

# The Acquisition of Verb Movement in First Language Acquisition

Comparison of English and Norwegian

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*This Master's Thesis is carried out as a part of the education at the University of Agder and is therefore approved as a part of this education. However, this does not imply that the University answers for the methods that are used or the conclusions that are drawn.*

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# 1 Introduction

The principles underlying human languages have been of interest for centuries. One of the paths to understanding how languages develop, how and why they change, and how they can be learned, is studying natural first language acquisition. The fact that, under normal conditions, children are able to acquire any language they are exposed to is baffling in itself. In addition, many documented observations of the acquisition process show that children acquire their first language very quickly, arriving at the target adult-like grammar within few years, despite imperfect input and lack of instruction. Understanding how this happens and what, if anything, is biologically determined and what is learned from the environment can have a great impact on understanding of the underlying principles that govern all human languages.

In this thesis I will discuss the acquisition of verb movement in monolingual first language acquisition from the generativist perspective. I will focus on the earliest developmental stage when verb movement is potentially observable, i.e. the early multi-word stage from about 18 months until two years of age. The movement of the finite verb from its underlying base position within the verb phrase is possible only in the presence of at least one functional category above the verb phrase. Thus, the main question to answer is whether children at this early age have functional categories in their grammar. I will discuss in detail the relevant research for two languages, English and Norwegian, and show that the answer to this question is not always straightforward. Different child languages seem to provide evidence of the acquisition of the functional categories at different stages in the linguistic development.

In the second chapter of the thesis, I will first discuss the theoretical background of first language acquisition research including the constructivist and the generativist view of language, and of the acquisition process. I will mainly focus on Chomsky's *Universal Grammar* and the *Principles and Parameters Theory* including a discussion of parameter setting and potential re-setting (Meisel, 1995; Müller, 1994). A recent work on micro-cues (Westergaard, 2009) will also be considered. Finally, I will briefly introduce the syntactic framework of the *Minimalist program* used in the analysis of child language in the rest of the thesis.

In the third chapter of the thesis, I will first discuss the evidence of the presence or absence of functional categories in child English based mainly on Radford (1990), who maintains that early child English is purely lexical lacking all functional categories and

consequently also verb movement. I will then turn to child Norwegian based on (Westergaard, 2005), who provides compelling evidence of verb movement in early child Norwegian, which necessarily means that the Norwegian grammar of very young children contains functional categories.

In the fourth chapter, I will compare the findings from English and Norwegian with each other and with data from other languages, namely French, German and Swedish. It will be shown that some child languages show unambiguous evidence of verb movement and thus of the presence of functional categories earlier than others. It is therefore important to consider more than one child language in order to correctly evaluate the linguistic abilities of very young children. Some implications for bilingual first language acquisition and for the general theory of parameters will also be considered in the discussion.

The fifth and final chapter of the thesis contains a summary of the findings as well as some suggestions for further research regarding both monolingual and bilingual first language acquisition.

## 2 Theoretical background

There are two major camps of theoretical thought within the field of first language acquisition studies: generativists and constructivists. Broadly speaking, generativists assume that language consists of formal rules and operations working on abstract linguistic categories and that at least some knowledge of language is innate, while constructivists assume that language is learned by experience only and that all abstract grammatical knowledge is formed by generalizing across input (Ambridge & Lieven, 2011, p. 1f.). In the following sections, I will introduce the basic assumptions of both approaches, before I turn to discuss the theory of *Universal Grammar* and *Principles and Parameters* in detail. In sections 2.2.2 and 2.2.3 I will consider some of the theoretical issues of the *Principles and Parameters Theory* such as the initial values of parameters and parameter mis-setting and re-setting. In section 2.2.4 I will briefly discuss Westergaard's (2009) recent proposal to redefine the understanding of parameters. Finally, in section 2.3, I will introduce the syntactic framework that will be used in this work.

### 2.1 Constructivism

Under the construction grammar approaches language is understood as a collection of constructions, i.e. "form-meaning correspondences", which are not dependent on particular words (Goldberg, 1995, p. 1). The constructions of a given language reach various levels of abstraction and contain various amounts of open "slots" available for lexical insertion, ranging from schematic idioms which have a single lexically open slot, e.g. *give NP the lowdown*, to argument structure constructions in which all slots are lexically open, e.g. resultative construction [*NP verb NP XP*] meaning X causes Y to become Z, such as *she kissed him unconscious* (Croft & Cruse, 2004, p. 248; Goldberg, 1995, p. 3). These approaches then postulate rules that "operate on semantic structure" as opposed to syntactic rules (Goldberg, 1995, p. 8).

The constructivist approaches originally aimed at finding a place in the grammar for idiomatic expressions (Croft & Cruse, 2004, p. 225ff.) and later expanded to full theories of grammar. By assuming that part of the overall meaning of an utterance is carried by the construction itself, constructivism avoids the problem of generating "implausible verb meanings" in sentences such as *He sneezed the napkin off the table*. The intransitive verb *sneeze* should not be able to take a complement. Under the generativist view, one needs to

establish an additional meaning of *sneeze* ('to move something by sneezing') which would allow for the transitive construction above (Goldberg, 1995, p. 9ff.). Constructivists claim that there is no need to establish such specific meanings of verbs for the speaker to be able to select arguments for the verb, but that "skeletal constructions [are] capable of contributing arguments" (Goldberg, 1995, p. 10). Under this account then, the verb meaning is constant and the differences in the overall meaning of constructions "are in large part attributable directly to the different constructions involved" (Goldberg, 1995, p. 19).

Turning to language acquisition, the basic constructivist claim is that "knowledge of language is knowledge" (Goldberg, 1995, p. 5). Thus, there is no need for any specific *Language Faculty* in the human brain which would be associated only with language acquisition, language learning or language production. The knowledge of language is gained through the same cognitive processes as any other type of knowledge. The process of acquiring a language is "a multifaceted one, requiring just about all of the child's perceptual, cognitive, social-communicative, and learning skills" (Bates & Tomasello, 2001, p. 10), but according to constructivists, there is no other innate language-specific skill needed. In an attempt to explain the uniformity of language acquisition across languages, Bates & Tomasello (2001, p. 6ff.) claim that children across the world experience similar communicative needs in their daily life. These can initially be covered by a handful of semi-fixed word combinations such as *Where's the X?*, *More X*, *Let's X it*, *Stop X-ing*, *Want X*, etc. which have "some internal complexity" and "at least one open slot" available for different lexical items. In order to acquire an adult-like grammar of their language, children must then construct the abstract categories of the language based on the patterns they hear around themselves.

To support this view of early acquisition, constructivists claim that "virtually all of children's early linguistic competence is item-based" (Tomasello, 2001, p. 169) and that children are not using any abstract rules or categories in their early language production. Furthermore, according to this view, when patterns in speech production emerge, children are not able to expand their rules beyond specific items which are rote-learned, i.e. picked up from the input as unanalyzed chunks (Tomasello, 2001, p. 170ff.). However, it is undeniable that children eventually manage to create abstract rules and categories which can be expanded across their entire language system. Constructivists claim that all that is needed for this complex system to emerge are "general cognitive and social-cognitive skills" (Tomasello, 2001, p. 169). These views differ greatly from those held by generativists, as discussed in the following section.



## 2.2 Generativism

Under the generativist approaches, the speakers are assumed to possess a system of abstract rules that can generate novel utterances (Ambridge & Lieven, 2011, p. 105; cf. Chomsky, 1959) as opposed to a set of fixed constructions with open slots. These rules refer to syntactic categories (e.g. determiner, noun, verb) and phrases (e.g. noun phrase, verb phrase), not to concrete items. The sum of the knowledge of this system of rules and the lexicon is referred to as the competence of the speaker, as opposed to the performance – the actual produced utterances which are influenced by “grammatically irrelevant conditions” such as distractions, errors, etc. (Chomsky, 1965, p. 3f.). Generative grammar seeks to describe this abstract system explicitly, regardless of the subjective performance of the speakers-hearers. It is thus assumed in the generative view that even if young children produce only a limited number of structures, these are not just rote-learned chunks, but generated by an underlying system of grammatical rules.

Considering how children acquire this intricate system, generativists assume that at least some parts of the system are innate. Chomsky (1980, p. 42ff.) claims that children cannot acquire a language based solely on their input because there is not enough useful language input available in the environment. This is commonly referred to as the *poverty of stimulus* argument. Furthermore, Chomsky (1986, p. 51ff.) comes to the conclusion that a substantial part of human language cannot be learned at all because the relevant information to enable empirical learning is present neither in the input nor in the context (cf. Meisel, 1995, p. 11). This is often referred to as the *learnability problem*. To solve this problem, generativists propose an innate system of invariable principles, which are valid for every human language, and a set of parameters, which vary across languages. This system is discussed in more detail in the following section.

### 2.2.1 Universal Grammar and Principles and Parameters Theory

The uniformity and the rapidity of language development is often emphasized in the acquisition research (cf. Gleason & Ratner, 2009). Under normal circumstances, all children, regardless of their language background, go through similar stages of development starting with single words, progressing to elementary two- and three-word utterances and later to well-formed target-like sentences. The progress is usually very rapid, with first words emerging at around twelve months, first word combinations at around eighteen months, and by the age of

thirty months, children have usually acquired “most of the core inflections and grammatical constructions of their language” (Radford, 2004, p. 10).

In order to explain the uniformity and the rapidity of first language acquisition, Chomsky (1986) maintains that humans possess an innate *Language Faculty* which “provides children with a genetically transmitted algorithm for developing a grammar” on the basis of the input they receive from their environment (Radford, 2004, p. 11). To enable children of all language communities to acquire their first languages, this *Language Faculty* must contain rules that are general enough to encompass all natural languages. These rules are described in a theory of *Universal Grammar* (UG) which includes general principles, valid for all languages, and language specific parameters, which are set to the appropriate values through the input.

Bohannon and Bonvillian (2009, p. 238) summarize Chomsky’s proposal of the *Principles and Parameters Theory* (PPT) in an image of the initial state of the *Language Faculty* as “a fixed network connected to a switch box. The network contains the principles and properties of the language faculty in the form of a finite array of switches that are set by experience” (cf. Chomsky, 1986, p. 146). This proposal, if confirmed, makes the children’s task in acquiring a language much easier since, instead of constructing the grammar of their input language from scratch, they only need to “set” a collection of parameters to the appropriate values for the language they are acquiring. “Since universal principles don’t have to be learned, the child’s syntactic learning is limited to that of parameter-setting” (Radford, 2004, p. 21). This happens through their exposure to language.

The precise description of specific parameters as well as of the process of parameter setting are still a matter of debate. However, there are at least three parameters directly influencing the order of the main clausal constituents (subject, verb and object) of any given language: the head-direction parameter, the specifier-head parameter and the verb second parameter (V2) (cf. Ambridge & Lieven, 2011, p. 210ff.). The head-direction parameter determines the relative order of heads and complements; thus the setting of this parameter decides whether the language in question has VO order, such as English in (1a), or OV order, such as Turkish in (1b) (examples adapted from Comrie, 1989, p. 87):

(1) (a) The farmer **saved the duckling**.

(b) Hasan **öküz-ü aldi**.

*Hasan ox.ACC bought*

‘Hasan bought the ox.’

Similarly, the specifier-head parameter determines the relative order of specifiers and heads, thus deciding between the SV order of English as in (2a) and the VS order of Welsh as in (2b) (examples adapted from Comrie, 1989, p. 87):

- (2) (a) **The farmer saved** the duckling.  
 (b) **Lladdodd y ddraig y dyn.**  
*killed the dragon the man*  
 ‘The dragon killed the man.’

In languages with a positive value for the V2 parameter, e.g. Norwegian, a finite verb must always be the second constituent in all declarative main clauses. This means that if a non-subject element is topicalized, i.e. it is moved to the first position of the clause, the verb has to move across the subject to surface in the second position as in (3b).<sup>1</sup> English does not require the verb to be in the second position, i.e. the value of the V2 parameter for English is negative, and the verb surfaces after the subject in topicalizations as in (4b). However, the overt word order is the same for clauses without topicalization in Norwegian and English as in (3a) and (4a) respectively:

- (3) (a) Han **tok** leken.  
*he took toy.DEF*  
 ‘He took the toy.’  
 (b) Leken **tok** han.  
*toy.DEF took he*  
 ‘He took the toy.’

- (4) (a) The farmer **saved** the duckling.  
 (b) The duckling the farmer **saved**. (usually with stress on ‘the duckling’)

In addition to the three parameters discussed above, there are several other values that need to be set correctly in order to arrive at a target-like grammar of a given language, e.g. the

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<sup>1</sup> See examples (12)-(14) in section 2.3.2 and section 3.2.1 for discussion of word order in Norwegian.

null-subject parameter, which determines whether the language permits dropped subjects, and others. The distribution of the strong and the weak syntactic features, which determine the requirements for verb movement, is also parametrized (cf. section 2.3).

### **2.2.2 Parameter setting**

The theories of UG and PPT unfortunately do not answer all the questions of first language acquisition. If the children are equipped with both the invariable principles and the parametric options within the UG, the process of language acquisition becomes simpler and more feasible. However, the children still need to analyze their input and set the parameters to the values appropriate for the language(s) they are acquiring. Despite some discussion of multi-valued parameters in the literature, it is generally assumed that parameters require only a binary choice (Meisel, 1995, p. 12). Since the choices for the value of a specific parameter are limited, the process of setting the parameter is distinct from traditional learning. Parameter values are triggered by cues in the input, rather than learned. Triggering does not require as much time and exposure as explicit learning and it can handle less salient and more ambiguous input data (Meisel, 1995, p. 14). In an ideal scenario, children should be able to set the parameters for the language they are acquiring “on the basis of a single relevant piece of input data or, at least, as soon as possible” (Ambridge & Lieven, 2011, p. 210). This claim raises questions about the possibility of parameter mis-setting, as is discussed in section 2.2.3.

Another often disputed issue is the initial state of the parameters. Meisel (1995, p. 15ff.) discusses two possibilities:

1. Parameters are initially set to a default value provided by UG
2. Both (or all) values are accessible simultaneously

The first option would necessarily lead to the need of parameter re-setting in the languages which require the non-default option in their grammars. As is shown in the following section, the notion of parameter re-setting is rather problematic. The second option theoretically allows access to both values simultaneously before the correct setting is triggered by the input, “but as long as the child has not yet set the parameter, the child ‘falls into’ the default grammar” (Meisel, 1995, p. 17). In other words, the default option is not “set”. All options are available, but one of them is “active” as a default as long as no option is set by the input. As a consequence, all options of all parameters are available within the UG prior to input. This approach eliminates the problem of parameter re-setting and it also explains why children

might produce structures suggesting a different parameter setting than in the input language before the parameter in their developing grammar is set.

### **2.2.3 Parameter mis-setting and re-setting**

In order to set a parameter, the child has to recognize a trigger in the input. This is not always a straightforward task. Chomsky (1972, p. 158) describes the input children receive as “evidence of a highly degraded sort [...] that consists, to a large extent, of utterances that break rules, since a good deal of normal speech consists of false starts, disconnected phrases, and other deviations from idealized competence” and this is equally valid today. In addition, even if the input data were of sufficient quantity and quality, it is still plausible that the child would choose “the wrong option” for a parameter due to an incorrect analysis of the data (Meisel, 1995, p. 14). In such cases, the parametric value would have to be re-set in order to yield the correct grammar of the language. However, as is pointed out by (among others) Valian (1990), if it is possible to re-set a parameter on the basis of contradicting evidence, the child would need to switch constantly between the two settings if the input is erroneous or ambiguous. This problem led researchers to propose a “parameter-setting constraint”, which states that fixed parameters cannot be reset (Clahsen, 1990, p. 365ff.; cf. Müller, 1994, p. 236).

On the other hand, if re-setting of a parameter is not possible, the mis-set parametric value would need to be corrected by inductive learning (cf. Meisel, 1995, p. 31ff.). This is in fact shown in a case study by Müller (cf. Müller, 1994, 1996, 1998). In the original study, data from three bilingual children (German-French) are compared with respect to the acquisition of verb placement in German subordinate clauses. It is shown that two of the children acquire the correct verb placement almost instantaneously at a certain point in their development, while the third child goes through a lengthy period of incorrect placement (almost two years) before he reaches a more than 50% rate of correct placement in the relevant clauses (Müller, 1994, p. 250ff.). Based on her data, Müller claims that the child “has set the finiteness parameter to the wrong value for German” and that his acquisition of the V-final pattern in subordinate clauses is an item-by-item process subjected to severe restrictions (Müller, 1994, p. 251ff.). These findings can be seen as an empirical confirmation of the above mentioned “parameter-setting constraint.”

#### 2.2.4 Alternative view: Micro-cues

Based on her study of the acquisition of word order in child Norwegian, Westergaard (2005, 2009) proposes a slightly different view of parameters. She claims that in order to acquire what seems to be irregularities in the V2 order in the Tromsø dialect of Norwegian, children must be sensitive to some fine-grained distinctions and rules, rather than set one parameter to some value (+/- V2). She shows that rules for verb placement in this particular dialect of Norwegian depend on clause type, information structure and in some cases also particular lexical items (cf. section 3.2.1) and thus cannot be acquired automatically by the setting of one parameter.<sup>2</sup> Instead, she proposes a set of micro-cues which reflect the rules for various sentence types.

Westergaard claims that micro-cues are learned from the input, thus they are language specific. The cues are “made up from syntactic primitives provided by UG” (Westergaard, 2009, p. 5) and are represented by input strings. She specifies that her approach is distinct from the constructivist item-based learning in that “cues are not surface strings [...] they are abstract pieces of structure that are formed in 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” (Westergaard, 2009, p. 51). By refining the concept of parameter and replacing it with micro-cues, Westergaard seeks to explain the early and simultaneous acquisition of both V2 and non-V2 word orders in the Tromsø dialect of Norwegian. She shows that children usually do not overgeneralize from one clause type, as would be predicted from the generative parameter-setting model, nor do they acquire the more frequent V2 before non-V2, as would be predicted by the constructivist usage-based models (cf. Westergaard, 2009, p. 69f.).

Westergaard’s approach ties together some of the loose ends of the traditional generative approaches to first language acquisition. Given the fine-grained differences in verb placement in V2 languages and their dialects, it is hardly possible for children to acquire the correct word order by the setting of one parameter (+/- V2). It is conceivable that the children would set the V2 parameter early on and then learn the non-V2 structures later. However, this would necessarily lead to a delay in target-consistent non-V2 structures in child language, which is not attested in Westergaard’s corpus (cf. Westergaard, 2009, p. 31). By dividing major parameters into smaller micro-cues, which are acquired from the input separately, Westergaard provides a possible explanation for the fact that children seem to be extremely

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<sup>2</sup> Other dialects of Norwegian, as well as other V2 languages and their dialects, show a different distribution of V2 and non-V2 word orders which can also be distinguished using micro-cues (cf. Westergaard, 2009, p. 55f.).

attentive to these fine-grained differences and produce target-consistent structures both in V2 and non-V2 contexts from early on (cf. sections 3.2.2 – 3.2.5).

## 2.3 Syntactic structure

Since the discussion in this thesis is based on the generativist approach, the main principles of this framework will be briefly outlined here. In generative models, the linear order of the lexical items in a phrase is determined by their internal hierarchical structure. The syntactic structure is traditionally assumed to be binary branching. In addition, the structural system allows recursion, i.e. a given structure can contain several instances of the same category (Radford, 2004, p. 69f.). In the following outline, based on Chomsky (1995) and Radford (2004), I will briefly discuss the essentials of the Minimalist program and the principles of head movement and A-movement, followed by a short summary. Some additional syntactic features of English and Norwegian are described in detail in the respective chapters below.

### 2.3.1 The Minimalist Program

According to Chomsky's (1995) *Minimalist Program*, a grammar of a language consists of two basic components, the lexicon and the computational system (syntax), as well as of two interfaces, one semantic (also called Logical Form, LF), and one phonetic (Phonetic Form, PF).<sup>3</sup> The lexicon provides lexical items which are combined together by a syntactic operation MERGE forming a syntactic structure. After MERGE, the elements can further be moved within the structure (cf. sections 2.3.2 and 2.3.3). After all the operations have been applied, the structure is further processed by the semantic component, which assigns the corresponding semantic representation, and by the phonetic component, which assigns the corresponding phonetic representation (cf. Radford, 2004, p. 9). Principles of UG limit the types of operations permitted within the syntax of any human language. For example, the *Locality Principle* requires that all operations must be local, i.e. affecting the closest element of the relevant type (Radford, 2004, p. 15). Language specific settings of the parameters determine which operations are employed to generate each specific grammatical structure in

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<sup>3</sup> Several other hypotheses have been discussed within the generative tradition in the past ranging from the *Standard Theory* (Chomsky, 1965) to the *Extended Standard Theory* (Chomsky, 1981) and beyond. I will hereafter, in line with Chomsky, dismiss deep and surface structures (for discussion see Chomsky, 1995, p. 186ff.) and use only the minimalist framework as described in Chomsky (1995) and Radford (2004).

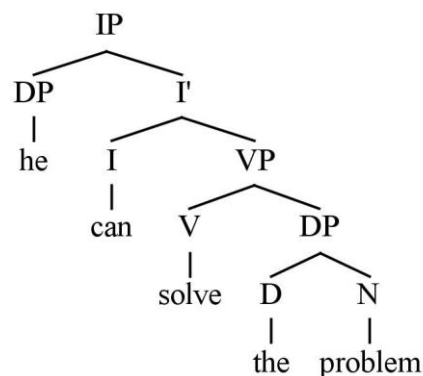
the given language. For example, the setting of the verb-second parameter determines whether the grammar of a given language requires the verb to move out of the verb phrase in declarative main clauses with topicalized elements or whether the verb remains *in situ* (cf. section 2.3.2).

Let us take as an example the English sentence in (5):

(5) He can solve the problem.

After the lexical items are selected from the lexicon they are combined together by “a series of merger operations” forming larger constituents – phrases and clauses (cf. Radford, 2004, p. 66ff.). In (5), the determiner *the* merges with the noun *problem* to form a determiner phrase (DP) *the problem*. Then the verb *solve* merges with the DP *the problem* to form a verb phrase (VP) *solve the problem*. The VP then merges with the non-lexical verb *can* to form an intermediate projection I-bar (I') *can solve the problem*, which then merges with the pronoun *he* to form an inflectional phrase (IP) *he can solve the problem*. In (6) is the tree diagram of the sentence from (5):

(6)



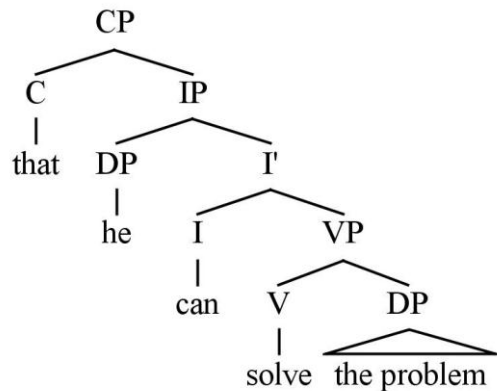
The VP in (6) has a head [<sub>V</sub> *solve*] and a complement [<sub>DP</sub> *the problem*]. The VP in (6) is also a maximal projection of the verb *solve*, i.e. it is the largest constituent headed by the verb *solve*, while I' is an intermediate projection of the non-lexical verb *can*. The maximal projection of *can* is IP, after the merge of I' and the DP *he*. The [<sub>DP</sub> *he*] is the specifier of the inflectional phrase (SpecIP).<sup>4</sup>

<sup>4</sup> In his later work Chomsky (1995) abandons the projection levels as redundant working towards a theory of bare phrase structure. However, I will keep the bar notation throughout this work, for discussion see Radford (2004, p. 94ff.).



All canonical clauses in English contain one additional functional layer: a complementizer phrase (CP). Most subordinate clause are introduced by an overt complementizer, e.g. *that*, which surfaces in the head of CP as in (7):

- (7) (a) That he can solve the problem.  
 (b)



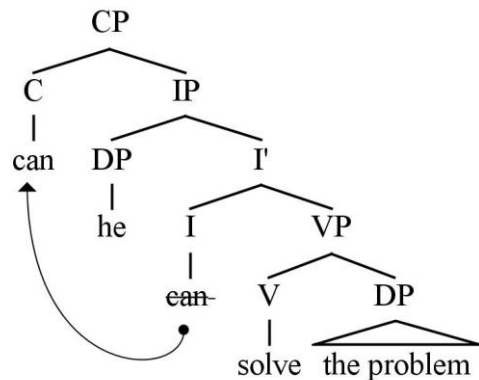
If there is no overt complementizer in the clause, e.g. in main clauses and some subordinate clauses, the head of CP contains a null complementizer which carries a force feature (declarative or interrogative) specifying the clause type (Radford, 2004, p. 124ff.). Some languages, e.g. Arabic, use overt complementizers also in declarative main clauses, which supports the analysis above (Radford, 2004, p. 127).

### 2.3.2 Head movement

Question formation in English involves syntactic operations that apply to the structure created by the operation MERGE. In *yes-no* questions, the finite non-lexical verb raises from I to C, i.e. undergoes head movement from I to C, as illustrated in (8):

(8) (a) **Can he** solve the problem?

(b)

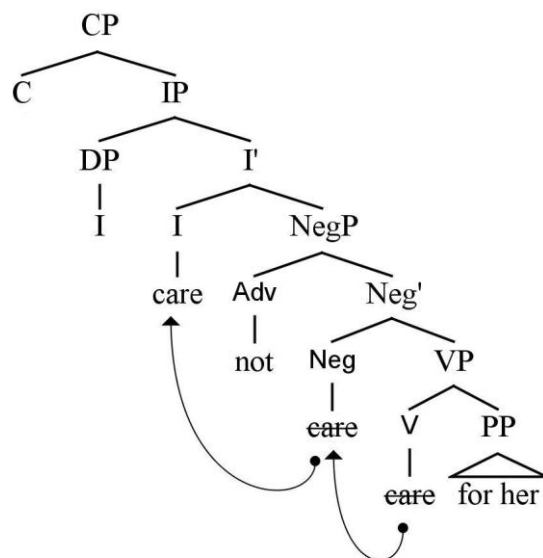


I-to-C movement is triggered by a “null question particle” (Q feature) in the head of CP in English interrogatives. As the Q feature is affixal in nature, it needs to attach to a suitable carrier, e.g. a non-lexical verb or a *wh*-operator. In this case finite non-lexical verb *can* is thus attracted to the head CP (Radford, 2004, p. 153).<sup>5</sup>

In earlier stages of English, i.e. up until Early Modern English (EME), head movement takes place also from V to I. Thus, (9a) is derived by the finite lexical verb *care* raising across the negative marker *not* to the head of IP (example adapted from Radford, 2004, p. 171):

(9) (a) **I care not** for her. (Thurio, *The Two Gentlemen of Verona*, V.iv)

(b)



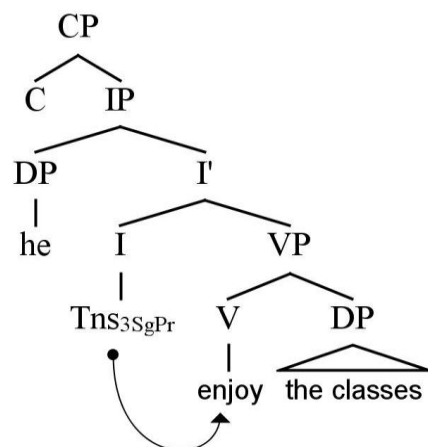
<sup>5</sup> Movement is actually seen as two operations: copy and delete. First the copy of the auxiliary is moved to C and then the original is deleted leaving a trace. See Radford (2004, p. 154ff.).

It is generally assumed that negation in English heads its own phrase NegP.<sup>6</sup> Because of the *Locality Principle*, the verb cannot move directly from V to I skipping the head of NegP. Thus, the movement must apply in a “successive-cyclic fashion” (Radford, 2004, p. 163), i.e. the verb must move in two steps in EME in order to land in the head of IP. V-to-I movement in EME is triggered by a *Tns*-affix (tense) with a strong V-feature in the head IP, which attracts finite verbs by the same logic as the Q-feature in the head CP attracts finite non-lexical verbs in questions in (8) above.

The trigger for the head movement is the presence of a strong feature in a structurally higher head position. The head of IP in EME contains a *Tns*-affix with a strong V-feature attracting finite verbs. Similarly, present-day Norwegian contains a strong V-feature in the head of CP that attracts finite verbs (Platzack, 1996, p. 386; Westergaard, 2005, p. 40 cf. example (14) below). As opposed to EME, the head of IP in present-day English contains a *Tns*-affix with a weak V-feature. Weak features cannot attract verbs and thus fail to trigger movement. They can either merge with a non-lexical verb base-generated directly in the head of IP or they can be lowered onto a lexical verb in a head immediately below (in this case onto the main verb *enjoy* in the head of VP) by *Affix Hopping* as in (10) (example from Radford, 2004, p. 161):

(10) (a) He enjoys the classes.

(b)

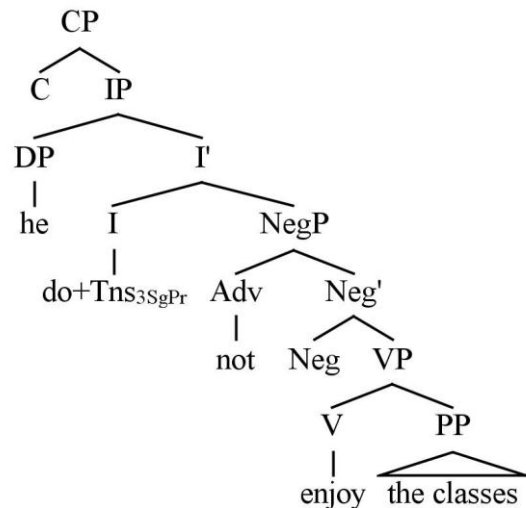


<sup>6</sup> In Scandinavian V2 languages such as Norwegian or Swedish, some researchers analyze negation as a VP adjunct ( $[_{CP} [_{IP} [_{VP} \text{neg} [_{VP} \dots]]]]$ ) (cf. Platzack, 1990 for Swedish), while others adapt the structure sketched for English in (9) (Platzack, 1996 following Pollock, 1989). I will follow the latter to facilitate comparison between the two languages.

If there is no suitable head immediately below, e.g. in clauses with negation where the empty head of NegP cannot provide a landing site for the *Tns*-affix, present-day English requires *do-support*, i.e. an overt “dummy” auxiliary *do* is generated and merged with the weak *Tns*-affix (Radford, 2004, p. 174) as in (11):

(11) (a) He does not enjoy the classes.

(b)



Present-day Norwegian is a verb-second language (V2), which means that the finite verb must always surface in the second position in all declarative main clauses. Note that if the clause is subject-initial as in (12), the overt word orders of English and Norwegian are the same SV(O). However, in topicalized structures where an element is fronted to the first position of the clause (SpecCP), the finite verb has to move to the second position of the clause (the head of CP) in Norwegian main clauses. This means that the finite verbs moves across the subject yielding the XVS(O) order as in (13b):

(12) (a) **He read** this book.

(b) **Han leste** denne boka.

*he read.PAST this book.DEF*

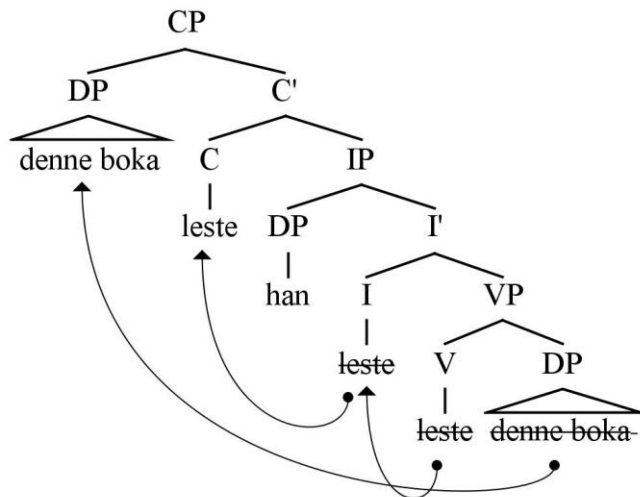
(13) (a) This book **he read**.

(b) Denne boka **leste han**.

*this book.DEF read.PAST he*

Due to the *Locality Principle*, the finite verb cannot move directly from V to C but must move in a successive-cyclic fashion through the head of IP as in (14) (Vikner, 1995, p. 39ff.; Westergaard, 2005, p. 39) (example adapted from Westergaard, 2005, p. 39):

(14)



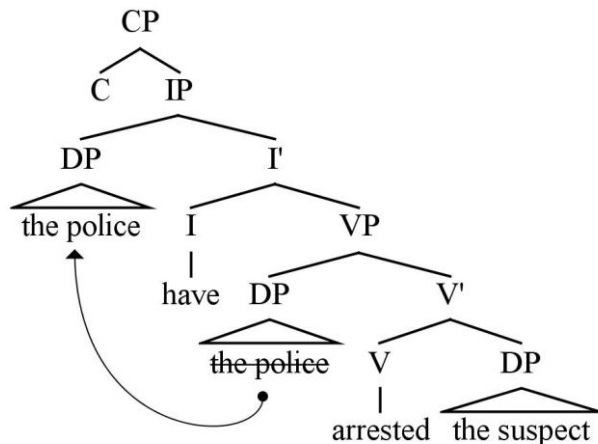
### 2.3.3 A-movement

As discussed in the previous section, in the presence of strong features in a functional head in the structure, certain elements must move from their base positions to higher syntactic heads after the operation MERGE. Similarly, elements can move from A-positions (i.e. positions occupied by arguments) to higher A- or A'-positions (i.e. positions occupied by arguments of adjuncts) (Radford, 2004, pp. 241, 434). This type of movement is called A-movement.

There is consensus in the literature that subjects are base-generated in the SpecVP, where they are assigned a thematic role, (i.e. the *VP-Internal Subject Hypothesis* (cf. Koopman & Sportiche, 1991)) and move to the SpecIP position after MERGE, as in (15) (example adapted from Radford, 2004, p. 250):

(15) (a) The police have arrested the suspect

(b)



In addition to tense features, the head of IP also assigns case. In English (and several other languages) subjects must be assigned case under agreement, i.e. the subject must be in a specifier position of a case assigning head (Koopman & Sportiche, 1991, p. 227ff.). The head of VP cannot assign subject case. Thus, the subject must move from SpecVP to SpecIP to be assigned case. In other words, subject raising is obligatory in English. The second option for case assignment allowed in other languages is under government of IP, i.e. the subject does not need to raise from the SpecVP position because this position is governed by the case assigning IP. See section 3.1.2.2.1 for implications of this parametric variation for the acquisition of verb movement.

### 2.3.4 Summary

As stated in section 2.3.1, every grammar of a language consists of two basic components, lexicon and syntax, which generate syntactic structures. After all the syntactic operations are applied, the syntactic structure is spelled out, i.e. given to the PF component to receive its phonetic form and to the LF component to receive its semantic interpretation. The structure must satisfy the *Principle of Full Interpretation* (Chomsky, 1986) at spell-out, otherwise the derivation crashes. Thus, prior to this point, all the strong features must be checked to be interpretable at PF. In other words, all the nodes containing strong features must be occupied by an overt constituent before spell-out. Weak features are not visible at PF and can therefore be checked covertly after spell-out (Bentzen, 2000, p. 21f.; Platzack, 1996, p. 172f.).

From the discussion above it is clear that the distribution of strong and weak features directly determines the overt word order of any given language. Present-day English has weak V-features in the head of IP while present-day Norwegian has strong V-features in the head of CP. As a consequence, Norwegian grammar requires the finite lexical verb to move out of the VP to the head of CP via the head of IP before spell-out, i.e. the so called V-to-I-to-C movement is obligatory in Norwegian finite main declarative clauses. English grammar, on the other hand, bans this type of verb movement because the weak features in the head of IP are too “weak” to force the finite lexical verb to move out of the VP. The distribution of strong and weak features is subject to parametrization among languages. This results in cross-linguistic variation in verb movement rules and consequently also in word order patterns (cf. among others Bentzen, 2000, p. 22).

### **3 The acquisition of verb movement in first language acquisition**

The acquisition of syntax came into focus especially after Chomsky's (1957, 1959) theories of generative grammar became widely known in the early 1960's. The claim that some parts of the grammatical system are genetically encoded offers an explanation for the rapidity and universality of first language acquisition. Child English traditionally is in the center of attention of researchers studying first language acquisition. Some of the first comprehensive studies of child English are Bloom (1970), Brown (1973) and Braine (1976), followed by many others. However, studies focusing on one language only may fail to capture important details which are not very prominent in the studied language, but essential in other languages. Since the focus of my thesis is on the development of word order and specifically the acquisition of verb movement, English is not a very good candidate to exemplify the linguistic abilities of very young children. As is discussed below, the rules the children need to master in order to produce target-consistent word order in simple sentences in English are comparatively simpler than the rules in e.g. Norwegian. These differences can lead to the assumption that certain aspects of syntax, e.g. verb movement, are acquired late because they are not needed in simple structures in English and thus do not appear early in this language.

In the following sections, I will first present an overview of selected research of child English (Déprez & Pierce, 1993; Pierce, 1992; Radford, 1990) and child Norwegian (Westergaard, 2005, 2009) with special emphasis on the presence or absence of the functional layers (IP, CP) as well as on the acquisition of verb movement in particular structures in these languages. I will then compare the findings from English and Norwegian with findings from other child languages, e.g. French, German and Swedish, and show that such comparison raises questions about the validity of the claims made in earlier research based solely on child English.

#### **3.1 The acquisition of verb movement in child English**

Radford (1990, p. 239ff.) claims that the earliest one-word utterances of children acquiring English are "acategorical in nature" having no morphosyntactic properties. He further shows that even when children enter what he calls "the categorical phase" at the age of approximately 20 months and start producing inflections, these are only lexical N- and V-inflections (e.g. plural *-s* and gerund *-ing*) and never functional D- or I-inflections (e.g. case and tense). Radford thus argues that child English, during both the single-word stage (1;0-1;6)



and the early multi-word stage (1;6-2;0), is purely lexical, i.e. functional categories and projections are absent.<sup>7</sup> The lack of functional projections (DP, IP, CP) implies that the VP is the highest possible projection in the child grammar at this stage. If the VP is the highest projection, the verb cannot move because there is no position for the verb to move to.

In the following, I will first briefly review the structures of adult English which provide relevant evidence of the IP- and CP-layers. I will then discuss the evidence Radford (1990) provides to support his claim that child English is purely lexical, i.e. lacking all functional categories even during the early multi-word stage (EMS, 1;6-2;0). Finally, I will compare his views with the findings of Pierce (1992) and Déprez & Pierce (1993) regarding possible evidence of the IP-layer during this stage of development.

### 3.1.1 The word order of adult English

Recall from section 2.3.1 that all canonical English clauses contain a CP-layer. This implies that all the lower layers (IP, VP) must be present as well even if their heads are not filled by overt elements (e.g. as a consequence of movement). The head of CP carries the force feature (declarative or interrogative) and can be filled by a base-generated covert or overt complementizer. In addition, *wh*-operators and non-lexical verbs move into SpecCP and the head of CP, respectively, in questions. As is discussed in section 2.3.3, subjects in English have to move out of the VP into the SpecIP in order to be assigned case. The head of IP also carries a weak *Tns* feature and can be filled by base-generated non-lexical verbs or infinitival *to* in case of infinitival clauses. However, simple sentences with only lexical verbs in adult English might overtly resemble simple VPs.

If, as is argued, the child grammar does not have any functional categories, it also lacks tense and case features. Without tense and case in the grammar, there is no need to move the verb or the subject out of the VP. Consequently, there is no need for the IP- and CP-layers in the child grammar.

In order to prove that child English contains the IP-layer, we need look for evidence of case marked subjects, infinitival *to* and non-lexical verbs (modals and auxiliaries). In order to prove that child English contains the CP-layer, we need to look for evidence of overt complementizers, inverted auxiliaries, and correctly fronted *wh*-operators. It is important to note that most of the structures which can provide evidence of the presence of the CP-layer in child English are relatively complex and not common before the age of 2.

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<sup>7</sup> The age format used throughout this thesis is year;month.day.

### 3.1.2 Child English data

Radford (1990) provides a comprehensive description of the first two stages of the acquisition of English syntax. He argues for complete lack of all functional layers (DP, IP, CP) in early child language. This hypothesis was originally presented as “Small children’s small clauses” in Radford (1988). His claim is that early child utterances resemble adult English small clauses. The structures of an ordinary clause and a small clause (SC) are sketched in (E1a) and (E1b), respectively (examples adapted from Radford, 1988, p. 9):<sup>8</sup>

(E1) (a) I consider [<sub>CP</sub> [<sub>C</sub> that] [<sub>IP</sub> John [<sub>I'</sub> [<sub>I</sub> would] [<sub>VP</sub> [<sub>V</sub> be] [<sub>AP</sub> [<sub>A</sub> unsuitable] [<sub>PP</sub> for the job]]]]]]]

(b) I consider [<sub>SC</sub> [<sub>DP</sub> John] [<sub>AP</sub> [<sub>A</sub> unsuitable] [<sub>PP</sub> for the job]]]

While the clause in (E1a) clearly contains the CP- and IP-layers, the structure of the SC in (E1b) consists of a DP and an AP. Generally speaking, the basic structure of an SC is [DP XP], where XP can represent any maximal projection of a lexical category (NP, VP, AP, PP). In other words, an SC lacks the IP- and CP-layers (Chomsky, 1981, pp. 106ff., 167; Radford, 1988, p. 7ff.). Consequently, SCs cannot be introduced by a complementizer (because complementizers are generated in C), SCs cannot contain preposed auxiliaries or *wh*-operators (because these elements need to move to the head of CP and SpecCP respectively), etc. (cf. Radford, 1988, p. 10). Radford (1990) claims that early child English resembles English SCs in all these points. Children’s grammar during the first two stages of the syntactic development (1;0-2;0) also lacks the IP- and CP-layers and as a consequence lacks all the features that are traditionally assigned to the syntactic positions within IPs and CPs. He further argues that early child English also lacks the DP-layer and is thus purely lexical before the age of 2.

Radford (1990) bases his discussion of child English on a large amount of data, partially collected by his students, partially from various published sources. His data set comes from both cross-sectional and longitudinal studies.<sup>9</sup> Radford convincingly argues that children exposed to English acquire lexical categories and lexical projections before or during the early multi-word stage (EMS, 1;6-2;0). He finds evidence of maximal projections of

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<sup>8</sup> Hereafter only relevant parts of the discussed structures are analyzed in the labeled brackets.

<sup>9</sup> For more information on the corpora see Radford (1990, p. 10ff.).

lexical categories, i.e. NPs, VPs, PPs and APs such as (E2) (example from Radford, 1990, p. 72):<sup>10</sup>

(E2) [VP [NP Baby] [V' [V eat] [NP cookies]]] (Allison, 1;10)

Structures as (E2) are common with most children during the EMS. Furthermore, the relative order of the elements is constantly SVO, i.e. specifier-head-complement. Radford (1990, p. 77f.) thus concludes that by the time the child starts producing the first multi-word utterances, there is evidence of the correct setting of the head-direction and specifier-head parameters.

The few errors in word order in these early utterances all involve the relative order of verb and object as shown in (E3) (examples from Radford, 1990, p. 79ff.):

- (E3) (a) **Balloon** throw (Gia, 1;7, attempting to throw a balloon)  
(b) **Book** read (Susan, 1;10)  
(c) **Daddy suitcase** go get it (Adam, unspecified age)

Radford (1990, p. 80f.), following Bloom (1970), analyzes these seemingly erroneous structures in (E3) as [Topic + Verb] instead of [Object + Verb] combined with dropped “understood” pronominal subject. The intended meaning of such structure is thus *The balloon, I throw it*. This alternative analysis is supported by the work on early child topicalization, e.g. Gruber (1967, p. 47ff.) who reports structures such as *Car, it broken*, and abundant evidence of pro-drop in early language production of children acquiring non-pro-drop languages (among others Hyams, 1986).<sup>11</sup>

Thus, Radford’s basic claim is that at the age of approximately 1;6-2;0 children start showing evidence of lexical but not functional categories. In other words, they start using plural *-s* (N-inflection), progressive *-ing*, and to some extent perfective *-n* (both V-inflections), but they do not use I-inflections such as 3<sup>rd</sup> person singular *-s* or past tense *-d*. In the following, I will follow Radford’s discussion of the lack of functional categories in child

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<sup>10</sup> NPs, PPs and APs will not be exemplified here since they are not relevant for my further discussion. For details see Radford (1990, p. 62ff.).

<sup>11</sup> Radford (1990, p. 80) analyzes the topics in these [Topic + Verb] structures as base-generated NP adjuncts to the verbal small clause. Gruber (1967, p. 56ff.) analyzes the early topicalizations as [Topic + Comment] and argues for separate generation and juxtaposition of the elements. Thus neither of them assumes movement.

English. His findings concerning the IP- and CP-layers will be compared with the findings of Pierce (1992) and Déprez & Pierce (1993) in sections 3.1.2.2 and 3.1.2.3.

### 3.1.2.1 The lack of the DP-layer in child English

The most apparent evidence of the lack of determiner system in early child English is the lack of determiners. Children during the EMS omit determiners in structures where these are required by the adult grammar. In other words, they produce indeterminate NPs instead of DPs as in (E4a,b,c) (examples from Radford, 1990, p. 84ff.):

(E4) (a) Paula open **box** (Paula, 1;6)  
Eat **cookie** (Allison, 1;10)  
Wayne in **garden** (Daniel, 1;11)

(b) Adult: What's this?  
Paula: **Telephone** (Paula, 1;6)  
Adult: What's that in there?  
Jem: **Big ball** (Jem, 1;9)  
Adult: What's that one?  
Leigh: **Naughty cow** (Leigh, 2;0)

(c) Adult: Is it **a duck** or **a chick**?  
Stephen: **Duck** (Stephen, 1;7)  
Adult: You were playing in **the water**.  
Hayley: In **water** (Hayley, 1;8)  
Adult: It's **the sun**.  
Leigh: **Sun** (Leigh, 2;0)

As is evident from (E4a,b,c), the lack of determiners is consistent across children and across structures throughout the EMS. Children use singular countable nouns in spontaneous speech without determiners as in (E4a), they answer questions with NPs instead of DPs as in (E4b), and they omit determiners even in imitative speech as in (E4c). Radford (1990, p. 86) argues that children cannot consistently imitate structures which are not yet incorporated in

their grammars. The lack of determiners in the examples of imitative speech in (E4c) thus suggests that child English at this stage lacks the DP-layer.

Radford further argues that children's grammar during the EMS lacks case assignment which manifests itself among other things in the lack of the genitive 's suffix as in (E5a), the lack of "dummy" case-marking preposition *of* as in (E5b) and the use of nouns instead of case marked pronominal determiners (*I/me/my*) as in (E5c) (examples adapted from Radford, 1990, p. 88ff.):

- (E5) (a) **Mummy** car (Betty, 1;6)  
      **Clair** pencil (Allison, 1;9)  
      **Daddy** coffee (Jonathan, 2;0)
- (b) Cup tea (= 'a cup **of** tea', Stephan, 1;5)  
      Want piece bar (= 'I want a piece **of** the chocolate bar', Daniel, 1;8)  
      Picture Kendall (= 'a picture **of** Kendall', Kendall, 1;11)
- (c) **Baby Allison** comb hair (Allison, 1;10)  
      Help **baby** (Allison, 1;10)  
      Allison **cookie** (Allison, 1;10)

All these observations support Radford's claim that children at this stage do not show any evidence of having mastered the DP-layer of adult English.<sup>12</sup>

### 3.1.2.2 The lack of the IP-layer in child English

As is mentioned in section 3.1.1, the head of IP can be filled by two types of elements in adult English: finite non-lexical verbs as in (E6a) or infinitival *to* as in (E6b) (examples from Radford, 1990, p. 138):


- (E6) (a) I'm anxious that [<sub>IP</sub> you [<sub>I</sub> **should**] [<sub>VP</sub> do it]]  
      (b) I'm anxious for [<sub>IP</sub> you [<sub>I</sub> **to**] [<sub>VP</sub> do it]]

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<sup>12</sup> I will not go into details of his argument here since my focus in this thesis is on the acquisition of verb movement. For details see Radford (1990, p. 83ff.).

In addition, as discussed in section 2.3.3, the SpecIP position is the landing site of the subject moved out of the VP in adult English as shown in (E7) (example adapted from Radford, 1990, p. 139):

(E7) I'm anxious that [<sub>IP</sub> you<sub>i</sub> [<sub>I</sub> should] [<sub>VP</sub> t<sub>i</sub> [<sub>V'</sub> do it]]]



According to Radford (1990), the grammar of child English lacks the IP-layer altogether. This entails that the child equivalents of the adult sentences are simple VPs. Radford provides many examples of structures seemingly lacking the IP-layer. During the EMS, children omit both the infinitival *to* and modals in the obligatory contexts. Examples in (E8) and (E9) show the lack of infinitival *to* both with overt (E8a) and covert subjects (E8b), as well as the lack of modal verbs both in spontaneous (E9a) and imitative speech (E9b) (examples from Radford, 1990, p. 140ff):

(E8) (a) Want teddy **drink** (Daniel, 1;7)  
 Jem want mummy **take** it out (Jem, 2;0)

(b) Want **do** it (Daniel, 1;7)  
 Want **drive** car (Stephen, 1;7-2;0)

(E9) (a) Mummy **do** it (Bethan, 1;10)  
 Pig **go** in (Claire, 1;11)

(b) Adult: Mr. Miller **will try**.  
 Susan: Miller **try** (Susan, 2;0)  
 Adult: Mommy **won't fit** in the refrigerator.  
 Claire: Mommy **fit** refrigerator (Claire, 2;0-2;1)

It seems clear that the equivalents of the adult IPs are rendered as simple VPs in child speech. Radford sketches plausible adult alternatives of (E8a) and (E9b), here reproduced as (E10a,b) (Radford, 1990, pp. 141, 143):

(E10) (a) Jem wants [<sub>IP</sub> Mummy<sub>i</sub> [<sub>I</sub> **to**] [<sub>VP</sub> t<sub>i</sub> [<sub>V'</sub> [<sub>V</sub> take] it out]]] (Adult)

Jem want [<sub>VP</sub> Mummy [<sub>V</sub> take] it out] (Jem, 2;0)

(b) [<sub>IP</sub> [<sub>DP</sub> Mr. Miller]<sub>i</sub> [<sub>I</sub> **will**] [<sub>VP</sub> t<sub>i</sub> [<sub>V</sub> try]]] (Adult)

[<sub>VP</sub> [<sub>NP</sub> Miller] [<sub>V</sub> try]] (Susan, 2;0)

The analysis in (E10) provides strong support for Radford's claim about the lack of the IP-layer during the EMS. He further notes the absence of other non-lexical verbs, e.g. "dummy" *do* in (E11a), copula *be* in (E11b), auxiliary *be* in (E11c), and perfective *have* in (E11d) (examples adapted from Radford, 1990, p. 152ff.):

(E11) (a) Kathryn no **like** celery (Kathryn, 1;10)

intended: [<sub>IP</sub> Kathryn<sub>i</sub> [<sub>I</sub> **does**] [<sub>NEGP</sub> not] [<sub>VP</sub> t<sub>i</sub> [<sub>V'</sub> [<sub>V</sub> **like**] [<sub>DP</sub> celery]]]]]

(b) It hot (Angharad, 1;10)

intended: [<sub>IP</sub> It<sub>i</sub> [<sub>I</sub> **is**]<sub>j</sub>] [<sub>VP</sub> t<sub>i</sub> [<sub>V'</sub> [<sub>V</sub> t<sub>j</sub>] [<sub>ADJ</sub> hot]]]]]

(c) Wayne not **eating** it (Daniel, 1;11)

intended: [<sub>IP</sub> Wayne<sub>i</sub> [<sub>I</sub> **is**] [<sub>NEGP</sub> not] [<sub>VP</sub> t<sub>i</sub> [<sub>V'</sub> [<sub>V</sub> **eating**] [<sub>PRO</sub> it]]]]]

(d) Bunny **broken** foot (Claire, 2;0)

intended: [<sub>IP</sub> [<sub>DP</sub> the bunny]<sub>i</sub> [<sub>I</sub> **has**] [<sub>VP</sub> t<sub>i</sub> [<sub>V'</sub> [<sub>V</sub> **broken**] [<sub>DP</sub> his foot]]]]]

What all these missing elements have in common, is their functional nature. They have very little or no semantic weight, and they are only needed to satisfy the requirements of the grammatical system. Recall from section 2.3.2 that the head of IP in present-day English carries a weak *Tns*-affix which can either be attached to a non-lexical verb generated in this position, or lowered onto a main verb within the VP by an affix hopping operation. However, if children at the EMS do not have the IP-layer in their systems, by definition, they also lack the *Tns*-affix. This further implies that there are no grammatical requirements in their system which would or could be satisfied by the purely functional non-lexical words.

Furthermore, the hypothesized absence of the IP-layer also explains why children at the EMS omit tense and agreement affixes on main verbs such as the 3<sup>rd</sup> person suffix *-s* as in (E12a) and the past tense suffix *-ed* as in (E12b). The agreement and tense features are carried

by the head of IP, which the children arguably have not acquired yet, thus they cannot apply affix hopping and instead produce uninflected main verbs in finite contexts (examples from Radford, 1990, p. 148f.):

- (E12) (a) Helen **ride** (Helen, 1;9)  
Baby **drive** truck (Allison, 1;10)  
Boy **walk** (Jonathan, 2;0)
- (b) Geraint **push** me (Bethan, 1;9)  
Adult: What **did** you draw?  
Hayley: Hayley **draw** boat (Hayley, 1;8)

Radford (1990, p. 164ff.) finds several examples of correctly inflected finite verbs in his data but these are either apparent formulaic expressions such as *Here you are!*, *What's that?*, and *There's X*, or the inflected forms are used interchangeably with uninflected forms. Such examples do not provide relevant counterevidence to his claim of the non-acquisition of the IP-layer. Given all the empirical data, Radford (1990, p. 168ff.) concludes that there is no evidence of a target-like IP-system in child English at the EMS.

Pierce (1992, p. 73ff.), on the other hand, reports the use of a limited set of inflected non-lexical verbs by four children under the age of 2. She specifically discusses the use of copula *be*, auxiliary *be* and modals *can* and *could*. She finds these verbs used both in declarative and interrogative structures. Like Radford, she analyzes some of the occurrences as rote-learned chunks, but she also finds clearly productive uses of the above mentioned verbs. On closer analysis, the production of one of the children (Naomi) reveals that, between the ages of 1;9.3 and 2;1.3, she produces 92 utterances with non-contracted and correctly inflected copula (*is*) out of which only 6 seem to be unanalyzed chunks (*this is*). In addition, she produces 50 utterances with *can* or *could*. All these verbs should be generated in or moved into the head of IP in adult English and Pierce uses the occurrences as part of her argumentation for the existence of the IP-layer in early child language.



### 3.1.2.2.1 Evidence from negation

Further evidence of the IP-layer in early production is discussed in a later study of child negation (Déprez & Pierce, 1993).<sup>13</sup> Déprez & Pierce argue that early negation is not anaphoric but sentence internal heading its own phrase (NegP) as in adult language. NegP is a functional category thus, according to Radford (1990), it should be absent in the child language under the age of 2. Recall from section 2.3.1 that the NegP is placed under the IP in adult English and that the head of IP can only be filled by non-lexical verbs. This means that negation never follows a lexical verb but always follows a finite non-lexical verb in adult English.

Early child English commonly displays sentence-initial negation as in (E13a), which led some researchers (e.g. Bloom, 1970; 1993, p. 144) to analyze early negation as anaphoric in the presence of subjects or as negative sentences with dropped subjects. When sentence-medial negation appears as in (E13b), it is analyzed as adjoined to the V' projection (Radford, 1990, p. 153) (example (a) from Déprez & Pierce, 1993, p. 34; (b) from Radford, 1990, p. 153):

(E13) (a) **No** Mommy doing. (Nina, 2;0.14)

(b) Man **no** go in there. (Kathryn, 1;10)

[<sub>VP</sub> [<sub>NP</sub> Man] [<sub>V'</sub> **no** [<sub>V'</sub> [<sub>V</sub> go] [<sub>PP</sub> in there]]]]]

However, as Déprez & Pierce point out, children use the sentence-medial negation alongside the sentence-initial one at this stage, and the use of the sentence-medial negation gradually increases with age as shown in Table E1 (table reproduced from Déprez & Pierce, 1993, p. 35):

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<sup>13</sup> Déprez & Pierce (1993) examine three English speaking children of ages between 1;6 and 2;3.21. For corpus details see Déprez & Pierce (1993, p. 33).

Table E1: Distribution of negatives in early production of three English speaking children

| Child | Age      | Neg-initial | Neg-medial      |
|-------|----------|-------------|-----------------|
| Eve   | 1;6-1;9  | 12          | 2 (14%)         |
|       | 1;10-2;0 | 17          | <b>41 (71%)</b> |
| Peter | 1;11-2;1 | 23          | 1 (4%)          |
|       | 2;2-2;4  | 61          | <b>19 (24%)</b> |
| Nina  | 1;11-2;1 | 36          | 0 (0%)          |
|       | 2;2-2;4  | 50          | <b>49 (50%)</b> |

Déprez & Pierce rarely find true anaphoric negation rather in child language. It is clear from the context of examples such as (E13a) that the negation is non-anaphoric and thus the negative marker must be positioned outside of the VP (the subject *Mommy* occupying the SpecVP position). If the negative marker were positioned outside of the IP, the instances of sentence-medial negation could not be explained without the subject moving to some position above the negative marker and thus above the IP. Furthermore, if the negative marker were outside of the IP, children should also produce sentences containing Neg-Aux order (auxiliaries being generated in the head of IP), which is not attested (Déprez & Pierce, 1993, p. 36).

Based on these facts and following an earlier study by Pierce (1992), Déprez & Pierce (1993) analyze the early negation in child language as IP-internal as in the adult language. They argue that the instances of sentence-initial negation are in fact examples of unraised (i.e. VP-internal) subjects while the negative marker is positioned in the SpecNegP as in (E14) (example from Déprez & Pierce, 1993, p. 36):

(E14) [<sub>IP</sub> [<sub>NEGP</sub> no [<sub>VP</sub> mommy [<sub>V</sub> doing]]]]

Déprez & Pierce (1993, p. 45f.) maintain that child language lacks obligatory subject raising and the subjects are thus allowed to stay in SpecVP. Following Koopman & Sportiche (1991) they claim that since nominative case assignment to VP-internal subjects is possible under government by the head of IP in languages without obligatory subject raising (e.g. Spanish), it might be possible also in child grammars of other languages. This would imply that the parameter defining whether the subjects must raise to SpecIP or not is not set yet at this stage and both options are available to the child (cf. section 2.2.2).

Déprez & Pierce (1993) further argue that there is clear evidence of the presence of the IP-layer in the grammar of children under the age of 2 in languages that allow main verb raising to the head IP. As is discussed in section 2.3.2, present-day English does not allow lexical verbs to move to the head of IP. While there are no examples of  $V_{\text{lex}}$ -Neg orders in early English, finite lexical verbs precede the negative marker *pas* in the majority of cases in child French (Pierce, 1992, p. 66).<sup>14</sup> Since finite verbs precede negation in child French, the finite verb must have moved out of the VP. This means that the IP-layer is clearly present at this stage in child French regardless of whether the subject stays inside of VP (yielding  $V_{\text{fin}}$ -Neg-S order) or whether it moves to SpecIP as in adult French (yielding S- $V_{\text{fin}}$ -Neg).

Even though Pierce's (Déprez & Pierce, 1993; Pierce, 1992) corpus is significantly smaller than Radford's and her child subjects are marginally older, her findings suggest that there might be evidence of the IP-layer in the grammar of children under the age of 2. Déprez & Pierce's argumentation for the lack of the CP-layer in child language is further discussed in sections 3.1.2.3 and 4.

### 3.1.2.3 The lack of the CP-layer in child English

Recall from section 3.1.1 that all grammatical utterances of adult English contain a CP-layer, where the head of CP is filled by a base-generated covert or overt complementizer. In addition, the head of CP is the landing site for non-lexical verbs in questions and SpecCP is the landing site for *wh*-operators.

Bearing in mind the type and complexity of the structures reported in the previous section, it is quite clear that children at the EMS are not capable of producing target-like complex sentences. Not surprisingly then, Radford does not mention a single occurrence of an overt complementizer in the speech production of children under 2 year of age. When children at the EMS produce early complement clauses at all, they omit the complementizer and their utterances resemble adult SCs as in (E15a,b) (examples from Radford, 1990, p. 121):

- (E15) (a) Want mummy come (Jem, 1;9)  
(b) Want lady get chocolate (Daniel, 1;11)

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<sup>14</sup> The child French data include spontaneous production of four children of ages between 1;8.7 and 2;3.14. For details see Pierce (1992, p. 15f.).

Adult sentences similar to (E15) are grammatical both with overt and covert complementizer, but it is clear that the child utterances in (E15) are missing the IP-layer as sketched in (E16):

(E16) (a) I want [<sub>CP</sub> [<sub>C</sub>  $\emptyset$ ] [<sub>IP</sub> mummy<sub>i</sub> [<sub>I</sub> to] [<sub>VP</sub> t<sub>i</sub> [<sub>V</sub> come]]]]

Regarding the position of non-lexical verbs in early *yes-no* questions, Radford (1990, p. 122) only refers to previous studies (among others Klima & Bellugi, 1966), which conclude that children at this stage do not use non-lexical verbs at all. However, as is discussed in the following section, Pierce (1992) reports the use of a limited set of non-lexical verbs by children at the EMS. Interestingly enough, the data from her corpus include examples of seemingly correctly inverted interrogative structures as in (E17) (examples from Pierce, 1992, p. 76ff.):

- (E17) **Is this** doggie? (Naomi, 1;10.21)  
**Are sheep** running? (Naomi, 1;11.7)  
**Is it** raining? (Naomi, 1;11.7)  
**Is he** going to work? (Naomi, 1;11.7)  
**Can I** get down? (Naomi, 1;11.21)  
**Can I** read this book? (Naomi, 1;11.21)

However, Pierce does not consider the examples in (E17) as evidence of the acquisition of verb movement in *yes-no* questions, since her corpus also contains declaratives (based on intonation and context) with inverted aux-subject order as in (E18a,b) (examples from Pierce, 1992, p. 79):

- (E18) (a) Father: Naomi, do you want an egg?  
Naomi: No, **is it** broke.  
Father: What? [...] What is broken Naomi?  
Naomi: **Is it** fixed.
- (b) Mother: Yes, you can have some bread, honey.  
Naomi: **Is that** Nomi's. Want that. (no question intonation)

Based on the examples in (E18a,b) and similar, Pierce analyzes the seemingly inverted structures of children at the EMS as IPs where the non-lexical verb is generated in the head of IP and the subject stays within the VP as in (E19) (cf. section 4.2) (example from Pierce, 1992, p. 80):

(E19) No, [<sub>IP</sub> is [<sub>VP</sub> it [<sub>V</sub> broke]]]

Thus, even though Radford and Pierce disagree about the emergence of non-lexical verbs in child English, they both claim that there is no clear evidence of non-lexical verbs moving into the head of CP in early *yes-no* questions.

With respect to the acquisition of *wh*-questions, Radford clearly states that there is no evidence of *wh*-movement in child English at the EMS. Children consistently omit both the preposed *wh*-operator and the non-lexical verb in spontaneous speech as in (E20a) and in imitative speech as in (E20b,c) (examples from Radford, 1990, p. 123f.):

(E20) (a) You got? (= ‘**What have** you got?’, Harriet, 1;6)

Mummy doing? (= ‘**What is** mummy doing?’, Daniel, 1;9)

My shoes gone? (= ‘**Where have** my shoes gone?’, Jenny, 1;10)

Mouse doing? (= ‘**What is** the mouse doing?’, Paula, 1;11)

(b) Adult: **Where does** daddy go?

Daniel: Daddy go? (Daniel, 1;11)

(c) Adult: **What are** they doing there?

Claire: Doing what there? (Claire, 1;11)

In some cases, as in (E20c), the child even imitates the *wh*-operator but fails to move it out of its base position within the VP, i.e. the *wh*-operator remains *in situ*, in this case in the object position (Radford, 1990, p. 124).

Radford finds some examples of preposed *wh*-operator at this stage, but these are either unanalyzed chunks such as *Whasat?* (= *What’s that?*) or examples of pronominal and locative NPs used interchangeably with and without the copula *be* as in (E21) (examples from Radford, 1990, p. 125f.):

(E21) **Where's** helicopter (Stefan, 1;5)

**Where** helicopter (Stefan, 1;5)

**Here** helicopter (Stefan, 1;5)

Furthermore, it seems that children at this stage are not able to respond 'appropriately' to adult *wh*-question. This indicates that they either do not understand the structure at all or mis-analyze it. Radford reports responses comprising repetitions of single words as in (E22a), identifications of an entity referred to in preceding questions as in (E22b) and mis-interpretations of *wh*-pronouns as base-generated subjects as in (E22c) (examples from Radford, 1990, p. 130f.):

(E22) (a) Adult: Where is it gone?

Elen: **Gone** (Elen, 1;8)

Adult: What do you want money for?

Jenny: **Money** (Jenny, 2;1)

(b) Adult: What do they (= birds) want?

Dewi: **Bird** (Dewi, 1;8)

Adult: What are you doing with him (= snake)?

Jenny: **Snake** (Jenny, 1;11)

(c) Adult: Who did you play with?

Hayley: **Me** (Hayley, 1;8)

Adult: What have you bumped your head on?

Jenny: **Me** (Jenny, 2;0)

Radford suggests that the child answers given in (E22b) might be seen as an indication of mis-interpretation of the *wh*-question. Children might assume that it is a question of the type *What's X?*, and thus *What do they want?* becomes *What are they?*. Similarly, in (E22c) the children seem to misinterpret the initial *wh*-pronoun as a subject and respond as if the questions were *Who played?*, and *Who bumped their head?* (Radford, 1990, p. 130f.).

The very few utterance in Radford's corpus which resemble target-like *wh*-questions are again described as formulaic expressions as in (E23a) or as semi-formulaic expressions as

in (E23b) showing no or only little evidence of productive use (examples from Radford, 1990, p. 131f.):

(E23) (a) How are you? (Betty, 1;6)

(b) What kitty doing? What squirrel doing? What lizard doing? (Claire, 2;0)

Radford (1990, p. 132ff.) further argues that there is no evidence of the CP-layer even in the examples in (E23b) because the child consistently omits the auxiliary *is*. Thus the CP analysis of the sentences in (E23b) would have to assume an abstract empty head of CP as in (E24). This is considered unlikely and Radford instead suggests that the *wh*-operators in these early semi-formulaic utterances should be analyzed as clausal adjuncts attached directly to the VP as in (E25) (examples from Radford, 1990, p. 132ff.):

(E24) [<sub>CP</sub> What<sub>i</sub> [<sub>C</sub>  $\emptyset$ ] [<sub>VP</sub> kitty doing t<sub>i</sub>]]

(E25) [<sub>VP</sub> What [<sub>VP</sub> kitty doing  $\emptyset$ ]]

In conclusion, neither Radford (1990) nor Pierce (1992) find any compelling evidence of the CP-layer in child English at the EMS. Pierce's findings concerning the IP-layer are discussed in sections 3.1.2.2 and 3.1.2.2.1.

### 3.1.3 Summary of the findings from early child English

In the previous sections I discussed the evidence of the presence of functional layers in child English. Radford (1990), who considers only child English, finds no evidence of any functional layers in child production during the early multi-word stage (1;6-2;0). He finds no non-lexical verbs (modals and auxiliaries) or the infinitival *to*, arguing thus for the lack of the IP-layer. He further finds that child English at this stage completely lacks all overt complementizers, inverted auxiliaries and correctly fronted *wh*-operators, arguing thus for the lack of the CP-layer. The few examples of structures resembling the adult language are analyzed as rote-learned chunks or semi-formulaic expressions which have a different underlying structure than their equivalents in the adult language. Since he does not find any of the functional elements that are usually generated in or moved to the syntactic positions within the IP- and CP-layers, Radford concludes that child English at this stage is purely

lexical lacking all functional categories. Child utterances are thus bare VPs or VPs with elements adjoined to them (negation, *wh*-operators).

However, it is important to bear in mind that the structures that can provide clear evidence of the IP- and CP-layers in adult English are relatively complex and the majority of them requires the presence of function words (non-lexical verbs, complementizers, pronouns, determiners). It is commonly assumed that children need more time to acquire words with little or no semantic content, e.g. function words, than lexical words. It is thus not surprising that function words are not present in the early production.

Pierce (1992) and Déprez & Pierce (1993), on the other hand, compare early English with early French and offer quite a different picture of the linguistic abilities of the very young children. Unlike English, French requires the main verb to move out of the VP even in simple sentences and child French shows evidence of verb movement in early negation long before the age of 2. Based on their cross-linguistic data, Déprez & Pierce (1993) argue against Radford's (1990) analysis of early negation as adjoined to the VP. Instead they propose that the negative marker is in the SpecNegP as in the adult grammar in both English and French and that the structures with Neg-V and Neg-S-V orders are examples of unraised subjects. During the same period, French children also move finite verbs into the head IP producing  $V_{\text{fin}}\text{-Neg-S}$  and  $S\text{-}V_{\text{fin}}\text{-Neg}$ , which gives clear evidence of the presence of the IP-layer in child French during the early multi-word stage. Déprez & Pierce (1993) claim that since the structures with unraised subjects are the same in both child English and child French and child French shows clear evidence of the negative marker in SpecNegP, there is no reason to suppose that children learning English lack the functional projection NegP. Furthermore, children learning English produce raised subjects (i.e. S-Neg-V order) alongside the unraised ones (i.e. Neg-(S)-V order) supporting the claim that child English during the early multi-word stage also contains the IP-layer.

Even though Déprez & Pierce (1993) argue against the presence of the CP-layer in child English, they provide evidence of two functional layers (IP and NegP) in child language during the early multi-word stage (1;6-2;0). The possibility of the presence of the CP-layer is further discussed in section 4.



### 3.2 The acquisition of verb movement in child Norwegian

Westergaard's (2005) study of child Norwegian is to my knowledge the first attempt at a comprehensive description of the acquisition of verb movement in Norwegian. Westergaard argues that the movement of the finite verb is acquired early in child Norwegian, i.e. before the age of 2. Norwegian is a V2 language and the finite verb moves into the head of CP in all main clauses. Thus, contrary to what is assumed for child English, the functional layers (IP, CP) must be present in child Norwegian during the early multi-word stage (1;6-2;0) if there is evidence of verb movement.

Westergaard's subjects all come from the Tromsø area and are exposed to the local dialect. Compared with Standard Norwegian as well as other dialects of Norwegian, the Tromsø dialect shows great variation in the distribution of V2 and non-V2 structures.<sup>15</sup> Based on her data, Westergaard (2005, 2009) argues for the need to refine the concept "V2 parameter". Westergaard's data show that also seemingly infrequent V3 structures fall in place rather early in child language and that the setting of the V2 parameter alone cannot convincingly explain this rapid and accurate acquisition.

In the following, I will first give a brief overview of adult Norwegian, specifically of the Tromsø dialect, discussing the relevant structures displaying both V2 and non-V2 word order. I will then turn to discuss two of the structures which give evidence of the presence of the CP-layer in child Norwegian, namely subject-initial declaratives with negation and topicalized structures. Discussion of Westergaard's results compared to the results based on child English and other languages is in section 4.

#### 3.2.1 The word order of adult Norwegian

Like most Germanic languages, Norwegian is a verb-second language (V2), i.e. the finite verb appears in the second position in all main clauses. This is assumed in the literature to be the result of verb movement to the head of CP, also called V-to-I-to-C movement (Westergaard, 2005, p. 12f., cf. section 2.3.2). The V2 order, in contrast to the SVO order, is observable in subject-initial declarative main clauses with sentence adverbs as in (N1) or negation as in (N2), topicalized structures as in (N3), *yes-no* questions as in (N4) and *wh*-questions as in (N5) (examples from Westergaard, 2005, pp. 1, 135):

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<sup>15</sup> Norwegian has two written standards, *bokmål* and *nynorsk*. However, most Norwegian speakers use dialects in their everyday life. Westergaard uses the term "Standard Norwegian" (referring to the mainly written *bokmål* variety) in contrast to the Tromsø dialect and I will follow her terminology in this work.

- (N1) Vi **snakker ofte** engelsk hjemme.  
*we speak often English home*  
 ‘We often speak English at home.’
- (N2) Han **kommer ikke**.  
*he come not*  
 ‘He is not coming.’
- (N3) **Av og til snakker** vi tysk.  
*sometimes speak we German*  
 ‘Sometimes we speak German.’
- (N4) **Snakker du** norsk?  
*speak you Norwegian*  
 ‘Do you speak Norwegian?’
- (N5) **Hvilket språk skal** vi snakke i dag?  
*which language shall we speak today*  
 ‘What language will we speak today?’

Standard Norwegian displays V2 word order in all of the above mentioned contexts. The Tromsø dialect, on the other hand, makes a distinction in *wh*-questions based on the length of the *wh*-constituent, requiring V2 after disyllabic *wh*-words *korfor* ‘why’, *korsen* ‘how’, *katti* ‘when’ as in (N6), while permitting V3 after monosyllabic *wh*-words *ka* ‘what’, *kem* ‘who’, *kor* ‘when’ as in (N7) (examples from Westergaard, 2005, p. 14):<sup>16</sup>

- (N6) Kofor **gikk ho?**/\*Kofor **ho gikk?** (Tromsø dialect)  
*why went she/ why she went*  
 ‘Why did she go?’

<sup>16</sup> For a detailed discussion of word order in *wh*-questions in the Tromsø dialect see Westergaard (2005, p. 14ff. and 46ff.).

(N7) **Ka legen sa?/ Ka sa legen?**  
*what doctor.DEF said/what said doctor.DEF*  
 ‘What did the doctor say?’

Similar non-V2 patterns are found in other dialects of Norwegian as well, mainly in those spoken in the northern and northwestern parts of the country (cf. Lie, 1992). Westergaard also briefly mentions studies documenting V3 word order in *wh*-questions in some Norwegian dialects which does not seem to depend on the length of the *wh*-word (cf. Åfarli, 1986, p. 99; Westergaard, 2005, p. 14, footnote 7). This amount of variation even within one language further stresses the need to explain how children are able to make such fine distinctions in verb placement from early on.

Even though both V2 and V3 orders are grammatical in certain *wh*-questions in the dialect, Westergaard (2005, p. 29ff.) finds clear preference patterns for particular orders in the adult data from the corpus. She argues that the choice between the two word orders depends on the information structure of the sentence. Specifically, the information value of the subject seems to be highly relevant: “The V2 word order is preferred when the subject conveys new information (often represented by full DP), while the V3 structure is used when the subject is familiar in the context (often pronoun), thus given information” as in (N8) (Westergaard, 2005, p. 34, example from p. 35):

(N8) INV: <ka sir> [/] **ka sir hunden da?** (V2)  
*what say.PRES/ what say.PRES dog.DEF then*  
 ‘What does the dog say then?’  
 OLE: voff voff.  
 (Ole imitates a dog.)  
 INV: og **eselet da # ka det sir?** (V3)  
*and donkey.DEF then # what that say.PRES*  
 ‘And donkey then – what does that say?’

This pattern corresponds to the pragmatic principle of end focus according to which the given information comes first (e.g. a pronoun referring to a previously mentioned object), while the new information tends to occur towards the end of the sentence (e.g. a full DP). Westergaard performs a statistical analysis of this pattern and finds a highly significant effect for the type of the subject (full DP vs. pronoun) (cf. Westergaard, 2005, p. 30).

In addition to the *wh*-questions in the Tromsø dialect, specific structures with V3 order in main clauses occur also in Standard Norwegian. These are exclamatives with preposed adverbials as in (N9) and what Westergaard calls “pockets of non-V2”, such as optional V3 order after the adverb *kanskje* ‘maybe’ in initial position as in (N10), and optional V3 order in subject-initial declarative clauses with focus sensitive adverbs such as *bare* ‘just, only’ and *nesten* ‘almost’ as in (N11) (examples from Westergaard, 2009, p. 18ff.):

(N9) **Så fin** du er!  
*so nice you are*  
 ‘How nice you look!’

(N10) **Kanskje** kongen kommer./**Kanskje** kommer kongen.  
*maybe king come*  
 ‘Maybe the king is coming.’

(N11) Han **bare/nesten** smilte./Han smilte **bare/nesten**.  
*he just/almost smiled*  
 ‘He just/almost smiled.’

Norwegian embedded clauses do not allow V2 since Norwegian belongs to the group of the asymmetric V2 languages, i.e. displaying V2 only in main clauses in contrast to the symmetric V2 languages, such as Icelandic or Yiddish, which require V2 in both main and embedded clauses (Westergaard, 2005, p. 38). However, since early child language rarely contains embedded clauses, these will not be discussed here.<sup>17</sup> Due to space limitations, *wh*-questions and *yes-no* questions will also be omitted and only subject-initial declaratives with sentence adverbs or negation, and topicalized structures will be discussed here.<sup>18</sup> However, it is important to note that given the above described micro-variation in the input language, the V2 parameter might not be as relevant for languages such as Norwegian as originally assumed.

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<sup>17</sup> For analysis of Norwegian embedded clauses see Westergaard (2005, p. 55ff.), for discussion of embedded clauses in child Norwegian see Westergaard (2005, p. 168ff.).

<sup>18</sup> For discussion of the acquisition of *wh*-questions see Westergaard (2005, p. 177ff.) and for discussion of the acquisition of *yes/no*-questions see Westergaard (2005, p. 261ff.).

### 3.2.2 Child Norwegian data

All the child data in Westergaard's (2005, 2009) study come from a corpus collected in Tromsø in 1997 – 1998. The corpus consists of 66 recorded sessions produced by three children from 1;8.20 to 3;0. All the recordings contain spontaneous speech in play situations between the child and the investigator. All three children are monolingual speakers of Norwegian and all the parents as well as the investigators speak the local dialect.<sup>19</sup>

The children studied by Westergaard are a little older than the early multi-word stage defined by Radford (1;6-2;0). However, all the structures argued as evidence of the presence of the functional layers (IP, CP) in the grammar are present also in the files recorded before the age of 2. Even though Westergaard's corpus contains data from only three children, her findings represent a significant contribution to the cross-linguistic discussion of the linguistic abilities of very young children.

### 3.2.3 The acquisition of verb movement in subject-initial declaratives in Norwegian

As mentioned in section 3.2.1, the finite verb always moves to the second position in Norwegian main clauses. However, simple SVO structures are ambiguous because it is not clear from the surface structure whether the finite verb (and subsequently also the subject) actually moved to CP/IP or whether the utterance it is just an example of the basic underlying SVO order (cf. Westergaard, 2005, p. 133). In order to establish whether the child has acquired verb movement in this clause type, sentences with sentence adverbs must be considered. In the presence of sentence adverbs the finite verb will also be in the second position, i.e. before the adverb, clearly indicating that it has moved from V to C as in (N12) (example from Westergaard, 2005, p. 134):

(N12) Jeg (\*faktisk) **liker** (**faktisk**) jordbær.

*I actually like actually strawberries*

'I actually like strawberries.'

The problem with studying sentences with sentence adverbs in early child production is that children rarely produce adverbs at such an early stage (1;8.20-3;0). For this reason, Westergaard includes also sentences with negation *ikke/ikkje* 'not' which in Norwegian

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<sup>19</sup> For more information on the corpus and methodology see Westergaard (2005, p. 121ff.).

“functions in relevant respects more or less like a regular sentence adverb with regard to syntactic position” (Westergaard, 2005, p. 134). That is to say that the finite verb must move across the negation thus yielding  $V_{fin}$ -Neg or  $V_{fin}$ -Adv order in main clauses as in (N13a,b) with the structure analyzed in (N14a,b) (example (N13a) from Westergaard, 2005, p. 135):

(N13) (a) Han **kommer ikke**.

*he come not*

‘He is not coming.’

(b) Han **kommer alltid**.

*he come always*

‘He always comes.’

(N14) (a) [<sub>CP</sub> Han<sub>i</sub> [<sub>C</sub> kommer<sub>j</sub>] [<sub>IP</sub> [<sub>NEGP</sub> ikke [<sub>VP</sub> t<sub>i</sub> [<sub>V</sub> t<sub>j</sub>]]]]]

(b) [<sub>CP</sub> Han<sub>i</sub> [<sub>C</sub> kommer<sub>j</sub>] [<sub>IP</sub> [<sub>VP</sub> alltid [<sub>VP</sub> t<sub>i</sub> [<sub>V</sub> t<sub>j</sub>]]]]]

### 3.2.3.1 Predictions

Based on several previous studies of V2 in child language, Westergaard discusses three predictions with regard to the development of V2 in subject-initial declarative clauses with adverbs/negation in child Norwegian.<sup>20</sup> All three predictions directly involve the presence of the functional layers (IP, CP) in child Norwegian both as landing sites of moved elements and as locations of functional features (*Tns*).

There is disagreement in the literature concerning the time at which verb movement falls into place in child language. As is discussed in section 3.1 Radford (1990) argues for a complete lack of all functional categories and thus also lack of verb movement. Déprez & Pierce (1993) argue for the presence of the IP-layer but absence of the CP-layer (cf. section 4), which would allow V-to-I movement but not V-to-I-to-C. In addition there are studies of child Dutch (Jordens, 1990) and child Swedish (Platzack, 1990) arguing for late acquisition of verb movement (cf. Westergaard, 2005, p. 82ff.). On the other hand, there are studies documenting that V2 is in place from the earliest production of multi-word utterances in child German (Poeppel & Wexler, 1993) and in child Swedish (Platzack, 1996; Santelmann, 1995)

<sup>20</sup> Westergaard also discusses overgeneralization of V2 into embedded clauses which will not be discussed here, see Westergaard (2005, p. 168ff.).

(cf. Westergaard, 2005, p. 96ff.).<sup>21</sup> Westergaard argues for the latter view and predicts that “verb movement and V2 order should be attested relatively early also in Norwegian” (Westergaard, 2005, p. 136).

Furthermore, some studies argue for a correlation between the acquisition of tense and agreement morphology (Clahsen, 1986) or finiteness (Jordens, 1990) on the one side, and with verb movement on the other. Given that Norwegian verbal morphology is rather impoverished compared to e.g. German, Norwegian children can be predicted to show a delay in the acquisition of verb movement.<sup>22</sup> However, Westergaard, based on Bobaljik (2002), argues that “morphology is simply a reflection of syntactic structure, not its cause [...and] Norwegian children should be able to realize that their language has verb movement simply by paying attention to the syntactic distribution of elements” (Westergaard, 2005, p. 137). On the other hand, since finiteness marking on verbs in the Tromsø dialect is minimal (for most regular verbs the infinitive and the present tense forms are the same), it might not be possible to see clear distinctions between the use of finite and non-finite forms (Westergaard, 2005, p. 137).

Finally, the possibility of a gradual verb-by-verb learning is discussed. Jordens (1990) argues that the acquisition of verb movement is dependent on the verb type (verb movement appears first with stative verbs, then resultative verbs and last with activity verbs). Within the constructivist approaches, Akhtar (2001) and Tomasello (2003) argue that the acquisition of V2 is primarily based on the frequency of each verb in the language (cf. Westergaard, 2005, p. 138).

To sum up, the predictions concerning the acquisition of verb movement in subject-initial declarative clauses with sentence adverbs or negation in child Norwegian are the following:

<sup>21</sup> Platzack reconsidered his own findings in his later work arguing for early knowledge of functional categories, see Platzack (1996, p. 401).

<sup>22</sup> German verbs are marked for tense, person and number. Norwegian verbs are marked for tense but not for person or number. Following is an overview of verbal morphology in weak classes in the Tromsø dialect and German. For a detailed discussion of Norwegian verbal morphology see Westergaard (2005, p. 9ff.).

|                     | infinitive       | present                | past (preterit)         | past participle            | English translation |
|---------------------|------------------|------------------------|-------------------------|----------------------------|---------------------|
| Nor. large weak cl. | kast- <b>e</b>   | kast- <b>e</b>         | kast- <b>a</b>          | kast- <b>a</b>             | throw               |
| Nor. small weak cl. | lek- <b>e</b>    | lek- <b>e</b>          | lek- <b>te</b>          | lek- <b>t</b>              | play                |
| Ger. weak class     | spiel- <b>en</b> | ich spiel- <b>e</b>    | ich spiel- <b>te</b>    | <b>ge</b> -spiel- <b>t</b> | play                |
|                     |                  | du spiel- <b>st</b>    | du spiel- <b>test</b>   |                            |                     |
|                     |                  | er/sie spiel- <b>t</b> | er/sie spiel- <b>te</b> |                            |                     |
|                     |                  | wir spiel- <b>en</b>   | wir spiel- <b>ten</b>   |                            |                     |
|                     |                  | ihr spiel- <b>t</b>    | ihr spiel- <b>tet</b>   |                            |                     |
|                     |                  | sie spiel- <b>en</b>   | sie spiel- <b>ten</b>   |                            |                     |

- (a) Verb movement appears early in child Norwegian, possibly within the first multi-word utterances.
- (b) Children acquiring Norwegian are not able to distinguish between word orders based on finite and non-finite verb forms.
- (c) Target-consistent word order appears with some verbs first, either based on their type or their frequency in the input.

### **3.2.3.2 Findings**

As expected, verb movement is attested in some of the earliest files of the corpus. In fact, two of the three children already produce target-like V-Neg order at ages 1;9.18 and 1;10.0, while the third child starts producing the target-like structure at the age of 2;2.12. At the same time the third child produces hardly any Neg-V forms in her early files (totally 11 occurrences before the age of 2;2.12) and the frequency of non-target Neg-V order does not drop when she appears to have acquired the target-like structure at the age of 2;2.12. Westergaard (2005, p. 144) thus argues that there is no evidence of a point of acquisition of the verb movement at the age 2;2.12 after which the child would replace Neg-V with V-Neg. Furthermore, the increase of V-Neg and the decrease of Neg-V structures is gradual from the first occurrence in all children with no abrupt changes (cf. Westergaard, 2005, p. 175). All in all, the Norwegian child language data from this corpus indicates that children appear to have acquired verb movement in subject initial declarative main clauses with negation as early as 1;9.18. Thus, they are not delayed in the acquisition of verb movement due to the impoverished verbal morphology and they show evidence of the existence of the CP-layer in their grammar as in (N15a,b) (examples adapted from Westergaard, 2005, p. 139f.):



(N15) (a) æ **vet**            **ikkje** (Ann.02, age 1;9.18)

*I know.PRES not*

‘I don’t know.’

Possible analysis: [<sub>CP</sub> æ<sub>i</sub> [<sub>C</sub> vet<sub>j</sub>] [<sub>IP</sub> [<sub>NEGP</sub> ikkje [<sub>VP</sub> t<sub>i</sub> [<sub>V</sub> t<sub>j</sub>]]]]]

(b) ho    mamma **er**            **ikke** på jobb (Ole.02, age 1;10.0)

*DET mom    be.PRES not at work*

‘Mom is not at work.’

Possible analysis:

[<sub>CP</sub> [<sub>DP</sub> ho mamma]<sub>i</sub> [<sub>C</sub> er<sub>j</sub>] [<sub>IP</sub> [<sub>NEGP</sub> ikke [<sub>VP</sub> t<sub>i</sub> [<sub>V</sub> t<sub>j</sub>] [<sub>PP</sub> på jobb]]]]]

In order to examine the distribution of the finite and non-finite verb forms across the V-Neg and Neg-V structures, all sentences containing negation were examined and classified as finite, non-finite or ambiguous. Recall from footnote 22 above, that most of the regular verbs in the Tromsø dialect have the same ending (-e) for the infinitive and the present tense. Despite the prediction (b) above, Westergaard finds that “even in a morphologically impoverished language like the Tromsø dialect, there is a clear difference between the two structures with respect to finiteness” (Westergaard, 2005, p. 139). As in the adult grammar, “finite verbs generally occur in front of negation, while non-finite forms appear following negation” (Westergaard, 2005, p. 141). That is, only finite verbs are moved to the head of CP to satisfy the requirements of the grammar, i.e. the strong V-feature in head of CP (cf. section 2.3.2). The relevant parts of the tables with child production data from Westergaard (2005, p. 140ff.) are reproduced in Table N1, showing the total numbers of verbs appearing in each of the two structures with respect to finiteness:

Table N1: Total numbers of verbs used in V-Neg and Neg-V with respect to finiteness produced by each child.

| Child | V-Neg      |           |            | Neg-V  |           |            |
|-------|------------|-----------|------------|--------|-----------|------------|
|       | Finite     | Ambiguous | Non-Finite | Finite | Ambiguous | Non-Finite |
| Ina   | <b>432</b> | 14        | 2          | 5      | 32        | <b>21</b>  |
| Ann   | <b>451</b> | 54        | 2          | 4      | 17        | <b>18</b>  |
| Ole   | <b>282</b> | 35        | 0          | 8      | 31        | <b>19</b>  |

Moreover, many of the examples of non-target Neg-V order seem to be structures with a missing non-lexical verb, usually a modal. In such cases in the adult language the missing auxiliary would be in the head of CP and the non-finite verb would follow the negation marker. Thus the order Neg-V<sub>non-fin</sub> is actually target-like in structures with auxiliaries (Westergaard, 2005, p. 145). The modal interpretation is even clearer in examples of restarts and self-corrections such as in (N16) (example from Westergaard, 2005, p. 146):

(N16) OLE: **ikke røre** der. (Ole.06, age 2;1.5)

*not touch.INF there*

OLE: du **må ikke røre** der kassetten.

*you must not touch there cassette.DEF*

‘You mustn’t touch that cassette.’

Possible analysis: [CP du [C må] [IP [NEGP ikke [VP røre der kassetten]]]]

There are only 21 examples of structures with an “unexpected verb form”, i.e. V<sub>non-fin</sub>-Neg or Neg-V<sub>fin</sub>, in the corpus (Westergaard, 2005, p. 153). Westergaard argues that all of the structures with unexpected V<sub>non-fin</sub>-Neg order are in fact results of overgeneralization of the verbal morphology, which occasionally causes the children to expand the use of “the common present tense ending of the weak verb classes (-e) to other verbs.” Such verbs then appear as infinitives even though the context clearly requires present tense as in (N17) (Westergaard, 2005, p. 154, example p. 155):

(N17) æ **sove** **ikke** no. (Ann.21, age 3;0.1)

*I sleep.PRES? not now*

‘I’m not sleeping now.’

Expected form: *sover* or *søv*

The confusing or the lacking of verbal morphology can also explain some of the unexpected Neg-V<sub>fin</sub> structures. After the elimination of the unconventional verbal morphology and the repeated structures, there are only eight examples of true verb placement errors in Westergaard’s child data. These all involve unambiguously finite verbs following negation (Neg-V<sub>fin</sub>). Westergaard argues that these structures are examples of verb movement to a head lower than C “due to a general tendency for economy in child language” (Westergaard, 2005, p. 159). These examples are distributed across the corpus, they appear at

the same time as target-consistent structures, and do not show any development towards the adult grammar. Westergaard thus concludes that these non-target forms “constitute evidence of optionality in child grammar [...] or they are occasional “slips” representing traces of an earlier state of the child grammar” (Westergaard, 2005, p. 161).

Based on prediction (c), Westergaard examines the possibility that the target-like V-Neg order could be acquired on a verb-by-verb basis. The type/token ratio is high for sentences with the target-like V-Neg order, i.e. there are only few types of verbs used often in this order, which could lead to the assumption that the verb movement is learned on a verb-by-verb basis. However, the data do not confirm Jordens’ (1990) hypothesis that movement should appear with stative verbs first, then with resultative and finally with activity verbs. Westergaard (2005, p. 163) observes that stative verbs are indeed rare in the non-target Neg-V order, but they are attested in this position in the data as in (N18). In addition, activity verbs appear in the target-like V-Neg order in one of the earliest files as in (N19) (examples from Westergaard, 2005, p. 163f.):

(N18) **ikke være** sånn. (Ole.02, age 1;10.0)

*not be.INF such*

‘(It should) not be like that.’

(N19) **tegne ikke** (s)tolen. (Ann.03, age 1;10.2)

*draw.PRES? not chair.DEF*

‘(I’m) not drawing the chair.’

Westergaard considers also the constructivist approach but finds “no clear evidence for an item-based development” (Westergaard, 2005, p. 175) despite the fact that some verbs are attested more frequently in one of the examined structures than in the other (V-Neg vs. Neg-V). Akhtar (2001, p. 199f.) argues that young children (two- to three-year-olds) do not have any abstract understanding of word order patterns and only use verbs in structures they have heard. If that was the case, there would be no reason why children should use the same familiar verb in both V-Neg and Neg-V as in (N20a-b). Furthermore, the target-like V-Neg in (N20a) appeared several weeks before the non-target Neg-V in (N20b) (examples from Westergaard, 2005, p. 165):

(N20) (a) **tegne ikke** Ole Brumm. (Ina.05, age 2;0.5)

*draw.PRES? not Ole Brumm*

‘(I’m) not drawing Winnie the Pooh.’

(b) **ikkje tegne** den. (Ina.0.7, age 2;1.23)

*not draw.INF? that*

‘(We should) not draw that.’

As is mentioned in section 3.2.3, children rarely produce sentence adverbs at this stage and although they are attested in Westergaard’s data, they are too few and too scattered to be analyzed on their own. However, Westergaard (2005, p. 168) observes that the attested examples of sentences with adverbs seem to follow the same pattern as sentences with negation. In other words, children produce occasional non-target structures Adv-V with non-finite verbs as in (N21), but when the verb is clearly finite, target-consistent V-Adv order is used as in (N22) (examples from Westergaard, 2005, p. 166f.):

(N21) Merete **også pusle**. (Ole.07, age 2;1.26)

*Merete also puzzle.INF*

‘Merete (should) also do a puzzle.’

(N22) æ **måtte også få låne** den! (Ann.10, age 2;3.9)

*I must.PAST also get borrow that*

‘I also had to be able to borrow that.’

### 3.2.3.3 Conclusion

With respect to the acquisition of verb movement in subject-initial declarative clauses with negation or sentence adverbs in child Norwegian, Westergaard shows that children are extremely sensitive to the input, and produce target-consistent word orders from early on. Furthermore, they seem to be sensitive to the finiteness marking on verbs already before the age of 2. Despite the lack of clear distinction between the infinitive and the present tense forms in the Tromsø dialect, the children are producing mainly V-Neg structures with finite verbs and Neg-V structures with non-finite verbs. The instances of Neg-V<sub>non-fin</sub> are argued to be structures with missing auxiliaries rather than structures lacking verb movement. The few

clearly non-target structures are analyzed as verb movement to a lower head than in the adult grammar (possibly the head of the Tense Phrase within the IP domain) (cf. Westergaard, 2005, p. 174f.).

Bearing in mind that the corpus of child Norwegian only includes production of three children, the data seem to provide the following answers to the predictions from section 3.2.3.1:

- (a) Verb movement appears early in child Norwegian. It is attested in some of the first files in the corpus.
- (b) Children are sensitive to the finiteness marking on verbs despite the impoverished verbal morphology of the Tromsø dialect and they are able to distinguish different word orders based on finite and non-finite verb forms.
- (c) Target-consistent word order does not appear with some verbs first, neither based on their type, nor on their frequency in the input, despite the high type/token ratio of the verbs in the V-Neg structures.

#### **3.2.4 The acquisition of verb movement in topicalized structures in Norwegian**

Topicalized structures in adult Norwegian are unambiguous examples of verb movement into the second position and can thus help to shed light on the acquisition of verb movement in child Norwegian. Topicalized structures are rather frequent in V2 languages, both in the adult and the child data. Westergaard (2005, p. 224) examines a sample of adult data from the Tromsø corpus and finds that 23.4% of all complete sentences of the adult investigator are topicalized structures. This ratio of topicalizations in the adult language is comparable with the findings of Lightfoot (1999) who claims that topicalized structures represent on average 30% of all clauses of adult Dutch, German, Norwegian and Swedish. If 23-30% of all sentences in the input are topicalization, there is arguably a robust trigger for the V2 grammar present in the acquisition process (Westergaard, 2005, p. 223). Example (N23) illustrates topicalized structures in adult Norwegian (example adapted from Westergaard, 2005, p. 223):

(N23) Sannsynligvis liker hun jordbær. / \*Sannsynligvis hun liker jordbær.

*Probably likes she strawberries*

‘Probably she likes strawberries.’

[<sub>CP</sub> Sannsynligvis [<sub>C</sub> liker<sub>i</sub>] [<sub>IP</sub> hun<sub>j</sub> [<sub>VP</sub> t<sub>j</sub> [<sub>V</sub> t<sub>i</sub>] [<sub>DP</sub> jordbær]]]]

Furthermore, V2 order is obligatory in topicalized structures in adult Norwegian with the exception of sentence-initial *kanskje* ‘maybe’, which allows both V2 and V3 as is discussed in section 3.2.1. Children acquiring Norwegian are thus exposed to relatively straightforward evidence for the V2 order in the target grammar.

### 3.2.4.1 Predictions

Based on studies of other V2 languages (German and Swedish), Westergaard (2005) formulates several predictions about the acquisition of verb movement in Norwegian topicalized structures, three of which will be discussed here.<sup>23</sup> Westergaard (2005, p. 226) considers data from child Swedish (Santelmann, 1995) and predicts that topicalization will be attested early in the corpus of child Norwegian, but she also predicts an error rate of at least 4.2% (which is the case in the Swedish data). Word order errors in topicalized structures will have V3 word order (XSV) representing the underlying SVO order.

In the discussion of the predicted mistakes with XSV word order, Westergaard (2005) considers Platzack’s (1996) and Santelmann’s (1995) claims regarding the triggering of V2 in Swedish. Platzack (1996, p. 398ff.) assumes that the trigger for V2 in Swedish is the presence of a strong feature in the head of CP. However, Westergaard (2005, p. 226) points out that if this were so, “all V2 structures should function as triggers for verb movement in topicalizations.” This would necessarily lead to some “spill-over effect” in the acquisition of the Tromsø dialect which allows both V2 and V3 orders in *wh*-questions (cf. section 3.2.1). The children could then assume that the same variation is allowed in topicalizations which is not the case in the adult language. On the other hand, Santelmann (1995) argues that the trigger for V2 is different in different structures. If this is correct, then the trigger for V2/V3 in *wh*-questions should not influence the triggering of V2 in topicalizations. Westergaard argues for the latter view claiming that “V2 order is the result of verb movement to different

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<sup>23</sup> For a discussion of subjectless topicalization see Westergaard (2005, p. 233f.) and for a discussion of *Grammar competition model* concerning V2 grammar and Hebrew type grammar see Westergaard (2005, p. 235ff.).

heads in the CP domain, and it is therefore assumed that the trigger for V2 has to be learned separately for different clause types” (Westergaard, 2005, p. 226). This is in line with the micro-cues hypothesis discussed in section 2.2.4.

Bearing in mind that Norwegian children in this study make distinctions in word order based on finiteness (cf. section 3.2.3.3), Westergaard (2005, p. 227) further argues that non-finite verbs should not occur in the second position in topicalized structure because only finite verbs undergo movement. Furthermore, in her analysis of the declarative main clauses with adverbs/negation, Westergaard (2005, p. 153) argues for Wexler's *Optional Infinitive Hypothesis* (Wexler, 1994, 1999) as an explanation for the non-target use of non-finite verbs by children in the acquisition process. According to this hypothesis, children may produce root infinitives alongside tensed structures during the early multi-word stage and beyond despite showing evidence of functional layers in their grammar (Wexler, 1999, p. 28). If this hypothesis is correct, non-finite verbs (i.e. optional infinitives) should be rare in topicalized structures because “[in V2 languages] if SpecCP is filled by some constituent [e.g. topicalized constituent] then C must be filled by a finite verb” (Wexler, 1999, p. 38, cf. Westergaard, 2005, p. 228).<sup>24</sup> However, due to the impoverished verbal morphology in the Tromsø dialect, it might be difficult to distinguish the true non-finite verbs from the verbs with overgeneralized present tense ending *-e* as is discussed in connection with the acquisition of V2 in declarative main clauses with adverbs/negation in section 3.2.3.2.

To sum up, the predictions concerning the acquisition of verb movement in topicalized structures in child Norwegian are the following:

- (a) Target-consistent V2 word order in topicalized structures is acquired early with occasional non-target forms displaying XSV order (representing the underlying SVO word order).
- (b) The acquisition of the V2 word order in topicalized structures is not influenced by the fact that the studied dialect allows both V2 and V3 in *wh*-questions.
- (c) Non-finite verbs do not occur in topicalized structures.

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<sup>24</sup> For more detailed discussion of *Optional Infinitive Hypothesis* of Wexler (1999) see Westergaard (2005, p. 103ff.).

### 3.2.4.2 Findings

As expected, topicalized structures appear early in the data of all three children. Westergaard finds several topicalized elements in the data (*så* ‘so/then’, expletive *det* ‘it’, *her* ‘here’, *der* ‘there’, *nå/no* ‘now’), used with all types of verbs (both present and past forms of *være* ‘be’ as well as other verbs) and all types of subjects (pronouns and full DPs). Furthermore, the structures are mostly used with the target-like V2 word order as in (N24a,b,c) (examples from Westergaard, 2005, p. 231):

(N24) (a) *no er det borte.* (Ina.06, age 2;1.0)

*now be.PRES it gone*

‘Now it is gone.’

Possible analysis: [<sub>CP</sub> *no* [<sub>C</sub> *er*<sub>i</sub>] [<sub>IP</sub> *det*<sub>j</sub> [<sub>VP</sub> *t*<sub>j</sub> [<sub>V</sub> *t*<sub>i</sub>] [<sub>ADV<sub>P</sub></sub> *borte*]]]]]

(b) *der har Ann føtter.* (Ann.03, age 1;10.02)

*there have.PRES Ann feet*

‘There Ann has feet.’

Possible analysis: [<sub>CP</sub> *der* [<sub>C</sub> *har*<sub>i</sub>] [<sub>IP</sub> *Ann*<sub>j</sub> [<sub>VP</sub> *t*<sub>j</sub> [<sub>V</sub> *t*<sub>i</sub>] [<sub>DP</sub> *føtter*]]]]]

(c) *nå hørte æ en bil.* (Ole.02, age 1;10.0)

*now hear.PAST I a car*

‘Now I heard a car.’

Possible analysis: [<sub>CP</sub> *nå* [<sub>C</sub> *hørte*<sub>i</sub>] [<sub>IP</sub> *æ*<sub>j</sub> [<sub>VP</sub> *t*<sub>j</sub> [<sub>V</sub> *t*<sub>i</sub>] [<sub>DP</sub> *en bil*]]]]]

As expected, the children also produce some non-target structures, namely V3 (XSV). Table N2 summarizes Westergaard’s (2005, p. 231) overview of the two word orders in the first ten files of all three children:

Table N2: Total numbers of V2 and V3 orders in topicalized structures in the first ten files of each child with percentages representing the amount of the V3 structures out of all topicalized structures.

| Ina   | V2<br>(XVS) | V3<br>(XSV) | Ann   | V2<br>(XVS) | V3<br>(XSV) | Ole   | V2<br>(XVS) | V3<br>(XSV)  |
|-------|-------------|-------------|-------|-------------|-------------|-------|-------------|--------------|
| Total | 134         | 8<br>(5.6%) | Total | 235         | 4<br>(1.7%) | Total | 325         | 29<br>(8.2%) |



It is clear from the data that the children are producing the target-consistent V2 word order in topicalized structures from early on. The non-target V3 order in this sample occurs in approximately 5.57% of the relevant structures (i.e. the percentage of all V3 structures out of all topicalized structures of all three children) which is only slightly higher than the error rate in Santelmann's (1995) child Swedish data (4.2% of V3).

A closer look at the topicalized structures with non-target V3 word order reveals a relatively even distribution between finite and non-finite verbs. Westergaard (2005, p. 246) provides an overview of all the instances of V3 classified for finiteness, here reproduced as Table N3:

Table N3: Overview of all topicalized structures with V3 from the first ten files classified for finiteness.

| Child | Finite | Ambiguous | Non-Finite | Total |
|-------|--------|-----------|------------|-------|
| Ina   | 3      | 3         | 2          | 8     |
| Ann   | 1      | 3         | 0          | 4     |
| Ole   | 10     | 15        | 4          | 29    |
| Total | 14     | 21        | 6          | 41    |

Because of the impoverished verbal morphology of the Tromsø dialect, the same problem emerges here as in the previous sections regarding the status of the ambiguous and the seemingly non-finite verbs. Most of the non-target V3 structures can be interpreted either as examples of *Optional Infinitives* with missing modal verbs or as overgeneralizations of the regular present tense ending *-e* as is illustrated by the alternative translations of the examples in (N25a,b) (examples from Westergaard, 2005, p. 246):

(N25) (a) og der æ finne +/. (Ina.05, age 2;0.5)

*and there I find.INF/PRES?*

‘And there I find/will find...’

(b) og så dama tegne. (Ann.01, age 1;8.20)

*and then the lady draw.INF/PRES*

‘And then the lady [=INV] draws.’/

‘And then the lady should/must draw.’

If such structures would be considered as examples of *Optional Infinites* with missing modals, the verb placement would actually be target-consistent. However, as it is argued above, based on Wexler's claim about topicalizations in V2 languages, non-finite verbs should not occur in the head of CP in topicalizations. For this reason Westergaard assumes that all the ambiguous and the non-finite verbs from Table N3 are in fact cases of overgeneralization of the regular present tense verb ending and are all considered as true word order mistakes (Westergaard, 2005, p. 247).

In order to explain why children sometimes use the V3 word order in topicalizations even though there is no input to trigger this order, Westergaard (2005) examines the 41 non-target structures from Table N3 with regard to information structure. While in the structures with the target-like V2 order, the verb is very often *være* 'be' and the subject is a full DP, in the structures with the non-target V3 order, the verb *være* 'be' is almost non-existent and the subjects are mostly pronouns.<sup>25</sup> Furthermore, if the subject of a topicalization structure with the V3 order is a full DP, it is usually the child's own name or another familiar name of a person or an object directly present in the situation. In other words, the subjects in the V3 structures tend to be given information with respect to the situation (Westergaard, 2005, p. 248). She further compares this pattern with the preferences for the V2 vs. V3 word order in *wh*-questions in the Tromsø dialect which are also based on information structure (see section 3.2.1). While both V2 and V3 are grammatical in *wh*-questions in the dialect, there is statistically significant preference for the V2 order when the subject is new information (usually a full DP) while the V3 order is preferred when the subject is given information (usually a pronoun).<sup>26</sup> However, it is important to remember that only the V2 order is grammatical in topicalizations. Based on the observed patterns, Westergaard (2005, p. 259) concludes that when children make word order mistakes in topicalized structures, they adhere to the pragmatic principle of end focus. Thus, given information comes first, i.e. pronouns before verbs, yielding the non-target V3 order, and semantically light verbs (*være* 'be') before full DPs, yielding the V2 order. This pattern is parallel to the choice of the V2 vs. V3 in *wh*-questions in the dialect. However, Westergaard does not agree with Platzack's (1996) claim that a general trigger for the V2 order from *wh*-questions is influencing the triggering of verb movement in other V2 structures. Instead, she argues that some pragmatic features are

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<sup>25</sup> Westergaard (2005, p. 249f.) claims that the verb *være* 'be' is so semantically light in Norwegian that it always carries less information value than the subject.

<sup>26</sup> For complete discussion of the word order variation in *wh*-question in the Tromsø dialect see Westergaard (2005, p. 46ff.)

acquired earlier than generally claimed, and that at least some aspect of information structure is part of the syntactic component of the language (Westergaard, 2005, p. 254f.).

Finally, turning to prediction (c), verb movement should occur only with finite verbs. Thus, there should be no instances of V2<sub>non-fin</sub> in topicalized structures. Table N4 below provides a summary of Westergaard's (2005, p. 242) overview of all topicalized structures from the first ten files of each child with the target-consistent V2 order classified for finiteness:

Table N4: Overview of all topicalized structures with V2 from the first ten files classified for finiteness.

| Child | Finite | Ambiguous | <b>Non-Finite</b> | Total |
|-------|--------|-----------|-------------------|-------|
| Ina   | 102    | 14        | <b>2</b>          | 134   |
| Ann   | 197    | 6         | <b>6</b>          | 235   |
| Ole   | 309    | 10        | <b>6</b>          | 325   |

The clear majority of the verbs that occur in second position in topicalized structures are indeed finite verbs. Furthermore, those verbs with ambiguous status are “in general those of the weak verb class where both the infinitive and the present tense end in *-e* in the dialect” (Westergaard, 2005, p. 242). Westergaard thus assumes that these can also be considered as finite present tense forms. In the first ten files there are 14 examples with seemingly non-finite verbs in the second position of topicalized structures (column in bold in Table N4). However, most of the verbs can be interpreted as overgeneralizations of the regular present tense ending *-e* based on the context which is clearly related to the present, as is illustrated in examples (N26a,b) (examples from Westergaard, 2005, p. 243):

(N26) (a) nå gjøre mamma. (Ole.11, age 2;4.21)

*now do.INF/PRES? mommie*

‘Now mommie is doing (it).’

Target form: Nå gjør mamma (det)./Nå skal mamma gjøre (det).

(b) 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 and eating coffee.’

Target form: Kanskje han sitt og spis kaffe.

On the basis of these data, Westergaard suggests that it is reasonable to assume that the structures with seemingly non-finite verbs in the second position in topicalized structures are in fact only examples of overgeneralization of the regular verbal present tense marking to the irregular verbs. Similar tendencies are discussed also in connection with the seemingly non-finite verbs moving across negation in section 3.2.3.2.

### 3.2.4.3 Conclusion

As is the case with other V2 languages, namely Swedish, children exposed to Norwegian seem to acquire the target-consistent V2 word order in topicalizations quite early. The error rate is comparable to what is attested for Swedish child language as discussed in Santelmann (1995). All errors are structures with V3 word order (XSV). The target-consistent V2 structures occur mainly with finite verbs or irregular verbs with overgeneralized present tense ending.

On the other hand, the attested V3 structures in topicalizations do not seem to be just random mistakes. They might resemble some kind of “spill-over effect” from *wh*-questions based on a common trigger for verb movement. However, there is no evidence in the input for V3 order in topicalizations. Instead the similar V2/V3 distinction made by the children seems to be based on information structure. The non-target V3 structures found in the corpus show similar distributional patterns with regard to information structure as the *wh*-questions in the dialect. That is, verb movement is more likely to occur with subjects conveying new information, consequently pushing the subject towards the end of the sentence conforming to the pragmatic principle of end focus.

To sum up, the data seem to provide the following answers concerning the acquisition of verb movement in topicalized structures in child Norwegian:

- (a) Target-consistent V2 word order in topicalized structures is acquired early with occasional non-target forms displaying XSV order (representing the underlying SVO word order).
- (b) The acquisition of the V2 word order in topicalized structures is not influenced by the fact that the studied dialect allows both V2 and V3 in *wh*-questions. The similar pattern found in the distribution of the V2 and V3 in *wh*-questions and in topicalizations is most likely a result of the information structure overriding the syntax at this stage.

- (c) Topicalized structures with the target-consistent V2 word order occur mainly with clearly finite verbs or verbs with overgeneralized present tense ending.

### **3.2.5 Summary of the findings from early child Norwegian**

Westergaard (2005) provides very detailed analysis of the development of word order in child Norwegian during an early stage of language development (1;8.20-3;0). Her analyses of subject initial declarative main clauses with adverbs/negation and early topicalizations provide clear evidence of verb movement already at the earliest observable stage in child Norwegian.

In her work, Westergaard (2005) also analyzes the development of *yes-no* and *wh*-questions the discussion of which had to be omitted in this work due to space and time limitations. The findings from these structure types generally confirm the findings discussed here regarding the presence of the functional layers in early child language. Westergaard argues that children are extremely sensitive to the input and that the target-like word order in most structures is acquired as early as the first multi-word utterances are produced. However, there are structures in early child Norwegian where verb movement arguably targets different functional heads than in the adult language due to economy principles (cf. section 3.2.3.3).

## **4 Cross-linguistic perspective**

In the following sections I will first give a brief overview of the findings of Radford (1990), Déprez & Pierce (1993) and Westergaard (2005) examining the acquisition of verb movement in early child English and Norwegian as discussed in sections 3.1 and 3.2. I will then turn to discuss the general notion of the presence or absence of the functional layers (IP, CP) in child language on the basis of cross-linguistic evidence including child French (Déprez & Pierce, 1993), child German (Clahsen, Penke, & Parodi, 1993/1994; Poeppel & Wexler, 1993) and child Swedish (Platzack, 1996; Santelmann, 1995). In the last two sections, I will consider some implications of the findings for a bilingual first language acquisition and for the general theory of parameters followed by a short summary.

### **4.1 Comparison of the findings from early child English and Norwegian**

In order to decide whether child grammar at this early stage (1;6-2;0) includes functional layers or not, some evidence of a layer or layers above the VP must be found in the child data. If there is convincing evidence of verb movement in the data, at least one functional layer must be present above the VP. If there is convincing evidence of the subject moving outside of the VP and the verb moving above the subject, at least two functional layers must be present above the VP.

The discussion of early child English in section 3.1.2 is based primarily on the work by Radford (1990). He argues that there is no compelling evidence of any functional layer in child English before the age of 2. The few examples of structures resembling adult IPs or CPs in his data are analyzed as rote-learned chunks, or semi-formulaic structures with elements adjoined directly to the VP. However, it is possible that the evidence of the functional layers at this early stage is too subtle in English or it is too ambiguous allowing two interpretations. In such cases the analysis requiring only less advanced grammar, i.e. only lexical categories, is preferred. Nonetheless, if child data from other languages clearly show that functional layers are present in the grammar of children before the age of 2, given that the genetic endowment for language acquisition is the same in all normally developing humans, there is no reason to expect maturation of functional layers to be delayed in English speaking children.

Déprez & Pierce (1993), considering data from child English and child French, claim that there is evidence of NegP and IP layers in early child English. First of all, they claim that

the fact that children often place negation sentence-initially does not necessarily mean that the negative marker is adjoined directly to the VP without a proper projection. They find a strong correlation between the child English and child French data in relation to the placement of the negative marker. The only difference is that adult English does not allow for the finite lexical verb to be moved to the head of IP, thus child English does not allow V-to-I movement either, while adult French requires this movement in sentences with negation and French children produce structures with  $V_{fin}$ -Neg as is discussed in section 4.2.1.

Furthermore, Déprez & Pierce (1993) report structures with S-Neg-V order in the English data from two of the three subjects before the age of 2. Such structures provide clear evidence that the subject has moved out of the VP into the specifier position of the IP. In addition, all three English subjects in this study produce Neg-S-V structures alongside S-Neg-V structures throughout the research period (1;6-2;3.21) with the amount of the target-consistent S-Neg-V structures gradually increasing with age. Consequently, Déprez & Pierce argue that the structures which lack subject raising do not provide evidence of the lack of the IP layer, but rather show that the subject raising is optional in child language at this stage (Déprez & Pierce, 1993, p. 45f.).

The discussion of early child Norwegian in section 3.2.2 is based on Westergaard's (2005) comprehensive study of the development of word order in child Norwegian. Westergaard finds evidence of verb movement as early as 1;9.18 and argues that the principles underlying the V2 word order in the Tromsø dialect are in place already at the onset of the first multi-word utterances (Westergaard, 2005, p. 363). However, she argues that the traditional view of the V2 parameter is not sufficient to explain the fine distinctions children have to make in order to produce target-consistent structures (cf. section 2.2.4). According to the split-CP model assumed in Westergaard's work, verb movement targets different heads within the CP domain based on sentence types. Nevertheless, children seem to be extremely sensitive to this micro-variation and perform at adult rates as soon as the relevant structures appear (e.g. V2 vs. V3 in *wh*-questions) (Westergaard, 2005, p. 353). Even though verb movement might occasionally target lower functional heads in the child language than in the adult language, Westergaard provides ample evidence of the presence of the CP layer in child Norwegian before the age of 2.

## 4.2 Evidence of verb movement in other languages

As is briefly mentioned in the introduction to section 3, English alone might not be the best language to exemplify the linguistic abilities of very young children with. The simple declarative clauses produced by the children at this stage (1;6-2;0) do not provide unambiguous evidence of the presence or absence of the IP- and CP-layers in child English. Even simple clauses with negation, which in adult language contain a functional NegP, can be analyzed as VPs with an adjoined negative marker, simply because child language optionally allows for the subject to remain in the SpecVP. Since the lexical verb does not move in adult English, the child language cannot display verb movement before the appearance of finite non-lexical verbs (auxiliaries and modals) which are not very common before the age of 2.

### 4.2.1 Child French

Child French on the other hand, clearly displays the presence of the IP layer. There is obligatory V-to-I movement of finite lexical verbs across negation in adult French and Déprez & Pierce (1993, p. 39ff.) show that the negative marker almost always follows a finite verb in child language as well. That is, the verb must have moved to a head position above the SpecNegP, where the negative marker *pas* is generated. Non-finite verbs remain in the VP and thus follow the negative marker. Only less than 3% of all negative utterances in their corpus do not conform to the  $V_{\text{fin}}\text{-Neg/Neg-}V_{\text{non-fin}}$  distinction. In contrast to the findings from child French, the V-Neg order is not attested in child English data precisely because of the lack of the V-to-I movement in adult English. Furthermore, Déprez & Pierce report a high rate of examples of V-to-I movement in child French structures with unraised subjects yielding V-S order (65-85% of all overt subjects in the production of the four French children) (Déprez & Pierce, 1993, p. 42), which again is nearly unattested in child English (less than 1% of all utterances of the four English children studied by Pierce display V-S order) (Pierce, 1992, p. 25). Thus child English does not offer clear evidence of the IP-layer before the emergence of finite non-lexical verbs because adult English does not allow lexical verbs to move out of the VP. Consequently, the lack of verb movement into a functional head above the VP in itself is not sufficient evidence of the lack of the IP-layer.

Déprez & Pierce (1993) do not find any evidence of the CP-layer in child English or child French. This is not surprising for child French since the V-to-C movement is required only in interrogatives with subject clitic inversion, which they claim to be rare in spoken adult



French (Déprez & Pierce, 1993, p. 57f.). In English, however, V-to-C movement is required in all questions. Since questions are very frequent in parent-child interactions, the children should arguably have sufficient input to identify the trigger for this movement. Déprez & Pierce report several examples of correctly inverted questions from their own corpus, but they claim that these structures do not constitute evidence of true V-to-C movement. Since they argue for the subject raising being optional in the child grammar at this stage, they propose an analysis of the auxiliary staying in its base-generated position in the head of IP, thus preceding the VP-internal subjects as in (16b) (example from Déprez & Pierce, 1993, p. 59):

- (16) (a) Adult question: [<sub>CP</sub> Aux [<sub>IP</sub> S ...]]  
(b) Child question: [<sub>IP</sub> Aux [<sub>VP</sub> S ...]]

To sum up, Déprez & Pierce (1993) present compelling evidence of the presence of the IP-layer in early child French and offer an alternative explanation of the scarce evidence of the IP-layer in child English. However, they do not find any evidence of the CP-layer in either of the child languages they investigated.

#### 4.2.2 Child German

In child German, Déprez & Pierce (1993, p. 33) argue for the presence of the IP-layer, albeit with a delay in the “stabilization” of the verb movement to the head of CP, with the V-to-C movement being possible but not obligatory in early child language. German, like Norwegian, is a V2 language and the finite verb should surface in the second position in simple declarative clauses. For child German, Déprez & Pierce (1993, p. 46ff.) analyze data from several sources finding examples of both V2 and V-final placement of finite verbs.<sup>27</sup> They argue that the child grammar allows for the finite verb to move only to the head of IP (which is head final in German) and not continue to the head of CP. This directly contradicts Westergaard’s (2005) and Poeppel & Wexler’s (1993) findings regarding finiteness and verb movement. However, since Déprez & Pierce (1993) only have access to the published selection of examples and not the original data, they do not provide any overview of the frequencies of the structures with the finite verb in the final position in the child production. It

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<sup>27</sup> Only structures with at least three words are considered here since two-word utterances are possibly ambiguous with the second position being the final one as well (cf. Déprez & Pierce, 1993, p. 51; Poeppel & Wexler, 1993, p. 6).

might thus be possible that the handful of examples (2-3 per child) with finite verbs in the final position reported by Déprez & Pierce (1993) are only performance errors.

Poeppl & Wexler (1993), on the other hand, argue for full competence and thus for the presence of the functional layers (IP, CP) in child language from the emergence of the first multi-word structures. They examine spontaneous speech data from one German child at the age of 2;1. They first show that the child reliably distinguishes between finite and non-finite verbs (92% of the finite verbs appear in the second position and 93,75% of the non-finite verbs appear in the final position) (Poeppl & Wexler, 1993, p. 12). This implies that the finite verb has moved out of the VP. If the child grammar has the same structure as the adult one, including a head-final IP, the finite verb appearing in the second position must have moved to the head of CP (cf. Clahsen, et al., 1993/1994 discussed below for an alternative view). Poeppl & Wexler (1993, p. 14f.) support their hypothesis by early topicalization data, i.e. structures in which non-subjects occupy the first position which then is followed by the finite verb. They take topicalization as clear evidence of the V-to-C movement. Poeppl & Wexler (1993) thus claim that the child grammar includes both IP and CP from the onset of multi-word utterances and the only difference between the child and the adult grammars is the option to leave root clauses un-tensed in the former, i.e. the *Optional Infinitive Hypothesis* (cf. Wexler, 1999).

Clahsen, Penke & Parodi (1993/1994) refuse both the optionality of V-to-C movement suggested by Déprez & Pierce (1993) and the *Full Competence Hypothesis* of Poeppl & Wexler (1993). They base their argument on a large amount of longitudinal data from seven German children at the ages from 1;8 to 2;9 and claim that although their data from the earliest stage ( $MLUw \leq 1.75$ , i.e. the two-word stage) are compatible with the presence of the CP-layer, there is no empirical support for this analysis (Clahsen, et al., 1993/1994, p. 426).<sup>28</sup> They even take into consideration the possibility that children might have the CP projection in their grammars, but lack the overt lexical components that usually fill the positions within the CP, e.g. overt complementizers and *wh*-operators. In such cases, the only undisputable empirical evidence of the V-to-C movement would be the relative order of subjects and negative markers in sentences with the verb following a non-subject element. In other words, if there are two functional projections above the VP, finite negative clauses with topicalization would display X-V-S-Neg order. Poeppl & Wexler (1993, p. 25ff.) report such structures in their data, but Clahsen et al. (1993/1994, p. 421ff.) point out that the child data

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<sup>28</sup> Clahsen et al. (1993/1994) are using mean length of utterance in words (MLUw) as measure of development. See Clahsen et al. (1993/1994, p. 402f.) for discussion.

analyzed by Poeppel & Wexler represent a different stage in the development, due to the complexity of produced structures.<sup>29</sup> They further show that there are no X-V-S-Neg structures in their data from the earliest stage (MLUw  $\leq$  1.75). At this stage children only produce pre-subject negation: (X)-V-Neg-S. Such structures can be interpreted as V-to-C movement with VP-internal subjects but they can also be analyzed as structures with the finite verb in the head of IP (or some other functional projection above the VP, Clahsen et al. suggest the F(inite)P) with the topicalized element in the specifier position of the same maximal projection.

To sum up, there is strong evidence of one functional layer (IP/FP) above the VP in early child German supported by the documented movement of the finite verb out of the VP. However, the evidence of a second functional layer (CP) is disputable for the earliest analyzable stage (MLUw  $\leq$  1.75, i.e. the two-word stage).

### 4.2.3 Child Swedish

As is mentioned above (cf. section 3.2.3.1), Platzack (1990) originally proposed an analysis of child Swedish without any functional categories in line with Radford's (1990) claims about child English. In his later research, he reconsiders his own findings and develops the *Initial Hypothesis of Syntax* which states that "all instances of feature checking take place after spell-out" (Platzack, 1996, p. 376).<sup>30</sup> In other words, children initially do not expect any movement and all elements should surface in their base positions. Then gradually through input children adjust their grammars assigning strong and weak features to the appropriate positions for their language. Platzack assumes that this gradual adjustment takes place before the children start producing first multi-word structures, because he finds "hardly any cases" of movement to a weak position and very few cases of lack of movement to a strong position in his data (Platzack, 1996, p. 405). In addition, he observes a large proportion of non-finite verbs in the early recordings (55-100% of all verbs in each recording before the age of 2 are non-finite for the two children studied in depth) (Platzack, 1996, p. 389). Platzack's data thus support both Wexler's (1994) *Optional Infinitive Hypothesis* and his assumption that children are aware of the syntactic structure of their language early on (*Full Competence Hypothesis* (Poeppel & Wexler, 1993) and *Very Early Parameter Setting Hypothesis* (Wexler, 1999)).

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<sup>29</sup> Poeppel & Wexler (1993) do not use MLU(w) but age to measure developmental stage, thus their results are not directly comparable with Clahsen, Penke & Parodi's (1993/1994).

<sup>30</sup> Platzack (1996) investigates the speech production of seven Swedish children of the ages between 1;8-3;6.

Platzack also reports early *yes-no* and *wh*-question with correct inversion in his data, which are evidence of the CP-layer in child Swedish before the age of 2.

Santelmann (1995) also studies the development of verb movement in child Swedish.<sup>31</sup> Like Westergaard (2005), Santelmann focuses on the structures where the verb movement is visible in Swedish, i.e. topicalizations, subject-initial declaratives with adverbials and *wh*-questions. She finds that children generally produce the target-like V2 order as soon as they start producing the respective structures, but the error rates differ (1.1% for questions and 4.2% for topicalizations). In subject-initial declaratives Santelmann observes a delay in finiteness marking as compared to non-subject-initial clauses. Based on the different accuracy rates for the same phenomenon (V2) in different structures, she proposes that the trigger for verb movement is different for each structure. This is in line with Westergaard's (2005, 2009) proposal of micro-cues (cf. section 2.2.4 and 4.4).

Since Norwegian and Swedish are closely related languages, these findings provide important support for Westergaard's claims about the early acquisition of V-to-I-to-C movement and thus the presence of the CP-layer in child grammar already during the early multi-word stage (1;6-2;0).

### **4.3 Implications for bilingual first language acquisition**

It is clear from the previous sections, that the evidence of verb movement and consequently of the presence of the functional layers in child language varies across languages. It has been pointed out by several researchers that studies based on English (or generally based on only one language) do not provide sufficient evidence for generalized claims about the linguistic abilities of very young children (among others Déprez & Pierce, 1994, p. 63; Harris & Wexler, 1996, p. 6). Children simply seem to acquire verb movement at different ages in different languages. However, this raises interesting questions regarding bilingual first language acquisition. If the child is exposed to two languages from birth and these two languages, in monolingual settings, provide evidence of the acquisition of verb movement at different ages, what will be the outcome in the bilingual child? If one assumes gradual maturation of certain structures with potentially different age of onset in the two languages in monolingual setting, will these structures emerge in both languages at the same time? If so, will the age of onset match the language with the earlier onset (in monolingual

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<sup>31</sup> Unfortunately, I do not have access to this work so the following summary is based on Westergaard (2005, p. 100ff.).

settings) or will the child be “delayed” until he reaches the age of onset of the “slower” language?

It is now generally assumed that the two languages of a bilingual child develop independently (cf. Genesee, 2001; Paradis & Genesee, 1996). However, cross-linguistic influence is also documented between the two languages of a bilingual child (cf. Bentzen, 2000; Lanza, 1992; Müller, 1998). If the maturation process and parameter setting are also independent in the two languages, a child acquiring for example English and Norwegian (or Swedish) from birth would have acquired verb movement and assigned a strong feature to the head of CP around the age of 1;8 in Norwegian/Swedish, while at the same time not have acquired verb movement and not have assigned any features within functional layers before the age of 2 in English. It seems dubious at best that this hypothetical child would form correctly inverted *wh*-questions in Norwegian/Swedish while not being able to produce more than rote-learned chunks (of the type described by Radford (1990) cf. section 3.1.2.2) in English.<sup>32</sup> Therefore the approaches assuming an early knowledge of the functional categories (Platzack’s (1996) *Initial Hypothesis of Syntax* or Poeppel & Wexler’s (1993) *Full Competence Hypothesis* in combination with Wexler’s (1999) *Very Early Parameter Setting Hypothesis*) provide better theoretical basis to explain bilingual first language acquisition.

#### 4.4 Parameters vs. micro-cues

As is discussed in section 2.2.4, Westergaard (2005, 2009) proposes a modification of the standard concept of the V2 parameter. She claims that the setting of one parameter cannot explain the rapid and accurate acquisition of a complex set of rules determining the pattern of V2 and non-V2 structures in the Tromsø dialect of Norwegian. Refinement of the V2 parameter into individual micro-cues provides an explanation of the observed ability of children to pick up one rule at a time based on the cues each individual structure expresses. Thus, the cues from the non-V2 contexts, i.e. embedded clauses, *wh*-questions with short *wh*-operators, etc., will not interfere with the cues from the V2 contexts, i.e. topicalized declaratives, declaratives with sentence adverbs, etc. Such an approach explains the extreme sensitivity to input the children in Westergaard’s corpus seem to have.

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<sup>32</sup> Bentzen (2000) investigates verb placement in the production of one Norwegian-English bilingual child but her subject is significantly older (2;7.10-2;10.9) than the period considered here. I am not aware of any other studies of English-Norwegian bilinguals.

Furthermore, if we assume, as is discussed above, that different languages display evidence of different functional categories during the same developmental stage, then we would have to assume that certain parametric options mature and become available for the child at different stages in different languages. Under the micro-cues approach, the acquisition process is seen as an interaction between the UG pool of possible cues and the structures in the E-language, i.e. the input. The input thus expresses the language specific combination of cues. We can then postulate that the acquisition of verb movement is delayed or limited in certain languages because the input does not provide enough salient evidence of the specific cue to trigger the correct I-language setting at the early age.

Another advantage of the micro-cues approach is the avoidance of the problem of parameter mis-setting and re-setting as is discussed in section 2.3.1. In section 4.2.2 I have summarized the findings of Clahsen et al. (1993/1994) regarding the acquisition of verb movement in early child German. They claim that German children at the two-word stage ( $MLU_w \leq 1.75$ ) do not move finite verbs to the head of CP as in adult German, but to a lower functional head, namely F(inite)P. Considering Wexler's (1999) claim regarding very early parameter setting, children at this stage should already have set the relevant parameters to the appropriate values. If the children actually assigned strong V-features to the head of FP at this stage, i.e. set some abstract parameter to some value, they would have to re-analyze and re-set this value at some later stage of the development to reach the target-consistent grammar, i.e. strong V-features in the head of CP. The micro-cues approach in combination with principles of economy, i.e. move as little as possible, avoids this problem allowing for a period of mis-analysis, due to the lack of sufficient amount of salient input, without a firm parameter setting.

## **4.5 Summary**

In the previous sections I compared the findings of researchers studying several different child languages. One language, child English, does not provide compelling evidence of the presence of the functional layers during the early multi-word stage (1;6-2;0). Other languages, child French and German, provide strong evidence of the presence of one functional layer above the VP but no (child French) or only ambiguous tendencies regarding the presence of the second functional layer above the VP (child German). The third group of languages, child Swedish and child Norwegian, seem to show compelling evidence of the

presence of two functional layers above the VP from the first emergence of the relevant structures.

Based on the cross-linguistic evidence and considering possible combinations of the above discussed languages in a case of bilingual first language acquisition, I suggested that the approaches assuming the presence of all functional categories and early parameter setting can provide better theoretical base for general claims about the linguistic abilities of very young children, than the approaches assuming a gradual maturation of functional categories. Furthermore, I argued for Westergaard's micro-cues approach, which describes the acquisition process as an interaction of UG and input, providing thus a possible explanation for the fact that different child languages show evidence of the presence of functional layers at different stages of development.

## 5 Conclusion

In this thesis I discussed the acquisition of verb movement in first language acquisition during the early multi-word stage (1;6-2;0), focusing mainly on two languages, English and Norwegian. After discussing the evidence from spontaneous speech production in these languages, it is clear that the answer to the question whether children during the early multi-word stage have functional layers in their grammar differs in different languages. Child English data do not show strong evidence of any functional projections above the VP at this stage, while child Norwegian data show evidence of V-to-I-to-C movement from the onset of first multi-word structures.

In the second chapter of this thesis, I introduced the theoretical background of my approach including brief discussion of the constructivist and generativist views, the theory of *Universal Grammar* and the *Principles and Parameters Theory*. I also discussed some of the issues of parameter setting and potential re-setting and a recent proposal by Westergaard (2009) to refine the concept of a parameter into smaller micro-cues. Finally, I discussed the basics of the *Minimalist program* which is used to analyze syntactic structure throughout this thesis.

In the first part of the third chapter, I discussed data from child English based on Radford (1990) and Déprez & Pierce (1993). Radford claims that child English before the age of 2 completely lacks all functional categories and consequently also proper verb movement. Déprez & Pierce, on the other hand, claim that the absence of verb movement in itself is not a sufficient evidence of the absence of functional layers since English does not allow V-to-I movement and child English optionally allows VP-internal subjects. Déprez & Pierce thus argue for the presence of the IP layer in child English during the early multi-word stage.

In the second part of the third chapter, I discussed data from Westergaard's (2005) study of child Norwegian. She shows that Norwegian children acquiring the Tromsø dialect start producing target-consistent word orders as soon as the relevant structures emerge. The children also seem to be sensitive to the finiteness marking on verbs despite the impoverished nature of verbal morphology in this dialect. Furthermore, children are able to perform at adult rates also in the relatively infrequent V3 structures showing that they are extremely sensitive to input.

In the fourth chapter, I compared the findings from English and Norwegian with other languages, namely French, German and Swedish. Based on the cross-linguistic evidence it seems premature to make any general claims regarding the presence or absence of the



functional layers, and consequently verb movement, in early child language. It seems that the age of first emergence of proper verb movement differs significantly from language to language. Furthermore, some languages, e.g. child Norwegian, show evidence of two functional layers and thus V-to-I-to-C movement of the finite verb, while other languages, e.g. child German, only show evidence of one functional layer and thus V-to-I(F) movement. These findings are consistent with Westergaard's (2005, 2009) approach assuming interaction of UG and input and allowing for different outcome in different languages based on the specific combination of cues in the relevant structures in the input.

Bearing in mind that verb movement appears during different stages in different languages, it is interesting to consider bilingual first language acquisition, especially in cases where one of the languages shows early and the other late emergence of functional categories in monolingual settings. Would very young bilinguals take advantage of the cues of their more salient language and outperform their monolingual peers in early verb movement or would they choose the path of least resistance and assume the internal structure requiring less movement in both their languages? In order to answer this question, it is necessary to analyze a corpus of spontaneous production of very young bilingual children with a combination of languages which in monolingual settings show different ages of emergence of verb movement.

In order to be able to compare relevant data from various languages, it is necessary to take advantage of the technological advances in child language research. Some of the analyses of child data discussed in this thesis can be considered outdated in the sense that they do not provide the total numbers and do not use statistical tools to support their claims (e.g. Radford, 1990). In this sense, Clahsen, Penke & Parodi's (1993/1994), Westergaard's (2005), and Platzack's (1996) analyses provide relatively more convincing evidence of the linguistic abilities of very young children.

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