small sample from the acquisition corpus is striking, suggesting that the relative frequency of the two word orders with this adverb is extremely stable across speakers and dialects.

Finally, let us note that there is not a single example in the input sample of a focus-sensitive adverb in non-V2 constructions in Table 1. Therefore, the whole corpus of the three adult speakers was checked with respect to these particular adverbs, and the result is displayed in Table 2. Only one of these adverbs is attested at all, viz. *bare* 'just', and as we see, the frequency of the non-V2 construction involving this adverb is extremely low across all files in the corpus, occurring only 0.07%, or once per 1,347 utterances.

**Table 2: Non-V2 involving the adverb *bare* 'just' in some samples of adult speech.**

Speaker/Files	No. of utterances	S <i>bare</i> V <sub>fin</sub>	%
MOT Ina.01-27	5,471	4	0.07%
INV Ole.13-22	7,365	8	0.1%
INV Ina.01-27	18,140	11	0.06%
Total	30,976	23	0.07%

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languages differ with respect to embedded word orders, e.g. Norwegian and Icelandic (see examples (12) and (15) above), and that there are no cues for these distinctions if the child only considers main clauses.

From the frequencies attested in this input sample, one might expect that V2 should be acquired early. In fact, given the predictions of grammar competition (see the quote from Kroch 1994 above), this word order should be learned long before non-V2, which is expected to appear “later in life” as exceptions to the general word order of the language. However, the child data presented in the next section show that this is not the case.

## 5. Child Data

We now turn to how children deal with word order variation in the Tromsø dialect of Norwegian, given these input frequencies. Table 3 gives an overview of the corpus of child language used for this study.

**Table 3: Overview of the Norwegian corpus of child language, Tromsø dialect.**

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

As reported in Westergaard (2006), both V2 and non-V2 word orders are attested in child data from the earliest occurrences of multi-word utterances, in the appropriate clause types. This is illustrated by the non-subject-initial declarative in (30), appearing with V2, and the embedded question in (31), displaying target-consistent non-V2. This is the case regardless of the very different input frequencies for the two word orders. Furthermore, there is no overgeneralization between clause types, which might have been expected under an analysis where V2 results from a cue formulated as (5) above; that is, a structure where the finite verb appears obligatorily in C.

(30) så **tegne** æ mamma. (Ina.02, age 1;10.4)  
 then draw.INF/PRES I mommie  
 ‘Then I draw mommie.’

(31) Ann vet ikke kor **han er** henne. (Ann.09, age 2;2.19)  
 Ann knows not where he is LOC  
 ‘Ann doesn’t know where he is.’

But what about those cases where the input provides conflicting word order evidence *within* the same clause type? First and foremost, this concerns the *wh*-questions introduced by monosyllabic *wh*-elements, where the distinction between the two word orders is argued to be due to information structure. This is something one might expect should be difficult for children, as these are relatively subtle differences that are related to the discourse situation. Nevertheless, as shown in Westergaard (2003), the children produce *wh*-questions with both V2 and non-V2 from a relatively early stage, and moreover, the same preference patterns are found for subject and verb types as in the adult grammar, as illustrated in (32) and (33), cf. examples (23) and (24) in section 3. Given the relatively sparse evidence for the word order in *wh*-questions in the input (3.5% plus

5.2%), this suggests that children are sensitive to patterns of information structure from a very early age.

- (32) kor e **babyen?** (Ina.06, age 2;1.0)  
where be.PRES baby.DEF  
'Where is the baby?'
- (33) ka **du skal** finne? (Ina.05, age 2:0.5)  
what you shall find  
'What do you want to find?'

While questions with the monosyllabic *wh*-elements are relatively frequent from age 2;2, questions with the long (disyllabic) *wh*-words appear somewhat later in the child data (approximately age 2;9-3;1). From their earliest appearance these questions are treated differently, in that they are produced with target-consistent V2 word order only, as illustrated in (34). Thus, children do not seem to have any difficulty treating short and long *wh*-elements as significantly different subcategories that may behave different syntactically.

- (34) koffer **har** **han** fått den? (Ina.22, age 2;10.2)  
why have.PRES he got that  
'Why did he get that?'

We then move on to the exceptional non-V2 constructions in declaratives that occur with certain adverbs. Let us first consider non-subject-initial declaratives introduced by the adverb *kanskje* 'maybe', which were attested as little as 1.9% in the input data. Somewhat surprisingly, all three children's first example of this adverb displays target-consistent non-V2, as illustrated in (35) from one of the children. Recall that the adults in the input sample showed a clear preference for non-V2 with this adverb, producing this word order as much as 95.1% (39/41). The three children produce altogether 28 examples with initial *kanskje* in the corpus, 27 of which appear with non-V2. This corresponds to a percentage of 96.4%, which is of course extremely similar to the adult preference.<sup>12</sup>

- (35) kanskje **han sitt** og spise kaffe. (Ann.15, age 2;6.21)  
maybe he sit.PRES and eat.INF/PRES coffee  
'Maybe he is sitting there eating coffee.'

Finally, let us consider the non-V2 construction involving the adverb *bare* 'just', which is only marginally attested in the input (0.07% in a sample of approximately 31,000 utterances investigated in Table 2). Nevertheless, all three children are apparently sensitive to this unusual form in the input, as in addition to regular V2 examples with this adverb, they very early produce target-consistent non-V2 forms, as illustrated in (36). In fact, the children are also in this case (almost disturbingly) similar to the adults, in that they produce altogether 29 such examples in the corpus of 46,685

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<sup>12</sup> As mentioned above in connection with example (30), the children very early produce target-consistent V2 in non-subject-initial declaratives. However, there are occasional non-target-consistent examples in the earliest files, as the three children produce 5.6% (41/735) non-V2 in this clause type between the age of 1;9 and 2;4. Thus, the 96.4% non-V2 with initial *kanskje* 'maybe' is clearly different from the children's general performance in non-subject-initial declaratives and cannot simply be due to occasional failure of V2.

utterances, corresponding to 0.06%. It should be noted that this word order does not appear with any other adverbs in the child corpus.

- (36) de **bare datt** av. (Ole.08, age 2;2.12)  
 they just fall.PAST off  
 ‘They just fell off.’

From the child data presented in this section, we may conclude that there is no evidence for grammar competition with respect to V2, comparable to what is found with the acquisition of morphology. Both V2 and non-V2 are acquired early in the appropriate contexts and there is no overgeneralization. Thus, young children seem to be very sensitive not only to different word orders in different clause types, but also to word orders which are dependent on information structure, as well as exceptions to the general patterns. Based on this evidence, it might be tempting to argue for an analysis in terms of sheer imitation of patterns and frequencies in the input. However, this is not warranted, as the children in this study do produce non-target-consistent word order in other constructions, e.g. object shift, so-called subject shift (Westergaard forthcoming), and some embedded contexts (Westergaard and Bentzen 2007), some even for an extended period of time. An example of the delay in object shift constructions is provided in (37):

- (37) 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.

## 6. Cue-Based Acquisition in a Split-CP Model

In order to account for children’s early target-consistent word order in the different clause types and the lack of overgeneralization between them, Westergaard (2006) developed an extension of Lightfoot’s (2006) cue-based approach to acquisition and change within a split-CP model of clause structure. This represents a somewhat revised version of a model originally developed in Westergaard and Vangsnes (2005), naturally inspired by Rizzi (1997). What is crucial about this model is that the illocutionary force of a sentence is reflected as different heads in the CP domain, so that the topmost head of Rizzi’s (1997) CP, the ForceP, is replaced by a number of different heads depending on clause type; e.g. a *wh*-question is an Int(errogative)P, a declarative is a Top(ic)P, an exclamative an ExclP, an embedded question a WhP (different from a main clause question as it lacks interrogative force), etc. As clause types are mutually exclusive, this could simply be looked upon as different “flavors” of illocutionary force, represented as a ForceP with different features.

Recall that Lightfoot (2006: 86) formulated the cue for V2 in (5) as a piece of structure “where a phrasal category occurs in the Specifier of a CP whose head is occupied by a verb” (CP[XP<sub>c</sub>V...]). Within this split-CP approach, where all clause types have different kinds of heads expressing illocutionary force, there must be several cues expressing V2, one for each type of ForceP. Some examples of these cues are provided in Table 4, distinguishing between five different V2 grammars. For example, the cue for V2 in *wh*-questions is a structure with a *wh*-element followed by a finite verb filling the

head position in the IntP, formulated as  $_{\text{IntP}}[wh_{\text{Int}^\circ}V]$ , while the cue for V2 in declaratives must be a non-subject XP followed by a finite verb in the TopP, formulated  $_{\text{TopP}}[XP_{\text{Top}^\circ}V]$ . Children speaking standard English will encounter the former expressed in the primary linguistic data, but not the latter, while children growing up in Nordmøre in Norway will have evidence for the latter and not the former. Danish children will be exposed to positive evidence that exclamatives are V2, while children acquiring Belfast English or Indian Vernacular English will have evidence that the head involved in embedded questions ( $Wh^\circ$ ) must be filled by the verb. Thus, in order to analyze the linguistic input, Danish children must produce a cue formulated as something like  $_{\text{ExclP}}[wh_{\text{Excl}^\circ}V]$  in their I-language grammar, while children acquiring Belfast English must make use of a structure such as  $_{\text{WhP}}[Wh^\circ V]$ .

**Table 4: Examples of cues for V2 in a split-CP model.**

Language \ Cue	$_{\text{IntP}}[wh_{\text{Int}^\circ}V]$	$_{\text{TopP}}[XP_{\text{Top}^\circ}V]$	$_{\text{ExclP}}[wh_{\text{Excl}^\circ}V]$	$_{\text{WhP}}[Wh^\circ V]$
St. Norwegian	+	+	-	-
Nordmøre	-	+	-	-
Danish	+	+	+	-
St. English	+	-	-	-
Belfast English	+	-	-	+

According to this model, there is no ‘global’ cue for V2 syntax, but separate so-called ‘micro-cues’ for each clause type. This means that when children scan the primary linguistic data for word order cues, this is a selective process where only a particular clause type is relevant. When searching the input for possible cues for verb movement to the  $\text{Top}^\circ$  head, for example, children will only consider declaratives and ignore other clause types such as *wh*-questions or imperatives. That is, the word order of other clause types is in fact irrelevant and does not constitute any counter-evidence for the micro-cue expressed in declaratives.

If cues are of a smaller scale than previously assumed, then input frequencies expressing a particular micro-cue must be calculated in relation to a smaller set of utterances in the input, viz. the total number of sentences of the same clause type. This means that micro-cues for word order are much more robustly attested in the input than the percentages in Table 1 indicate. In fact, for most clause types, the cue is expressed in 100% of all relevant utterances. This is the case both in *yes/no*-questions and in exclamatives, despite their very different frequencies in the *overall* input (30.8% vs. 0.4%). On this perspective, calculating input frequencies based on the total number of sentences, as was done in Lightfoot (1999) and in Table 1 above, is in fact irrelevant to the explanation of word order acquisition.

The same thinking now applies to those cases where there is variation *within* a clause type, e.g. the violation of V2 in declaratives caused by certain adverbs. The adverb *kanskje* ‘maybe’ with non-V2 was attested as rarely as 1.9% in the total input, but we just said that this is not an appropriate calculation. According to the extended cue-based model, the relevant search domain for cues is not all utterances or all complete clauses, but the total number of a specific clause type, in this case declaratives. Since it is also necessary to only consider the environments that may unambiguously provide evidence (or counter-evidence) for the cue, the search domain must be further restricted to all non-subject-initial declaratives. There are 286 such examples in the sample (with V2) plus the 39 non-V2 examples with *kanskje* ‘maybe’. This means that the relevant total is

325, and the 39 examples thus make up 12%, considerably more than 1.9%. As the word order in these clauses is learned early, and has survived for centuries in several languages, it therefore seems that we can conclude that 12% (of the relevant total) is ample evidence for acquisition of an exceptional word order around age 2;2-2;6.

With respect to the mixed word order in questions with monosyllabic *wh*-words, Westergaard (2003) argued that the early acquisition of the same subject and verb patterns as in the adult data suggests that children are very sensitive to information structure. But questions with the disyllabic *wh*-words have target-consistent obligatory V2 as soon as they appear in the data, although they were attested only 0.3% in the input sample in Table 1. Again, it is necessary to compare the figure to the relevant clause type only, in this case all *wh*-questions, and then the percentage rises to 3.8% (7/183). This is still quite low, which indicates that there is another relevant issue here, viz. that there must be a natural linguistic distinction between the long and short *wh*-words, and that children are somehow “expecting” to find differences between the two classes of this category. Thus they do not automatically extend their analysis of one to the other. This means that micro-cues may be formulated as making even finer distinctions than the ones listed in Table 4, e.g. as separate cues for long and short *wh*-elements. This would be in line with what is argued in Roeper (2007), that children pay attention to frequency only in relation to relevant *classes* of categories (e.g. certain classes of verbs) and only overgeneralize *within* such classes.

Some support that this is a linguistically relevant distinction is found in work on Italian dialects, e.g. Polletto and Pollock (2004). They show that the long and the short *wh*-elements behave differently with respect to certain doubling phenomena, as illustrated in (38) and (39) from the Illasi dialect (Verona), and they argue that the short ones are *wh*-clitics.

(38) **Ci** alo visto **ci**?  
whom has-he seen whom  
‘Who has he seen?’

(39) \***Parché** e-lo partio **parché**?  
why is-he left why  
‘Why has he left?’

(Poletto and Pollock 2004: 242-3)

A similar distinction in certain German dialects is discussed in a recent paper by Bayer and Brandner (2006), who find that the length of the *wh*-element is important for the doubly filled COMP phenomenon in embedded questions. As shown in (40) and (41) from Eastern Bavarian, the insertion of *daß* ‘that’ is relatively unacceptable when the *wh*-element is short, while it is perfectly grammatical with a long *wh*-phrase.

(40) I woass aa ned, **wer** (?\***dass**) allas am Sunndoch in da Kiach gwen is.  
I know too not who that all at Sunday in the church been is  
‘I don’t know either who all has been to church on Sunday.’

(41) I frog-me, **fia wos** (**dass**)-ma an zwoatn Fernseher braucht.  
I ask-REFL for what that-one a second TV needs  
‘I wonder what one needs a second TV for’ (Bayer and Brandner 2006: 4-5)

Finally, let us consider the children’s early target-consistent production of word order with focus-sensitive adverbs such as *bare* ‘just’. There were no examples of these adverbs with non-V2 in the hand-counted input sample, and they were attested in the

total corpus of the three adults as little as 0.07%. In this case, the relevant total to use for comparison would be all subject-initial declaratives with adverbs/negation in the sample of 30976 utterances in Table 2. This is an unknown figure, but based on the numbers in Table 1 (130 out of 2627, or 4.9%) it is possible to estimate it as 1518 (4.9% of 30976). This increases the relevant input frequency for *bare* to 1.9% (29/1518), which is of course considerably higher than 0.07%, but still quite low, especially compared to Lightfoot's suggestion for the critical level for acquisition of V2 (17-30%). As mentioned above, I do not consider those percentages to be based on reliable calculations. Nevertheless, it seems to be the case that one must again consider the issue of what constitutes relevant subcategories or classes of categories for children in the acquisition process. For example, it is not unlikely that children would consider negation as a separate class or subcategory of adverb. In that case all the examples with negation should be excluded from the total, which would obviously increase the percentage of *bare* considerably in relation to the number of subject-initial declaratives with adverbs. It is also quite possible that focus-sensitive adverbs are a relevant linguistic class of the adverb category for a child, which means that only sentences with those adverbs would constitute the total. In any case, the low overall percentage of examples with focus-sensitive *bare* 'only' in the input is an irrelevant figure, as the crucial evidence for the word order occurring with these adverbs must be sought in much more limited data.

As already mentioned above, given this word order variation within clause types, cues must be even more fine-grained than the ones formulated in Table 4. For example, the cue for verb movement in *wh*-questions must make a distinction between long and short *wh*-elements, and the monosyllabic ones must make a further distinction between informationally given and new/focused subjects. Possible formulations of such cues are provided in (42) and (43), the former indicating that when a phrasal *wh*-element appears in SpecIntP, the verb must be in Int<sup>o</sup>, the latter that verb movement to a lower CP head (the low TopP) occurs only when the *wh*-element itself occupies Int<sup>o</sup> (i.e. is a head) and the subject is marked with the feature [+FOC].

(42) Cue for V2 in questions with long *wh*-elements:      IntP[ XP<sub>[+wh]</sub> Int<sup>o</sup> V...

(43) Cue for V2 in questions with short *wh*-elements:  
IntP[ Int<sup>o</sup> [*wh*] LowTopP[ LowTop<sup>o</sup> V XP<sub>[+FOC]</sub>] ...

The word order involved with the initial adverb *kanskje* 'maybe', on the other hand, seems to be truly exceptional and not related to any significant linguistic distinction.<sup>13</sup> This means that the non-V2 word order appearing with this adverb provides counter-evidence to the cue for word order in other non-subject-initial declaratives, formulated in Table 4 as (44) below. The piece of I-language structure that a child acquiring non-V2 with *kanskje* 'maybe' must produce would have to be something like that provided in (45).

(44) TopP[XP Top<sup>o</sup> V]

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<sup>13</sup> I am at least unable to see any difference in meaning or information structure between the two word orders involved with this adverb. It is possible that a study of a larger corpus of spontaneous speech would reveal such a distinction, but for now, I must conclude that non-V2 with *kanskje* 'maybe' is simply an exception.

(45)  $\text{TopP}[ \textit{kanskje} \text{ XP } \dots \text{VP}[ \text{V} ]]$

Given that both word orders are possible with this adverb, these two structures must be said to be in competition. As mentioned above, this kind of competition has nevertheless survived over many centuries in several languages. Given the way input frequencies are calculated in the present approach, this could now be argued to be due to the relatively high frequency of this adverb in child-directed speech (12% of all relevant utterances, see section 4). That is, while certain micro-cues are clearly distinct and do not produce conflicting evidence for the language-learning child, there are some which do. This means that there is some need for low-level grammar competition also in this model.

One question that arises in this connection is whether (45) could be a cue. For Lightfoot (1999, 2006) a cue is a designated, pre-defined structure, provided by UG, and it would be hard to argue that children are pre-wired to search for a piece of structure that involves a particular adverb. Nevertheless, the I-language structure that a child must produce to learn such word order exceptions as non-V2 with *kanskje* ‘maybe’ must be formulated something like (45). For the micro-cue approach, there is no principled reason why the structure in (45) could not constitute a cue. Therefore, micro-cues are not predefined by UG, but may be considered to be I-language structures which make very fine-grained distinctions. These distinctions make reference to linguistically relevant categories and subcategories, and in exceptional cases, even individual lexical items.

In this section I have argued that children do not pay attention to major parameters in the acquisition process, but rather to individual clause types and other linguistically relevant categories and subcategories. This means that the search domain for word order cues in the input is only those contexts where the child may find evidence or counter-evidence for a particular word order. Correspondingly, cues are much smaller entities than what has previously been assumed and should be formulated as micro-cues.

## 7. Some Consequences for Language Change

Given the model of selective cue-searching sketched in the previous section, with separate word order cues for each clause type, a consequence is that historical word order changes should typically affect only one clause type at a time. That is, when children no longer find the cue for verb movement in one clause type in the input, there is no reason why this should be transferred to other clause types. This means that what we see in the history of English, where declaratives have lost V2 while questions have not undergone this change, is actually as expected. The situation in present-day Norwegian dialects, where V2 seems to be in the process of being lost in *wh*-questions only, should also not be considered unusual. In both situations, only one of the ForceP heads is affected by the change,  $\text{Top}^\circ$  in English and  $\text{Int}^\circ$  in Norwegian. Another example of this is found in Henry (1994), who describes a change in progress in Belfast English where V2 is lost in Imperatives while it stays unaffected in other clause types, e.g. in embedded questions (which also have a different word order than what is found in Standard English, see section 3 above).

A further result of the split-CP extension of cue-based acquisition is that exceptional cases such as declaratives introduced by *kanskje* ‘maybe’ must be considered in relation

to the frequency of the relevant input only (e.g. the specific clause type) and not in comparison to all utterances or all matrix clauses. This is then also relevant for diachronic change regarding individual exceptional elements, e.g. *þa/þonne* ‘then’ in the history of English or the long *wh*-elements in Norwegian dialects, which all strictly require V2 even though the relevant clause type typically appears with mixed word order. In both cases, these initial elements lose their exceptional status diachronically, and in Norwegian this is expressed as present-day variation across dialects (e.g. Tromsø vs. Nordmøre).

The child data investigated in this paper indicate that there are no factors in language acquisition that make it necessary, or even natural, that word order changes should be extensive, ‘global’ changes. This means that when such major changes do occur in historical data, this is presumably due to external pressure such as language or dialect contact. Within the extended model of cue-based acquisition and change, I thus argue that language development should typically take place in small steps, indicating changes in the presence of various micro-cues, e.g. involving individual clause types or particular (linguistically relevant) elements, such as the long *wh*-phrases. These changes in the micro-cues then correspond to slightly different I-language grammars in the minds of speakers of two different generations. Extending Lightfoot’s concept of gradualism vs. catastrophes in diachronic development, we may then consider some of the gradualism seen in historical data to represent ‘many small catastrophes’.

There may be a variety of causes behind such small catastrophes, both external and language-internal ones. The question of *why* language change occurs historically is strictly speaking outside the scope of this paper, but I will provide one possible explanation of a language change that seems to be clearly related to language acquisition. This is the loss of V2 in Norwegian dialects affecting monosyllabic *wh*-elements only. As mentioned above (section 3), this has been argued to be related to the Head Preference Principle of van Gelderen (2004), see Westergaard (2005b). That is, given that this is an economy principle operative in the acquisition process, children will prefer to treat the short *wh*-elements as heads, moving them into the head position of the IntP and thus blocking verb movement and V2 word order.

Another example of a small catastrophe would be the spread of non-V2 from monosyllabic to disyllabic question words in Norwegian, i.e. from dialects of the Tromsø type to dialects of the Nordmøre type, also discussed in Westergaard (2005b). We may now use some of the adult and child data presented in this paper to shed some light on this development. First of all, from the sample of adult data investigated in section 3, it is clear that questions with disyllabic *wh*-elements are much less frequent than questions with short *wh*-words in typical child-directed speech, making up only 3.8% of the relevant input (all *wh*-questions). Furthermore, as mentioned above, questions with the long *wh*-elements appear much later in children’s speech, not until around age 2;9-3;1, while questions with the short *wh*-words are frequent already from age 2;2. Thus, despite the fact that the distinction between short and long *wh*-elements is presumably a natural one in the acquisition process, the low frequency and later acquisition of the long ones will make this distinction *vulnerable* to change historically. As mentioned above, this means that there may be some syntactic overgeneralizations and consequently a place for the concept of grammar competition also in this model, but only at a level of very fine-grained linguistic distinctions.

In this section I have argued that diachronic language change should typically take place in small steps and I have briefly discussed a couple of examples. Many questions

remain with respect to what constitutes a possible micro-cue, but comparative work on language acquisition, variation and change seems to provide a promising direction for further research.

## 8. Summary/Conclusion

Using a split-CP model of clause structure and an extended version of a cue-based approach to language acquisition and change, I have argued in this paper that V2 word order is the result of various micro-cues expressed in the input, and that there are consequently many types of V2 grammars, both diachronically and synchronically. Mixed V2 grammars are learnable because children make a selective search for word order cues, where the amount of triggering experience must be related to the relevant input only (e.g. the specific clause type). Language change is consequently predicted to occur in small steps. The acquisition data investigated also indicate that the critical level of robustness may vary from one micro-cue to another and must in any case be much lower than previously suggested.

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