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NON-PRIMARY LANGUAGE ACQUISITION OF WORD ORDER IN GERMAN

by

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A dissertation submitted to the Graduate Faculty in Linguistics in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

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Abstract

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Advisors: Professors Herbert Seliger (chair), Gita Martohardjono, William Stewart

Second language acquisition research recently has focussed on the development of functional categories which provide among other things the locus of inflectional morphology and verb movement landing sites. Functional categories are parameterized, requiring triggers to determine the language-specific values of the parameters. With respect to the acquisition of word order in German a number of triggers have been proposed for primary language acquisition (Lightfoot 1991, Weissenborn 1990).

A study was designed to test whether these triggers also hold for the non-primary language acquisition of German by adult learners. The triggers tested were phrasal verbs, negation, topicalization, finiteness, modals and the complementizer *daß* ('that'). Subjects participating in the study were university-level students studying German as a non-primary language in Germany. A total of 24 different languages were represented among the subjects. The study produced two results: The hypothesis that the acquisition of one structure posited as a trigger entailed the acquisition of other structures associated with it was not supported. The second result showed that non-primary language learners of German have more difficulties with structures involving lexical and morphosyntactic information, such as phrasal verbs or finiteness, than with verb raising phenomena, such as word order in negation.

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September 1998

Table of Contents

Tables

In Chapters

Illustrations

In Chapters

Appendix

Tables

Illustrations

Introduction

For some time now language acquisition researchers working within the framework of generative grammar have focussed on the question of how similar or how different primary and non-primary language acquisition are. The main focus of the investigation is couched within the principles and parameters approach to language learning. According to this hypothesis, Universal Grammar (UG) is the theory of the initial state of the genetically determined human language faculty (Chomsky 1995). This initial state is thought to be the same for all human beings. In the process of acquiring a language, the language faculty moves from the initial state via interaction with input data from the environment to a "relatively stable steady state" (Chomsky 1995:14), which is often referred to as the grammar of a language. The steady state is the same for all speakers of a particular language system who learned it as their primary language, and it changes little subsequently.

UG itself consists of a number of subsystems and principles such as the Projection Principle, X-bar Theory and Case Theory. Some of the principles are associated with parameters whose usually binary value settings are fixed by experience, that is, language input. According to Chomsky (1986), language acquisition is a problem of "fixing parameters in a largely determined system." (Chomsky 1986:151).

The idea that the setting of parameters is essential to language acquisition has been the basis of much research in second language acquisition, and two main positions have emerged: (a) Primary language (L1) acquisition is similar to non-primary language (L2) acquisition in that both are guided by UG. Under this view, L2 learners have access to UG either directly in the same way L1 learners have; or UG is available via L1

parameter settings, and eventual resetting to L2 values is possible[1] (Epstein, Flynn and Martohardjono 1996; Felix 1988; Flynn 1987, 1989; Schwartz and Sprouse 1996; White 1989). This position is sometimes referred to as 'Continuity Hypothesis'. (b) The other position ('Fundamental Difference Hypothesis') holds that primary and non-primary language acquisition are cognitively different processes. While primary language learners have access to UG, non-primary language learners' access is severely restricted or non-existent. L2 learners may be able to transfer L1 parameter settings to their L2 interlanguage but resetting would only be possible if the "L2 value is explicitly obvious from the L2 input without the aid of UG." (White 1989:81). Under this approach to L2 acquisition, non-primary language learners use cognitive or general problem solving procedures in their acquisition of a non-primary language (Bley-Vroman 1989; Clahsen and Muysken 1986; Schachter 1990). While both positions have been refined over the years no consensus has been found. Lately, research has focussed on the role functional categories play in first and second language acquisition, since it is the functional categories that are parameterized (Chomsky 1992).

Current theory (for example, Chomsky 1986, 1995) makes a distinction between lexical and non-lexical (= functional) categories. Lexical categories include noun, verb, adjective and preposition; functional categories include COMP, INFL[2] (or TENSE and AGR(eement)), DET(erminer) and NEG(ation). Functional categories encode the grammatical features Agreement, Tense, Case, but they do not assign thematic roles. UG provides zero-level lexical and functional categories (for example, V°, N°, C°, etc.)

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[1] See Chapter 3 for a more detailed description of the specific proposals.

[2] Pollock (1989) proposed the Split-INFL hypothesis: Instead of one constituent INFL with the features [±TENSE], [±AGR], each of these features is the syntactic head of a maximal projection TP (TensePhrase) and AgrP (AgreementPhrase), replacing IP.

and their projections (for example, VP, NP, CP, etc.) constrained within the framework of X'-theory. Phrase structure is built through the interaction of UG-provided lexical and functional categories, X'-principles and language-specific input. The elements which instantiate the categories are part of the language-specific input and have to be learned.

Since functional categories host morphological and phonological features (for example, the above mentioned tense and agreement features), they force movement of lexical elements and provide a landing site for these moved elements. For example, in languages like English or German verbs are marked for tense and agreement (for example, (he) goes = 3.sg. present tense indicative). In order to receive the appropriate inflectional features, the verb moves from its base-position V to INFL (or TENSE and AGR). In other words, the verb is adjoined to the inflectional elements 3rd person, singular, present tense, which are part of INFL[3].

This movement is part of a universal principle, 'move-α'. The principle allows movement of maximal projections (like NP or VP) or zero-level categories (like N or V). The principle applies to all human languages. Movement can occur from an A-position to a position that is not θ-marked, that is, to an empty A-position or an A'-position. Language-specific instantiations of the 'move-α' principle are regulated by parameters,

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[3] Under the Minimalist framework, the functional categories contain features but no lexical material like inflectional affixes, that is, they contain abstract features like tense (for example, present tense) and agreement (for example, 3.sg.). The categories TENSE and AGR "serve only to carry the morphological (inflectional) features necessary to check off the features on Ns and Vs." (Marantz 1995). All lexical elements like verbs, nouns, or adjectives receive their inflection in the lexicon. For example, inflectional affixes are part of the lexicon and are attached to verbs in the lexicon (Marantz 1995). That is, the '-(e)s' for 3.sg. in English would be attached to 'go' in the lexicon and enter the computational component of the grammar as one element, 'goes'. Verb raising to TENSE and AGR is then motivated by the checking feature, that is, the verb has to have its tense and agreement features checked. This is a theoretical point which does not have an impact on the structures under investigation in this study, since the verb still has to move. The verb-movement operation per se has not been changed. What has changed is the motivation for this movement.

for example, UG provides a verb-movement parameter. The language-specific instantiation of the verb-movement parameter regulates how far the verb moves at S-structure since verbs in all languages move to COMP at LF (Koopman 1994). For example, in root clauses in French the verb raises to INFL, in English only auxiliaries raise, and in German the verb raises through INFL to COMP[4]. This particular movement, that is, movement from INFL to COMP is regulated by the verb-second (V2) parameter[5], a binary parameter (Platzack and Holmberg 1989). In a language like German it forces verb movement in root clauses from the base position through INFL to second position in a root clause, that is, to COMP.

Language-specific input is necessary for building the grammar of a language, and parameter settings are an essential part of any grammar. The language-specific input provides triggers[6] for the setting of individual parameters. When children learn a language, they are exposed to primary input data which contain those triggers. Non-primary language learning adults are exposed to input data as well, although not always in the same way as primary language learning children (for example, foreign language learners whose only exposure to a non-primary language is often in the classroom). An interesting question then is whether—in acquiring the same language—adult L2 learners use the same triggers as child L1 learners. One way to test this is to take the triggers suggested for the setting of a specific parameter in primary language acquisition and to

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[4] But cf. Haider (1993) for a different analysis of German phrase structure.

[5] 'V2' means that in root clauses the finite verb (or the auxiliary or the modal) has to be the second constituent of the clause regardless of which constituent is preceding it. See Chapter 1 (German syntax) for a more detailed explanation of this phenomenon.

[6] For a definition of the term 'trigger' see below.

examine if adult L2 learners use those same triggers in acquiring that specific parameter setting.

Triggers by themselves may be language-specific but they interact with UG to build the phrase structure (that is, the parameter settings) necessary for processing and producing a language. While adult learners may use the same triggers as children, they may not use them in the same way; triggers may be used in a specific sequence, or they may cluster together.

In order to derive the surface structure of a language, a number of parameters are involved. In the case of German, the following parameters have been suggested (Gibson and Wexler 1994, and references cited therein; Fodor 1995)[7]:

(1) the complement-head parameter which regulates the relation of a verb to its complement (heads like nouns, verbs, or prepositions may either precede or follow their complement).

(2) the spec-head parameter which regulates the relation of a specifier to its head (spec-first / spec-final).

(3) the V2 parameter which regulates verb movement. In German root clauses, it forces the finite verb to move to COMP. Following Platzack and Holmberg (1989), the V2 parameter is characterized by the operator [+F] which is located in COMP in German (in INFL in English, for example). Unless COMP is lexicalized by an element like a complementizer, the verb has to move into this position.

[7] But cf. Travis (1991) and Müller (1996) for a different account of which parameters are needed to account for German word order.

These three parameters have to be set to their appropriate values in the acquisition of primary as well as non-primary German[8]; the focus of the present study is the V2-parameter. Before looking in more detail at specific triggers proposed to influence German word order and verb movement, it may be useful to examine what counts as a trigger, that is, what can initialize (or change) the setting of a parameter.

In every learning situation, primary as well as secondary language acquisition, language learners are confronted with a large amount of input data, and language learners exposed to input data face the so-called 'selection problem': Given some structural input which parameter is the correct one to set? (Clark 1989). Learners have to analyze input strings and compare them with their already existing grammar. If the parse can proceed, nothing has to be changed. If the input cannot be parsed, then some parameter value will have to be changed. Haider (1993) mentions that three distinct steps are required for fixing a parameterized principle: "A particular property in the input data must be identified, the property recognized in the data must be identified as relevant for setting the parameter of a specific principle, and, eventually, the parameter of the principle must be set to the value corresponding to the input data property." (Haider 1993:5). In other words, there has to be some mechanism or procedure that allows UG to identify a specific structure as a trigger for a parameter setting. A trigger may be any element which causes a reorganization of the grammar (Vainikka and Young-Scholten 1995), in the sense that parameter values are set (or reset). According to van Buren (1996) triggers are "input phenomena" which enable the inclusion of a grammatical rule

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[8] Kayne (1994) has suggested that all natural languages share the same underlying structure, that is, languages like German or Japanese do not exhibit head-final categories but are like English which has only head-initial categories. One parameter which is unaffected by this is the verb-movement or the V2-parameter. Since this controversy is unresolved to date, I will use the 'traditional' approach to German: German is a SOV language with head-final VP and IP, and head-initial CP.

or of some part of a rule into the mental grammar, which in turn can then be generated by that grammar. "The trigger for a parameter value is a structural property that must be unambiguously instantiated in an unmarked context in an input sentence" (Fodor 1995:54). In addition, triggering data are seen as deterministic in the sense that "The richer the deductive structure associated with a particular parameter, the greater the range of potential 'triggering' data which will be available to the child for the 'fixing' of the particular parameter." (Hyams 1987:18). As an example for this, Hyams (1987) proposes the AG/PRO parameter. In a pro-drop language like Italian or Spanish a null subject is licensed if AG[9] is PRO. In a language like English, AG is not PRO since English does not allow for null subjects. To set the AG/PRO parameter for the non-pro-drop English, Hyams (1987) suggests that children use the semantically empty expletives *there* and *it* as triggers. These expletives are not used pragmatically in a sentence, therefore, they have to have a grammatical purpose, viz., to avoid a null subject. Since English cannot have null subjects, AG and PRO are not the same in English.

A trigger can be any kind of sentence (or part of a sentence) which can be used by UG. Since learners do not have memory for past structures, triggers have to be frequent in the input (Fodor 1995). And triggers have to be 'simple' structures due to children's limited processing abilities. In fact, Lightfoot (1989, 1991) argues that degree-0 input structures, that is, unembedded sentences, suffice (see also Clark 1989; Nishigauchi and Roeper 1987).

The same parameter setting may require different triggers for different languages. For example, Lightfoot (1991) mentions that although French and Italian share the same value for the subjacency parameter, it appears that the two languages require different

[9] AG = agreement

triggering structures (also cf. Clark and Roberts 1993). If this is the case, then it may be possible that the same parameter has different triggers within one language. That is, could the subjacency parameter in French be set by some structural input in primary language acquisition and by a different structure in non-primary language acquisition? Hoekstra and Jordens (1994) suggest that there is no a priori reason to assume that the triggers for primary language acquisition have to be the same as those for non-primary language acquisition (cf. Vainikka and Young-Scholten 1994; White 1990, 1992). With respect to non-primary language acquisition, Felix (1996) suggests that some learners may need more or different triggers than other learners. Epstein, Flynn and Martohardjono (1996a:706) posit that the "assignment of a new parameter value can appear to "take time" in the course of acquisition, for example if new parameter setting involves determining the features of certain lexical entries." (see also Juffs 1996). Similarly, Lightfoot (1991:19) mentions that "some parameters may require more triggering experience than others." This is another way of stating that the learners have to find the right triggers in the input which may require some time if those triggers are part of the lexicon and therefore have to be learned.

Parameter settings are triggered, not learned. Triggering presupposes that UG provides specific options to the language learner who then chooses the correct option based on information supplied by input data (Schachter 1996). Learning, on the other hand, could be defined as "a mental process (or set of processes) involving the encoding of information not previously represented." (Schachter 1996:71).

Clark and Roberts (1993) claim that "parameter settings that are expressed robustly will tend to be set quickly and efficiently by the learner. Parameters that are not expressed robustly, however, will tend not to affect the fitness of a hypothesis in the same way." (Clark and Roberts 1993:318-319). By 'robustly' Clark and Roberts mean that

there exist more than one structure which would increase the amount triggers occur in the input. It may be possible that some parameters are more 'important' or more basic than others in the sense that they are being set earlier, or that other parameter settings are in some way dependent on them (Mazuka 1996). Lightfoot (1991) mentions that robustness is probably connected with "saliency and frequency". Triggers for these 'robustly expressed parameter settings' may be more frequent in the input; that is, there could be clustering effects where more than one trigger is responsible for the setting of a parameter (White 1990, 1992, 1996; Schwartz and Sprouse 1996). The idea is that if a cluster of properties is involved in the setting of a parameter for a primary language, then it is assumed that learners do not have to learn all those properties individually but that "evidence from one cluster should be sufficient to trigger all consequences of the parameter setting" (White 1990:341). With respect to the Verb-Movement Parameter in French, for example, any of the three structures proposed to cluster—questions, negatives, or adverb placement—would be sufficient as evidence that the verb has to move in French (White 1990).

But why should a language select different triggers for the same grammatical structure? Fodor (1995:59) proposes that

> On the designated trigger theory, the grammar for a particular natural language is the sum of: all principles of UG; a language-specific lexicon (constrained by UG); a peripheral grammar (possibly not constrained by UG); and a set of UG-defined parameter values represented by their triggers. A sentence can be parsed just in case its derivational structure can be built up from a combination of these pieces (lexical items with their projections, strange pieces of structure licensed by the peripheral grammar, and any subset of the trigger structures provided by UG) together with their combined entailments under UG principles.

Triggers have to be recognized by UG. Once the triggers have been identified, they are used to set the appropriate parameter accordingly.

As mentioned, all learners, primary as well as non-primary, are faced with a large amount of input, and there has to be some mechanism to deal with this. One possibility mentioned above is that there may be a hierarchy among parameters, and basic parameters like the head-parameter or the verb-movement parameter are set earlier than, for example, the parameter related to subjacency. Or parameters are equipped with default settings which limit the parameter space. Another possibility is, that in order to keep learnability manageable for the child, parameter settings in general may be subject to maturation: "A maturational theory prevents the learner from becoming incapacitated by the sheer enormity of the possible hypotheses that could account for the input data." (Clark 1989:59; see also Weinberg 1987; Wexler 1990). Rather than having all parameters available at any given time, UG would make available to the learner only one parameter at a time, thereby constraining the number of possible hypotheses. Clark (1989) mentions that this could account for the stages children pass through when acquiring their primary language.

Borer and Wexler (1987) point out that in language acquisition there appears to be a developmental ordering of constructions even though input data do not exhibit such ordering sequences. Since input is unordered, the best explanation appears to be maturation in the sense that "certain linguistic abilities simply grow over time" (Borer and Wexler 1987:129).

There are several hypotheses with respect to triggers in primary language learning, but there is no theory of triggers in non-primary language acquisition and it is not clear how adult L2 learners recognize triggers (Carroll 1996). Although adults are cognitively less restricted than children, they are subject to learnability constraints as

well, and parameter space has to be restricted in some way in order to be manageable. If maturation limits the parameter space for the child, what makes it possible for adults—for whom maturation is not an option—to acquire parameter settings in their interlanguage[10]? There are three possibilities: (1) If L2 learners' access to UG is through their L1, (a) the L1 parameter settings will restrict parameter space, in the sense that only those parameters instantiated by L1 are accessible for the L2 learner. This means that any parameter instantiated in L2 but not in L1 will not be acquired by the L2 learner (Schachter 1988); (b) L2 learners transfer their L1 settings and eventually reset and acquire parameters instantiated in L2 (Schwartz and Sprouse 1994, 1996; duPlessis, Travis and White 1987) (2) If UG access is independent of L1, (a) UG provides initial default settings, or UG provides a parametrical hierarchy, independent of the language being learned. In either case, parameter space is limited and learners should be able to acquire all L2 parameter settings. (b) L2 learners start with a 'clean slate', that is, parameters have no default settings. While the aforementioned options restrict parameter space and make learnability manageable, option (2b) may be problematic. But there has to be some mechanism which regulates the hypotheses made by the language learners. One explanation could be that what worked once may work again, that is, simple conditioning. Learners have experienced the acquisition process once before and they are able to undertake it again (see also Carroll 1996). The other possibility would be that UG inherently makes available one parameter at a time, regardless when (at what age) a language is learned.

Another possibility mentioned above is that binary-value parameters have initial default settings, thereby reducing possible parameter space, and so making the available

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[10] But cf. Vainikka and Young-Scholten (1996) for a developmental approach to non-primary language acquisition.

space easier to handle. Gibson and Wexler (1994) mention that triggering data in the input can only be analyzed if at least one parameter is set in its correct position. On the other hand, Lightfoot (1991) argues that for primary language acquisition parameter settings are irrelevant initially since children have only one-word utterances. Roeper (1992) agrees and suggests that children start out with a grammar which does not contain language-specific information or structure; the only structure available initially is CP dominates AgrP which dominates TP, etc. "[T]he child begins with Universal Grammar which, once again, can be taken to be a parametric map with a set of decision points which in turn are linked to unambiguous triggers." (Roeper 1992:336). According to Roeper (1992) the Head Parameter appears to be set once children start producing two-word utterances. For the present discussion it is not crucial whether parameters have default settings or not. Initial (default) settings of parameters need to be addressed if parameter settings should turn out to be impossible to change[11].

To summarize, triggers have to appear in an unmarked context, they have to be frequent (and perhaps salient) and they have to be 'simple' structures, such as unembedded sentences. In addition, one parameter may require more than one trigger in a language, that is, triggers may cluster. A given parameter could have different triggers in different languages, and depending on whether a language is acquired as a primary or a non-primary language.

The focus of the present study is whether the verb-movement parameter for German utilizes the same triggers[12] in primary and in non-primary language acquisition.

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[11] For a discussion about the ban on parameter settings see Penner (1992).

[12] It should be noted that these triggers have been proposed, but they have not been tested for primary language acquisition.

The following structures have been suggested as triggers for German word order, specifically for the position of the verb:

(1) negators (Lightfoot 1991, Weissenborn 1990)

(2) expressions with modals (Lightfoot 1991)

(3) expressions with phrasal verbs (Lightfoot 1991)

(4) development of the finiteness distinction (Weissenborn 1990)

(5) subject-verb agreement (Clahsen and Penke 1992)

(6) topicalization (Weissenborn 1990, 1994)

This work addresses the non-primary language acquisition of word order in German. Word order is a fundamental aspect of language and occupies a central role in primary and non-primary acquisition research. Different languages exhibit different word orders underlyingly and on the surface. For example, in root clauses in English the verb always follows its subject. In German, on the other hand, the finite verb surfaces in V2 position in main clauses, while it is clause-final in subordinate clauses. Underlyingly English has an SVO structure while German is said to be SOV. Because of this dichotomy in sentence structure—V2 in root clauses, V-final in dependent clauses—German is an interesting case for language acquisition research.

There have been a number of studies on various aspects of German word order with respect to second language acquisition (for a discussion see Chapter 3). For L1 acquisition Weissenborn (1990) has suggested that children learning L1 German follow a specific acquisition sequence: first they acquire the finiteness distinction in connection with the "use of positional properties of negation" (Weissenborn 1990:214), then

topicalization. Lightfoot (1991) suggested phrasal verbs, negation, and modals to allow the learner to converge on the correct word order.

This study examines whether the triggers proposed above for primary language acquisition of German are the same as those for adult non-primary language acquisition and whether L2 learners follow a particular sequence of acquisition or whether there is evidence for certain triggers to cluster.

In order to focus on the triggers for German word order mentioned above, a number of assumptions have to be made: We do not know how language learners —primary and non-primary—recognize triggers. And we do not know what constrains the parameter space or how it is constrained. If L2 acquisition is cognitively the same as L1 acquisition, then UG is available in L2 acquisition, and it will be assumed that UG provides knowledge that enables the learner to recognize some input data as triggers and apply them to the relevant parameter. This does not entail that the triggers for L2 have to be the same as those for L1. If UG is available through L1 parameter settings, then the mechanism to pair input with parameters may still be available as well. If UG is no longer available to L2 learners, then presumably neither are the parameters, and the triggers for setting parameters become irrelevant.

Much of the recent research in L2 acquisition of German has focussed on reexamining the production data which had been collected originally in connection with the ZISA-Project (see Chapter 3). The present study examines the acquisition of adults enrolled in German language classes in Germany. While the above mentioned hypotheses could not be confirmed, the study gives support to the fact that non-primary language learners acquire the syntactic patterns of an L2 prior to its morphosyntactic information.

After a brief discussion of German word order in Chapter 1, Chapter 2 will focus on current language acquisition theories and on triggers proposed for primary language acquisition of German. Chapter 3 discusses non-primary German language acquisition. Study design and methodology are presented in Chapter 4. Chapter 5 contains the results, and Chapter 6 the discussion and conclusion.

CHAPTER 1

Word Order in German

Within the framework of GB theory, German is seen as a language with relatively free word order and a rich case marking system. The underlying word order is SOV[1], that is, the verb is base-generated in clause-final position. The basic word order patterns are illustrated below:

(1) main clauses

verb in second position (V2):

Der	Junge	kauft	ein	Buch
the	boy	buys	a	book
nom.sg.masc.	nom.sg.masc.	3.sg.pres.	acc.sg.neut.	acc.sg.neut

'the boy buys a book'

(2) subordinate clauses

verb in final position:

..., daß	der	Junge	ein	Buch	kauft
that	the	boy	a	book	buys
	nom.sg.masc.	nom.sg.masc.	acc.sg.neut.	acc.sg.neut.	3.sg.pres.

'... that the boy buys a book'

The surface structure of German main clauses shows the verb in second position. Underlyingly, however, German is an SOV language which means that the verb

[1] For an analysis of German as a SOV language see Koster (1975).

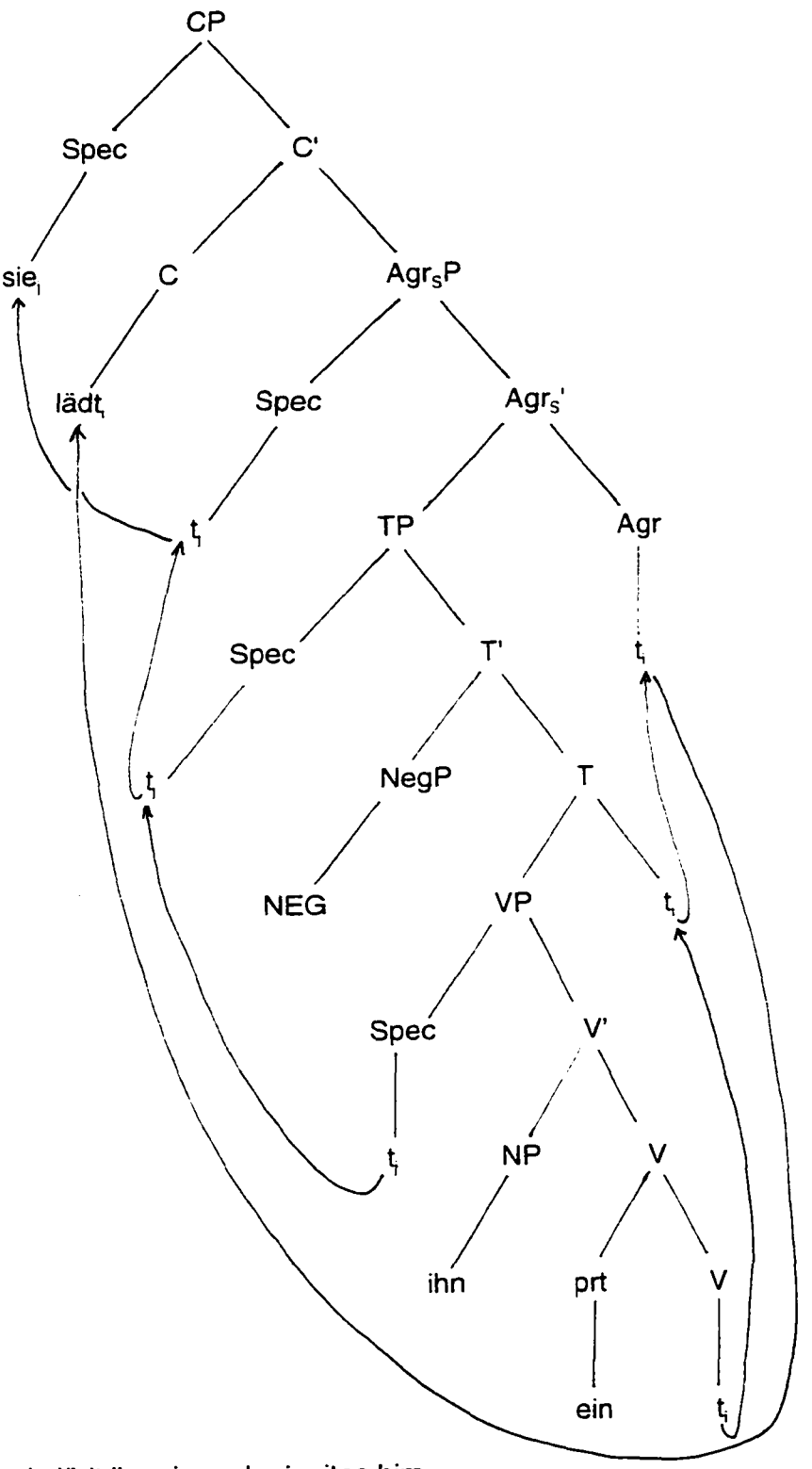
is base-generated in clause-final position. English, on the other hand, is SVO underlyingly and in the surface structure of its main clauses.

This difference in word order between German and English is based on the difference in head-directionality: in English verbs govern to the right, while verbs in German govern to the left. The order of verbs and complements is assumed to be determined by the directionality of case assignment and theta-roles (Haegeman 1991). The parameter governing this aspect of word order is the complement-head parameter (see also Introduction). The complement-head parameter determines whether the VP, for example, is head-initial or head-final. In German the VP is taken to be head-final, that is, a complement like an object NP, precedes the verb underlyingly (see (3) below).

There are syntactic reasons to assume that if the VP is head-final, then the AgrP and TP are head-final as well, that is, TENSE is to the right of TP, and AGR is to the right of AgrP (Haegeman 1991, Fanselow 1988 for non-split IP + INFL). For the verb to receive inflection, it moves to TENSE and AGR, leaving a trace[2].

[2] The notation of phrase markers has undergone some changes (along with changes in syntactic theory). Since this dissertation refers to papers and structures published prior to this change, the changes will be noted here briefly: S'= CP; S = IP = AgrP and TP; I(nfl) = Agr(eement) and T(ense).

(3) Structure of a German main clause



sie lädt ihn ein she invites him

Based on the assumption that all sentences in German are CP-structures[3], in order to achieve the verb-second (V2) pattern, the finite verb moves from its base-generated position in V to TENSE and AGR and then to COMP. Subsequently, another constituent of the sentence (in the above example the subject *sie* 'she') moves into SpecCP. This movement is also referred to as 'topicalization': Any constituent like a subject, object, an adverb or an embedded clause in a maximal projection (NP, PP, AdvP, etc.) may appear in clause-initial position, that is, in SpecCP.

As mentioned above, German has a relatively free word order with fewer constraints than, for example, English. In main clauses, elements belonging to AgrP and TP, that is, all those elements following the finite verb, are in relatively free order. Similarly, for embedded clauses, elements following a complementizer in embedded clauses are in relatively free order with the restriction that in embedded clauses the finite verb is in clause-final position[4]. Any NP to the right of a verb is filtered out by the case filter, that is, it cannot receive case since case assignment is to the left.

(4) *..., daß der Mann kauft ein Buch

..., that the man buys a book

[3] But cf. Haider (1993) for a different proposal.

[4] There are instances (for example, subjunctive II) where the finite verb is followed by infinitive forms in a verbal cluster. This does not have any impact on the current discussion. For a discussion on verbal clusters see, for example, den Besten and Edmondson (1983), Haider (1993); Kroch and Santorini (1991); von Stechow and Sternefeld (1988).

Prepositional phrases and embedded clauses, since they are not marked for case by the verb, are free in their ordering, that is, they may follow the finite verb (Fanselow 1988).

(5) ..., daß der Mann ein Buch kauft über Malerei
..., that the man a book buys about painting

In embedded sentences in German, the complementizer *daß* ('that') cannot be deleted, unlike in English, indicating that the complementizer position in German has to be filled. This is supported by the fact that in some German dialects the complementizer shows inflection suggesting that COMP contains some nominal features (Bayer 1984).

In embedded clauses, COMP is filled by a complementizer; in matrix clauses this position is empty initially until it is filled by the finite verb. This suggests that complementizers and finite verbs are in complementary distribution in German. Von Stechow and Sternefeld (1988), following Bayer (1984), suggest that since Bavarian dialects allow for AGR-marking of complementizers (see (6) and (7) below) the finite marker [+T, AGR] may allow for the identification of complementizers and finite verbs.

The examples below are acceptable in Bavarian, a dialect spoken in the south-eastern region of Germany (although they are not considered Standard German).

(6) wenn-st kumm-st (Bayer 1984:249)
when-(2.sg.) come-(2.sg.)

(7) daß-ma (mir) noch Minga fahr-n (Bayer 1984:251)
that-(1 pl) (we) to Munich drive (1/3 pl)

In the above cases the complementizer has incorporated a personal agreement marker (2.sg. and 1.pl. respectively); pro-drop is optional in this dialect. Data from this dialect suggest that COMP in German incorporates some form of agreement marking.

As mentioned earlier, the finite verb moves from its underlying clause-final position to COMP in main clauses. Platzack and Holmberg (1989) proposed the V2-parameter to govern this verb movement. They suggest that in V2-languages, the V2-parameter causes the [+F(inite)] operator to be located in COMP. This means that COMP has to be lexicalized. In embedded clauses, a complementizer—which cannot be deleted in German—occupies the COMP position. Complementizers in German appear only in finite clauses (Felix 1990). In main clauses the finite verb has to occupy COMP. On the other hand, in English [+F] is located in INFL, which makes it unnecessary for the verb to move up to COMP at S-structure.

Finite verbs are marked for tense, person, number and mood by a suffix, or sometimes through a stem vowel change, or sometimes through both.

(8) The agreement paradigm for German is as follows:

person	sg.	pl.
1.	-e or ∅	-(e)n
2.	-st	-t
3.	-t	-(e)n

For example, the verb *bringen* ('to bring') takes the following forms:

(9) 3.sg. pres. tense indicative bringt ('brings')

(10) 3.sg. preterite indicative brachte ('brought')

The finite verb has to meet two basic requirements[5]:

(a) In main clauses the finite verb follows a clause-initial constituent which does not have to be the subject (as required in English, for example). This is referred to as V2 effect in German (and other Germanic languages).

(b) In embedded clauses the finite verb normally occupies the clause-final position[6].

V2 refers to the fact that in a finite sentence without a complementizer the verb is in second position following an NP, PP, adverbial, or an embedded clause[7]. The finite verb moves from its base position to a position preceding the subject. Subsequently another arbitrary constituent is moved into a position preceding the finite verb.

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[5] Modals and auxiliaries meet the same requirements as finite verbs.

[6] But cf. fn 4 for exceptions.

[7] In direct questions the finite verb also follows another constituent, in this case a wh-interrogative

wer kauft das Buch? ('who buys the book')

Since the study at hand does not include interrogative structures, this will not be investigated further.

(11) der Mann kauft morgen ein Buch über Malerei
the man buys tomorrow a book about painting

(12) über Malerei kauft der Mann morgen ein Buch
about painting buys the man tomorrow a book

(13) morgen kauft der Mann ein Buch über Malerei
tomorrow buys the man a book about painting

(14) wenn es morgen schön ist, fahren wir nach Rom
if it tomorrow nice is, drive we to Rome

Sentence (11) has an NP (in this case the subject) preceding the verb. In (12) a PP is in first position, in (13) an adverbial occupies first position; and (14) is introduced by an embedded clause. In each of the above sentences the finite verb is in second position. Sentence (14) has an embedded clause introduced by *wenn* ('if'). Within the *wenn*-clause, *wenn* ('if') is in COMP, that is, the verb can no longer move into this position and therefore occupies clause-final position.

Further evidence for SOV word order in German comes from the fact that a number of verbs are composed of two elements: a verb stem and a particle. In main clauses the verb stem moves like any other 'simple' verb into V2 position, but the particle remains in clause-final position. "We assume that the item *uitlachen*[8] is a separate entry in the lexicon and that it is inserted at D-structure as one morphologically complex word"

[8] *uitlachen* is Dutch for 'to laugh at' (my translation)

(Haegeman 1991:533). The use of separable verbs in German is illustrated in the following examples. The verb *einladen* ('to invite') is separated in main clauses in the present tense (sentence 15) and the preterite (sentence 16), but not in embedded clauses (sentence 17):

(15) sie *lädt* ihn *ein*
she *invites* him

(16) sie *lud* ihn *ein*
she *invited* him

(17) ..., daß sie ihn *einlädt*
..., that she him *invites*

Also, the participial marker *ge* or the infinitival marker *zu* may intervene between the particle and the verb stem:

(18) sie hat ihn *eingeladen*
she has him *invited*

(19) sie dachte daran ihn *einzuladen*
she thought about (it) him *to invite*

Even if verbs like *einladen* ('to invite') constitute one lexical/semantic unit, they consist of two elements: in this case, the particle *ein* and the verb *laden* (see also von Stechow and Sternefeld 1988).

In example (3) the verb stem moves to TENSE and AGR to get checked for tense, person and number markings (in this case, 3.sg. present tense indicative), then moves to COMP; subsequently the subject *sie* moves into SpecCP, occupying the first position in the clause. The particle is left behind (but *cf.* Kayne 1985; Riemsdijk and Williams 1986).

CHAPTER 2

Primary Language Acquisition Review

The hypotheses under investigation in this study (see Chapter 4) assume that learners of both primary and non-primary language have access to UG. Since both hypotheses are based on triggers proposed for L1 acquisition of German word order, two main proposals for how primary language learners acquire their final-state grammar with respect to word order will be discussed. One proposal, the Structure Building Hypothesis, states that learners start with an incomplete phrase structure which develops gradually. The other proposal, the Full Competence Hypothesis, posits that learners start out with a complete set of lexical and functional categories. These two hypothesis are discussed in the first part of this chapter. The second part will focus on the triggers suggested for primary language acquisition of German word order.

2.1 Language Acquisition Hypotheses

In UG-based language acquisition research, both primary and non-primary, two main hypotheses are under investigation at this time: The Structure Building Hypothesis and the Full Competence Hypothesis. Both hypotheses claim that learners have access to UG although in different forms.

The Structure Building Hypothesis (or Minimal Tree Hypothesis, Weak Continuity Hypothesis, Small Clause Hypothesis)[1] states that language learners initially start out with lexical categories and their projections only, for example, [$_{VP}$ N...V]. The mature phrase structure with its functional categories and projections develops gradually as a result of interaction of X'-principles and input (and maturation)[2]. Under this hypothesis phrase structure positions emerge gradually; principles of X'-theory constrain the learner's grammar from the start, that is, the learner's grammar is always within the range of possible languages and therefore always part of UG (for example, Guilfoyle and Noonan 1992; Radford 1992,1994; Meisel and Müller 1992; Clahsen and Penke 1992, Clahsen, Eisenbeiss and Vainikka 1994; Vainikka and Young-Scholten 1994, 1995).

Most of the research with respect to the Structure Building Hypothesis has centered around children's primary language acquisition. The hypothesis is based on the fact that early child utterances lack complementizers and agreement markings on the verb. For example, Radford (1992) mentions that an adult's sentence with a CP-structure will be imitated by a child as a VP, lacking agreement morphology:

(1) the dog will bite (adult utterance)

(2) doggy bite (child utterance) (Roeper 1992:27)

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[1] While those hypotheses may differ slightly from each other, they are distinctly different from the Full Competence Hypothesis. The Structure Building Hypothesis and the others mentioned here share the idea that the language learner starts out with an incomplete representation of the final-state grammar.

[2] The Weak Continuity Hypothesis "attempts not to use maturation as an explanation for developmental stages." (Vainikka and Young-Scholten 1994:267). Minimal trees are built based on input and principles supplied by UG. This allows for a unified application of this hypothesis to both L1 and L2 acquisition, since psychological maturation plays a role in primary language acquisition development but not in adult language acquisition.

Similarly, in German, children produce utterances that lack agreement:

(3) das Mädchen schläft (adult)
the girl sleeps

mädi lafen (child, from Mills 1985:158)
'the girl sleeps'

(4) Meike guckt aus dem Fenster (adult)
Meike looks out the window

meike fenster gucken (child, from Mills 1985:159)
'Meike is looking out the window'

Radford (1992:25) mentions that early "child sentence structures are projections of the four primary lexical heads (noun, verb, adjective, and prepositions) and lack functional heads and their projections altogether." Researchers supporting this theory posit that at some point in the language development the child will be mature enough to attend to functional categories in the input at which point functional categories will emerge as part of the child's output. Learners have to find the triggers in the input which allow the emergence and instantiation of functional categories (Hoekstra and Jordens 1994).

The Structure Building Hypothesis claims that children's phrase structure initially lacks at least a CP. Radford (1992) suggests that children start with a VP only and that AGR, TENSE, and COMP emerge at roughly the same time. Poeppel and Wexler (1993)

mention that at least an IP (AgrP and TP) has to be available since otherwise verb movement is precluded. Movement has to be motivated and if functional projections are missing, there is neither reason for movement nor a landing site for the verb to move to. The data in Meisel and Müller (1992) and Clahsen and Penke (1992) provide evidence for at least one functional projection above VP. It cannot be ruled out that a VP stage exists but there are no empirical data for it in the above mentioned two studies.

The fact that children initially do not use complementizers is often used as support for the Structure Building Hypothesis. On the other hand, since children do not produce subordinate clauses at a certain stage of language development, there is no need for complementizers (Poeppel and Wexler 1993). Meisel and Müller (1992) argue that this lack of complementizers is not due to a performance deficit but that it is a syntactic phenomenon, that is, the absence of COMP and CP. Some of the sentences children produced in Meisel and Müller's longitudinal study of bilingual French and German children show logical subordination. According to Meisel and Müller this indicates that children have a basic understanding of the principle of subordination but lack lexically expressed complementizers at this stage in their linguistic development. Children are capable of producing utterances with coordinating conjunctions, that is, they can process complex phrases and they can produce conjoined clauses, ruling out performance limitations. An additional supporting fact for the absence of CP mentioned is that "children use adverbs and prepositions which serve to express semantic relations similar to those expressed by complementizers" (Meisel and Müller 1992:120).

The Structure Building Hypothesis allows for the claim that the developing grammar of a L1 learner may be different from the grammar of the adult speaker of that same language. Aside from the above mentioned fact of the still emerging phrase structure in L1, Meisel and Müller (1992:109) point out, "since parameters relate primarily

to the non-substantive elements of the lexicon..., one should expect to find specific characteristics of child language, resulting from differences in the systems of functional categories...in early as compared to mature grammars." They claim that, for example, in German L1, AGR is always head-final (non-finite verb forms never appear in V2 position but finite verb forms sometimes appear clause-finally), but TENSE is initially head-initial, and is then reset[3]. In the adult German grammar both AGR and TENSE are head-final (see Chapter 1). On the assumption that there is no (left-headed) CP in early child German language, TP (or AgrP) has to be left-headed in order to provide a landing site for verbs. Meisel and Müller (1992) mention that there appear to be V2 phenomena in early L1 German where a constituent other than the subject appears in clause-initial position. This clause-initial constituent is followed by the finite verb which precedes the subject.

(5) hier is des (Meisel and Müller 1992:117)
here is it

(6) ein grüner is das (Meisel and Müller 1992:118)
a green (one) is this

If, as in Meisel and Müller's proposal, the child has an intermittent grammar with a left-headed TP and then acquires a left-headed CP, there should be some evidence for an overgeneralization of V2 word order in embedded clauses, unless the child simultaneously with the emergence of a CP also resets the head parameter of the TP

[3] In Meisel and Müller (1993) AgrP is dominated by a head-initial TP.

from head-initial to head-final. In addition, Hyams (1994:29) points out that in German "if V2 effects in child language are the result of movement to INFL (or TENSE), then we should find verb raising in both embedded and main clauses" which is not confirmed by empirical data.

There appears to be a learnability problem if children have only one functional projection above VP. Poeppel and Wexler (1993) point out that based on positive input alone, the children have no means of learning that the subject does not remain in SpecVP, as required in adult German. Also, an explanation is needed for how CP is acquired and how the right-headedness of the functional category above VP is learned.

According to the Structure Building Hypothesis, UG posits a minimum number of constraints, namely the principles and parameters isolated in X'-theory. UG provides lexical categories and emerging/maturing functional categories but it does not make any claims as to their arrangement. This arrangement will be acquired through the interaction of X'-theory and input, the same way as it is acquired in the Strong Continuity Hypothesis. The child has to build a structural representation on which to process future input, in addition to instantiating the functional categories.

In contrast to the Structure Building Hypothesis, the Full Competence Hypothesis (or Strong Continuity Hypothesis) claims that all lexical and functional categories and their projections are present and accessible initially as part of UG (for example, Hyams 1994; Roeper 1992; Weissenborn 1990, 1994). In addition, UG principles and parameters constrain learners' hypotheses. According to this theory, some positions may contain null-elements initially which are replaced via input. The work of the learning device is to pair lexical input with its appropriate category in order to implement that category, to set parameters, and the learning of language-specific morphemes.

No maturational component regarding functional categories is involved and the absence of closed class items in early child language is not seen as corresponding to the absence of functional categories (or structure).

For example, the development of the C-projection is not seen as being dependent on lexical complementizers. Weissenborn (1990:203) writes, "the head of a CP, or to put it in a neutral way, of the pre-IP position in German, can be lexically realized by a finite verb in matrix clauses, or by either a complementizer or a wh-phrase in embedded clauses" (cf. Hoekstra and Jordens 1994). A C-projection has to be in place before lexical complementizers emerge: As mentioned earlier, unless verb movement to COMP is in place by the time complementizers appear, an overgeneralization of the matrix V2 word order should be expected which is not borne out by primary language acquisition data (Weissenborn 1990; Poeppel and Wexler 1993).

Hyams (1994:39) mentions that "the evidence that V moves to COMP in German and Dutch is provided by the fact that the verb *cannot* raise in the presence of a complementizer... In other words, the child would require negative evidence, namely, information that certain strings or structures are *not* possible in the language." Learnability theory states that negative evidence would mean that a child knows that a particular structure is absent from the input (Poeppel and Wexler 1993; Hoekstra and Jordens 1994).

The initial state of the L1 learners' grammar may not be the same as the adult grammar, that is, children may not start with a tree structure with specific branches but a full set of lexical and functional categories are available. The initial L1 grammar may be a reflection of universal dominance relations where "CP dominates IP which dominates VP which dominates NP (optional)." (Roeper 1992:337). Once children start producing utterances, the head parameter appears to be set (Roeper 1992). Since children make

virtually no word order errors, they appear to know "the basic configuration of their language" (Mazuka 1996:319) by the time they start producing two-word utterances.

On the question of what underlying structure is available to children learning German as their L1, Roeper (1992:355) points out that "There is no evidence for the child or from the child that the initial rightward movement has occurred until the child hears and produces subordinate clauses." Since German has a head-final VP and IP, the verb has to move rightward to incorporate tense and agreement inflection, or to have those features checked as posited by the Minimalist framework. Once children produce subordinate clauses, they contain virtually no word order errors, unlike subordinate clauses in the non-primary language acquisition of German (see, for example, Eubank 1992). If German, like English, had a medial IP, German children would produce sentences like

(7) can I can come (Roeper 1992:355)

where the modal is copied. This has not been seen in empirical data with German children. On the other hand, German children produce copying structures of the type

(8) jetzt sagt der das sagt (Meisel and Müller 1992:126)
now says he that says

This suggests that German children have a verb-final structure. In addition, German children produce sentences like

(9) ich habe ich Hunger (Roeper 1992:356)
I have I hunger

which have not been reported for English children. "This kind of copying is precisely what one predicts for German if there is movement of the subject from the SpecIP or SpecVP to SpecCP. ...These facts argue against the presence of a node to the left of VP which carries a verb but which is not the CP itself." (Roeper 1992:356). Roeper (1992) points out that the above mentioned examples are strong evidence for the presence of CP and verb movement in German L1.

The above discussed two proposals for L1 acquisition are mainly concerned with the building of phrase structure. As mentioned earlier, evidence for the Structure Building Hypothesis is drawn mostly from primary language acquisition, but some researchers claim that it applies to non-primary adult language learning as well. This will be discussed in the next chapter. In the remainder of this chapter some triggers which have been proposed to be responsible for German word order will be discussed.

2.2 Triggers in the Primary Language Acquisition of German Word Order

Researchers investigating the acquisition of German as a primary language, specifically the acquisition of word order, have isolated a number of triggers which appear to influence the child's grammar, in particular verb position and verb movement. The following six proposed triggers for primary language acquisition will be examined:

- negation
- modals
- phrasal verbs
- finiteness
- subject-verb agreement
- topicalization

2.2.1 Negation

Negation as an indicator for verb placement and verb movement in main clauses has been proposed by Lightfoot (1991), Weissenborn (1990), and Verrips and Weissenborn (1992).

Weissenborn (1990) argues that initially verb movement appears to be based on the finite/non-finite distinction, and the distinction between finite and non-finite forms is dependent on the child's "use of positional properties of negation." (Weissenborn 1990:214). Verbal specifiers like negatives are good indicators for verb position since they precede the verb at D-structure in an SOV language like German (see Chapter 1). And since verbal specifiers do not move together with the verb, they show whether or not a verb has moved from its base-generated position (Lightfoot 1991). This means, if the verb precedes verbal specifiers then it has moved.

(10) macht nicht aua (Clahsen 1991:378)
makes not ouch

On the other hand, if negation is preverbal, then the verb is in its base-generated position:

(11) nich aua mache (Clahsen 1991:378)
not ouch make

Clahsen (1991) mentions that postverbal negation generally occurs with verbs with affix *-t*[4] (and with modals). Since verbs marked that way are in finite form, and if negation is postverbally, then this indicates that the verb has undergone movement. This does not determine, however, how far the verb has moved, that is, to INFL or to COMP. If the verb were raised to head-final INFL but not to COMP, then negation is preverbal and the finite verb would be in clause-final position. But if the verb raises to COMP, then negation is postverbal (Deprez and Pierce 1994). Proponents of the Full Competence Hypothesis claim that the "postverbal positioning of these elements [negation and other adverbial elements-MW] is indeed a reliable indicator for a verb's position in C." (Verrips and Weissenborn 1992:287; Hyams 1994).

2.2.2 Modals

Lightfoot (1991) mentions that expressions with modals are another indicator for the D-structure position of verbs, and therefore an indicator for verb movement. Unlike in English where modals are considered to be auxiliaries (and base-generated in INFL or TENSE), modals are seen as full verbs in German (and Dutch). This means that they are, like regular verbs, base-generated in V and move into V2 position in root clauses.

(12) Ivar darf nich tee (Meisel and Müller 1992:116)
Ivar may not [drink] tea

[4] *-t* is the marker for 3. sg.

(13) mone mag des (Weissenborn 1990:200)

Mone likes this

Modals in finite form are placed in V2 position exclusively in L1 acquisition (Poeppel and Wexler 1993; Clahsen and Penke 1992). This is likely to be due to the fact that modals do not follow the regular verb inflection paradigm (see Chapter 1). Like the irregular forms for *haben* ('to have') and *sein* ('to be'), the modal forms have to be learned, that is, they are supplied by the lexicon.

2.2.3 Phrasal Verbs

Phrasal verbs as indicators for verb position in German have been suggested by Lightfoot (1991), and have also been mentioned by Poeppel and Wexler (1993). As mentioned earlier, phrasal verbs consist of a verb stem, which moves like any other verb in German, and a particle which remains in its base-generated position.

(14) mach se auf (Verrips and Weissenborn 1992:293)

make them open

If UG informs learners that a verb is base-generated in clause-final position, then a verbal stem in any other position (with the particle remaining in base position) indicates verb movement. It has been noted in the literature that children initially seem to treat phrasal verbs somewhat differently from 'simple' verbs. But phrasal verbs do not appear to cause L1 learners any particular problems (for examples see Clahsen 1988, Mills 1985, Verrips and Weissenborn 1992). While it is intuitively appropriate that they should

appear later than simple verbs due to their morphologically and semantically more complex nature, it is not clear why they should appear initially almost exclusively in non-finite form in clause-final position. For example, Poeppel and Wexler (1993) found that about 90% of regular verbs occur in finite form, but only about 19% of phrasal verbs do. On the other hand, Verrips and Weissenborn (1992) and Weissenborn (1994) mention phrasal verbs like *aufstehn*[5] ('to get up'), *ausziehn* ('to undress'), and *draufsetzen* ('to put on top') appearing before the age of 2;00, indicating that their acquisition in general is not delayed substantially compared to the acquisition of simple verb forms.[6]

Clahsen (1988) found that at his Stage II composite verbal forms (consisting of a particle and a verb stem) appear, and they are rather consistently placed in clause-final position—unlike simple verb forms which are used variably in second or final position[7]. In Clahsen's Stage III children regularly place complex verb forms correctly, that is, the finite verb stem is placed in V2 position, while the particle remains clause-finally.

2.2.4 Finiteness

Empirical data have shown that children are able very early on to make a distinction between finite and non-finite verb forms. Following Platzack and Holmberg

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[5] Those verbal infinitive forms are not the standard written forms but are commonly used in colloquial speech.

[6] Statements referring to the age of a child in language acquisition may need to be qualified. Meisel and Müller (1992) mention that while acquisition of grammatical categories like agreement and the finiteness distinction varies by age (from about 1;11 to 2;11), the MLU is fairly consistent ranging from approx. 1.75 to 2.0. It is possible that the child in Weissenborn (1994) and Verrips and Weissenborn (1992) was a young, but in terms of MLUs advanced child (see also deVilliers 1992).

[7] Mills (1985) mentions one example where a composite verb (phrasal verb) is placed in V2 position by a child aged 2;1.

(1989), the V2 parameter regulates the placement of finite verb forms. In final-state German [+F] is located in COMP. Since verb movement to COMP presupposes verb movement to INFL, and since verb movement is limited to finite verb forms, any raised verb (incl. a verb with the affix *-(e)n*) is a finite verb, that is, children do not raise infinitival verb forms (Deprez and Pierce 1994).

Verb movement then is initially mainly dependent on the finite/non-finite distinction for verbs. At a time when children have a generalized verb movement established they may still lack some of the agreement paradigm, suggesting that verb movement and subject-verb agreement are independent features which may co-occur but are not dependent on each other (Weissenborn 1990). Sentence (15) below shows a child's utterance with the verb in non-finite form in base position; while (16) is an example of a sentence with a raised, finite verb.

(15) ich schaufel haben (Clahsen 1991:375)
I shovel have

(16) ein loch macht die mone (Weissenborn 1990:197)
a hole makes DET mone

It may not be possible "to pull apart the effects of finiteness and agreement with respect to verb movement in German, but what we can say is that agreement is not needed to account for the syntactic facts we observe" (Verrips and Weissenborn 1992:321). Danish, Swedish and Norwegian make a distinction between finite and non-finite verb forms and show V2 effects, but they have no subject-verb agreement

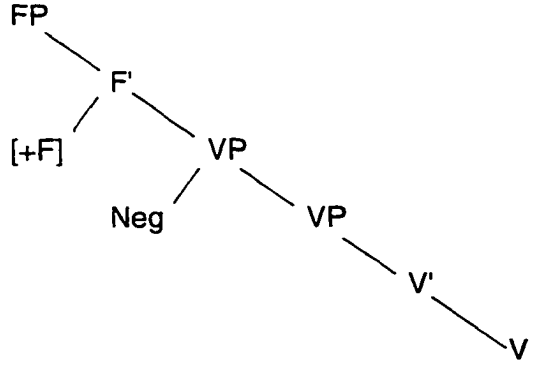
(Platzack and Holmberg 1989). Roeper (1992:350) points out that "Parsimony dictates that if distributional evidence is sufficient in one language, then it is sufficient in all languages. In this logic, agreement morphology is irrelevant to movement."

Meisel and Müller (1992) suggest that for German children the finiteness parameter is set to an English-type setting initially, that is, the [+F] operator is located in TENSE (or INFL). The implementation of CP is triggered by lexical complementizers. The resetting of the parameter from TENSE to COMP "depends on the categorial status of COMP in the child's grammar." (Meisel and Müller 1992:134); that is, children have to recognize that COMP is a functional not a lexical category. Two of the children in Meisel and Müller's study have subordinating conjunctions and wh-words appear simultaneously and they make no error in subordinate clauses. One child appears to analyze conjunctions as lexical elements and as adjunction rather than substitution.

2.2.5 Subject-Verb Agreement

Subject-verb agreement as a trigger for a parameter setting has been proposed most prominently by Clahsen (for example, Clahsen 1990, Clahsen and Penke 1992). Clahsen's hypothesis is based on the Structure Building Hypothesis.

(17)



Clahsen proposes that initially the child has a phrase structure as shown above, which is quite different from the German adult grammar (see Chapter 1). Finite verbs are lexically marked and generated in the position with the operator [+F] which is underspecified with respect to its syntactic category (therefore F' and FP). Elements base-generated in F include modals, forms of *sein* (which—like in English—are irregular), and verbs with the affix *-t* (3.sg.)[8]. Other verbal elements are generated in clause-final position. Once *-st* is acquired as a regular agreement marker (for 2.sg.), AGR and its projection are introduced above VP, and verbs are no longer lexically marked as finite. If finite verbs with the affix *-t* are initially lexically marked and base-generated in F rather than in V, how does the child know or learn that once the full agreement paradigm is acquired, all verbs including modals are base-generated in V? More specifically, how does the child 'unlearn' the lexical finiteness marking for verbs with *-t*?

Clahsen proposes that the acquisition of the subject-verb agreement paradigm together with the acquisition of complementizers triggers a reanalysis of FP as CP and the setting of the V2 parameter.

Children early on (in Clahsen's Stage II) use bare stem and infinitive forms (*ø* and *-(e)n* respectively) for verbs, but since they are used incorrectly with about half the utterances, they are not seen as agreement markers at this stage. On the other hand, *-t* is used correctly in about 4 of 5 utterances. Clahsen found, however, that *-t* is used mostly with intransitive verbs, and concludes that at this stage in child language

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[8] Weissenborn (1990) points to two problems with this analysis: Since [+F] is an operator, it has to bind a variable, that is, a variable has to move to the operator position. From this it follows that an operator [+F] and a variable (for example, a modal) cannot be generated in the same position. The second problem is that if modals are seen as INFL/FP-elements, they cannot select for NP which would need case and theta-role assignment under government. Empirical evidence suggests otherwise.

development subject-verb agreement is not present. In his Stage IV, subject-verb agreement is basically adult-like, and this coincides with the acquisition of the second person agreement marker *-st*. Children are found to make virtually no errors with this marker. Clahsen correlates the acquisition of this marker with the acquisition of the grammatical feature PERSON, that is, *-st* instantiates the functional category AGR. Referring to Platzack and Holmberg (1989), PERSON agreement is viewed as trigger for setting the AGR parameter to its head-final position. Clahsen found that in Stage II and III children make a distinction between finite and non-finite verb forms with respect to verb placement (although clause-final patterns are dominant early on): finite forms (modals, forms of *sein* 'to be' and verbs marked with *-t*) are correctly placed in V2 position while non-finite verbs (bare stems and infinitives) are placed in clause final position.

Clahsen's account has raised a number of criticisms. The claim that only action verbs appear in both V2 and verb-final position is disputed by Poeppel and Wexler (1993). They state that in the corpus they examined verbs are placed correctly in their finite and non-finite form, indicating that the child knows "morphosyntactic processes associated with head movement." (Poeppel and Wexler 1993:13). Similarly, Verrips and Weissenborn (1992) mention that they found no evidence for either syntactic or semantic constraints on verbs which can appear in V2 position. If *-t* were an intransitivity marker, there should be overgeneralization of it on other intransitive verbs regardless of person or number, but this is not confirmed by data (Weissenborn 1990; Pfaff 1992).

Poeppel and Wexler (1993) show that the child in their study uses the correct agreement forms for 1. + 3. sg; 2. sg. forms are rarely used, and plural subjects are used with singular agreement markers on the verb but with correct person agreement (that is, 1., 2. or 3. singular instead of plural). They conclude that while the agreement paradigm is not fully available, it cannot be argued that it is randomly distributed or totally deficient

(see also Weissenborn 1990). Affixes are said to trigger the implementation or presence of a functional category but head-movement, for example, verb movement, is triggered by distributional evidence (Roeper 1992; Zobl and Liceras 1994).

Perhaps the major drawback of Clahsen's theory, which he himself acknowledges, is that the lexical triggering relationship between V2 movement and subject-verb agreement appears to be a language-specific phenomenon rather than a universal one. It only holds for languages with morphological agreement markings like German since other V2 languages like the Scandinavian languages have movement but lack overt agreement markings.

2.2.6 Topicalization

Topicalization as a possible trigger for V2 movement has been suggested by Weissenborn (1990) and Poeppel and Wexler (1993). Topicalization in German refers to the fact that any constituent may occupy the preverbal position of a finite matrix sentence.

Weissenborn (1990:210) states that "From a parameter setting point of view, the [-wh/non-subject] elements in the specifier position of the finite verbal head supposedly constitute the unambiguous trigger for the generalized V-to-C movement option of a full V-2 language." Weissenborn (1990) believes that the delay in recognizing [-wh/non-subject] constituents is due to the fact that the child's case system is not in place yet. Once the child has acquired the necessary morphological case distinctions, identification of preverbal elements and V-to-C movement should be established.

(18) bild male ich (Weissenborn 1990:203)
picture draw I

Poeppel and Wexler (1993), supporting the Full Competence Hypothesis for primary language acquisition, suggest that based on their evaluation of utterances of a monolingual child (age 2;1) the V2 phenomenon in German depends on the fronting of the finite verb and the fronting of a maximal projection (topicalization).

Children relatively early utter sentences with objects in fronted position, followed by a finite verb, which suggests that COMP is in place (Wexler 1994). There is some evidence that children have an optional infinitive stage (Wexler 1994), characterized by the fact that children produce sentences with finite verbs alongside sentences with non-finite verbs in V2-position (197 vs. 6 tokens). Either a CP projection is in place at this point or, a less desirable possibility, objects adjoin to IP (Hoekstra and Jordens 1994). In that case INFL would have to be left-headed to show V2 effects, and INFL would have to be reset to a head-final structure later.

In this chapter a number of triggers for verb movement in L1 German have been discussed. Children appear to distinguish early between finite and non-finite verb forms and they raise finite verbs from their base-generated position in VP even if they have not yet acquired the full agreement paradigm. Movement of the verb to INFL (that is, AGR and TENSE) is established early on, while movement to COMP appears somewhat delayed (or possibly optional for some time). According to Clahsen and Penke (1992), subject-verb agreement triggers V2 and CP. According to Meisel and Müller (1992) it is the emergence of complementizers that triggers verb movement to COMP. Topicalization appears to play a major role in establishing this movement operation. The acquisition of Negation is important since negation particles do not move together with the verb. This is

also true for the particle of phrasal verbs; it remains in its base-generated position while the verb stem raises like any other verb. Modals are regarded as full verbs in German, but they can also appear in finite form in V2 position together with an infinitival verb in clause-final position.

One of the problems in L1 acquisition, which makes definite answers so difficult, is that the empirical basis for research of this kind is rather limited, especially with regard to the earliest utterances (Meisel 1992); and some development may even happen during silent phases as suggested by Roeper (1992).

CHAPTER 3

Non-Primary Language Acquisition of Word Order in German

The previous chapter examined language acquisition hypotheses and triggers which have been suggested for primary language acquisition of German word order. In this chapter, the focus is on studies which have explored adult non-primary language acquisition of German word order.

3.1 The ZISA Project

Many of the studies on adult German word order acquisition have used data originally collected by researchers in the ZISA project[1]; the results of the study have been published in 1983 by Clahsen, Meisel and Pienemann. From 1977 through 1980 the researchers in this project interviewed 45 adult subjects as part of a cross-sectional study. They did not have a fixed grammatical framework beyond working within generative grammar and positing an underlying SOV order for German. Their goal was to uncover developmental sequences "... which, in the above defined outline, will make statements about the variable and about the invariable parts of structure with regard to

[1] ZISA = Zweitspracherwerb italienischer (portugiesischer) und spanischer Arbeiter (second language acquisition of Italian (Portuguese) and Spanish workers).

the acquisition of German syntax by adults." [2] (Clahsen et al. 1983:39). They chose a psycholinguistic explanation for the developmental character of the subjects' language, dividing acquisition into two areas: developmental and learner-specific (*Entwicklungs-dimension* and *lernertypische Dimension*). The developmental dimension incorporates invariant linguistic phenomena, for example, which structures appear at approximately the same time for all learners. The learner-specific dimension recognizes the fact that learners may exhibit varying structures at each level of acquisition, that is, individual learners may show differences but still belong to a certain level of proficiency.

Clahsen et al. (1983) state that structures which require relatively little processing capacity are probably learned earlier than more complex structures. They claim that L2 learners use part of their mental capacity to plan sentence structures; even if implicit knowledge of the L2 grammar is available, learners' knowledge is not automatic. L2 learners use structures which place the least amount of strain on processing capacity since short term memory is already being used for the planning of sentence structures.

Based on the empirical data collected, the ZISA project group decided that L2 learners of German start out with underlying SVO structure since in the early phases of acquisition subjects used SVO or SV+adverbials exclusively. They based their claim on the fact that, contrary to German L1, where children initially often exhibit clause-final position for verbs, this was missing for the L2 learners in the early stages, that is, there was no evidence that adult learners had an underlying SOV structure. They write that at the L2 production level, learners appear to transfer their L1 performance strategies. They claim that this explains why their subjects do not pose any incorrect hypotheses: only

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[2] "..., die im oben definierten Sinn Aussagen über die variablen und über die invarianten Strukturteile machen, bezogen auf den Erwerb der deutschen Syntax durch Erwachsene." (All translations from the original German into English are my own.)

already existing structures are being activated. Following Levelt (1977) they state that the process of language acquisition is an automatization of individual L2 structures. As more and more L2 structures become automatic, processing capacity becomes available to extend the grammar.

In their study, Clahsen et al. (1983) found that some learners use a movement rule which topicalizes an adverbial but they do not use any subordinate clauses while other learners use subordinate clauses without showing knowledge of the above mentioned movement rule. The researchers concluded from this that in naturalistic L2 acquisition of German there is no special stage for the acquisition of subordinate clauses. Those learners who have clause-final verb position in subordinate clauses also follow all the other word order rules. In contrast, in the primary language acquisition of German subordinate clauses only appear once canonical sentence structure is firmly in place. Clahsen et al. (1983:151) point out "... that there is *no* implicational relationship between word order rules and the appearance of dependent clauses."[3]

Clahsen et al. (1983:156) found the following implicational scale for the naturalistic acquisition of L2 German:

V-ENDE ⊃ ADV-VP ⊃ INVERSION ⊃ PARTIKEL ⊃ ADV-VOR[4]

Preceding this scale is a one-constituent phase and a multiple-constituents phase (*Einkonstituentenphase, Mehrkonstituentenphase*), as illustrated below in sentence (1)

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[3] "...daß es *keine* Implikationsbeziehung zwischen den Wortstellungsregeln und dem Auftreten von Nebensätzen gibt."

[4] For a detailed description of these labels see page 52 and 53.

and (2). They posit that the acquisition of syntax appears to be completed by the time a learner has been in the country for 18 to 24 months, and Clahsen et al. (1983) have few examples for those initial two phases since most of their subjects had been in the country for more than two years.

(1) schöne Haus (Clahsen et al. 1983:99)
[we have a] nice house

(2) ich kontakt mit pastor italiener (Clahsen et al. 1983:101)
I [have] contact with pastor Italian

The subjects are said to start out with SVO word order. In the early stages of acquisition learners transfer their Romance L1 D-structure. But there seems to be no interference of other elements from the L1. Clahsen et al. state that if interference on the D-structure level took place, the subjects should acquire PARTIKEL and V-ENDE relatively late while INVERSION should be acquired much earlier. But this is not the case; INVERSION is acquired later than PARTIKEL.

ADV-VOR is the rule acquired prior to any other rules. The reason for this is that in spoken German (which is what most of the subjects in the study are presumably mainly exposed to) topicalization of adverbials (and objects) is relatively frequent, even though it is a marked structure. This means that there is a sufficient amount of input and therefore this rule is acquired first. Learners also have relatively little trouble with the acquisition of separable prefix verbs which is explained by the strong relationship verbs

and objects have. In addition, following Slobin's 'operating principle C'[5] the end of a sentence is closely attended to "when the noticed input is being examined with respect to meaning."[6] (Clahsen et al. 1983:162). The reason why INVERSION is acquired relatively late is seen in the fact that the relationship between verb and object is being interrupted.

Clahsen et al. (1983) do not make any claims as to whether or not non-primary language learners have access to UG. While their research is grounded within the framework of Chomsky's Universal Grammar, their focus is on the developmental sequence of L2 German and how individual learners fit into those developmental levels. The researchers found that their subjects followed the same developmental sequence as did non-primary language learning children in a longitudinal study by Pienemann (1981).

A study of a similar group of naturalistic learners (conducted by the European Science Foundation), found that L2 learners undergo a slow process from nominal utterance structures without verbs (that is, single unconnected words) to structures with non-finite verb forms to structures with finite verbs. All structures can coexist at times and backsliding is common[7]. The researchers in the ESF study claim that only L2 development beyond the basic utterance structure, that is, prior to the acquisition of the finiteness distinction for verbs, is influenced by the L1 (Klein and Perdue 1992). In other words, learners initially have a "basic learner variety" and only later does the L1 appear to

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[5] See, for example, Slobin, D.I. 1973. Cognitive prerequisites for the development of grammar. Studies in Language Development, ed. by C.A. Ferguson and D. Slobin. New York: Holt, Rinehart and Winston. 175-208.

[6] "wenn der wahrgenommene Input auf Anzeichen für die Bedeutung überprüft wird."

[7] It should be mentioned here that while MLU (mean length of utterance) in L1 is seen as a rather reliable indicator of development, it is not a good measure in L2 acquisition, since L2 learners early produce longer utterances which appear to be unanalyzed, rote-learned structures (Larsen-Freeman 1978).

influence language development. Similarly, Corder (1992) mentions that early L2 is characterized by a lack of morphological markings, and a relatively fixed word order. He points out that "the starting point of the developmental continuum of second language acquisition is a basic, simple, possible universal grammar, either learned or more probably created and remembered from the learners own linguistic development." (Corder 1992:25).

Clahsen and Muysken (1986), examining the empirical data gathered within the ZISA project and some additional data, decided that adult learners no longer have access to UG or the Language Acquisition Device which allows children to learn their primary language completely. Clahsen and Muysken's (1986) survey has prompted many researchers to examine the issue, and it will therefore be discussed in some detail below

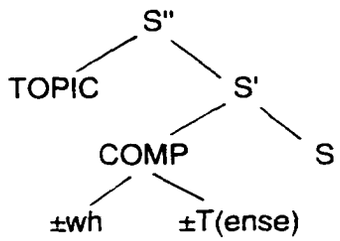
3.2 Clahsen and Muysken (1986)

Clahsen and Muysken (1986; hereafter: C&M) claim that language acquisition is different for primary and non-primary learners of German. The difference is "due to the fact that language acquisition by adults involves general learning strategies, while principles specified by the LAD operate in L1 acquisition in addition to general learning principles." (C&M 1986:94). C&M argue that the rules governing the position of the verb are part of UG in primary but not in non-primary language acquisition.

C&M base their explanation of non-access to UG on the following theoretical framework: Underlyingly German is SOV, the basic position for the verb is clause-final and any cases where the finite verb appears in non-final position is derived via movement.

They adopt the following tree-structure as their basis (C&M 1986:96):

(3)



(in current notation: S"= CP; S' = C'; S = Agr_SP)

C&M examine several studies (incl. the ZISA data) regarding the word order acquisition of foreign workers living in Germany whose native languages include Italian, Spanish, Portuguese and Turkish. The subjects who participated in those studies where untutored adult learners of German (foreign immigrant workers). C&M suggest that non-primary language learners—regardless of their primary language—start out with an SVO phrase structure system and use syntactic processes which are different from those used by primary language learning children in order to produce sentences resembling German sentences; that is, adult learners start with the canonical sentence structure while children learning their primary language start with the underlying structure (SOV).

C&M identify six stages for L2 learners[8] (see also the implicational scale for the ZISA-Projekt on page 48):

Stage I: *SVO:*

Fixed linear order of constituents: NP (AUX/MOD) V (NP) (PP)

[8] The names for the individual stages are given by C&M 1986:106/107.

Stage II: *ADV-PREP*:

Adverbs and prepositional phrases may be preposed without affecting the subject-verb order:

SV(O) + optional ADV/PP preposing - XSV(O)

Stage III: *particle*:

Non-finite parts of verbal complexes like separable prefixes, participles in auxilliary-verb constructions or infinitives in modal-verb constructions are moved to clause-final position:

XSV(O) + particle, infinitival or participial complement

Stage IV: *(subject-verb) inversion*:

The subject appears in post-verbal position if an interrogative or a complement is placed in clause-initial position:

XSV(O) + subject-verb inversion

Stage V: *ADV-VP:*

Adverbials, that is adverbs and prepositional phrases, optionally follow the finite verb and precede the object:

XV(O) + adverbial phrase may move to post-verbal position

Stage VI: *V end*:

The finite verb is placed in clause-final position in embedded clauses.

X(O)V, if V is [+tense].

The following examples illustrate the above mentioned six stages (all examples are from Clahsen et al. (1983); the translations are mine, except for (8), in quotation marks):

(4) Stage II: *heute* ich arbeit (p. 135)
today I work

(5) Stage III: die *schmeißt* mi' schon jetz *(r)raus*,... (p. 137)
she kicks me already now out

(6) Stage IV: französisch *kann ich* auch noch heute (p. 141)
French can I also still today

(7) Stage V: da is' *immer* schwierigkeit (p. 152)
there is always problem

(8) Stage VI: un dann is schlecht wann eine mädchen *muß* alleine...
and then is bad if a girl has [to work] alone
"(...wenn ein Mädchen alleine arbeiten muß)." (p. 155)

C&M claim that non-primary language learners create a rather complicated system by basing word order on SVO and then, to account for input data, learners have to come up with rules which contradict the SVO hypothesis. L2 learners, if they use a SVX scheme, have to use more complex rules than those stipulated for primary language acquisition (with underlying SOV order) in order to account for the same sentence structures. C&M argue that since "verb movement is an instantiation of 'move alpha'" (C&M 1986:97), movement is local in the sense that the verb can only move within its own clause. In addition, the verb movement rule is a substitution rule which means that

only elements marked [+TENSE] can move into COMP. In declarative sentences some constituent (for example, the subject, an object, an adverb, a prepositional phrase, etc.) is moved into TOPIC (= SpecCP) and the finite verb—marked [+TENSE]—moves to COMP. In subordinate clauses the COMP-position is filled by the complementizer *daß* ('that') which is also marked [+TENSE] since it introduces a tensed clause, preventing the finite verb to move into that position. Movement rules are subject to the following specifications for transformations (based on Emonds 1976[9]):

(I) They have to be local in the sense that only adjacent elements are to be effected, or

(II) they have to be structure-preserving; movement can only be to an already existing position within a clause, or

(III) they have to be root transformations, that is, they can only operate within the main clause.

C&M state that the rules used by non-primary language learners cannot be defined as rules of grammar since they do not adhere to the above mentioned specifications. C&M discuss three rules in detail: The Particle Rule (Stage III), the Inversion Rule (Stage IV) and the V End Rule (Stage VI). The Particle Rule shifts elements to clause-final position in both main and subordinate clauses. In C&M's terminology, this rule is not local since the verb has to be moved across an infinite number of constituents; it is not structure-preserving since no already existing node is provided as a landing point at the end of the clause; and it is not a root transformation

[9] According to current theory, root vs. structure preserving movement operations are no longer relevant since the verb moves to available INFL and COMP positions as an instance of head-to-head movement (Lightfoot 1991).

since the rule applies to both main and subordinate clauses[10]. The V End Rule is not local and it is not structure-preserving for the same reasons as the Particle Rule; and it is not a root transformation because it only applies in subordinate clauses. The Inversion Rule, formulated as "X Subj V Y → X V + Subj e Y" (C&M 1986:114) is claimed to be difficult to state since the X in clause-initial position is a preposed constituent which actually triggers the rule.

Based on their observations and the specific theoretical framework they chose, C&M conclude that L2 adult learners do not have access to UG, and that UG is not guiding the acquisition of the non-primary language but that adult learners resort to general learning or problem solving strategies in their quest for acquiring a non-primary language.

Bley-Vroman (1990) and Schachter (1988) have adopted a similar position, that is, adult L2 learners have limited or no access to UG. Based on the logical problem of non-primary language acquisition, Bley-Vroman (1990:13) suggests that "the function of the innate domain-specific acquisition system is in adults filled (though indirectly and imperfectly) by this native language knowledge and by a general abstract problem-solving system."

Clahsen and Muysken's (1986) analysis and conclusion that L2 learners approach the task of learning German fundamentally different from L1 learners, and that L2 learners have no longer access to UG has caused a number of people to reexamine the issue. One paper, written in direct response to C&M is duPlessis, Solin, Travis and White (1987). They claim that C&M's data <u>can</u> be explained in terms of UG, and by

[10] In addition, this kind of movement leaves an ungoverned trace which is not allowed under UG.

choosing a somewhat different theoretical framework, duPlessis et al. (1987) refute C&M's conclusion.

Hypothesizing that German word order can be explained by several interacting parameters[11], duPlessis et al. (1987) state that learners may choose wrong parameter settings due to "misleading properties of L2 input" (p. 57) or due to setting transfer from L1. At these intermediate stages, parameter settings—which are neither those of the L1 nor of the L2—are possible natural settings, giving support to the claim that UG is available to these non-primary adult learners.

But duPlessis et al.'s conclusion has also been called into question. As pointed out by Rogers (1995), "duPlessis et al.'s analysis assumes that Romance learners of German set the ±Adjunction to IP parameter on the basis of English, thus casting doubt on their analysis. The same objection can also be raised in connection with duPlessis et al.'s own data which is gathered not only from subjects with English as L1, but also from subjects with (Canadian) French as L1, although in this case we can probably assume that the Canadian subjects are bilingual in French and English." (Rogers 1995:213, fn 5).

By applying a different UG-based theoretical framework to the analysis of identical data, duPlessis et al. (1987) challenge Clahsen and Muysken's (1986) claim of non-UG access for L2 adult learners. At C&M's Stage III, according to duPlessis et al., learners reanalyze their SVO word order into the target language correct SOV, that is, the headedness of the VP is adjusted from head-initial to head-final, although INFL remains head-initial. No mention is made of what triggers might be responsible for this resetting of the headedness parameter. C&M mention that at Stage III "an odd collection of elements that do not form a natural class" (duPlessis et al. 1987:60) namely,

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[11] The parameters chosen are the headedness parameter, the proper government parameter, and the adjunction parameter.

separable prefixes, participles in auxiliary-verb constructions, and infinitives in modal-verb constructions are moved to clause-final position. White (1996) mentions that clusters of properties that appear to be unrelated can be accounted for by parameters, and Schwartz (1996) states that since the headedness of the VP is switched at this stage, one would expect a clustering of the above mentioned three structures.

Schwartz and Tomaselli (1991), adopting duPlessis et al.'s theoretical framework, claim that the headedness of the VP parameter is changed. Similarly, Schwartz (1996) writes that a clustering of constructions with particles, modals and auxiliaries (which takes place at Clahsen & Muysken's Stage III) is "entirely expected since the headedness parameter is claimed to have switched the VP to OV" (Schwartz 1996:226). In fact, Schwartz (1996:216) claims that "when interlanguage behaviour shows evidence of clustering, this would seem to constitute fairly unmistakable evidence for the operation of UG in (adult) L2 acquisition."

What the previous two studies show is that L2 acquisition data can be interpreted differently depending on the specific theoretical framework chosen (Rogers 1995). One aspect mentioned by Rogers (1995) is that perhaps UG as a framework is too powerful to account for non-primary language acquisition. It is possible that in L1 acquisition UG is 'controlled' by psychological maturation, that is, the child's development. But this aspect is lost in L2 acquisition.

3.3 The Full Competence Hypothesis in L2 Acquisition

There are two main proposals about L2 initial states which assume access to UG by non-primary language learners: The Full Access Hypothesis, proposed by Epstein, Flynn and Martohardjono (1996a, b); and the Full Access/Full Transfer Hypothesis, by Schwartz (1994) (see also Schwartz and Sprouse 1994, 1996).

3.3.1 Full Access

This hypothesis assumes that primary and non-primary language acquisition use the same cognitive processes. UG is seen as a "cognitive module that constrains grammar construction during acquisition but itself remains constant during this process." (Epstein et al. 1996a:679). UG supplies the principles and parameters necessary for a grammar, but UG itself does not change, that is, it does not become the grammar of the primary language. If learners, when acquiring a non-primary language, experience problems in the acquisition of syntactic structures, it is explained in terms of performance or production difficulties rather than as a knowledge deficit (Epstein et al. 1996b).

The Full Access Hypothesis predicts that both child and adult L2 learners have access to core aspects of the computational system of UG; more specifically, the complete set of lexical and functional categories is available to non-primary language learners regardless of age and/or language. In addition, the cognitive processes underlying child and adult non-primary language acquisition are hypothesized to be the same. Access to functional categories is directly via UG (Epstein et al. 1996b).

Epstein et al. (1996b) report the results of an empirical study with L1 Japanese and Spanish children and L1 Japanese adults learning L2 English. The study examined learners' knowledge of a range of IP and CP structures, and it showed that there are significant similarities in the way children and adults respond to the sentence structures. In addition, the differences in the responses between children and adults "do not derive from access to core grammar, but from increased difficulties adults have in operationalizing the computational system underlying language production." (Epstein et al. 1996b:2). In other words, at all stages of learners' L2 interlanguage they have available to them all lexical and functional categories UG provides as part of a learner's competence. L2 learners' non-target like sentence structures are due to a "production or

performance deficit, rather than a knowledge deficit or an L2 grammar that is evolving in formally discrete stages." (Epstein et al. 1996b:5). Under the Full Access Hypothesis the L2 initial state is the same as the L1 initial state which in turn is the same as UG.

3.3.2 Full Access/Full Transfer

This hypothesis states that L2 learners transfer the final state of their L1 grammar which then constitutes the initial state of the L2 grammar. "[F]ailure to assign a representation to input data will force some sort of restructuring of the system ('grammar'), this restructuring drawing from options of UG" (Schwartz and Sprouse 1996:41). This is contrary to Clahsen and Muysken (1986), Klein and Purdue (1992), and Corder (1992) who claim that L1 has little influence on language development initially.

The cognitive processes underlying both primary and non-primary language acquisition are thought to be the same, but L2 learners may never fully acquire the grammar of the target language because "either the data needed to force restructuring simply do not exist"[12], or "the positive data needed are highly obscure, being very complex and/or very rare." (Schwartz and Sprouse 1996:42).

3.4 The Structure Building Hypothesis in L2 Acquisition

There are two proposals for the structure building approach to non-primary language acquisition. One is by Eubank (1994, 1996) and will be discussed first, the other is by Vainikka and Young-Scholten (1994, 1995) which will be discussed in some detail since it focusses on triggers in the L2 acquisition of German.

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[12] According to Schwartz (1993) negative input data do not lead to acquisition.

3.4.1 Feature Strength in L2 Acquisition

Eubank (1994, 1996) mentions that there is little evidence of verbal inflection in the early stages of an interlanguage. If a language exhibits a set of inflectional features ([+Agr]), for example, German, it is considered to have [+strong INFL]; if the language is like English it has [-strong INFL]. Eubank posits that the strength of inflection, that is, [±strong INFL], is determined on the basis of morphology. Since morphology does not transfer from L1 to L2, neither does the strength of inflection, that is, since there is no transfer of overt inflectional morphology, there is also no transfer of parametric values of features associated with this morphology (but see Schwartz and Sprouse 1996). In fact, since learners have not acquired the inflectional affixes of the target language and since learners' L1 features do not transfer, there is also no TP or AgrP. Eubank also proposes that negation may initially adjoin to any maximal projection, but is later reanalyzed as NegP and adjoined to VP which is then dominated by NegP.

Eubank (1992) mentions that L2 learners initially do not recognize inflectional affixes on verbs as morphemes and, therefore, cannot use them to determine syntactic properties, especially those aspects relating to aspects of tense and agreement, that is TP and AgrP. According to Eubank, once learners analyze stem and affix, the headedness of TENSE and AGR are established and V2 movement emerges. In contrast to the Developmental Hypothesis proposed by Vainikka and Young-Scholten (1996), Eubank proposes that "lexical and functional projections transfer from the native language, and so do the headedness characteristics of those projections, but lexically driven values under functional heads are not transferred." (Eubank 1996:385).

3.4.2 The Structure Building Hypothesis

Vainikka and Young-Scholten (1994; 1995) adopt a Structure Building Approach for their explanation of L2 acquisition data, that is, L2 learners start out with a 'minimal tree' without functional projections. Vainikka and Young-Scholten follow Clahsen's earlier mentioned proposal for building phrase structure, although, unlike Clahsen, they assume that for L2 learners verbs are stored in their infinitival form in the lexicon (Vainikka and Young-Scholten 1994).

Vainikka and Young-Scholten (1994) investigated German word order acquisition of 11 Turkish and 6 Korean adults, and they claim that (contrary to Clahsen and Muysken 1986) all their subjects have a head-final VP from the start. They propose that only the headedness of the primary language VP is transferred to the L2. The least advanced subjects in their study build German sentences based on a VP structure only with no apparent functional categories, that is, the verb is in clause final position.

In this group three of the five subjects have about 85 percent of utterances with a non-finite verb in clause-final position. From this Vainikka and Young-Scholten conclude that learners transfer their head-final VP setting and that no further functional projection is productively available at this stage. Two of the three subjects though exhibit utterances with correctly used and placed forms of *sein* ('to be'), modals and main verbs (although with incorrect agreement suffixes) which would indicate that at least one pre-VP functional projection is available to these learners, and therefore calling in question these learners' membership in the VP-stage (Epstein et al. 1996a).

The question raised by Vainikka and Young-Scholten that if a pre-VP projection is available why would the verb not raise all the time could be rephrased. Since there is evidence that learners have verb raising structures some of the time why should this not be evidence that a functional projection higher than the VP is available to them. This

does not include any claim about the existence or availability of CP, but it seems there are rather good reasons to claim that at least one pre-VP projection is available to the learners. Vainikka and Young-Scholten (1996:25) mention that "a systematic absence of functional elements associated with specific functional projections" indicates an absence of these projections. But this again raises the problem that if learners do not produce certain structures it does not automatically mean that the structure is not available to them.

For the group of intermediate learners verb raising is optional, that is, verbs without a finite suffix are sometimes raised to a functional head. Vainikka and Young-Scholten claim that a learner who has acquired verb raising also has acquired the rule for no empty subjects in German and for head-final VPs. But verb raising does not necessarily imply acquisition of the full agreement paradigm[13]. Schwartz (1994, 1995) sees this movement operation as evidence for the claim that movement is independent of agreement, that is, the verb can move even though subject-verb agreement is not fully established. Vainikka and Young-Scholten (1994:289) suggest that those learners have "acquired a [head-initial] functional projection without agreement features." which they call 'FP' or 'Finite Phrase' (Clahsen 1990).

(8) $[_{FP}$Spec $[_{F}$F $[_{VP}$Spec $[_{V}$NP V]

An underspecified head-initial functional projection FP is posited which then allows for the acquisition of the agreement paradigm. FP turns into AgrP "once agreement features have been specified" (Vainikka and Young-Scholten 1994:291).

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[13] In a study on verbal markers in L2 German, Blackshire-Belay (1994:175) found that *-(e)n* and *-∅* (bare stem) occur early and frequently and are used as markers for "general unmarked verb forms" (see also Epstein et al. 1996a).

In sentences where the verb precedes the object, this is seen as an indication that the verb has been raised to a functional projection outside the VP and "verb raising may be a trigger for a higher projection, rather than, for example, agreement morphology or the presence of auxiliaries/modals..." (Vainikka and Young-Scholten 1994:283). This position is modified in Vainikka and Young-Scholten (1995). Modals, specifically *will* (1. + 3.sg., 'want/wants'), are suggested as potential triggers for the acquisition of the FP-stage, although they are not seen as robust triggers. The emergence of the AgrP-stage is credited to the acquisition of the copula *sein* ('to be'). But it raises the earlier mentioned question regarding a structure building approach to functional categories. Since verb raising is a instantiation of 'move-α', for the verb to raise, that is, to move from its head-final VP position to a new position outside the VP, it needs a landing site. UG does not allow this kind of movement unless some morphological requirement (like stranded affixes in INFL) is satisfied by it. Movement to an underspecified FP would constitute a violation of UG (Epstein et al. 1996a).

For the most advanced learners Vainikka and Young-Scholten (1994) found that they frequently use an overt subject with raised verbs, and they propose that at this stage at least one functional projection above the VP has to be available. Vainikka and Young-Scholten (1994) suggest this projection to be a head-initial AgrP. Bare VP structures still appear occasionally with these learners. Learners at this stage also produce some *wh*-questions and *yes/no* questions which is viewed as possible evidence for a CP projection. Very few subordinate clauses are produced by the subjects. One subject used subordinate clauses with the complementizer *wenn* ('if') with matrix clause word order. And two other subjects used dependent clauses with *weil* ('because') with matrix clause

order[14]. Vainikka and Young-Scholten (1995) propose complementizers to trigger the emergence of the CP. They claim that it is possible that a CP projection exists but verbs only raise to Agr rather than to COMP. If AgrP is head-initial at this stage, then there is no clear way of telling whether the verb raises to COMP or not in declarative root clauses.

Vainikka and Young-Scholten conclude that non-primary language learning adults transfer the headedness of their primary language VP but not the headedness of any higher projections. In fact, according to the data, native Turkish and Korean speakers have reset the AGR parameter to a value which is found neither in their L1 nor in the L2 they are acquiring. Based on the Structure Building Hypothesis, Vainikka and Young-Scholten claim that, like children acquiring their primary language, L2 learning adults start with a bare VP, then posit an underspecified functional projection and finally specify features for this functional projection.

Vainikka and Young-Scholten write that non-primary adult learners have full access to UG based on the parallel development of phrase structures by L1 and L2 learners; that is, access is not only via parameter settings of their primary language. They also suggest that L1 learners use bound morphemes as triggers for functional categories while L2 learners resort to free morphemes (see also Zobl and Liceras 1994; Eubank 1992).

With respect to triggers in non-primary language acquisition of verb movement then there are various proposals, couched within a UG framework. Clahsen and Muysken (1986) assume that L2 learners regardless of their L1 start out with a SVO

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[14] *weil* ('because') is not a reliable test case for word order in embedded clauses since many native speakers in Germany nowadays use sentences with this complementizer and the matrix clause order (anecdotal evidence).

order. Stage II (ADV-PREP) could constitute an adjunction of an (initially unanalyzed) adverb to IP, if L2 learners follow the same strategy as L1 learners. If Stage III (particle) could be taken as a reordering of the underlying structure (as suggested by Vainikka and Young-Scholten 1995 and Schwartz 1996), then phrasal verbs, modals or the copula *sein* ('to be') would be triggers for this stage. And Stage IV (subject-verb inversion), or more broadly, topicalization would account for verb movement to COMP.

Vainikka and Young-Scholten (1995) propose modals and the copula *sein* as triggers for the instantiation of IP, complementizers trigger the CP projection[15].

3.5 Methodology in Non-Primary Language Acquisition Research

In L2 acquisition research, various research methods are used. Both Clahsen and Musyken's (1986) data and Vainikka and Young-Scholten's (1995) data come from research which used oral production data; duPlessis et al. (1987) used written essays. More controlled, experimental studies often use methods like, for example, elicited imitation, grammaticality judgment, think aloud procedures, paired comparisons, or picture identification tasks. All these tasks have in common that researchers, working within the framework of UG, try to find the best way to tap into learners' competence, into their implicit knowledge of the language. As pointed out by Klein and Martohardjono (1998:15), "Perhaps the biggest problem facing GSLA research is having to evaluate competence through performance. The fact that all performance phenomena, whether instantiated as judgments in metalinguistic tasks, or as elicited or natural speech production, are *necessarily* influenced by extra-grammatical factors...necessitates highly

[15] Not addressed are questions about head parameter settings; for example, what triggers the change of the head-initial AgrP to the (adult-like) head-final setting?

refined methodologies which are capable of eliminating or, at least minimizing, the effects of such extraneous factors."

Different methods appear to tap different kinds of knowledge. Ellis (1991) divided tasks into four basic categories: (a) Learners are asked to distinguish between well-formed and deviant sentences. This task is supposed to be intuitive and to tap implicit grammar. However, given enough time, learners may also tap explicit grammar. An example for this kind of task is a grammaticality judgment task. (b) Learners have to find errors in structures presented to them. In this task some conscious anaysis is required, and therefore explicit knowledge is being accessed. Examples for this would be a paired judgment task or a picture identification task. (c) Learners have to correct errors if necessary. This is similar to (b) in that learners have to access explicit knowledge. In addition, in this and in (d) actual production by the learners is required. An example here would be if learners have to rewrite sentences or correct them orally. (d) Learners have to describe what kind of errors they believe the sentences contain. Like (b) and (c) this task requires learners to consciously analyze sentences; it taps into explicit knowledge and learners have to verbalize their judgments.

No one research method has emerged so far as the one everyone can agree on. Below is a more detailed description of some of the tasks which have been used to elicit second language learners' judgments.

Grammaticality Judgments

A grammaticality judgment task is a "controlled experimental measure" (Cook 1993) which is often used to collect data in an efficient way (Juffs 1996). Sentences, contextualized or decontextualized, investigating some theoretical aspect of the L2

language system, are presented to subjects orally or in written form, and the subjects then have to make a judgment about the well-formedness of these sentences, that is, whether they consider the structures grammatical or not. Masny and d'Anglejan (1985:186) wrote that "the ability to detect syntactic deviance can be considered a reliable correlate of second language competence."

The learner's decision whether a sentence is well-formed or not is assumed to be intuitive (Ellis 1991). However, data from grammaticality judgments may tap other sources than implicit knowledge. Processing factors could conceivably play a role; explicit or analyzed knowledge, that is, learned rules, may be tapped (Bialystok 1986). It is then the role of the researcher to keep variables as constrained as possible in order to rule out as many extragrammatical features as possible.

As mentioned by Gass (1994), a grammaticality judgment—strictly speaking—involves sentences generated by the grammar which is not directly accessible. But subjects are capable of giving judgments about whether they feel a sentence is well-formed or not (Ellis 1991). In this sense then "Grammaticality judgments do not give us direct access to learners' competence; they do, however, provide us with information about what are possible and impossible sentences in the learner-language." (Gass 1994:307).

Grammaticality judgments evaluate knowledge of grammaticality, or more precisely, a learner's knowledge of ungrammaticality, since UG principles "are formulated in terms of negative constraints on the grammar" (Munnich, Flynn and Martohardjono 1994:229), which means that whatever is not prohibited is allowed.

The traditional view of UG is that it is a system of constraints, that is, whatever is not prohibited is allowed (Felix and Zobl 1994), and there has been some discussion in the literature about the phenomenon that subjects in grammaticality judgment tasks

perform better on ungrammatical than on grammatical sentences (Bley-Vroman, Felix and Ioup 1988; Zobl 1992; but cf. Bialystok 1979; Schachter 1988). A grammatical sentence could be rejected based on stylistic or semantic reasons (Felix and Zobl 1994; Schachter and Yip 1990); this does not hold true for ungrammatical sentences: they "cannot be rendered acceptable or good by virtue of not violating any pragmatic or stylistic felicity conditions." (Felix and Zobl 1994:477). This means that in the case of grammaticality judgments we cannot be sure why subjects reject grammatical sentences, and the information we gain from these judgments is perhaps less reliable with respect to claims about access to UG principles. Felix and Zobl (1994:479) suggest that "accurate recognition of ungrammatical sentences is far more likely to draw on competence (knowledge derived from mental computations), while grammatical sentences can also be recognized on the basis of a specious knowledge akin to pattern recognition."

With respect to whether subjects should judge sentences based on a binary or a scalar choice, Birdsong (1989) mentions that—given a scalar choice—native speakers usually cluster close to either end of the scale, while L2 learners, especially those in the early stages of their language development, are reluctant to do so and rather opt for a neutral or close to neutral choice.

Elicited Imitation Task

In this task, subjects are usually presented orally with sentences which they have to repeat. In this task, as in the grammaticality judgment task, syntactic factors are controlled. It is assumed that learners will have difficulty repeating sentences whose structure their grammar is incapable of generating at this particular time in their

interlanguage—or rather their intergrammar—development[16]. Elicited Imitation is a form of production which should reflect the learner's grammar more directly, since it is produced by it (Gass 1994).

The task has come under criticism due to a greater chance of experimenter effect[17]. In addition, Birdsong (1989) posits, this task may cause anxiety which could influence parsing, but this may be the case for the other tasks as well. Bley-Vroman and Chaudron (1994) raise additional caveats. Sentences in elicited imitation tasks should be recorded to ascertain that subjects responses are affected by the same factors. They also mention that more research is necessary with respect to "perception, retention in echoic memory, parsing and analysis, and production" (Bley-Vroman and Chaudron 1994:258).

Munnich, Flynn and Martohardjono (1994) undertook a study in which complex sentences with relative clauses were presented to subjects in an elicited imitation (oral and taped presentation) and a grammaticality judgment (timed read and taped presentation) task. The researchers found "strikingly convergent results" for the two tasks.

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[16] Klein and Martohardjono (1998) point to a difference between interlanguage and intergrammar. Intergrammar "denotes the mental representation of the L2 in the learner's mind." Interlanguage "denotes the utterances resulting from the intergrammar." (Klein and Martohardjono, 1998, fn. 3).

[17] Experimenter effect refers to the possibility that subjects are given examples and their required responses which are similar to the items under investigation (Birdsong 1989).

Paired Sentences Judgments

In this task the subjects are typically presented with two sentences differing in some minimal feature the researcher is interested in testing. For example (from Lakshmanan and Teranishi 1994),

(9) John said that Bill saw himself in the mirror.

1. 'Himself' cannot be John. agree disagree
2. 'Himself' cannot be Bill. agree disagree

Birdsong (1989:116) points out that "the demands of the task are displaced away from the summoning of intuitions toward explicit contrasting of surface strings." raising doubt whether competence is accessed at all.

Other tasks

Picture identification tasks, like the one used by Eckman (1994) are also criticized as to their measuring subjects' grammatical knowledge. In this task subjects are presented with pictures, and they have to choose the one that correctly matches the sentence structure under investigation. For example, Eckman (1994) presented his subjects with a booklet where each page contained a sentence on top of a page followed by two drawings, one of which represented the sentence. Lakshmanan and Teranishi (1994) criticized an earlier picture identification task (used by Finer and Broselow) on the basis that subjects could use nongrammatical strategies, that is, subjects would be able

to select the correct picture "simply by knowing that the sentence names an action of self-painting..." (Lakshmanan and Teranishi 1994:191).

Another task, think-aloud, presents subjects with sentences which they have to judge and elaborate on their judgment, that is, their thinking process is an integral part of this task. This task is supposed to provide researchers with information about the strategies L2 learners use when making judgments about the well-formedness of sentences. But this task, too, has its drawbacks. Subjects may stop thinking aloud at precisely those points where text becomes difficult (Goss, Zhang and Lantolf 1994). One way to overcome this is to have more than one subject, that is, a group of two or three, involved in the think-aloud task (Goss, Zhang and Lantolf 1994). But subjects in these studies are likely to access both implicit as well as explicit knowledge (Tarone 1994).

3.6 Formal instruction vs. Naturalistic learning of a second language

The subjects in the present study are learners who are immersed in a non-primary language, that is, they live in Germany and they also receive formal instruction in German. There have been a number of studies which have investigated learners of this kind, mostly ESL learners living in the United States. Several of these studies have shown that learners who receive instruction eventually achieve a higher level of proficiency than learners who never received any language instruction. Long (1983) reviewed several studies and found that overall there was a beneficial effect of instruction for both children and adults learning a non-primary language, especially with respect to the rate of acquisition and the ultimate attainment. On the other hand, Ritchie

and Bhatia (1996) found that instruction seems to influence the rate of acquisition but has little or no influence on the sequence or result.

Ellis (1990) surveyed a number of studies investigating the effects that instruction or exposure had on the rate and/or success of non-primary language acquisition. The results were not conclusive. Carroll (1967) reported that exposure helps more than instruction although both helped. Two other studies (Brière 1978[18]; Krashen et al. 1978) claimed that both instruction and exposure help but that instruction helps more. Several studies (Chihara and Oller 1978; Krashen, Seliger and Hartnett 1974; Krashen and Seliger 1976) concluded that instruction benefits language acquisition but more exposure does not result in higher proficiency. Other studies (Upshur 1968; Mason 1971) found that instruction had no effect. Ellis (1990:146) writes,

> These comparative studies of L2 syntax lend further support to the claim that the effects of instruction are extremely limited. The pervasive finding is that the overall *sequence* of acquisition is the same in classroom and naturalistic settings. There is some evidence to suggest that instruction may help to push the learner further along the sequence, but there is also some evidence to suggest that it may inhibit progress by encouraging the use of alternative strategies of production.

In addition to examining immersed, tutored learners, Ellis (1990) also surveyed studies comparing naturalistic and formal L2 acquisition. Most of the studies (many of them investigated morpheme order) argued that the order of acquisition was the same for naturalistic and formal learners, for example, the acquisition of syntactic features like word order in German. Some of the studies investigating formal language acquisition found that the acquisition order did not correspond to the order in which elements where instructed in the classroom. Ellis (1989) examined the acquisition of German word order

[18] Brière studied children's L2 acquisition.

rules in a formal setting and found that the order of acquisition (V-end > inversion > particle) as measured by accuracy was the same as that found with the naturalistic learners of the ZISA project regardless of the order of instruction. Naturalistic learners acquire a structure only once they are ready for it (Clahsen et. al 1983), and, according to Ellis (1989), unless learners are ready, instruction and learning of a particular feature will not lead to acquisition (cf. Felix 1981).

Studies have provided some tentative evidence that learners not only acquire features which have been taught but also untaught, implicationally associated ones (Ellis 1990). The instruction of marked features may help in the acquisition of unmarked features (but not vice versa). Doughty (1991:464) writes, "Instruction incorporating unmarked data generalizes only to unmarked contexts, whereas instruction incorporating marked data potentially generalizes not only to that marked context but to other contexts as well." A focus on marked structures appears to facilitate "the acquisition of different but implicationally related structures." (Doughty 1991:465).

In a study about the triggers of the verb movement parameter in the L2 acquisition of English, White (1990) found that explicit instruction in one of the triggers did not seem to be effective in acquiring the parameter setting, and that "instruction in one aspect of the L2 parameter setting does not generalize to other aspects." (White 1990:357). She claims that triggers which cluster together in L1 acquisition do not necessarily do so in L2 acquisition.

Tomasello and Herron (1989) suggest that non-primary language acquisition is facilitated in situations where learners can consciously compare their own system with that of a target-like speaker, that is "learning situations that facilitate cognitive comparisons will facilitate learning." (Tomasello and Herron 1989:387). This is corroborated by Doughty (1991); she also found that it is important to draw a learner's

attention to what is being instructed. She states that "natural sequences are thought to be indicative of a universal ordering of difficulty, although exactly what constitutes difficulty has not yet been clearly established." (Doughty 1994:463; Radford 1992). Doughty's study found that both "meaning-oriented" and "rule-oriented" instruction were immediately effective for the acquisition of relativization, that is, instruction has a positive effect on L2 acquisition, although no long-term effect was available here.

Trahey (1996) investigated whether exposure to positive input alone brings about native-like competence in L2 learners. Subjects were exposed to an "input flood" with respect to adverb placement in English. The results of the study suggested that (short-term) exposure to positive input alone may lead to changes in linguistic competence but it did not appear to be enough to change parameter settings. Trahey concluded that negative evidence might be necessary for changing parameter settings.

Carroll and Swain (1993), examining the acquisition of dative alternation by native Spanish speakers learning English, found that negative feedback (explicit as well as implicit[19]) had a positive effect on their learners' L2 acquisition (but cf. Schwartz (1993) on an opposing view on negative data).

Language input is processed in two ways: for meaning and for acquisition (Sharwood Smith 1993). In classroom settings input may often be processed simply for its meaning. Learners may have enough environmental clues or gestures (that is, non-linguistic contextual clues) to allow them to understand what is being communicated without actually attending to the form. The learners need not compare the input with their own interlanguage system since it is perfectly clear to them what is being said. And

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[19] "Explicit negative feedback would be any feedback that overtly states that a learner's output was not part of the language-to-be-learned. Implicit negative feedback would include corrections...and such things as confirmation checks, failures to understand, and requests for clarification... ." (Carroll and Swain 1993:361)

learners may not even notice the difference between their faulty production and the correct input. In such a case no change in the interlanguage is brought about despite correct input (Sharwood Smith 1993). This seems to extend logically to adult naturalistic learners as well.

CHAPTER 4

Study

The present study attempts to investigate whether non-primary language learners acquiring word order in German use the same triggers and follow a developmental path similar to that of L1 learners or whether certain clustering effects of triggers proposed for the primary language acquisition of word order are visible with respect to the word order parameter. To test learners' intuitions about grammatical and ungrammatical sentences, a grammaticality judgment task was chosen[1]. This task of distinguishing grammatical from ungrammatical sentences is thought to tap intuitive, implicit knowledge.

Hypotheses

The following working assumptions are made: UG is available to learners in some form either directly or via the L1, and the triggering mechanism is the same in L1 and L2. This means that UG provides learners with knowledge that enables them to recognize triggers in the input strings and pair them with the appropriate parameter.

[1] For a more detailed discussion about methodology in L2 acquisition see Chapter 3.

Hypothesis 1 - Developmental Hypothesis

This hypothesis assumes that the finiteness distinction and placement of negation are acquired prior to topicalization (Weissenborn 1990). If L1 and L2 acquisition use the same triggers, L2 learners should follow this sequence.

Weissenborn (1990:198) proposes that for the primary language acquisition of German, "verb movement is primarily dependent on the development of the finiteness distinction". Once children have analyzed the positional properties of the sentence negator *nicht* ('not') they can distinguish between finite and non-finite verb forms. Finite verbs should not apear in clause-final position in root clauses, and since NEG is adjoined to VP, the finite verb has to be to the left of NEG. In German, *nicht* is postverbally if the verb has moved. This means that the positional properties of negation can be seen as a trigger for the finiteness distinction. According to Weissenborn (1990), negation together with the finiteness distinction trigger verb movement out of VP in German.

The V2 parameter requires finite verbs in German root clauses to move to COMP, which presupposes that a CP structure has to be in place. Topicalized sentences in German are CPs, that is, in those sentence types the verb has to be in V2 position. As a corollary, subordinate clauses contain finite verbs in clause-final position, since in this case the finite verb cannot move to COMP.

Hypothesis 2 - Cluster Hypothesis

Some parameters require more than one trigger, and the triggers may cluster together. To test this for German word order, modals, phrasal verbs and topicalization (Lightfoot 1991) are hypothesized to cluster in non-primary language acquisition.

If clustering occurs, we should see a relatively simultaneous appearance of the above mentioned structures at a particular level in the language development, that is, any of these structures should trigger the others.

4.1 Materials (Instruments)

The written grammaticality judgment test consisted of a total of 60 decontextualized sentences (see Appendix C) and was devised to test word order in German. Based on triggers (see Introduction and Chapter 2) which had been proposed for first language acquisition, the following structures were tested:

(1) phrasal verbs (present tense)

(2) phrasal verbs (present perfect tense)

(3) topicalization

(4) negation

(5) modals

(6) finiteness

(7) dependent clauses with *daß*

There were 6 sentences for each of the above mentioned structures, 3 grammatical and 3 ungrammatical, for a total of 42 sentences. In addition, there were 18 filler sentences. These filler sentences were not included in the analysis. All sentences contained finite verbs in present tense. Only phrasal verbs were also tested in present perfect tense. The sentences contained common words, and all sentences were

between 8 and 10 syllables long[2]. The vocabulary was chosen by a native speaker and consisted of frequent and common words. The vocabulary items were checked against Pfeffer (1964) and DiDonato et al. (1991). The 60 sentences of the grammaticality judgment task were randomized and counterbalanced. A clustering of sentence types was avoided. Half of the subject population used Booklet I, the other half used Booklet II (29 subjects for each booklet type).

Subjects were asked to make a binary choice on this task in order to force a decision by even low proficiency learners.

4.2 Subjects

A total of 65 students participated in the study. The subjects were recruited by asking for (unpaid) volunteers[3] in their classes. Two subjects were subsequently excluded: one did not complete the proficiency test section of the study, the other had problems with the timing in the early part of the grammaticality judgment task. Of the remaining 63 subjects, five subjects were excluded from the analysis; they scored below 14 points on the proficiency test. The remaining 58 students were included in the analysis[4].

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[2] A short sentence length has the advantage of avoiding the phenomena that L2 learners may judge longer sentences as grammatical even when they are ungrammatical (Cowan and Hatasa 1994).

[3] Seliger and Shohamy (1989) raise the point that there is a "question of *self-selection*" (p. 107) with volunteers in studies. Perhaps they all share some character trait which leads them to volunteer. This is important for studies investigating affect, attitude, or motivation in L2 acquisition. In this study, grammar (that is, word order) was under investigation.

[4] The five subjects excluded scored as follows on the proficiency test: 2 scored 6 points, one subject each scored 8, 10, and 12 points respectively. All five subjects were students in Munich.

The 58 subjects in the study were students enrolled in classes of German as a second language at the Technische Universität Berlin (30 subjects), Freie Universität Berlin (7 subjects)[5] and Universität München (21 subjects).

The subjects were between 18 and 50 years of age with a mean of 26.4 years (see Appendix B). The amount of schooling ranged from 11 through 23 years; mean years of education was 16.4[6].

The subject group consisted of 29 males and 29 females.

The subjects' language background included 24 different native languages (see Appendix A). The largest groups of native speakers of any one language were 8 Turkish speakers and 5 speakers each of Chinese, English, French and Korean.

Of the 58 subjects only 5 knew no other language besides their native language and German. 18 subjects knew one additional language, 21 knew 2 additional languages and 14 knew 3 (or more) additional languages[7]. Of the additional languages known most subjects knew English (44 persons), followed by French (15), Italian (9), Russian (8), Spanish (6), Japanese (4), Arabic (2), Polish (2) and (1) each for Belorussian, Cameroon, Chinese, Croatian, Kasak/Tartar, Kurdish, Latin, Portuguese, Swedish, Turkish, Urdu and Yiddish.

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[5] There is no clear explanation why not more subjects participated from the FU Berlin. The only difference was that there was a weekend between recruiting the subjects and the date of administering the study.

[6] The questionnaire asked subjects to supply information as to the total number of school years. Four of the 58 subjects answered this question ambiguously. The four subjects' responses were: 1 year, 4 years, 5 years and 'Magister' (roughly the equivalent of an M.A.). Since they had to be able to enroll in a German university, the responses appear to indicate some misunderstanding on the part of the subjects.

[7] The questionnaire provided space only for up to three additional languages. Some subjects added additional languages they knew.

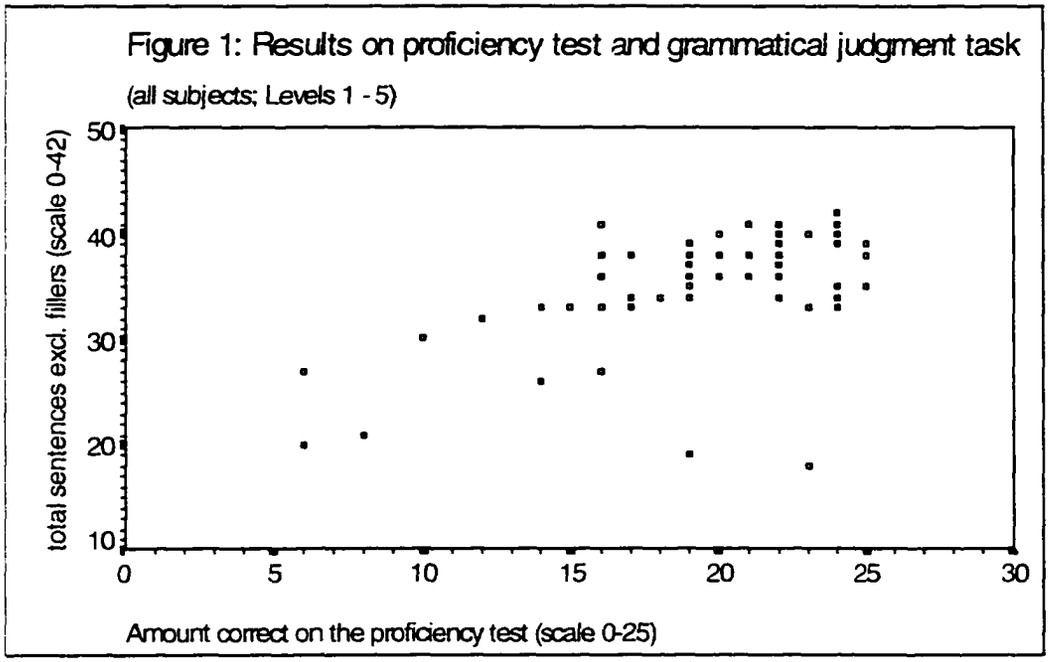
The subjects had spent between .1 and 5 years in Germany with a mean of 1.3 years. Most subjects had had formal instruction prior to being immersed in German, but some of the subjects had lived in Germany before enrolling in formal instruction in German. 15 subjects had stayed in Germany without formal instruction between 2 months and 3.5 years, mean 13.9 months. A one-way ANOVA showed no significant difference between those 15 subjects who had been in Germany prior to formal instruction and the other subjects with respect to results on the proficiency test and the grammaticality judgment task. An additional four subjects had been in Germany for 1 month before taking German lessons. The mean age for starting formal German instruction was 22.8 with a range from 12 to 37. This means that the subject population consists of adult learners of German. Their formal instruction in German ranged between .2 and 12 years with a mean of 2.0 years.

Although the amount of hours of instruction per week varied between FU Berlin (FU) on the one hand and the TU Berlin (TU) and the Universität München (UM) (FU: 9 hours per week; TU and UM: 18 hours) a one-way ANOVA showed no significant difference between the groups.

The control group consisted of 8 native German speakers, living in Germany, ranging in age from 38 to 72. Although the control group population differs in age from the subject population this is not seen as a problem here since both groups consist of adults.

To establish proficiency levels of subjects, a proficiency test was administered (see Appendix D). The test used was Level 4, Part IIB of the AATG National Standardized Testing Program, administered in December 1993 and January 1994.

The graph below shows the distribution of subjects according to their scores on the proficiency test and the grammaticality judgment task.



Subjects scored between 6 and 25 points on the proficiency test (scale: 0-25). Based on their score in this test, they were grouped into five levels:

Table 1: Number of subjects at each proficiency level

	range of points	number of subjects
Level 1:	6-12	5
Level 2:	14-18	13
Level 3:	19-21	17
Level 4:	22-23	14
Level 5:	24-25	14

In order to ensure that subjects represented a random selection, the five subjects in Level 1 were excluded from the analysis. They were all students in Munich and may have attended the same class—an aspect which cannot be ascertained but which would have introduced variables which were not controlled in the study, for example, instruction methods or possible effects of instruction sequences which may affect students responses at particular times in their language development.

Following is a break-down of the number of students from each university at each level of proficiency:

Table 2: Number of subjects from participating universities

	TU Berlin:	FU Berlin:	Uni München:
Level 1:	0	0	5
Level 2:	8	0	5
Level 3:	12	2	3
Level 4:	8	1	5
Level 5:	2	4	8

4.3 Procedure

All subjects were tested in groups in classrooms at the respective universities. Prior to the study the subjects were given a letter explaining the procedure and a vocabulary list. In the letter, the subjects were told that their participation in the study was anonymous, that there were three parts: a multiple-choice proficiency test, a questionnaire about their personal background with respect to their language learning

history, etc. The vocabulary list was handed out in order to reduce the possibility that any difficulty subjects would have with a structure was due to grammar rather than vocabulary. The vocabulary list contained, in alphabetical order, the words used in the grammaticality judgment task.

Immediately before the start of the test, subjects were asked if they had any questions about the procedure and whether they were familiar with the vocabulary items given to them previously. They were then given a booklet and a separate scoring sheet for dichotomous scoring. The booklet (5½ x 8½ inches, spiral-bound) contained a total of 60 sentences, with one sentence printed in the center of each page. There were 21 grammatical and 21 ungrammatical sentences for the structures under investigation, plus 18 filler sentences. The subjects were allowed approximately 8 seconds per sentence and were prompted to turn to the next page by a voice on an audio cassette. They were not permitted to go back and review a sentence. The time limit was imposed in order to reduce subjects' access to explicit knowledge, for example, learned rules.

Following the grammaticality judgment task, subjects completed a questionnaire regarding their age, education, language background, exposure to German outside the classroom, etc. (see Appendix E). The subjects also took a 25-item multiple choice proficiency test (see Appendix D). Based on the results of this test, subjects were grouped across universities into specific proficiency levels (see above).

CHAPTER 5

Results

The results of the study will be presented as follows:

In 5.1 the overall results for all subjects together (Level 2-5 combined) and for all structures together (that is, phrasal verbs (present tense), phrasal verbs (present perfect tense), topicalization, negation, modals, finiteness, *daß*-sentences) as well as for the individual structures will be presented. In 5.2 the results are given according to individual levels for all structures together and for the individual structures. Section 5.3 addresses the Developmental Hypothesis, Section 5.4 the Cluster Hypothesis. Finally, in 5.5, there will be an analysis of the results from speakers of individual languages where there were at least three native speaking subjects per language. These languages are Arabic, Chinese, English, French, Korean, Polish, Spanish, and Turkish.

The results presented reflect subjects' correct acceptance of grammatical sentences and their correct rejection of ungrammatical sentences.

5.1 Overall Results for All Levels

5.1.1 All Structures

The overall percentages judged correctly for all structures show that subjects judged ungrammatical sentences more often correctly than grammatical sentences (90% vs. 83%)[1], and judgments are above chance.

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[1] See Chapter 3 for a discussion of this phenomenon in L2 acquisition research.

Table 3: Sentences judged correctly (Level 2-5)

	overall %	grammatical %	ungrammatical %
all structures	86	83	90
pv (pres)	84	84	84
pv (past)	90	89	91
topicalization	87	84	90
negation	85	72	97
modals	88	83	93
finiteness	79	74	83
daß	92	91	93

(overall = grammatical and ungrammatical sentences together)

A one-tailed t-test showed a significant difference between grammatical and ungrammatical sentences [$t(57)=3.76$, $p<.001$].

Grammatical Sentences

Subjects had to judge a total of 21 grammatical sentences. There were 3 sentences per structure. Overall, subjects judged correctly a mean of 17.33, or 83% (see Appendix G, Figure 4).

Ungrammatical Sentences

As with the grammatical sentences, there were 21 ungrammatical sentences, 3 sentences per structure. Mean amount correct was 19.93, which corresponds to 90% (see Figure 3, page 98 below).

Following is one token for each of the sentence types used in the grammaticality judgment task (for a complete list see Appendix C).

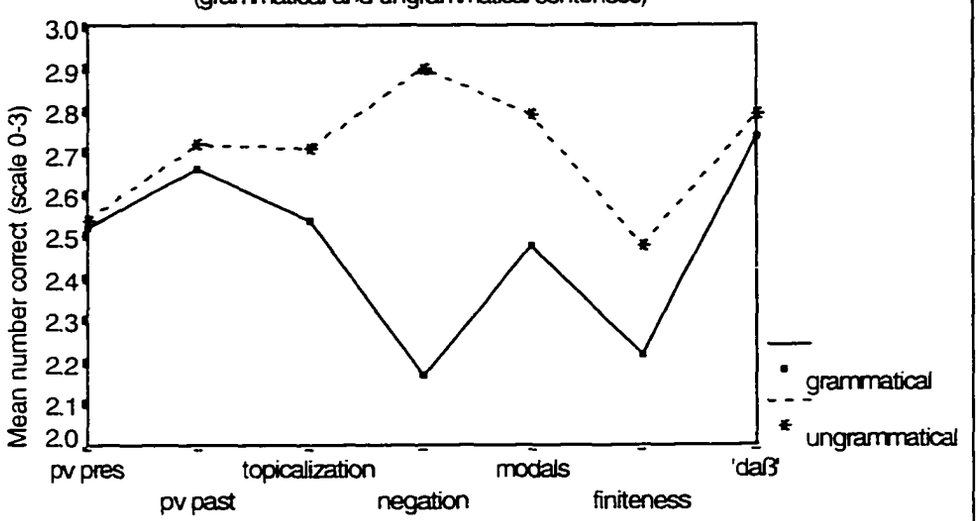
Phrasal verbs (present tense):	(1)	er zieht oft eine Jacke an
	(2)	*wir aufstehen jeden Tag früh
Phrasal verbs (present perfect tense):	(3)	er hat sie oft angerufen
	(4)	*er hat aufgeräumt sein Zimmer
Topicalization:	(5)	morgen kauft der junge Mann ein Auto
	(6)	*morgen ich besuche meine Eltern
Negation:	(7)	ihr trefft eure Freunde nicht oft
	(8)	*er nicht wohnt in dem alten Haus
Modals:	(9)	die junge Frau möchte ein Glas Wein
	(10)	*du jeden Tag an die Uni mußt
Finiteness:	(11)	er geht donnerstags an die Uni
	(12)	*du sehen deinen Freund jeden Tag
daß:	(13)	er merkt, daß sie Proleme hat
	(14)	*er weiß, daß sie gern hört Musik

5.1.2 Individual Structures

The graph below illustrates the results for the individual structures investigated across all proficiency levels.

Figure 2: Correct responses on grammaticality judgment task

(grammatical and ungrammatical sentences)



Phrasal Verbs (Present Tense)

It was expected that subjects would have problems with this structure due to the discontinuous nature of the verbs (see Chapter 1), which would result in lower accuracy figures across all levels as compared to other structures like negation or topicalization. This was confirmed.

There is no significant difference between grammatical and ungrammatical sentences for pv (pres); in fact, subjects judged grammatical and ungrammatical sentences almost exactly alike (84% correct each).

Grammatical Sentences

Although the overall number of correctly judged items is relatively high (84%), no explanation can be offered at this point as to why subjects at the lower levels performed better than subjects in Levels 4 and 5 (see Appendix G, Figure 5).

Ungrammatical Sentences

Out of three sentences subjects judged correctly 2.52 or 84%. Of the three ungrammatical sentences, two sentences had the unseparated phrasal verb moved into V2 position, for example:

(15) *wir aufstehen jeden Tag früh
we get-up every day early

One sentence had the unseparated finite verb in base position:

(16) *sie abends immer ausgehen
they in-the-evening always go out

Sentence (16) was correctly judged as ungrammatical by all subjects (on all levels) except one (98%). This could be taken as tentative evidence that subjects know that verbs cannot surface in clause-final position in matrix sentences, that is, they have V2.

Phrasal Verbs (Present Perfect Tense)

There was no significant difference between grammatical and ungrammatical pv (past), but learners across all levels judged these sentences with greater accuracy than the sentences testing pv (pres) (see Appendix G, Figure 6).

With respect to a movement analysis, learners have to know that an auxiliary is in V2 position while the particle is separated from the verb stem by the participial marker *ge*. All three ungrammatical sentences contained structures where the auxiliary was followed immediately by the participle of the main verb (for example, **sie hat abgeholt ihren Freund* 'she has picked up her friend')—a construction which is ungrammatical in finite-state German, and which was correctly rejected by most subjects. This would indicate that most subjects do not assume a sentence structure like English, for example, where an utterance like

(17) he has cleaned up his room

is a perfectly good sentence.

Topicalization

Topicalization in German involves any sentential element moved into SpecCP with the finite verb in COMP. If a CP projection and verb movement is not in place, learners should accept the ungrammatical sentences due to an incorrect adjunction to IP. Although commonly used in German, topicalization is a marked structure. Since marked structures are generally acquired with more difficulty, subjects were expected to show lower accuracy rates on this structure. This was not the case.

No significant difference between grammatical (84%) and ungrammatical (90%) sentences was found (see Appendix G, Figure 7). Three types of topicalization were investigated: adverb, PP, and object NP. For the grammatical sentences, subjects across all levels showed a slight preference for topicalized adverb and PP over object NP. For the ungrammatical sentences subjects did not show any preference for either of the structures, that is, across the levels all types were judged equally well.

Negation

Negation is seen as a trigger for verb movement in L1 German (see Chapter 2). Since NEG is adjoined to VP, if the verb precedes NEG it is raised out of the VP. If NEG precedes the verb, the verb has remained in base position. If the full set of functional categories is available to learners from the beginning, then negation could be expected to be one of the structures acquired early. Across levels then we should see a high accuracy rate which was confirmed for the ungrammatical but not for the grammatical sentences (see Appendix G, Figure 8). A significant difference between grammatical and ungrammatical sentences was found [$t(57)=-7.18$, $p<.001$].

Grammatical Sentences

Subjects judged correctly only 2.17 or 72% which is the lowest amount of all grammatical sentences for all structures, although it is well above chance.

Looking at the accuracy rate for the ungrammatical sentences (97%), it appears that subjects have acquired this structure. But the picture is much less clear for the grammatical sentences.

In two of the sentences *nicht* was toward the end of the sentence, following the finite verb and direct object but preceding a PP or an adverb.

(18) ihr trefft eure Freunde nicht oft
you meet your friends not often

(19) ich schicke das Buch nicht per Post
I send the book not via mail

In one sentence *nicht* immediately followed the verb and preceded two PPs:

(20) er geht nicht mit ihr ins Kino

he goes not with her to-the movie-theater

Sentence (18) had an accuracy rate of 67%, sentence (19) received 71% and sentence (20) was judged correctly by 79%.

A possible reason for why subjects did not score higher on the grammatical sentences may be that while they are familiar with the basic word order of German, they have not yet acquired certain possible movement operations, in this case scrambling. Scrambling refers to an operation in some languages, for example German, whereby an element like a PP or adverb can adjoin a maximal projection[2]. In the above sentences, the object NP—which is base-generated and receives its case inside the VP—has been scrambled leftwards.

Ungrammatical Sentences

For ungrammatical negation subjects had the highest accuracy rate across all levels: 2.90 or 97%.

In the ungrammatical sentences for this structure *nicht* ('not') always precedes the finite verb. In two sentences the finite verb is clause-final, in one sentence *nicht* is followed by the finite verb and a PP. The subjects seem to know that the finite verb cannot follow *nicht*. The subjects' accuracy rate appears to support the fact that the

[2] For syntactic analyses of scrambling in German see Grewendorf 1992; Grewendorf and Sternefeld 1990; Haegeman 1991; Webelhuth 1995.

syntactical aspect of German phrase structure is acquired early, and apparently without much difficulty.

Modals

Modals are irregular in German and require lexical learning, but they behave like full verbs, that is, they are base-generated in clause-final position and then move like regular verbs via TENSE and AGR to COMP.

There was a significant difference between grammatical and ungrammatical sentences [$t(57)=2.74$, $p<.01$] (see Appendix G, Figure 9).

Grammatical Sentences

Overall, grammatical modal structures were judged similarly to pv (pres): 2.48 or 83%. However, closer examination found that while the accuracy rate was around 90% for two of the sentences, it was only 67% for the sentence below:

(21) er muß heute nachmittag zur Post
he must [go] today afternoon to-the post [office]

The three grammatical modal sentences contained different modals. Two of the sentences—like the sentence above—did not contain a main verb, which is not a requirement in German since modals can function as full verbs. No explanation is available for the subjects' judgment at this point.

Ungrammatical Sentences

Subjects correctly judged 93% of the ungrammatical sentences containing modals as ungrammatical. This corresponds roughly to the results for two of the three grammatical sentences mentioned above.

Finiteness

Based on primary language acquisition research children very early on learn to distinguish between finiteness and non-finiteness. In addition, non-primary language learners are familiar with this distinction through their L1. It was therefore assumed that subjects would have little difficulty with the sentences investigating this structure. But this was not the case. Overall and across all levels finiteness was judged with 79% accuracy, 74% for grammatical and 83% for ungrammatical sentences (see Appendix G, Figure 10). There was a significant difference between grammatical and ungrammatical sentences [$t(57)=-1.87$, $p<.05$].

Grammatical Sentences

One of the grammatical sentences received higher accuracy rates than the other two (86% vs. 66% and 71%). This sentence

(22) du findest das Theaterstück gut

you find the theater-play good

was the only one where the verb had the 2.sg. marker, which is a distinct marker in the German agreement paradigm (see Chapter 1). The other two sentences contained verbs marked with *-t*, in one case 3.sg., in the other case 2.pl.

Ungrammatical Sentences

Here there were two sentences (23 and 24) which were judged rather highly (90% and 88% respectively) and one sentence (25) which received a score of 71%. All three sentences contained a subject followed by the verb in infinitival form which in turn was followed by other sentential elements.

(23) *meine Mutter kommen am Dienstag
my mother come-INF on Tuesday

(24) *du sehen deinen Freund jeden Tag
you see-INF your friend every day

(25) *er fahren mit der U-Bahn zum Zoo
he ride-INF with the subway to-the zoo

With respect to this study, there appears to be a somewhat more gradual development for ungrammatical finiteness and pv (pres) than is apparent for other areas. The percentages for ungrammatical finiteness are given below (Table 4). There was a gradual rise in percentage judged correctly for pv (pres) from Level 2 through Level 4: Level 2: 77%, Level 3: 80%; Level 4: 83%; (and Level 5: 98%). A similarly gradual

development for the individual levels is visible for inflectional morphology items on the pretest[3]: Level 2: 84%; Level 3: 88%; Level 4: 92% and Level 5: 98%.

Finiteness per se is an abstract feature which can only be examined through inflectional suffixes or the distribution of the verb. The possibility that finiteness is related to lexical learning is investigated by examining subjects' scores on the morphology items on the proficiency test. There were a total of five items which treated inflectional morphology. In addition, there were six sentences among the filler sentences in the grammaticality judgment task which had subject-verb agreement. The sentences on the proficiency test asked subjects to supply the correct, that is, grammatical answer; the filler sentences were also grammatical sentences. A one-way ANOVA showed no significant difference between the morphology items on the proficiency test and the grammatical finiteness sentences or between the morphology items and the filler sentences. There was a significant difference between the grammatical finiteness structures and the filler sentences [$F(52,5) = 2.5082$; $p < .05$].

daß-Sentences

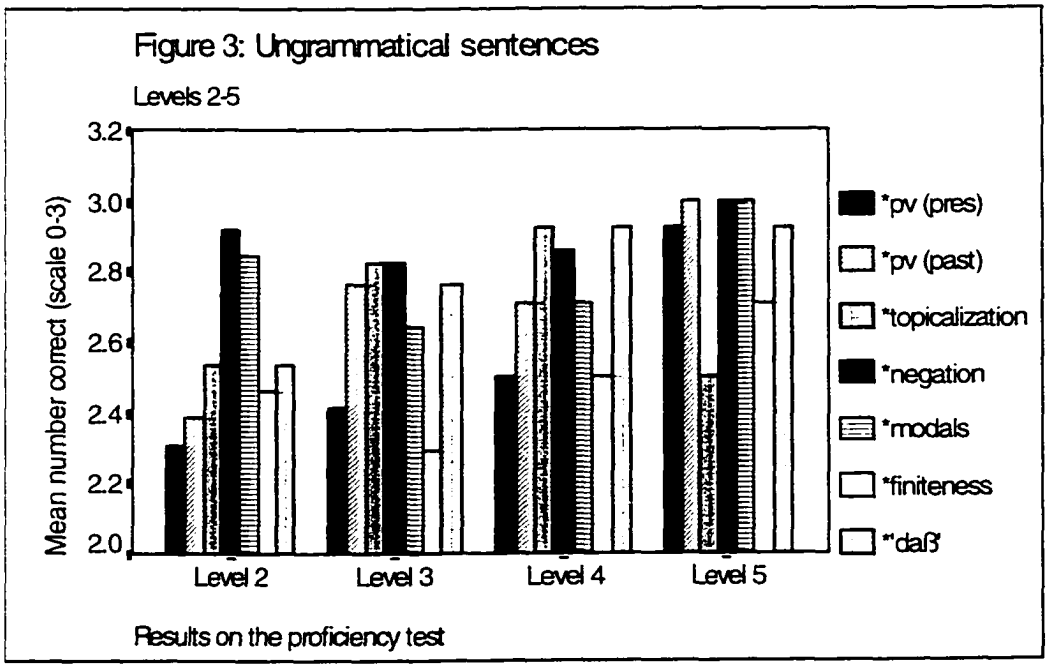
Embedded clauses with *daß* disallow verb movement to COMP. This structure was the one which received the highest accuracy rate overall (92%). There was no significant difference between grammatical and ungrammatical sentences (see Appendix G, Figure 11).

[3] There were a total of five items involving inflectional morphology on the proficiency test.

Across proficiency levels there was little difference in the accuracy rate for the grammatical sentences as well as the ungrammatical sentences. Ungrammatical sentences were judged slightly higher than grammatical (93% vs. 91%).

The high accuracy rate appears to indicate that subjects were familiar with the verb-final structure of embedded clauses.

As was mentioned in Chapter 3, subjects in this study also show a bias toward ungrammatical sentences. The following chart shows subjects' responses to ungrammatical sentences only with respect to the individual structures and individual proficiency levels.



Taking only responses to ungrammatical sentences into account, we see the following sequence overall with respect to the Developmental Hypothesis[4]:

negation > *topicalization* > finiteness

For ungrammatical sentences only, finiteness is judged correctly least often. Ungrammatical negation is judged correctly 97% of the time (as compared to 72% for grammatical sentences only). Ungrammatical topicalization (90%) precedes ungrammatical finiteness (83%). Weissenborn's L1 sequence, applied to ungrammatical sentences, is partially confirmed for L2 learners; the subjects in this study judge negation higher than topicalization.

For all 58 subjects in the study, independent of their proficiency levels, finiteness is perhaps the most difficult area, although the subjects scored well above chance for ungrammatical finiteness.

Overall, ungrammatical finiteness (83%) was judged almost equally with ungrammatical pv (pres) (84%) while all other areas were judged between 90% and 97%.

5.2 Results for Individual Levels

A one-tailed t-test for all subjects showed that the difference between grammatical and ungrammatical sentences was significant overall [$t(57)=3.76$, $p<.001$] and for all levels except Level 3 (Level 2: [$t(12)=2.62$, $p<.01$]; Level 3: [$t(16)=.84$, $p<.21$]; Level 4: [$t(13)=2.09$, $p<.03$]; Level 5: [$t(13)=2.68$, $p<.01$]).

[4] See 5.3 below for a discussion about the Developmental Hypothesis.

Across individual levels the following accuracy rates for ungrammatical sentences are visible:

Table 4: Accuracy in percent for individual structures and proficiency levels

	pv (pres)	pv (past)	topicalization	negation	modals	finiteness	*daß*
overall	84	91	90	97	93	83	93
Level 2:	77	80	85	97	95	82	85
Level 3:	80	92	94	94	88	76	92
Level 4:	83	90	98	95	90	83	98
Level 5:	98	100	83	100	100	90	98

(overall = all levels together)

5.2.1 Level 2

5.2.1.1 All Structures

Across structures it would be expected that subjects perform with a lower level of accuracy at this level which is confirmed by the data. There is a significant difference between grammatical and ungrammatical sentences across structures: [$t(12)=2.62$, $p<.01$]. Out of 21 grammatical sentences, a mean of 15.85 or 76% was judged correctly. For the 21 ungrammatical sentences, subjects judged a mean number of 18.00 or 86% correctly. Significant differences between grammatical and ungrammatical sentences were also found for the following individual structures: topicalization [$t(13)=2.21$, $p<.03$], negation [$t(13)=-5.11$, $p<.001$] and modals [$t(13)=2.89$, $p<.01$].

On Level 2 there is a difference in accuracy of subjects' judgments of the ungrammatical sentences between negation and modals on the one hand and the other structures on the other hand (see Appendix F, Table 8). It is somewhat surprising that modals are judged so highly since—as mentioned in Chapter 2—they are irregular in German, that is, they do not follow the regular inflection paradigm. In addition, they can be used like regular verbs, or they can be used as auxiliaries (together with a verb in the infinitive). Due to their irregular forms they are assumed to be supplied by the lexicon, that is, they have to be learned as part of an ideosyncratic and language-specific lexicon. On the other hand, modals are acquired quite early in L1 German, and the results here may be an effect of instruction. Klein and Perdue (1993) found that participants in the ESF project appeared to have benefitted from instruction with respect to verbal morphology.

5.2.2 Level 3

Compared to the subjects on Level 2, Level 3 subjects performed much better on topicalization (85% vs. 94%), which was on par with negation (94%) and similar to *daß* and pv (past) (both 92%), but finiteness (76%) is consistenly judged correctly least often. Topicalization and *daß* show a similar increase in percentages judged correctly between Level 2 and Level 3 (although the difference is not statistically significant). In *daß*-clauses the finite verb has to remain in clause-final position in German which indicates that learners have a head-final VP. For topicalization to be judged correctly, the verb has to move to COMP. Based on these facts it appears possible to claim that at Level 3 the basic word order of German is established, that is, a head-final VP, and verb movement from V to INFL to COMP.

5.2.3 Level 4

Level 3 and Level 4 subjects are similar in their performance for topicalization, negation and finiteness, with somewhat increased amount judged correctly. There is a significant difference between grammatical and ungrammatical sentences: [$t(13)=2.09$, $p<.03$]. Level 4 subjects are almost perfect (98%) in their judgment of topicalization and *daß* which seems to reinforce the above mentioned claim about word order and verb movement in German.

5.2.4 Level 5

There is a significant difference between grammatical and ungrammatical sentences on this level: [$t(13)=2.68$, $p<.01$]. Unlike the subjects in Levels 2 through 4, Level 5 subjects judged topicalized sentences (83%) worse than all other subjects, even those on Level 2 (85%). Level 5 consists of a total of 14 subjects; on ungrammatical topicalization 10 subjects scored 100%. Of the remaining four subjects, one subject scored 67% and three subjects scored 33% each. The subject who scored 67%, scored 100% on ungrammatical *daß* and 33% on ungrammatical finiteness. The other three subjects scored 100% on ungrammatical finiteness. All four subjects scored 100% on ungrammatical negation. Two of the subjects who had 33% on ungrammatical topicalization judged 100% of the ungrammatical *daß*-sentences correctly, one subject had 67%. All four subjects have different native languages.

Topicalization, that is, movement to SpecCP of an element other than the subject, is a marked structure in German. It is possible that the above mentioned learners had never acquired the rule in the first place or that they had acquired it at an earlier stage and had subsequently "lost" it (Ellis 1989). Another possibility is pointed out by Ard and Gass (1987). As L2 learners become more proficient, and more syntactic patterns

become available, a sort of destabilization occurs which appears to be related to heightened sensitivity to semantic relationships between lexical elements.

Looking at the accuracy rates for the individual levels and structures, there is a significant increase for Level 5 subjects (as compared to Level 4) in sentences judged correctly for pv (pres) [$t(13)=-2.28$; $p<.05$]. This seems to support the idea that acquisition is slower where lexical learning is involved.

As mentioned above, phrasal verbs in present tense have a discontinuous structure where the particle remains in base-generated, clause-final position while the verb stem partakes in the required verb movement operation; this requires an additional step in lexical learning. An additional factor is that phrasal verbs can be compositional or non-compositional in meaning. For example, the verb *fallen* ('to fall') can form phrasal verbs like *anfallen* ('to attack'), *auffallen* ('to attract attention'), or *abfallen* ('to fall down'). The first two words (*anfallen* and *auffallen*) are not compositional. The phrasal verbs were tested in the present tense and in present perfect tense. Overall and for the individual levels, present perfect tense is judged more correctly than present tense. This is also true for Chinese, French, and Turkish. English speakers had an even score, and the Korean speakers judged phrasal verbs in the present tense slightly better than the ones in present perfect tense (80% vs. 73%). Phrasal verbs do not appear to pose particular parsing difficulties (Schreuder 1990; Zwitserlood 1990; Schriefers, Zwitserlood and Roelofs 1991), and children's acquisition of them is not very different from the L1 acquisition of regular verbs (see Chapter 2).

5.3 Developmental Hypothesis

One hypothesis investigated in this study is whether non-primary language learners use triggers in the same way as Weissenborn (1990) suggested for primary language learning. Weissenborn (1990) claims that L1 learners acquire the finiteness distinction in conjunction with negation prior to the acquisition of topicalization. While a developmental sequence like the one proposed by Weissenborn (1990) is perhaps most suitably tested in a longitudinal study, it can also be tested by a cross-sectional design, as was used in this study.

Longitudinal studies have shown that L2 learners follow a developmental path where they acquire structures in a "natural sequence" (Ellis 1985:58). A cross-sectional study examines subjects at different stages in their language development with respect to their performance at each stage. The subjects at individual levels in a cross-sectional study represent a particular developmental stage. In this sense then, we would expect subjects at the lowest level to have acquired fewer structures than subjects at higher levels. In terms of the Developmental Hypothesis this means, that the subjects at the lower proficiency levels should show evidence of the finiteness distinction and negation but not of topicalization.

While it is the case that L2 learners' interlanguages are not stable systems (for example, backsliding is a common feature of interlanguages), given a sufficient number of subjects at each individual level, developmental stages can be posited.

One of the major criticisms of the morpheme order studies (for example, Dulay and Burt 1974) was that they claimed that accuracy reflected developmental sequences. This was disputed later (for example, Ellis 1985). However, as pointed out by Zobl and Liceras (1994), if learners at different proficiency levels show a consistently low rate of accuracy this seems to indicate a relevancy to acquisition. In addition, a low rate of

accuracy may also point to the fact that learners have difficulties in acquiring rule-based representations. Another point mentioned by Zobl and Liceras is that L2 learners transfer unmarked properties of their L1 more readily than marked properties. This indicates that representations of unmarked properties are more easily accessible and would result in higher accuracy rates. On the other hand, representations of marked properties are expected to be achieved with greater difficulty in the interlanguage and will therefore result in lower accuracy. Zobl and Liceras (1994:167) write that "accuracy rates can speak to the order of L2 acquisition, provided that acquisition is taken to mean not only the presence of a representation but also its appropriateness and its accessibility for processing." Given this correlation between accuracy and development, if learners at various proficiency levels show a high rate of accuracy, they can be assumed to have acquired that structure.

With respect to the Develcpmental Hypothesis, the following claims can tentatively be made (ungrammatical sentences only):

Looking at accuracy rates across proficiency levels, negation has the highest accuracy rate (94%-100%), followed by modals (88%-100%) and *daß* (85%-98%), topicalization (83%-98%), pv (past) (80%-100%), pv (pres) (77%-98%), and finiteness (76%-90%).

For the individual levels and for ungrammatical sentences only, on Level 2, negation (97%) precedes topicalization (85%) which in turn precedes finiteness (82%). On Level 3 topicalization and negation (both 94%) precede finiteness (76%); the same pattern appears on Level 4 and 5[5].

[5] See 5.2.4 for an explanation of judgments for topicalization on Level 5.

This partially confirms Weissenborn's hypothesis: negation is available early on, followed by topicalization. Finiteness appears to be the most difficult structure, although subjects performed well above chance. On the other hand, it appears to contradict Weissenborn's prediction that there is a link between negation and finiteness, viz., that the finiteness distinction is dependent on positional properties of *nicht* ('not') in German.

5.4 Cluster Hypothesis

The cluster hypothesis investigated the question whether there are clustering effects for particular structures in the non-primary acquisition of German. Lightfoot (1991) mentions as markers for German word order verbs with separable prefixes, expressions with modals and the position of verbal specifiers like negation or other closed-class adverbials like, for example, adverbs of time. A 2-tailed bivariate correlation analysis was undertaken to look for any significant correlations between phrasal verbs, modals and negation.

Overall, modals, phrasal verbs and negation (and *daß*) are correlated [$p<.01$]. For the ungrammatical sentences, no correlations were found between modals and negation. There was a significant correlation between modals and pv (pres) [$p<.01$] but not for modals and pv (past). In addition, pv (pres) and finiteness are correlated [$p<.05$], and pv (past) and finiteness are correlated as well [$p<.01$].

For ungrammatical sentences, Level 2 negation and *daß* are correlated [$p<.01$], but there was no statistically significant correlation between modals, negation and phrasal verbs. For Level 3, statistically significant correlations were found for modals and pv (pres) [$p<.01$], and for negation and pv (past) [$p<.01$]. For Level 4, negation is correlated with pv (pres) [$p<.05$] and pv (past) [$p<.01$]. No statistically significant

correlations could be established for Level 5. A reason for this may be that a ceiling effect appears to have been reached, that is, the nature of the test was too basic to allow for significant correlations at this level.

5.5 Individual Languages

Additional analyses were undertaken for Arabic, Chinese, English, French, Korean, Polish, Spanish, and Turkish (see Appendix G, Figures 12-18). Taken together, the subjects in these eight languages account for more than half of the subject population (37 vs. 58 total). For each of the languages there were at least three native speaking subjects which would allow for a somewhat tentative claim. However, as shown below, the subjects are at various proficiency levels, so any claim made here can only be supported by additional research. In fact, given the unstable nature of interlanguage systems, it does not seem appropriate to make any claims based on only one subject.

The table below shows for each language group the average score on the proficiency test, the percentage of sentences judged correctly overall (grammatical and ungrammatical together), and the percentages of correctly judged grammatical and ungrammatical sentences.

Table 5: Sentences judged correctly - individual languages

	proficiency test	overall %	grammatical %	ungrammatical %
Arabic	22.33	91	95	87
Chinese	20.20	87	82	92
English	21.80	88	84	91
French	21.00	91	90	91
Korean	20.40	80	80	80
Polish	22.67	75	73	78
Spanish	19.33	82	76	87
Turkish	20.12	89	84	95

(overall = grammatical and ungrammatical sentences together)

As for all subjects together, the subjects in the individual language groups performed better on the ungrammatical sentences than on the grammatical ones, with the exception of the Korean speakers who scored perfectly even (80% correct for both grammatical and ungrammatical), and the Arabic speakers who judged grammatical sentences higher than ungrammatical ones (95% vs. 87%).

The table below shows the number of subjects at individual levels:

Table 6: Number of native speakers of individual languages

	Arabic	Chinese	English	French	Korean	Polish	Spanish	Turkish
Level 2:	0	2	1	1	0	0	2	2
Level 3:	2	1	1	1	3	1	0	3
Level 4:	1	1	0	0	2	1	0	3
Level 5:	0	1	3	3	0	1	1	0

Although there are a total of three Polish speakers, there is only one subject at each level and so no analysis will be attempted for this language.

Where L1 and L2 have similar or identical structures, acquisition should not be any problem. Where the L1 is different from the L2, a lower accuracy rate may point to a slower rate of acquisition. The table below shows where different L1 language groups may experience difficulties in word order based on transfer from L1.

Table 7: Predictions where transfer from L1 may occur

	Arabic	Chinese	English	French	Korean	Spanish	Turkish
topicalization	yes		yes	yes		yes	
negation	yes	yes			yes	yes	yes
daß	yes		yes	yes		yes	

In the section below, individual language groups are analyzed as to their results on the grammaticality judgment task.

5.5.1 Arabic

Overall, that is, across levels and across structures, the Arabic speakers scored higher on the grammatical than on the ungrammatical sentences (95% vs. 87%).

Classical Arabic is a VSO language, but colloquial Arabic dialects and modern standard Arabic are SVO. Verbs are marked by prefixes or suffixes for person, mood, and aspect, but they do not carry tense markings per se, although some dialects have developed tense markers. Some sentences are negated by adding a form of the irregular verb *laysa* ('not to be') at the beginning of the sentence (Kaye 1990). The Arabic

speakers could be expected to have some problems with the clause-final requirement for verbs in German, which was not confirmed by the data.

Overall (across levels), the two subjects on Level 3 and the one subject on Level 4 had the following accuracy rates for grammatical sentences: 100% for topicalization, *daß*, modals, and pv (past); 89% for negation, pv (pres), and finiteness (see Appendix G, Figures 19 and 20). For ungrammatical sentences: 100% for topicalization, *daß*, and negation; 89% for pv (past); 78% for modals and pv (pres); and 67% for finiteness (see Appendix G, Figures 21 and 22).

For the individual levels, all three subjects had the same accuracy rates for ungrammatical finiteness (67%) which would confirm the above mentioned lexical aspect of finiteness, that is, subjects have not yet acquired the language-specific inflectional affixes. In addition, the Level 4 subject did well on the syntactic aspects of German structures, that is, the subject scored 100% on topicalization, negation, and *daß*, but he scored only 67% on structures which involve lexical learning.

5.5.2 Chinese

Chinese has both SOV and OSV structures, and objects can occur between a modal and a main verb (Ernst and Wang 1995). Chinese dialects have few inflectional morphemes, that is, verbs do not change according to number, case, gender. There is no case morphology to indicate subject, direct or indirect objects. Grammatical relations are usually indicated by word order. For example, the NP preceding the verb indicates a subject, the NP following the verb points to the object. Gender and tense are either indicated lexically or not at all. The relationships between words are usually inferred from meaning and discourse context.

(26) I tell s/he buy orange eat (Li and Thompson 1987:97)

'I told him/her to buy oranges to eat'

Chinese has co-verb constructions, that is, the words are partly verb, partly preposition:

(27) s/he at home-in work (Li and Thompson 1987:98)

'she works at home'

Negation is expressed by the negative morpheme *bù* which precedes an auxiliary in a root clause or appears between the reduplicated auxiliary in questions:

(28) they not have cheat Lisi (Huang 1988:283)

'they did not cheat Lisi'

(29) they have-not-have cheat Lisi (Huang 1988:283)

'did they cheat Lisi?'

Since Chinese allows for SOV and OSV structures, topicalization and clause-final verbal placement in German should not cause any great difficulty. On the other hand, since Chinese does not have verbal inflection, Chinese speakers may be expected to have problems with the finiteness structures. This pattern was confirmed.

Overall, across levels and across structures, Chinese speakers judged ungrammatical sentences more accurately than grammatical sentences (92% vs. 82%). Overall, for the grammatical sentences, pv (past) was judged the highest with 93%,

followed by topicalization and pv (pres) 87%, *daß* and negation 80%, modals and finiteness 73% (see Appendix G, Figures 23 and 24). The ungrammatical sentences across all levels: topicalization, negation, and pv (past) 100%; *daß* and modals 93%; pv (pres) 87%; and finiteness 67% (see Appendix G, Figures 25 and 26).

There were a total of five subjects: two subjects on Level 2, and one subject each for Levels 3, 4 and 5. For the ungrammatical sentences, topicalization, negation, and pv (past) were judged 100% by all subjects independent of level. Level 2 and Level 3 subjects judged ungrammatical finiteness 67%. The subject on Level 4 had 67% for pv (pres) and only 33% for finiteness. And the Level 5 subject had 100% accuracy for all ungrammatical structures. The results for the Chinese speakers appear to indicate that the learners had acquired the basic verb movement requirements for German.

5.5.3 English

English is a SVO language where the verb is inflected for tense, person and number. Main verbs in English do not raise to INFL at S-structure due to the [-strong INFL] or weak agreement feature, but 'have' and 'be' raise. This may cause intererence with the acquisition of German which requires all verbs (including modals and auxiliaries) to raise. In main clauses in English, negation follows auxiliaries but precedes main verbs, in German negation is to the right of finite verbs and auxiliaries. Adverbs are base-generated in VP-adjoined position in both English and German. Unlike German, English may adjoin elements to IP, creating V3 structures, for example,

(30) yesterday I went to London

The subjects may have initial difficulty with word order in *daß*-clauses and with topicalization. There were a total of 5 subjects, one subject each on Level 2 and 3, and three subjects on Level 5. The subject on Level 2 had 100% for negation and modals, 67% for finiteness and *daß*, and 33% for topicalization, pv (pres), and pv (past); the subject on Level 3 judged topicalization 67%, everything else 100%, and the three subjects on Level 5 judged all ungrammatical structures 100% accurately (see Appendix G, Figures 27-30). The above predictions were tentatively borne out.

5.5.4 French

Like English, French is an SVO language with verbs inflected for tense, person and number. Finite verbs in French raise to INFL; in main clauses the negation marker *pas* follows the finite verb. French speakers should experience some interference with *daß*-structures, topicalization and possible also phrasal verbs. There were a total of five French speakers: one each on Levels 2 and 3, and three on Level 5. Considering only the ungrammatical sentences, the two subjects on Level 2 and Level 3 scored 67% on finiteness, as did two of the three subjects on Level 5 (the third subject had 100%), indicating that finiteness presented more of a problem to French speakers than to English speakers. The Level 2 and Level 3 speakers also scored 67% and 33% respectively on pv (pres). Level 5 speakers scored 100% on all other structures under investigation. As expected, the French speakers did not have any problems with negation, but they also did not show problems with *daß*-sentences (see Appendix G, Figures 31-34).

5.5.5 Korean

Word order in Korean is SOV, with relatively free order of words within the clause but a strict clause-final position for the verb. Subjects can be deleted if context allows for interpretation of the sentence. Korean is a left-branching language, that is, heads are preceded by their complements; topicalization of elements is possible in Korean.

In the case of verbal negation, the negative morphemes *an* and *mos* precede the main verb immediately. Verbs in Korean are inflected for tense, aspect, modality, and other forms like honorific or formal (Kim 1987).

Korean subjects should have little difficulty with verb-final constructions in German, topicalization should not be problematic either. Since in Korean negation precedes the verb, there may be some interference effects.

Five Korean speakers participated in the study: three on Level 3, and two on Level 4. The findings for the ungrammatical sentences suggest that the Korean speakers in this study in general have little problems with negation, modals, and *daß*, except for one speaker on Level 3 who had 0% for *daß*, and only 33% each for negation, topicalization, and finiteness. Finiteness has not been acquired on Level 3 but is present on Level 4. One Level 3 speaker is more similar in his judgements to the Level 4 speakers: He received 100% on all structures except finiteness (67%). The other two Level 3 speakers had only 33% on finiteness. One Level 4 speaker judged everything 100%, the other scored 100% on everything except topicalization (67%). Two Level 3 speakers judged pv (pres) with 33% and 67% respectively, the third subject had 100%, as had the Level 4 subjects (see Appendix G, Figures 35-38).

5.5.6 Polish

As mentioned above, no analysis for individual levels for Polish speakers will be attempted since there was only one subject each for Levels 3, 4, and 5.

Overall, the Polish speakers scored lower than other subjects: 78% for ungrammatical sentence structures, 73% for grammatical sentences.

5.5.7 Spanish

The word order in Spanish is SVO. Verbs are inflected for person, number and tense.

There were a total of three Spanish speakers: two on Level 2, and one on Level 5. It appears that the only difficulty the Spanish speakers experienced were with phrasal verbs, both present and present perfect tense. Both speakers on Level 2 accurately judged 33% of pv (pres), one speaker judged pv (past) with 33% and one with 67%. This result is consistent with the fact that Spanish does have neither phrasal verbs nor clause-final verbal constructions. With respect to the other structures, one subject on Level 2 judged modals 67%, everything else 100%. The other subject on Level 2 and the subject on Level 5 judged everything 100% (see Appendix G, Figures 39-42).

5.5.8 Turkish

Turkish is an SOV language where the verb is in clause-final position in matrix sentences. The verb is marked for tense and modality and sometimes for person (Kornfilt 1991; Erguvanlı 1984; all examples and translations are from Erguvanlı 1984).

(31) čojuk süt-ü dök-tü (p. 6)
child milk-acc spill-pst
'The child spilled the milk'

(32) Ben o resm-i *Ahmét Bey-den* al-di-m (p. 121)
I that picture-acc Ahmet Bey-abl buy-pst-1sg
'I bought that picture from *Ahmet Bey*'

Verbal negation is expressed through a suffix immediately attached to the verb stem:

(33) čojuk süt-ü dök-*me*-tü (p. 6)
child milk-acc spill-neg-pst
'The child didn't spill the milk'

Non-verbal negation *degil* ('(is) not') also functions as an auxiliary to which suffixes like tense or personal endings can be attached (van Schaaik 1994).

(34) Biz-im ev eski *degil* (p. 6)
1pl-gen house old neg
'Our house isn't old'

Scrambling (subject-object inversion) can move an object to clause-initial position, resulting in an OSV word order, and extraposition can move an object to the right of the VP, resulting in SVO word order:

(35) Yumurta-yi Ahmet ye-di (p. 11)
egg-acc Ahmet eat-pst
'Ahmet ate the egg'

(36) Ahmet ye-di yumurta-yi (p. 12)
Ahmet eat-pst egg-acc
'Ahmet ate the egg'

Unlike in German or English were modals generally precede the main verb, in Turkish, as a classic SOV language, modals follow the verb, or they can be by themselves in a sentence (like in German):

(37) *Kím* sinéma-ya git-mek isti-yor, ... (p.120)
who movies-dat go-inf want-prog
'*Who* wants to got to the movies...'

(38) Ayšé iste-di o kitab-i Ali-den (p. 126)
Ayše want-pst that book-acc Ali-abl
'Ayše asked for that book from Ali'

There were a total of eight Turkish speakers: 2 subjects on Level 2, 3 subjects on Level 3, and 3 subjects on Level 4. Overall, the Turkish speakers judged ungrammatical sentences better than grammatical sentences (95% vs. 84%).

For all speakers and across all levels, the following accuracy rates for grammatical sentences were established: pv (past) (100%), topicalization (92%), *daß* (92%), pv (pres) (88%), modals (83%), negation (71%), and finiteness (71%) (see Appendix G, Figures 43 and 44).

For the ungrammatical sentences, Turkish speakers scored as follows: negation (100%), pv (past) (100%), topicalization (96%), *daß* (96%), modals (96%), finiteness (88%), and pv (pres) (87%) (see Appendix G, Figures 45 and 46).

Given this brief description on Turkish syntax facts, the learners in this study are thus expected to have little problems with finiteness, topicalization, *daß* or modals. This was confirmed by the data.

For all speakers and across all levels, the following accuracy rates for grammatical sentences were obtained: 100% for pv (past), 92% for topicalization and *daß*, 88% for pv (pres), 83% for modals, and 71% for negation and finiteness.

For the ungrammatical sentences, Turkish speakers scored as follows: 100% for negation and pv (past), 96% for topicalization, *daß* and modals, 88% for finiteness, and 87% for pv (pres).

As for the individual levels, for ungrammatical sentences, the two Level 2 subjects had 100% correct on negation, modals, pv (pres), pv (past), and finiteness. They received 78% on *daß* and topicalization. That is, one of the subjects on Level 2 judged 67% on topicalization (and 100% on everything else); the other subject had 67% on *daß* (and 100% on all other structures). The three subjects on Level 3 scored 100% on ungrammatical negation, modals, *daß*, pv (past), and topicalization. Finiteness and pv (pres) received 89%. Two of the subjects judged everything 100% correct; one subject judged two out of three sentences for finiteness and pv (pres) correctly, which means 67%. This subject shows the same results as one of the subjects on Level 4. The three subjects on Level 4 received 100% for negation, topicalization, *daß*, and pv (past). Modals received 89%, and finiteness and pv (pres) 78%.

The Turkish speakers, like the subjects overall, showed a reverse trend for pv (pres), that is, the lower level subjects scored higher than did the more proficient ones

(see Chapter 6 for a possible explanation for this phenomenon). In addition, the Turkish subjects showed that same trend for finiteness (unlike the overall subject population which generally showed an increase in finiteness to coincide with an increase in proficiency level).

For speakers of five languages—Arabic, Chinese, French, Korean and Turkish—negation precedes (or is judged equally with) topicalization which in turn precedes finiteness, a result very similar to that for all subjects independent of native language. Spanish speakers scored 100% for all three areas. The Polish speakers, across levels, scored 100% on topicalization and 89% each on negation and finiteness.

Negation was judged 100% correct for all languages investigated here except Korean (87%) and Polish (89%). Similarly topicalization: 100% for Arabic, Chinese, French, Polish, Spanish; 96% for Turkish; and 80% for English and Korean. Ungrammatical finiteness shows a much more varied picture: Spanish speakers scored 100%, English 93%, Polish 89%, Turkish 88%, French 73%, and Arabic, Chinese and Korean 67% each.

The English speakers are an anomaly compared to the other seven language groups (and also compared with all the subjects together) since they judge topicalization worse than finiteness. Closer examination of the five English subjects shows that three of them (all in Level 5) scored 100% with respect to ungrammatical topicalization. The one subject in Level 2 scored 33%, the subject in Level 3 scored 67% (see also 5.1.5).

Based on the analyses for the individual language groups, there is inconclusive evidence with respect to the predictions made above about transfer effects from L1. Only

English speakers appear to show transfer effects on Levels 2 and 3 for topicalization, and the Level 2 subject for *daß*.

Transfer is a well-known fact in non-primary language acquisition and there has to be an explanation why not more transfer effects have been found here. One reason may be that the number of subjects per language group and proficiency level was insufficient and perhaps too advanced to show transfer. Another possibility is that there are other theoretical explanations for the syntactic structures in the various language groups.

Ungrammatical finiteness appears to present a problem for most of the subjects in the individual language groups. The following accuracy rates were recorded for ungrammatical finiteness:

Table 8: Finiteness (ungrammatical sentences only) in percent for individual language groups (overall and per level)

	Arabic	Chinese	English	French	Korean	Spanish	Turkish
overall	67	67	93	73	67	100	88
Level 2	-	67	67	67	-	100	100
Level 3	67	67	100	67	44	-	89
Level 4	67	33	-	-	100	-	78
Level 5	-	100	100	78	-	100	-

(overall = all levels together)

While most of the subjects on Level 5 seem to have acquired finiteness based on the accuracy rates, it is unclear why the French subjects did so poorly in general with this structure.

5.6 Cluster Hypothesis

Arabic

Overall for the Arabic subjects, grammatical pv (past) and negation and finiteness and modals are correlated [$p<.01$]. No correlations were found for ungrammatical sentences.

Chinese

For the Chinese subjects modals and 'daß' is correlated for the ungrammatical sentences [$p<.01$].

English

Ungrammatical finiteness is correlated with pv (pres), pv (past) and 'daß' [$p<.01$].

French

No correlations were found.

Korean

For the ungrammatical sentences there were the following correlations: negation with modals and *daß* [$p<.01$]; pv (past) with negation, modals and *daß* [$p<.05$].

Polish

Ungrammatical pv (past) and negation [$p<.01$] and pv (pres) and *daß* [$p<.01$] are correlated.

Spanish

No correlations were found.

Turkish

No correlations could be established.

CHAPTER 6

Discussion and Conclusion

This study set out to investigate whether non-primary language learners use the same triggers for German word order as primary language learners.

Hypothesis 1 states that L2 learners use triggers in the same developmental sequence as L1 learners. The triggers proposed for this developmental sequence are finiteness in conjunction with negation, followed by topicalization.

Hypothesis 2 is the claim that phrasal verbs, modals and negation cluster together to trigger the correct word order for German.

The results of the study showed that non-primary adult language learners do not use the triggers in the same order as stated in Hypothesis 1 (and as proposed by Weissenborn 1990) and no statistically significant correlations could be established between the triggers suggested in Hypothesis 2 (Lightfoot 1991).

In this chapter possible explanations for the results are suggested. The subjects appear to have acquired the basic word order investigated in this study. A number of reasons which may have contributed to the subjects' judgments in the study are explored below.

The results of this study suggest that the subjects have mastered the basic aspects of word order tested, in the sense that they performed above chance level on the various structures tested in the study. The lowest accuracy rate was 78%. In order to avoid possible difficulties with the interpretation of the results, for example, an accuracy

rate of 50%, six tokens of each structure were chosen. Of these six sentences, three were grammatical and three were ungrammatical. This made it possible to have accuracy rates that were either above or below the chance level of 50%. On the other hand, the results of the study would be more robust had the number of tokens per structure been higher.

One of the reasons why subjects in this study performed with rather high accuracy across all levels may be that the instruments used in the grammaticality judgment task were very basic in the sense that they were not sensitive enough. The sentences designed for this study tested only very basic syntactic structures like word order in root or embedded clauses. And the sentences were short (8-10 syllables). On the other hand, as evidenced in primary language acquisition (see Chapter 2), word order is one aspect of syntax that is acquired very early. Since verb movement is a principle of UG which is parameterized in individual grammars (for example, the V2 parameter forces finite verbs in German root clauses to move into the V2 position, that is, COMP), the assumption is that UG provides the language learner with certain options from which the correct one is chosen based on information from the input (Schachter 1996). In the case of the V2 parameter, UG provides the option of [+F] in COMP or INFL. In addition, the proficiency test used to allow students from the different universities to be placed at particular levels in their L2 development was rather short and may therefore not have been as discriminating as a longer test would have been. However, it did test a range of features so that the classification of the subjects in general appears to be valid.

The number of subjects participating in the study was relatively low, especially with respect to the analyses of the individual language groups which makes generalizations with respect to the acquisition of specific features or transfer effects quite difficult if not impossible.

As mentioned in Chapter 1, some parameters are expressed robustly in the sense that more than one trigger exists. If robustness is connected to "saliency and frequency" as suggested by Lightfoot (1991), then phrasal verbs and topicalization are especially good candidates for triggers. They appear frequently in input data and they are salient; topicalization, for example, is a very common but marked structure in German. The same holds for phrasal verbs due to their discontinuous structure (see Chapter 1 and 5 for a discussion about phrasal verbs).

The sentence structures used in the study were designed to test basic word order, and it appears that a ceiling effect had been reached with the subjects on Level 5. The subjects in the study were students studying German in Germany. They were exposed to naturalistic input in addition to tutored input in the classroom. It is not possible to determine whether they were exposed to negative evidence of some kind.

The input tutored learners receive in a language classroom may be in part responsible for the judgment of *daß*-sentences in this study. Learners appear to have mastered this structure early on. A possible explanation for the subjects' judgments is that *daß*-clauses are part of syntax. Once the L2 learner has learned the lexical aspects related to the complementizer *daß* (which is possibly facilitated by instruction), acquisition of embedded clause-structure should be facilitated as well.

On the other hand, despite instruction, inflectional endings do not appear to be acquired at the same rate as is the *daß*-clause structure. The present tense inflectional paradigm for verbs is among the first things learners in a German classroom are exposed to; it precedes instruction of embedded clauses. Inflectional endings are part of the lexicon and may therefore take more time (see Chapter 5; see also Chapter 3.6 above). However, Klein and Purdue (1992) point out that the Turkish learners in the ESF study had short and probably intensive instruction "which led to the rapid acquisition of

verb inflexion and hence finite utterance organisation." (Klein and Purdue 1992:187). They point out that these learners did not need to extract properties of finiteness from an ambiguous agreement paradigm, although it has been suggested that ambiguous properties in input data have led to inappropriate parameter settings in L2 German (duPlessis et al. 1987).

As stated above, one result of the present study is that non-primary language learners appear to have more difficulty with morphosyntactic information than with word order information. Of the areas tested, topicalization, negation and *daß* constitute syntactic information while the other three areas—finiteness, phrasal verbs and modals —belong to the morphosyntactic and/or lexical component of the language faculty. As mentioned in Chapter 2 for L1 German acquisition, the complementizer *daß* is of course a lexical item which has to be analyzed correctly initially before it can be used as a trigger. But once UG has recognized it as a trigger, it can be used to reorganize the L2 learner's grammar. At the same time, the presence of *daß*-clauses early on indicates that a CP structure has to be in place, in addition to a head-final IP.

Syntax deals with the structure of phrases, while morphology and morphosyntax deals with the structure of words. Phrase structure and its movement operations ('move-α') are part of UG; morphosyntax is concerned with, for example, the combining of lexical stems and affixes. The lexicon of a language as well as language-specific inflectional endings have to be learned. As Hendrick (1995:305) points out, "the lexicon is the repository of ideosyncratic and unpredictable facts about language." (Anderson 1992; Hendrick 1995; also cf. Stiebels and Wunderlich 1994 regarding phrasal verbs). In the case of verbs, for example, the verb is base-generated in V but in order to have its tense and subject-verb agreement endings checked it is forced to move from V to INFL (or to TENSE and AGR) as an instance of 'move-α' (head-to-head movement). Prior to the

Minimalist Program the verb received its inflections by moving to INFL at S-structure, that is, inflectional morphology used to be part of syntax.

As mentioned in Chapter 5, there is evidence that morphosyntax poses a greater problem for non-primary language learners than does syntax. Word order is generally acquired earlier than morphosyntactic properties like, for example, verbal inflection (Adjémian 1983; Felix 1982; Roeper 1992). UG provides the learner with knowledge about syntactic operations. There is also some evidence that lower level non-primary language learners perform in a more syntactically-based manner (Ard and Gass 1987).

In German L2 acquisition, Vainikka and Young-Scholten (1994) mention that verb raising is acquired prior to the agreement paradigm. This is consistent with other recent studies (see below). Non-primary language learners of German may pick *-(e)n* as an agreement suffix because they know that agreement is needed, that is, that German is a [+strong INFL] language, but they do not know the morpho-phonetics (Epstein et al. 1996a). So learners can be expected to have knowledge of verb raising prior to the acquisition of the full agreement paradigm in German. This seems to be confirmed by this study. Although the full agreement paradigm appears to be still missing as evidenced by the subjects' relatively low accuracy rate for finiteness, there is evidence that they have acquired verb movement.

There have been some studies showing that non-primary language learners know the distribution of finite verbs even though they may not have acquired the inflectional suffixes of the L2. Since inflectional suffixes are part of the lexicon, their acquisition is independent from the acquisition of syntactical features given the modular nature of the language system. Non-primary language learners with different L1s should show a similar development in the acquisition of elements controlled by the lexicon (Schwartz and Sprouse 1996).

There is some evidence that morphosyntax poses a greater problem for non-primary language learners than does syntax. Adjémian (1983:260) mentions that "the main features of word order are acquired well before morphological properties such as inflections." This is backed by a study of deaf native learners, early learners and late learners of American Sign Language[1]. Newport (1990) found that basic word order was learned independently of age of first exposure. Morphology, on the other hand, shows "consistent and significant affects of age of learning" (Newport 1990:16; Prévost and White 1998). Newport also mentions that Genie (Curtiss 1977) did master basic word order but never controlled the morphology.

In a study on instructed L2 learners of German, Ellis (1989) reports that learners seemed to pay little conscious attention to syntactic aspects in a speech elicitation task. The subjects self-corrected morphological features like verb tense morphemes or articles rather than syntax. He mentions that instruction had focussed on morphological features and this may have had some impact on subjects, but it may have just raised subjects' consciousness for their own mistakes (and therefore their willingness to self-correct).

Juffs (1996) found that there appears to be a reliance on surface syntax patterns in low level language learners which "contradicts the strongest version of the initial state transfer hypothesis (e.g., Schwartz and Sprouse, 1996)... L2 morphology which affects argument structure, valency and causativity, is *not* generally available at this time, or at least not processed at this stage." (Juffs 1996:228). Juffs (1996) posits various stages for language development. On Stage 2 "input from the L2, and L1 conflation patterns, affects lexical entries. Verb argument structures begin to be recorded one by one." (Juffs

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[1] The labels are given by Newport (1990). Native learners are exposed to ASL by signing parents from birth; early learners learn ASL from signing peers at age 4-6, and late learners are exposed to ASL after age 12.

1996:229). On Stage 3 "Morphological information begins to play a significant role in argument structure alternations, along with a reorganization of the lexical entries to reflect L2 patterns." (Juffs 1996:229). At Stage 4 "Morphological properties of the L2 are acquired, and non-attested forms are expunged from lexical entries. ... The L1 and L2 grammars are separate;" (Juffs 1996:229).

Lardiere (1998) examined the question whether optional verb movement is allowed in an L2 interlanguage (or rather intergrammar). Optional verb movement is predicted to be possible under Eubank's (1996) proposal of [±strong INFL] feature where learners have not yet acquired the feature strength of INFL (or AGR) in the target language. Lardiere (1998) found that her L1 Chinese subject learning English did not show evidence of optional verb raising which indicates that the acquisition of morphological agreement markers follows the acquisiton of syntactic movement. Lardiere (1998) concludes that L2 learners know whether or not the target language requires verb raising even though they may not have acquired the agreement paradigm yet.

Similar results were found by Prévost and White (1998). They examined spontaneous production data of four children and four adults. Two of the adults were L1 Moroccan Arabic speakers learning French (from the ESF project), the other two adults were L1 Portuguese and Spanish speakers learning German (from the ZISA project). With respect to finiteness, Prévost and White (1998) found that the development of the two L2 German adults differs. One subject produced more root infinites (with little development) than the other who had a substantial decrease at one point, although they never quite disappeared. The adult learners also produced non-finite CPs (for example, embedded clauses or wh-questions). In addition, adult learners of L2 German, but not L2 French, occasionally produced non-finite auxiliaries and modals. In L2 German root declaratives there were virtually no finite verbs in clause-final position. The most common

word order for the L2 German learners was SVO (see Clahsen and Muysken 1986) —which would be expected if it is assumed that the full set of functional categories is available. However, there appears to be a transfer of the head-initial VP and IP since "word order remains VX in root infinitives produced after the acquisition of German head-final VP. This suggests that these are not in fact nonfinite verbs but sentences involving functional categories and verb movement" (Prévost and White 1998:22).

With respect to negation, Prévost and White (1998) found that the L2 German learners used V Neg and Neg V equally frequently.

(1) ich studiere nicht (Prévost and White 1998:24)
I study-1S not

(2) ich sprechen nicht Deutsch (Prévost and White 1998:24)
I speak-INF not German

V Neg indicates that the verb has moved up to Agr while for the Neg V pattern the verb has not raised leftward out of the VP. The Neg V pattern would be appropriate, for example, in embedded clauses.

Prévost and White (1998) conclude that the results of their study are consistent with the Missing Inflection Hypothesis. "[A]dults do not treat verbs bearing the infinitival marker as nonfinite." (Prévost and White 1998:25). Rather, the infinitival marker functions as the default for finite inflection. A similar point is made by Epstein et al. (1996a). They mention that since the *-(e)n* in German may be the morphological affix with the highest distribution, L2 learners may use it as a "best guess" if they have not yet

acquired the full morphological paradigm. This is contrary to L1 acquisition where children use inflectional markings appropriately (see Chapter 2).

According to Prévost and White (1998), the use of non-finite inflectional markers is not seen as an indication of missing functional categories (Epstein et al. 1996a; but cf. Vainikka and Young-Scholten 1996).

One of the triggers tested in this study is phrasal verbs. They are part of the lexicon and therefore have to be learned. As mentioned above (Chapter 5), phrasal verbs have a somewhat complex nature with regard to their semantical content. They consist of a preposition-like particle and a stem, and—like the complementizer *daß*—they have to be analyzed first before they can be used as triggers by the L2 learner. In addition, they provide semantic ambiguity. In general, semantic information about words is supplied by the lexicon which provides the input for syntax (Tabossi 1991). But initial parsing decisions are usually made based on syntax. This could explain why the phrasal verbs in present perfect tense on the grammaticality judgment task were judged more accurately than the phrasal verbs in present tense.

As the results in Chapter 5 show, ungrammatical pv (pres) is judged increasingly correct depending on the proficiency level with a significant increase on Level 5. The same holds for finiteness on Levels 3, 4 and 5. Level 2 judged modals correctly to a higher percentage than did either Level 3 or 4. Finiteness was also judged higher on Level 2 than on Level 3. It is possible that starting with Level 3, the regular inflectional verb endings become available to learners and there may be some interference from the primary language. This could be an explanation for the drop in percentage judged correctly for finiteness. Learners have mastered the finiteness distinction but have not mastered the subject-verb agreement paradigm yet.

As mentioned in the chapter on German word order (Chapter 1), modals in German have a somewhat unusual position. Their inflection is highly irregular in the sense that they do not follow the regular inflection paradigm. In addition, they can be used as auxiliaries (together with a verb in the infinitive), or they can be used as a full verb. Due to their irregular forms they are assumed to be supplied by the lexicon, that is, they have to be learned as part of an ideosyncratic and language specific lexicon.

The study set out to investigate whether the triggers for German word order are the same in primary and non-primary language acquisition. As stated in the Introduction, it is not clear how L2 learners recognize triggers (Carroll 1996) and what precisely restricts their parameter space. Based on the overall accuracy rates for the structures under investigation (ungrammatical sentences) the positional properties of sentential negation appear to trigger verb movement from base position out of the VP, topicalization and *daß* may be the triggers for movement to COMP.

There is still much we do not know about triggers in general and also about parameter settings. The traditional notion of triggers is that they bring about a relatively sudden change. But if parameter settings can grow stronger, as has been suggested above, then our understanding of how parameter settings are acquired may have to be modified.

One of the results in this study, that morphosyntactic aspects of a non-primary language are acquired later than the syntactic aspects is supported by a number of recent studies in second language acquisition (Lardiere 1998; Juffs 1996; Prévost and White 1998; see also Epstein et al. 1996a; Martohardjono and Flynn 1995). The fact that morphosyntax is difficult for L2 learners has been recognized earlier. Felix (1982) mentions that morphological differences are acquired relatively late (see also Adjémian 1983). The reason for this difference in learners' behavior suggested above is that UG

provides the learner with knowledge about possible structures while morphosyntactic aspects are subject to lexical learning which takes time. Martohardjono and Flynn (1995) suggest that the acquisition of a language may involve two kinds of 'learning', one for syntax and one for lexical rules.

With respect to the second language acquisition studies discussed in some detail in Chapter 3, no direct comparisons can be drawn between those studies and the present study. These earlier studies differ in a number of ways from this study. As mentioned above, Clahsen and Muysken (1986) and Vainikka and Young-Scholten (1994, 1996) used production data in their analysis of L2 German word order acquisition while this study used a grammaticality judgment task to elicit subjects' intuitions about specific structures. The subject populations in the studies are very different as well. The subjects in the ZISA project, for example, were workers in Germany with limited or no language instruction and often quite limited education. The subjects in this study are for the most part highly educated, tutored learners (see Chapter 4.2 above). There were likely some differences in motivation for learning German as well as differences in the amount and kind of input the different groups of learners received.

The theoretical framework on which Clahsen and Muysken's (1986) study is based upon is different from that of Vainikka and Young-Scholten's or the present study's. As mentioned above, results can be interpreted differently depending on the theoretical framework used (Rogers 1995).

Given these caveats, a comparison of the triggers suggested for the study by Clahsen and Muysken (1986), and in Vainikka and Young-Scholten (1994, 1996) and this study can be tentative at best.

Vainikka and Young-Scholten (1994, 1996) mention that verb raising is acquired prior to the acquisition of the full agreement paradigm which is confirmed by this study

(see also the discussion above). With respect to triggers in L2 German word order acquisition, Vainikka and Young-Scholten mention modals as a trigger for their FP stage, the copula *sein* ('to be') triggers the AgrP stage, and complementizers trigger CP (see Chapter 3.4.2 above).

The copula *sein* was not investigated as a trigger in the present study. Based on the accuracy rates in this study, the complementizer *daß* appears to be available very early on suggesting that a CP structure is in place. This also suggests that all functional categories are in place prior to the acquisition of modals.

The results of the acquisition sequence proposed by Clahsen and Muysken (1986) have been reanalyzed by duPlessis et al. (1987) and Schwartz (1996). They suggest that at Clahsen and Muysken's stage 3 (see Chapter 3.2 above) the underlying SVO structure is changed to SOV, that is, the head parameter is reset. Since separable prefixes (from phrasal verbs), participles in auxiliary-verb constructions, and infinitives in modal constructions cluster at this stage, they are seen as the triggers for resetting the head-parameter.

What the above has shown is that non-primary language acquisition of word order in German is still an interesting area to investigate because there are a number of different hypotheses but no single explanation has been found so far to explain all the facts. One problem is that the results of various studies often cannot be compared to each other due to methodological differences, differences in the subject population, and other factors such as different theoretical frameworks.

The study at hand is based on the framework of the principles and parameter approach to Universal Grammar. If this approach to language learning is correct it appears worthwhile to investigate triggers more closely. What precisely is the nature of a trigger? Does a trigger have to be in an unmarked context or is a marked context

preferable? Fodor (1995) mentions that triggers have to be frequent in the input since learners have no memory for past structures. That learners have no memory for past structures may be correct in child language acquisition where children's cognitive development may have some impact. Or, as suggested by van Buren (1996), the parser can control at different stages in the acquisition process how much and at what rate input can be processed. The parser is a theoretical construct which assigns a grammatical structure to an input string based on knowledge provided by UG. If the input data are analyzed as grammatical, then a structure is assigned to that input (van Buren 1996). With respect to adult second language acquisition, it appears to be an empirical question whether adults have memories for past structures or not; different kinds of learning may play a role here. Van Buren (1996) mentions that the parser may control input in a similar way for adults as it does for children (cf. Clahsen, Meisel and Pienemann 1983). As has been pointed out by Carroll (1996) second language acquisition does not have a theory of triggers so far.

Another interesting point with respect to triggers in general is raised by Felix (1996). He suggests that while in L1 acquisition UG operation is automatical, it might have to be triggered in L2 acquisition: "it does not seem to be totally absurd to claim that what counts as a trigger has something to do with the properties of the learning environment." (Felix 1996:1156). His proposal is based on data gathered in a study with high school students of L2 English in Germany. The subjects' performance is hypothesized to be due "to the specific environment of learning English exclusively in a German classroom." (Felix 1996:1156). This proposed environmental trigger is also influenced by the learner's "mental biology" in that some learners are more sensitive to triggers than other learners. The kind of trigger Felix (1996) appears to have in mind is albeit different from the kinds of triggers discussed in this study.

Appendix A: Primary languages spoken by the 58 subjects

	Number of speakers
Amharic	1
Arabic	3
Bangla	1
Bosnian	1
Bulgarian	1
Chinese	5
Dschang (Yemba)	1
English	5
French	5
Georgian	1
Greek	1
Hindi	1
Italian	2
Japanese	2
Korean	5
Kurdish	2
Persian	1
Polish	3
Punjabi	1
Russian	2
Spanish	3
Turkish	8
Ukrainian	2
Vietnamese	1

Appendix B: Subjects' Profiles

Native Language	Age	Age learning German	Time in Germany
Amharic	26	25	4 years
Arabic	24	-	1 year
Arabic	26	26	5 months
Arabic	24	24	3 months
Bangla	26	25	3 years
Bosnian	27	25	20 months
Bulgarian	22	22	8 months
Chinese	30	28	3 months
Chinese	29	27	1.5 years
Chinese	25	24	8 months
Chinese	26	25	1 year
Chinese	32	28	3 years
Dschang (Yemba)	25	18	8 months
English	25	15	1 year
English	21	13	2 months
English	29	22	3.5 months
English	20	19	4 months
English	29	29	4 months
French	28	26	7 months
French	26	23	9 months
French	50	25	3.5 years
French	21	21	7 months
French	22	22	3 months
Georgian	18	16	3 months

Greek	25	25	3 months
Hindi	28	28	2 months
Italian	19	16	3 months
Italian	26	14	8 months
Japanese	22	19	1.5 years
Japanese	27	25	2 years
Korean	25	24	1 year
Korean	22	19	7 months
Korean	29	16	2 months
Korean	37	16	2 years
Korean	37	37	1 year
Kurdish	24	23	1 year
Kurdish	33	29	3.5 years
Persian	30	28	7 months
Polish	23	19	2.5 years
Polish	26	25	5 months
Polish	24	20	5 weeks
Punjabi	27	25	3 months
Russian	24	22	2 years
Russian	26	25	6 months
Spanish	31	26	3 years
Spanish	24	20	1.5 years
Spanish	26	26	5 months
Turkish	24	23	1 year
Turkish	30	28	3 years
Turkish	25	24	1 year
Turkish	26	25	1 year
Turkish	26	12	1.5 years
Turkish	27	25	1.5 years
Turkish	24	23	8 months

Turkish	18	17	1 year
Ukrainian	21	19	3 months
Ukrainian	26	23	3 years
Vietnamese	35	28	5 years

Appendix C: Sentences used for the grammaticality judgment task

Phrasal verbs (present tense):	1.	*wir aufstehen jeden Tag früh
	2.	*ich mitbringe Wein zur Party
	3.	*sie abends immer ausgehen
	4.	er zieht oft eine Jacke an
	5.	das Kind zieht seine Jacke aus
	6.	ich stehe morgen sehr spät auf
Phrasal verbs (pres.perf. tense):	7.	*er hat genommen das Buch mit
	8.	*sie hat abgeholt ihren Freund
	9.	*er hat aufgeräumt sein Zimmer
	10.	er hat sie oft angerufen
	11.	wir sind sehr spät aufgestanden
	12.	sie haben gestern eingekauft
Topicalization:	13.	*morgen ich besuche meine Eltern
	14.	*in der Mensa ich esse jeden Tag
	15.	*den alten Mann er sieht jeden Tag
	16.	morgen kauft der junge Mann ein Auto
	17.	in der Mensa gibt es gutes Essen
	18.	seinen Geburtstag vergessen sie nie
Negation:	19.	*Alexander nicht den alten Mann sieht
	20.	*der Student nicht die Oper kennt
	21.	*er nicht wohnt in dem alten Haus
	22.	ihr trefft eure Freunde nicht oft
	23.	ich schicke das Buch nicht per Post
	24.	er geht nicht mit ihr ins Kino

Modals:	25. *du jeden Tag an die Uni mußt
	26. *das Kind den roten Ball kann sehen
	27. *wir morgen möchten zum Fußballspiel
	28. sie wollen morgen nach Rom fahren
	29. er muß heute nachmittag zur Post
	30. die junge Frau möchte ein Glas Wein
Finiteness:	31. *du sehen deinen Freund jeden Tag
	32. *meine Mutter kommen am Dienstag
	33. *er fahren mit der U-Bahn zum Zoo
	34. er geht donnerstags an die Uni
	35. ihr seht eure Freunde jeden Tag
	36. du findest das Theaterstück gut
daß:	37. *du weißt, daß sie hat Unterricht
	38. *mein Freund weiß, daß sie kommt heute
	39. *er weiß, daß sie hört gern Musik
	40. er merkt, daß sie Probleme hat
	41. du weißt, daß du ihn morgen triffst
	42. es ist möglich, daß er noch schläft
Fillers:	43. Claudia geht es heute sehr gut
	44. wir freuen uns auf die Ferien
	45. mein Auto ist oft in der Werkstatt
	46. ich gehe jeden Tag ins Kino
	47. du siehst den alten Mann oft im Park
	48. er freut sich auf das Wochenende
	49. *ich jogge gern, wenn es ist schön
	50. *ich freue mich, wenn ich sehe dich

51. *ich lache, wenn ich denke daran
52. ich esse Eiscreme, wenn es warm ist
53. sie nehmen den Bus, wenn es regnet
54. ich sage es ihm, wenn er mich fragt
55. *ich kenne der Mann in dem Restaurant
56. *mein Bruder hat ein alt Fernseher
57. im Winter gibt es oft viel Schnee
58. mein Bruder fährt gern Motorrad
59. ich fahre im Sommer nach Frankreich
60. ich freue mich auf Weihnachten

Appendix D: Proficiency Test

In jedem der nachfolgenden Sätze wurde ein oder mehrere Worte ausgelassen (...). Wählen Sie aus den vier vorgegebenen Möglichkeiten diejenige, die im Zusammenhang am besten paßt.

Beispiel: Schon so spät! Dann ... ich lieber gleich ab.
A fährt
(B) fahre
C fahren
D gefahren

1. Während ... Jahres lesen wir mindestens zwanzig Bücher.
   A das
   B dem
   C des
   D die

2. Am ... Samstag im Monat bleiben die Geschäfte länger auf.
   A erstes
   B erster
   C erstem
   D ersten

3. Mein Auto wird gerade ... .
   A reparieren
   B reparierst
   C repariert
   D reparierte

4. Viele Kinder ... gern mehr Freiheit von den Eltern.
   A hat
   B hatte
   C hätten
   D habe

5. Ankes Mutter sagt: „Stell doch endlich deine Schuhe ... Bett!"
   A dein
   B deinem
   C deines
   D deinen

6. Ich muß ... endlich mal ausruhen.
   A ihn
   B mich
   C mir
   D ihm

7. Er beginnt endlich, Deutsch ... .
   A versteht
   B zu verstehen
   C verstehe
   D verstanden

8. Ich esse am liebsten ... Brot.
   A frischer
   B frischen
   C frisch
   D frisches

9. Weißt du, ... wir heute eine Klassenarbeit in Deutsch schreiben?
   A wenn
   B als
   C ob
   D denn

10. Meine Eltern sind böse ... meine schlechten Noten.
    A über
    B von
    C an
    D gegen

11. ... gehört diese gelbe Tasche?
    A Wer
    B Wen
    C Wem
    D Wessen

12. ... warmer Mantel wäre jetzt gut.
    A Der
    B Ein
    C Einer
    D Den

13. ... nicht kommen. Ich habe zu viele Hausaufgaben.
    A Leider heute kann ich
    B Leider ich kann heute
    C Kann ich heute leider
    D Heute kann ich leider

14. Als Tobias gestern mit dem neuen Rad ...,... er hin.
    A fährt \\ fiel
    B fuhrt \\ fielt
    C fahr \\ fall
    D fuhr \\ fiel

15. Sag mal, ... hast du das Buch eigentlich zum Geburtstag bekommen.
    A von wem
    B wovon
    C von was
    D von wessen

*****

Heute haben wir begonnen, eine neue Geschichte zu ..16.. . Wir freuen uns schon lange ..17.. . Unser Lehrer sagt schon ..18.. Wochen, daß diese Geschichte ..19.. anders als die anderen Geschichten ist, die wir gelesen haben. Hoffentlich hat er ..20.. nicht zu viel versprochen.

16. A lese
    B liest
    C lest
    D lesen

17. A dazu
    B darauf
    C damit
    D dabei

18. A seit
    B in
    C durch
    D vor

19. A sehr
    B ganz
    C zu
    D nie

20. A wir
    B uns
    C dir
    D mich

..21.. Kinder!
Euer neues Kinder-Kino-Programm ist da! Ein Programm, ..22.. wir speziell für Euch zusammengestellt haben und das Euch die Tür zu spannenden Abenteuern weit ..23.. . Für jeden ist etwas dabei. Ihr könnt genau sehen, ..24.. welcher Film läuft. Also, Kinder, ..25.. wartet Ihr?
Kommt ins Kino! Viel Spaß und Vorhang auf!

21. A Liebe
B Lieber
C Liebes
D Lieben

22. A wer
B das
C dieses
D jedes

23. A ankommt
B zusieht
C mitbringt
D aufmacht

24. A wann
B was
C wer
D wohin

25. A worüber
B worauf
C woran
D womit

Appendix E: Fragebogen

Alle Informationen in diesem Fragebogen werden nur im Zusammenhang mit dieser Studie genutzt. **Sie brauchen Ihren Namen nicht anzugeben.**

Alter: _____

Geschlecht: m / w

Anzahl von Schuljahren (insgesamt): _____ Jahre

Muttersprache: _____

Welche andere Sprache(n) sprechen/lesen Sie und wie gut beherrschen Sie diese Sprache(n):

		schriftlich	**mündlich**
1.	_____	sehr gut / gut / Grundkenntnisse	sehr gut / gut / Grundkenntnisse
2.	_____	sehr gut / gut / Grundkenntnisse	sehr gut / gut / Grundkenntnisse
3.	_____	sehr gut / gut / Grundkenntnisse	sehr gut / gut / Grundkenntnisse

Muttersprache der Eltern: Vater: _____ Mutter: _____

Welche Sprache haben Sie in Ihrem Elternhaus gesprochen? _____

Als Sie klein waren, welche Sprache haben Sie mit Ihren Freunden gesprochen? _____

Spricht ein Elternteil (oder andere Verwandte) Deutsch?

Vater / Mutter / andere (wer?): _____

Kennen Sie andere deutsche Dialekte oder Sprachen? JA / NEIN

Wenn JA, welche (z.B. Amish, Schweizerdeutsch, etc.)? _____

Wie alt waren Sie, als Sie anfingen, Deutsch zu lernen? _____

Wieviele Jahre haben Sie Deutsch gelernt? _____ Jahre

Wie lange sind Sie schon in Deutschland? _____

Wieviel Deutsch sprechen/hören Sie außerhalb des Unterrichts? ca. _____ Stunden pro Woche

Was machen Sie außerhalb des Unterrichts?

Sehen Sie deutsche Programme im Fernsehen? ca. _____ Stunden pro Tag

Hören Sie deutschsprachige Sendungen im Radio? ca. _____ Stunden pro Tag

Gehen Sie ins Kino/Theater? ca. _____ Mal pro Woche

Haben Sie deutsche Freunde, mit denen Sie sich häufig treffen? ca. _____ Stunden pro Woche

Wohnen Sie allein? JA / NEIN

Wenn NEIN, wohnen Sie mit Leuten zusammen, deren Muttersprache Deutsch ist? JA / NEIN

Appendix F: Table 9: Sentences judged correctly (all levels and structures)

	Total Level 1-5		Total Level 2-5		Level 1		Level 2		Level 3		Level 4		Level 5	
	%	mean	%	mean	%	mean	%	mean	%	mean	%	mean	%	mean
All sentences	84	35.44	86	36.26	62	26.00	81	33.85	86	36.24	87	36.50	91	38.29
Grammatical sentences	81	17.00	83	17.33	63	13.20	76	15.85	84	17.71	83	17.36	87	18.21
Ungrammatical sentences	88	18.44	90	19.93	61	12.80	86	18.00	88	18.53	91	19.14	96	20.07
Phrasal verbs (present)	82	4.94	84	5.05	60	3.60	82	4.92	83	5.00	82	4.93	89	5.36
grammatical	83	2.49	84	2.52	73	2.20	87	2.62	86	2.59	81	2.43	81	2.43
ungrammatical	81	2.44	84	2.53	47	1.40	77	2.31	80	2.41	83	2.50	98	2.93
Phrasal verbs (past)	87	5.24	90	5.38	60	3.60	80	4.77	90	5.41	91	5.43	98	5.86
grammatical	86	2.59	89	2.66	60	1.80	90	2.39	88	2.65	90	2.71	95	2.86
ungrammatical	88	2.65	91	2.72	60	1.80	80	2.39	92	2.77	90	2.71	100	3.00
Topicalization	86	5.14	87	5.24	67	4.00	76	4.54	94	5.65	94	5.64	83	5.00
grammatical	83	2.48	84	2.53	60	1.80	67	2.00	94	2.82	90	2.71	83	2.50
ungrammatical	89	2.67	90	2.71	73	2.20	85	2.54	94	2.82	98	2.92	83	2.50
Negation	83	5.00	85	5.07	70	4.20	80	4.77	88	5.24	81	4.86	89	5.36
	[illegible]		[illegible]		[illegible]		[illegible]		[illegible]		67	2.00	79	2.36

All sentences	84	35.44	86	36.26	62	26.00	81	33.85	86	36.24	87	36.50	91	38.29
Grammatical sentences	81	17.00	83	17.33	63	13.20	76	15.85	84	17.71	83	17.36	87	18.21
Ungrammatical sentences	88	18.44	90	19.93	61	12.80	86	18.00	88	18.53	91	19.14	96	20.07
Phrasal verbs (present)	82	4.94	84	5.05	60	3.60	82	4.92	83	5.00	82	4.93	89	5.36
grammatical	83	2.49	84	2.52	73	2.20	87	2.62	96	2.59	81	2.43	81	2.43
ungrammatical	81	2.44	84	2.53	47	1.40	77	2.31	80	2.41	83	2.50	98	2.93
Phrasal verbs (past)	87	5.24	90	5.38	60	3.60	80	4.77	90	5.41	91	5.43	98	5.86
grammatical	86	2.59	89	2.66	60	1.80	80	2.39	88	2.65	90	2.71	95	2.86
ungrammatical	88	2.65	91	2.72	60	1.80	80	2.39	92	2.77	90	2.71	100	3.00
Topicalization	86	5.14	87	5.24	67	4.00	76	4.54	94	5.65	94	5.64	83	5.00
grammatical	83	2.48	84	2.53	60	1.80	67	2.00	94	2.82	90	2.71	83	2.50
ungrammatical	89	2.67	90	2.71	73	2.20	85	2.54	94	2.82	98	2.92	83	2.50
Negation	83	5.00	85	5.07	70	4.20	80	4.77	88	5.24	81	4.86	89	5.36
grammatical	71	2.13	72	2.17	53	1.60	62	1.85	80	2.41	67	2.00	79	2.36
ungrammatical	96	2.87	97	2.90	87	2.60	97	2.92	94	2.82	95	2.86	100	3.00
Modals	86	5.14	88	5.28	60	3.60	85	5.08	84	5.06	88	5.29	95	5.71
grammatical	81	2.44	83	2.48	67	2.00	74	2.23	80	2.41	86	2.57	90	2.71
ungrammatical	90	2.70	93	2.79	53	1.60	95	2.85	88	2.65	90	2.71	100	3.00
Finiteness	76	4.57	79	4.71	50	3.00	77	4.62	73	4.35	79	4.71	87	5.21
grammatical	73	2.18	74	2.22	53	1.60	72	2.15	69	2.06	74	2.21	83	2.50
ungrammatical	80	2.40	83	2.48	47	1.40	82	2.46	76	2.30	83	2.50	90	2.71
'daß'	90	5.41	92	5.53	67	4.00	86	5.15	92	5.53	94	5.64	97	5.79
grammatical	90	2.70	91	2.74	73	2.20	87	2.62	92	2.77	90	2.71	95	2.86
ungrammatical	90	2.71	93	2.79	60	1.80	85	2.54	92	2.77	98	2.93	98	2.93

Table 10: Sentences judged correctly - Individual languages

	Arabic		Chinese		English		French		Korean		Polish		Spanish		Turkish	
	%	mean	%	mean	%	mean	%	mean	%	mean	%	mean	%	mean	%	mean
All sentences	91	38.33	87	36.60	88	36.80	91	38.00	80	33.60	75	31.67	82	34.33	89	37.50
Grammatical sentences	95	20.00	82	17.20	84	17.60	90	18.80	80	16.80	73	15.33	76	16.00	84	17.63
Ungrammatical sentences	87	18.33	92	19.40	91	19.20	91	19.20	80	16.80	78	16.33	87	18.33	95	19.88
Phrasal verbs (present)	83	5.00	90	5.40	87	5.20	90	5.40	80	4.80	61	3.67	67	4.00	88	5.25
grammatical	89	2.67	87	2.60	87	2.60	100	3.00	80	2.40	78	2.33	78	2.33	88	2.63
ungrammatical	78	2.33	93	2.80	87	2.60	80	2.40	80	2.40	44	1.33	56	1.67	87	2.62
Phrasal verbs (past)	95	5.67	97	5.80	87	5.20	97	5.80	80	4.80	72	4.33	78	4.67	96	5.75
grammatical	100	3.00	93	2.80	87	2.60	93	2.80	87	2.60	67	2.00	89	2.67	92	2.75
ungrammatical	89	2.67	100	3.00	87	2.60	100	3.00	73	2.20	78	2.33	67	2.00	100	3.00
Topicalization	100	6.00	93	5.60	83	5.00	93	5.60	87	5.20	89	5.33	72	4.33	94	5.63
grammatical	100	3.00	87	2.60	87	2.60	87	2.60	93	2.80	78	2.33	44	1.33	92	2.75
ungrammatical	100	3.00	100	3.00	80	2.40	100	3.00	80	2.40	100	3.00	100	3.00	96	2.87
Negation	95	5.67	90	5.40	87	5.20	87	5.20	73	4.40	78	4.67	78	4.67	86	5.13
grammatical	89	2.67	80	2.40	73	2.20	73	2.20	60	1.80	67	2.00	56	1.67	71	2.13
ungrammatical	100	3.00	100	3.00	100	3.00	100	3.00	87	2.60	89	2.67	100	3.00	100	3.00

All sentences	91	38.33	87	36.60	88	36.80	91	38.00	80	33.60	75	31.67	82	34.33	89	37.50
Grammatical sentences	95	20.00	82	17.20	84	17.60	90	18.80	80	16.80	73	15.33	76	16.00	84	17.63
Ungrammatical sentences	87	18.33	92	19.40	91	19.20	91	19.20	80	16.80	78	16.33	87	18.33	95	19.88
Phrasal verbs (present)	83	5.00	90	5.40	87	5.20	90	5.40	80	4.80	61	3.67	67	4.00	88	5.25
grammatical	89	2.67	87	2.60	87	2.60	100	3.00	80	2.40	78	2.33	78	2.33	88	2.63
ungrammatical	78	2.33	93	2.80	87	2.60	80	2.40	80	2.40	44	1.33	56	1.67	87	2.62
Phrasal verbs (past)	95	5.67	97	5.80	87	5.20	97	5.80	80	4.80	72	4.33	78	4.67	96	5.75
grammatical	100	3.00	93	2.80	87	2.60	93	2.80	67	2.60	67	2.00	89	2.67	92	2.75
ungrammatical	89	2.67	100	3.00	87	2.60	100	3.00	73	2.20	78	2.33	67	2.00	100	3.00
Topicalization	100	6.00	93	5.60	83	5.00	93	5.60	87	5.20	89	5.33	72	4.33	94	5.63
grammatical	100	3.00	87	2.60	87	2.60	87	2.60	93	2.80	78	2.33	44	1.33	92	2.75
ungrammatical	100	3.00	100	3.00	80	2.40	100	3.00	80	2.40	100	3.00	100	3.00	96	2.87
Negation	95	5.67	90	5.40	87	5.20	87	5.20	73	4.40	78	4.67	78	4.67	86	5.13
grammatical	89	2.67	80	2.40	73	2.20	73	2.20	60	1.80	67	2.00	56	1.67	71	2.13
ungrammatical	100	3.00	100	3.00	100	3.00	100	3.00	87	2.60	89	2.67	100	3.00	100	3.00
Modals	89	5.33	83	5.00	93	5.60	87	5.20	80	4.80	72	4.33	89	5.33	90	5.38
grammatical	100	3.00	73	2.20	87	2.60	87	2.60	67	2.00	78	2.33	89	2.67	83	2.50
ungrammatical	78	2.33	93	2.80	100	3.00	87	2.60	93	2.80	67	2.00	89	2.67	96	2.87
Finiteness	78	4.67	70	4.20	80	4.80	80	4.80	77	4.60	83	5.00	89	5.33	79	4.75
grammatical	89	2.67	73	2.20	67	2.00	87	2.60	87	2.60	78	2.33	78	2.33	71	2.13
ungrammatical	67	2.00	67	2.00	93	2.80	73	2.20	67	2.00	89	2.67	100	3.00	88	2.63
'daß'	100	6.00	87	5.20	97	5.80	100	6.00	83	5.00	72	4.33	100	6.00	94	5.63
grammatical	100	3.00	80	2.40	100	3.00	100	3.00	87	2.60	67	2.00	100	3.00	92	2.75
ungrammatical	100	3.00	93	2.80	93	2.80	100	3.00	80	2.40	78	2.33	100	3.00	96	2.88

Table 11: Sequence of acquisition (ungrammatical sentences)

Level 2-5		Level 2		Level 3		Level 4		Level 5	
area	%	area	%	area	%	area	%	area	%
negation	97	negation	97	negation	94	topicalization	98	negation	100
'daß'	93	modals	95	topicalization	94	'daß'	98	modals	100
modals	93	'daß'	85	'daß'	92	negation	95	pv (past)	100
pv (past)	91	topicalization	85	pv (past)	92	pv (past)	90	'daß'	98
topicalization	90	finiteness	82	modals	88	modals	90	pv (pres)	98
pv (pres)	84	pv (past)	80	pv (pres)	80	pv (pres)	83	finiteness	90
finiteness	83	pv (pres)	77	finiteness	76	finiteness	83	topicalization	83

Table 12: Sequence of acquisition for individual languages (ungrammatical sentences)

Arabic		Chinese		English		French	
area	%	area	%	area	%	area	%
negation	100	negation	100	negation	100	negation	100
topicalization	100	topicalization	100	modals	100	topicalization	100
'daß'	100	pv (past)	100	'daß'	93	'daß'	100
pv (past)	89	'daß'	93	finiteness	93	pv (past)	100
modals	78	modals	93	pv (past)	87	modals	87
pv (pres)	78	pv (pres)	93	pv (pres)	87	pv (pres)	80
finiteness	67	finiteness	67	topicalization	80	finiteness	73

Korean		Polish		Spanish		Turkish	
area	%	area	%	area	%	area	%
modals	93	topicalization	100	negation	100	negation	100
negation	87	negation	89	topicalization	100	pv (past)	100
topicalization	80	finiteness	89	'daß'	100	topicalization	96
'daß'	80	'daß'	78	finiteness	100	'daß'	96
pv (pres)	80	pv (past)	78	modals	89	modals	96
pv (past)	73	modals	67	pv (past)	67	finiteness	88
finiteness	67	pv (pres)	44	pv (pres)	56	pv (pres)	87

Appendix G: Illustrations

Figure 4: Grammatical Sentences

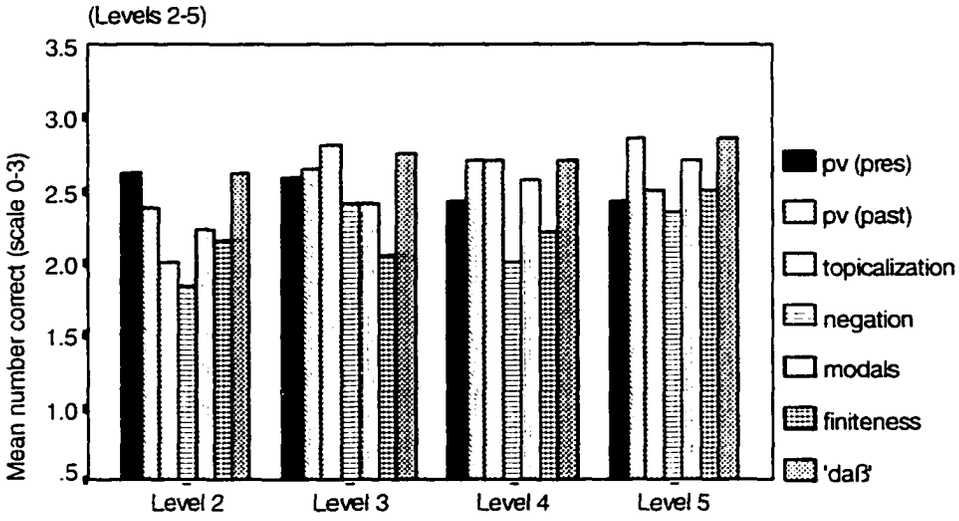

Figure 5: Phrasal Verbs (present tense)

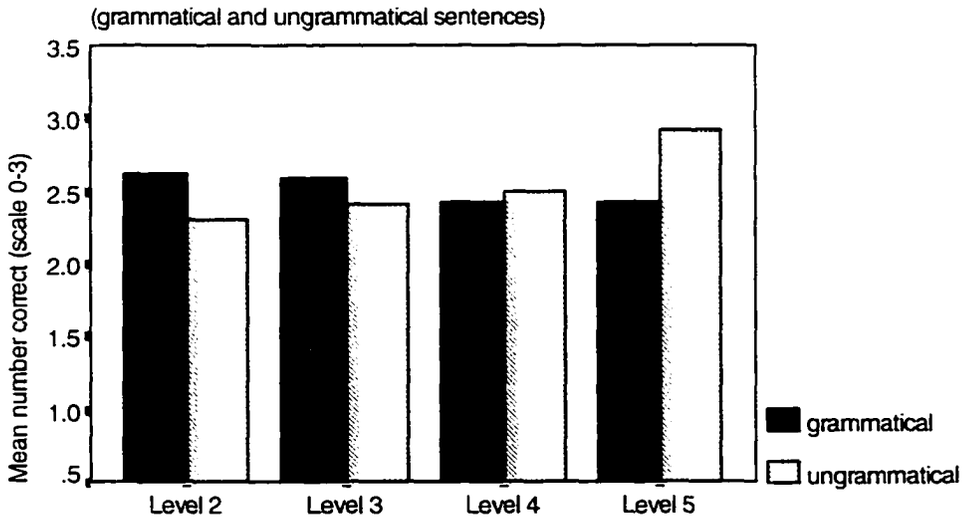

Figure 6: Phrasal Verbs (present perfect tense)

(grammatical and ungrammatical sentences)

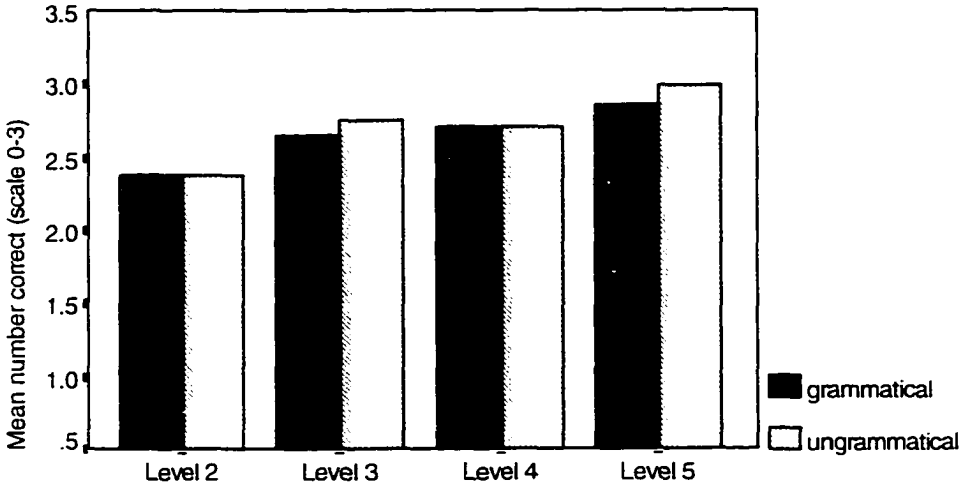

Figure 7: Topicalization

(grammatical and ungrammatical sentences)

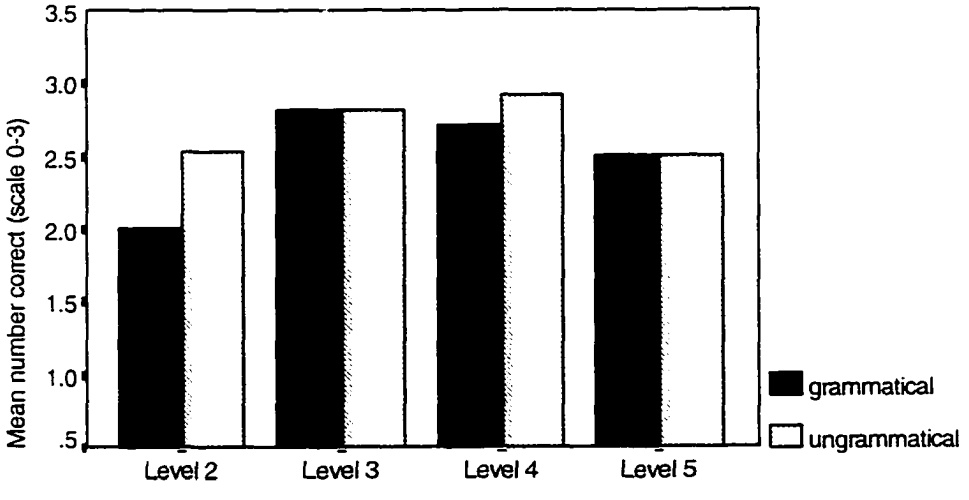

Figure 8: Negation

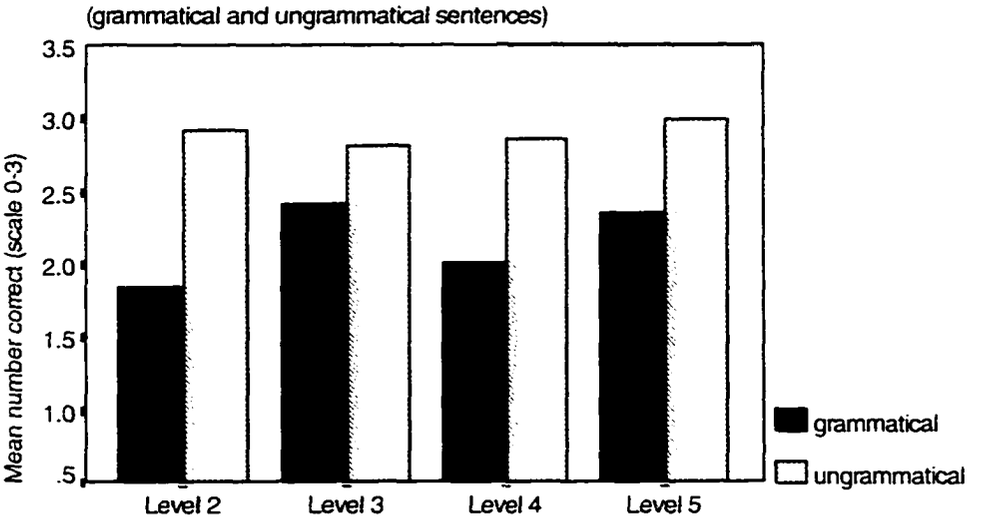

Figure 9: Modals

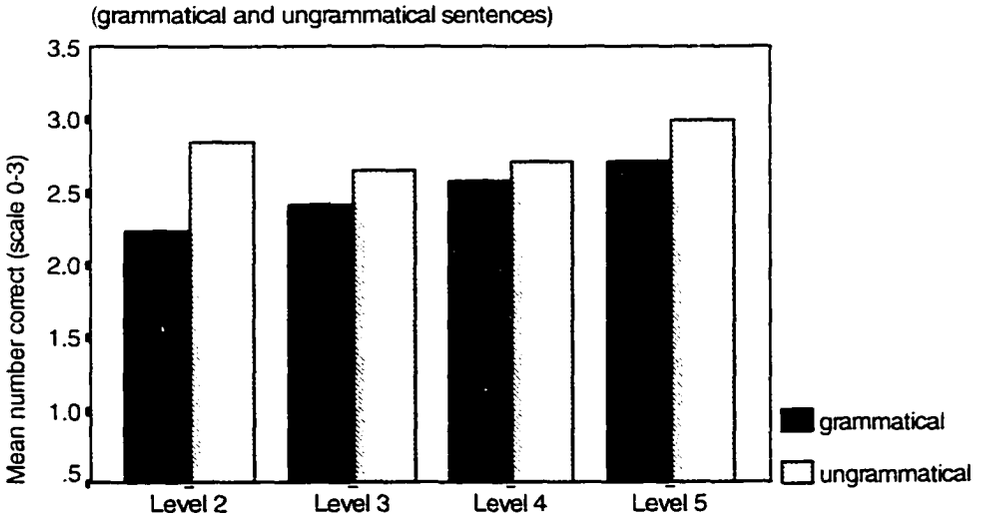

Figure 10: Finiteness

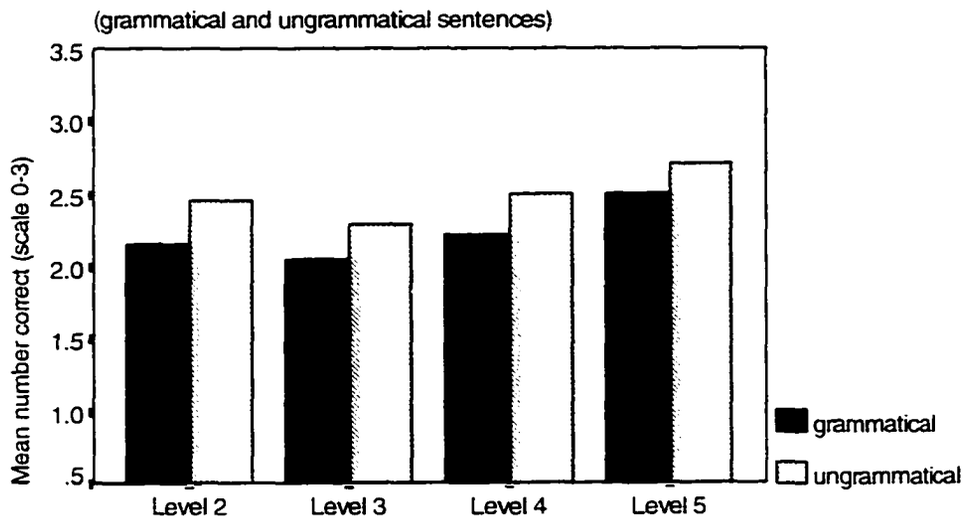

Figure 11: 'daß'

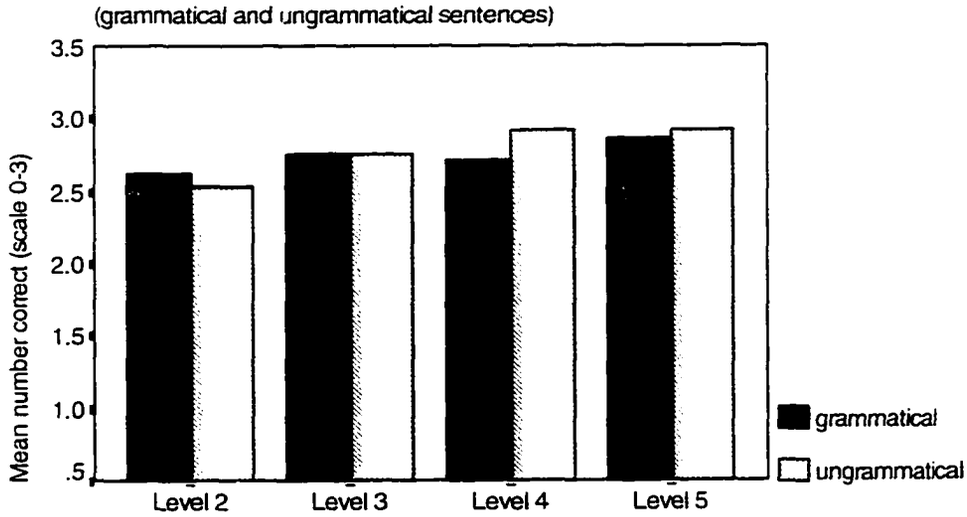

Figure 12: Individual Languages - Phrasal Verbs (present tense)

(grammatical and ungrammatical sentences)

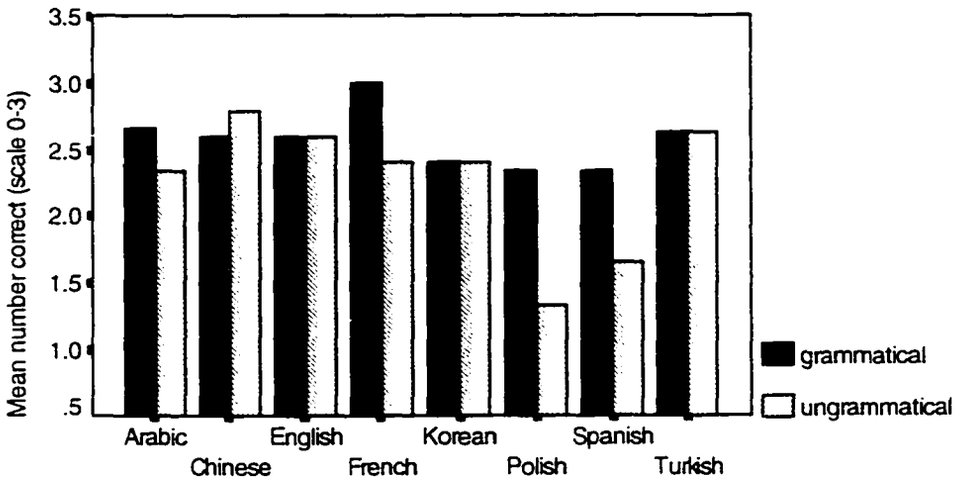

Figure 13: Individual Languages - Phrasal Verbs (present perfect tens

(grammatical and ungrammatical sentences)

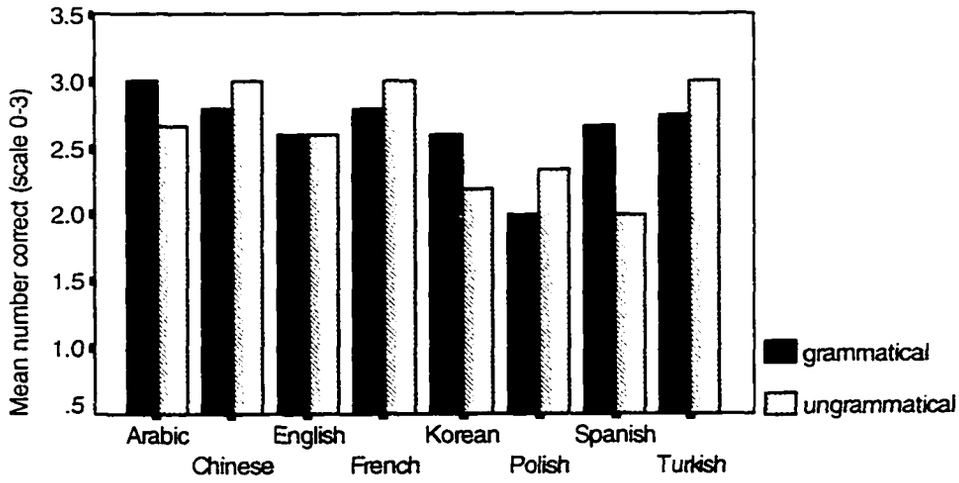

Figure 14: Individual Languages - Topicalization

(grammatical and ungrammatical sentences)

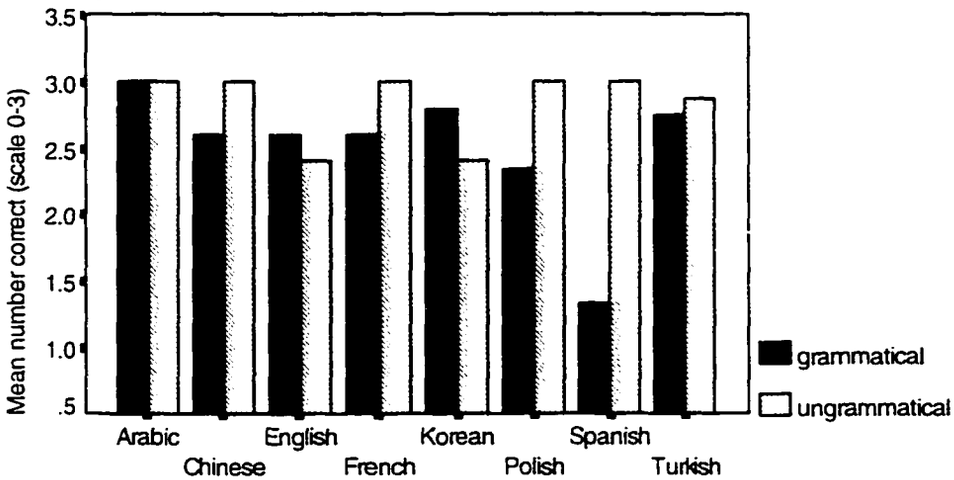

Figure 15: Individual Languages - Negation

(grammatical and ungrammatical sentences)

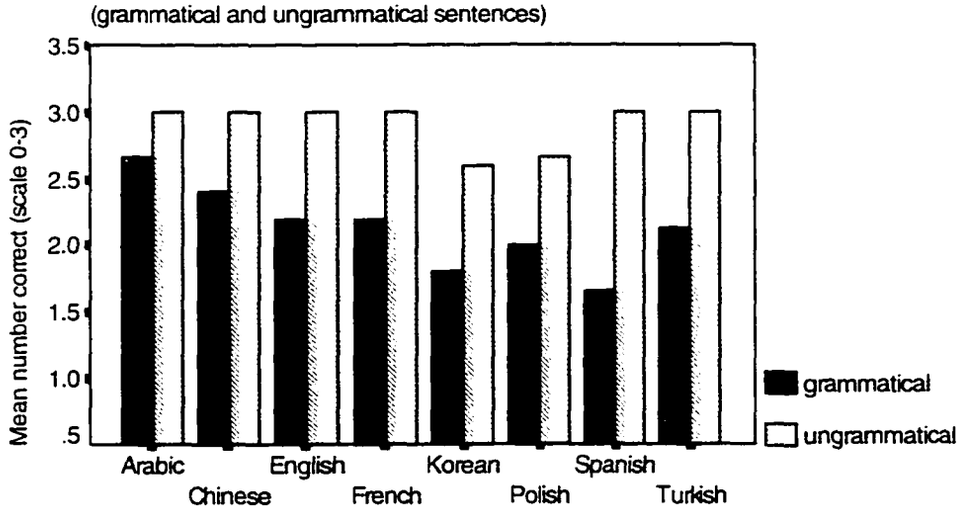

Figure 16: Individual Languages - Modals

(grammatical and ungrammatical sentences)

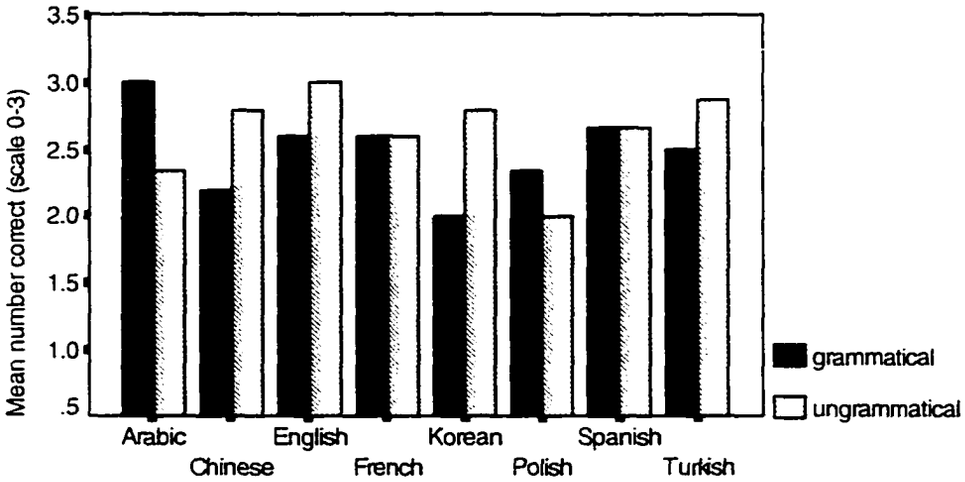

Figure 17: Individual Languages - Finiteness

(grammatical and ungrammatical sentences)

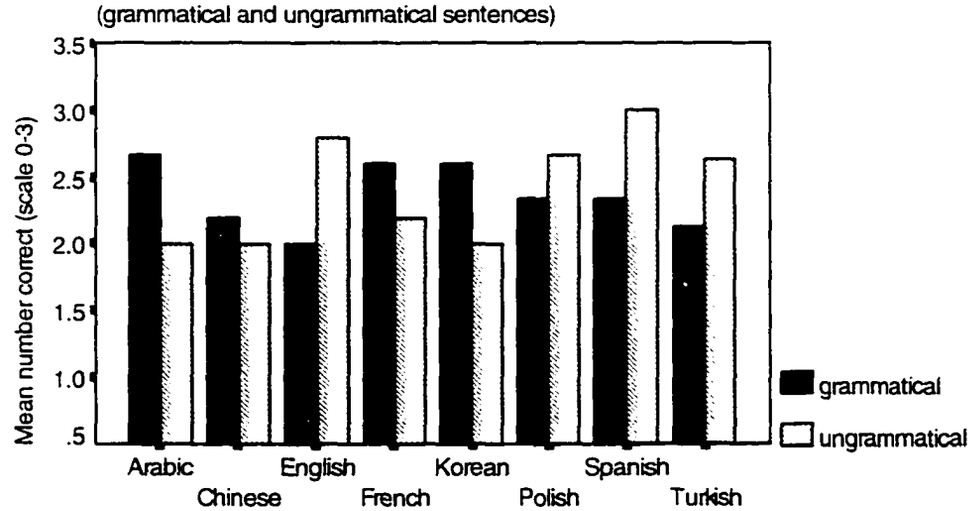

Figure 18: Individual Languages - 'daß'

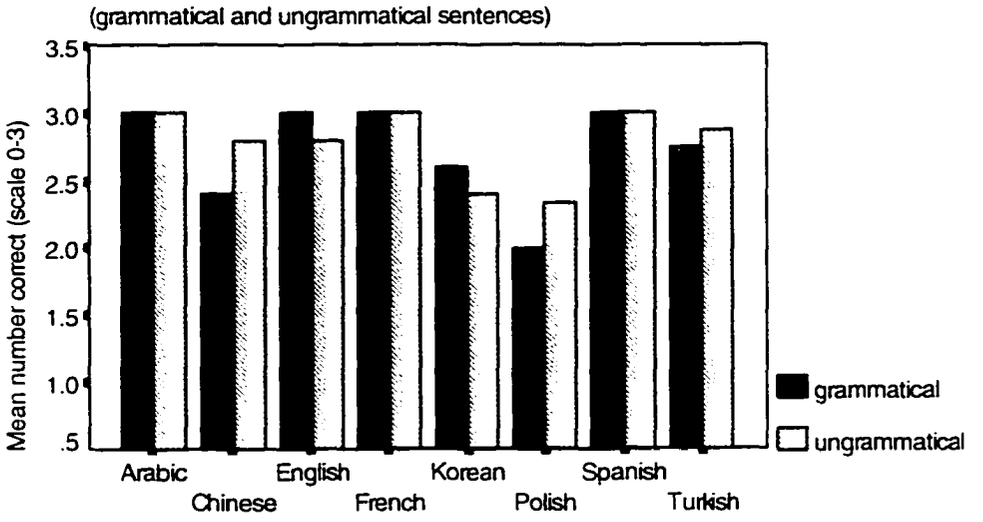

Figure 19: Arabic Speakers

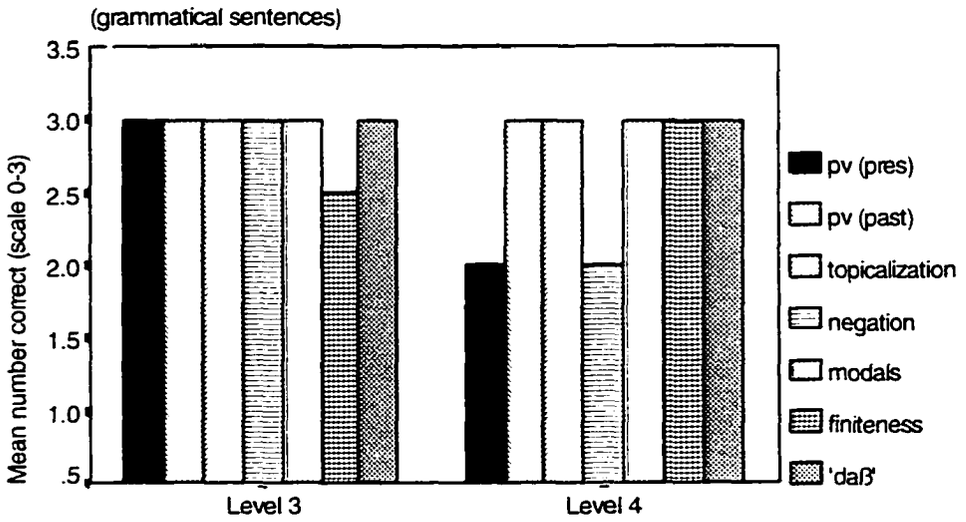

Figure 20: Arabic Speakers

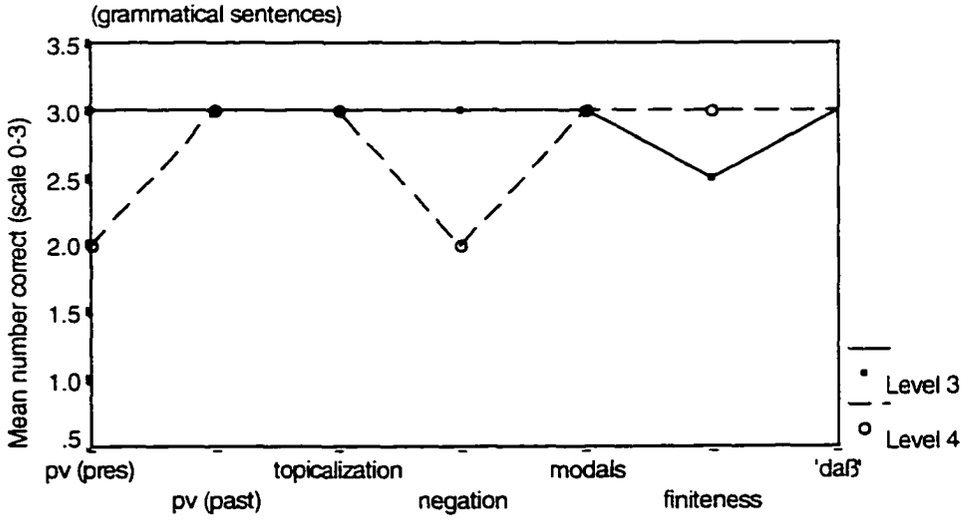

Figure 21: Arabic Speakers

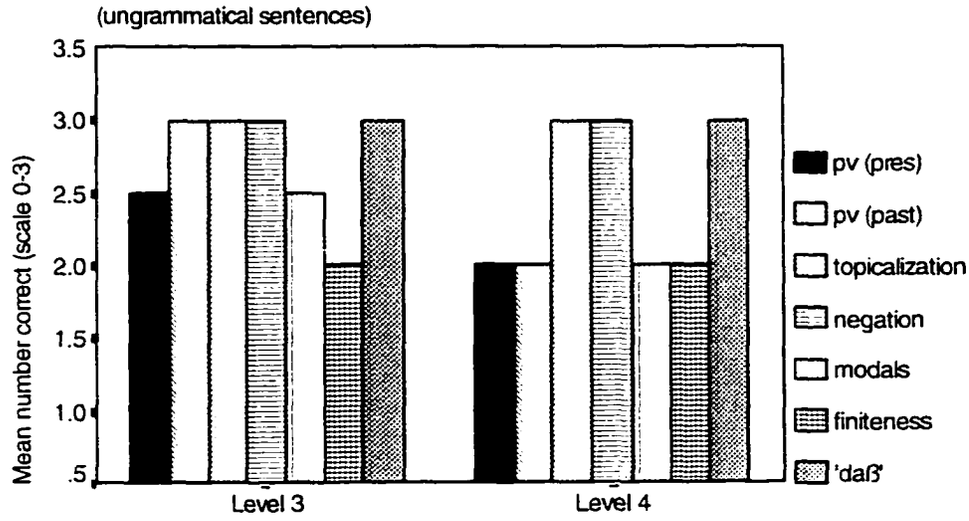

Figure 22: Arabic Speakers

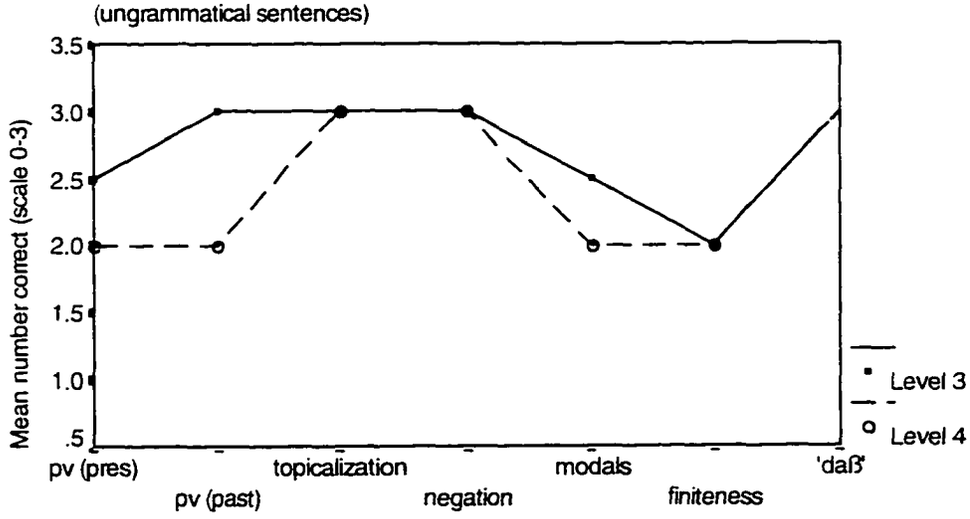

Figure 23: Chinese Speakers

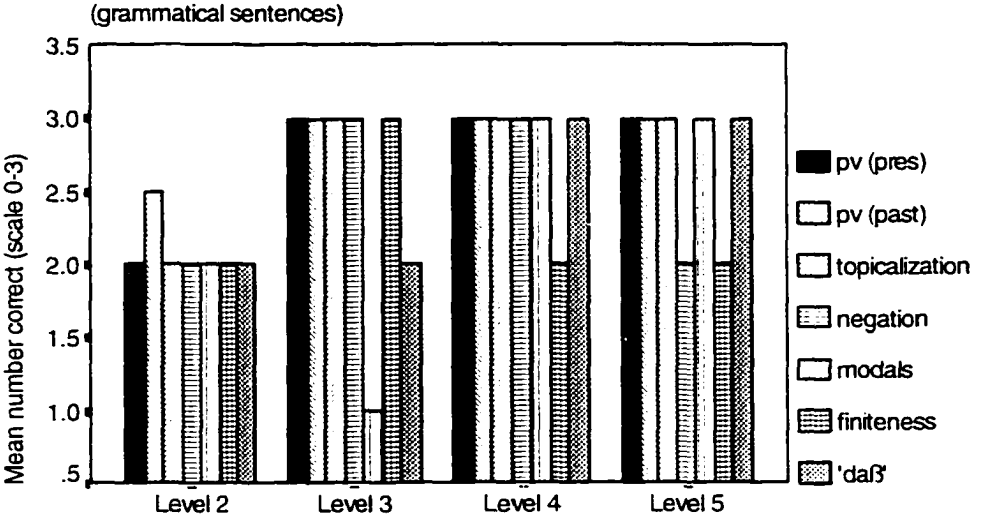

Figure 24: Chinese Speakers

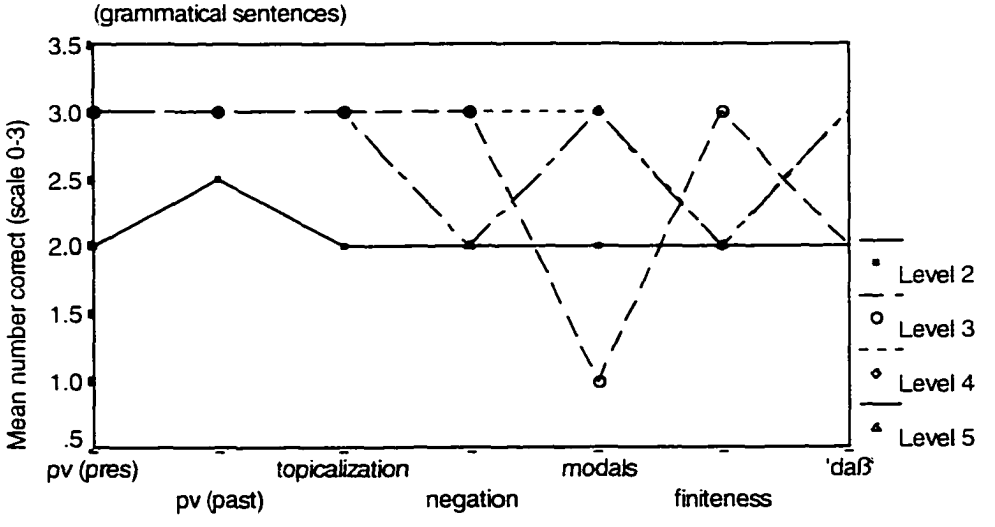

Figure 25: Chinese Speakers

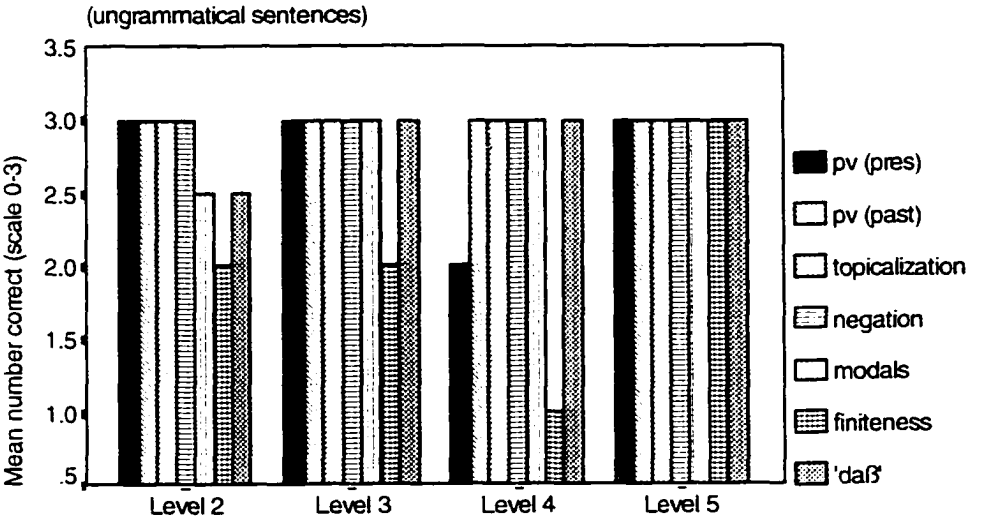

Figure 26: Chinese Speakers

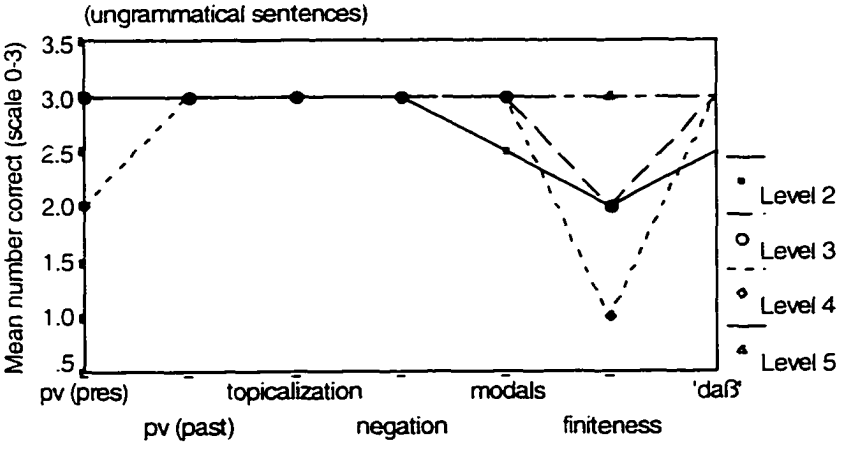

Figure 27: English Speakers

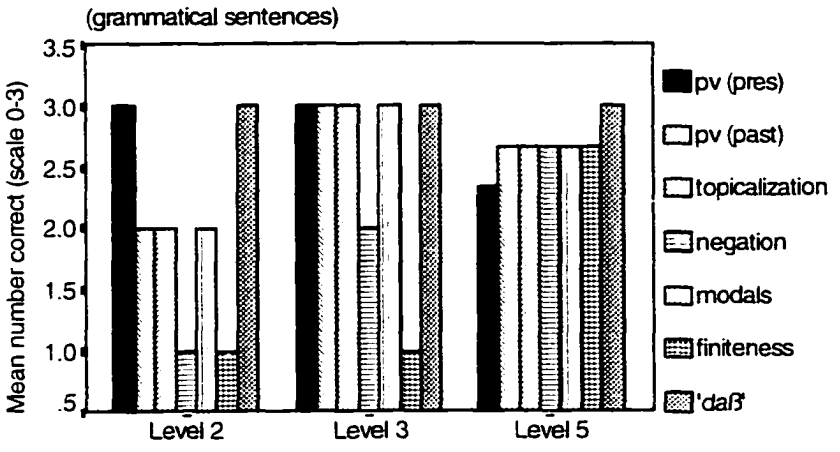

Figure 28: English Speakers

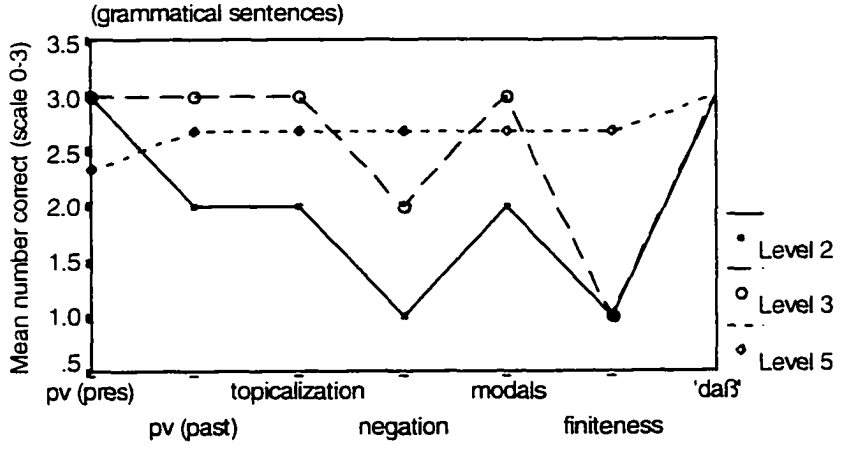

Figure 29: English Speakers

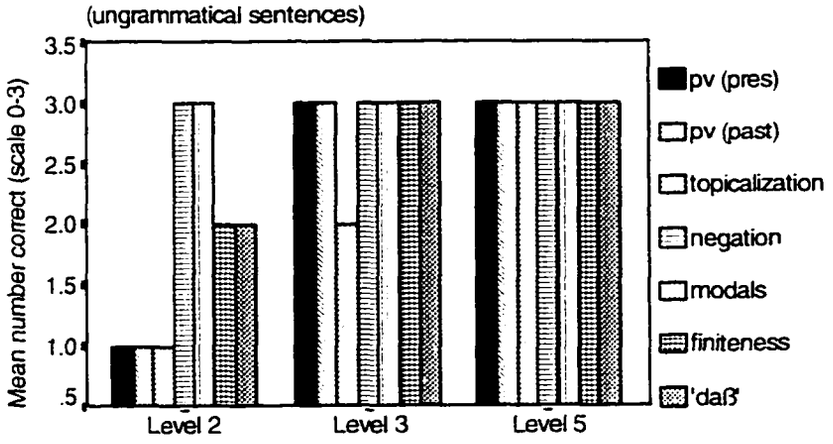

Figure 30: English Speakers

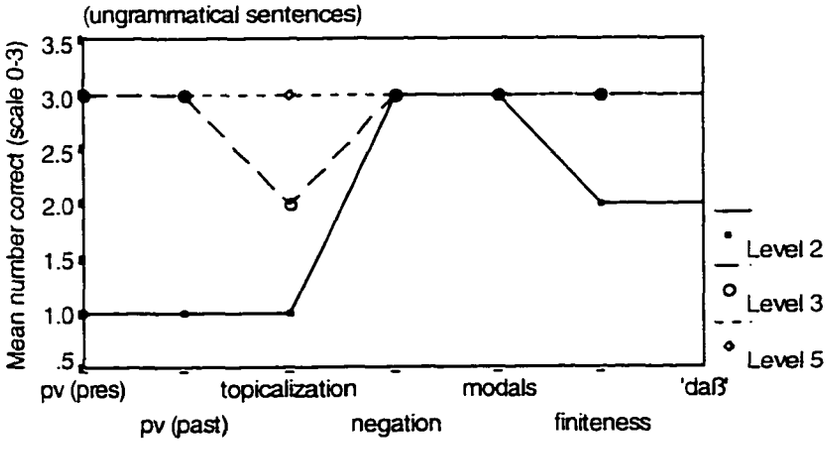

Figure 31: French Speakers

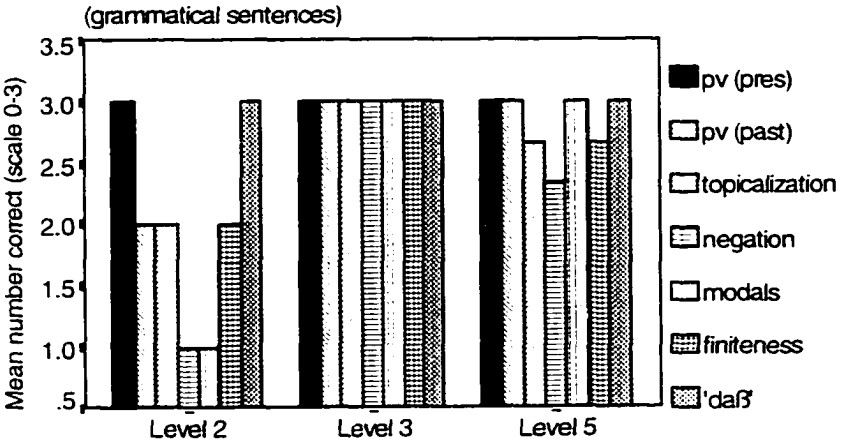

Figure 32: French Speakers

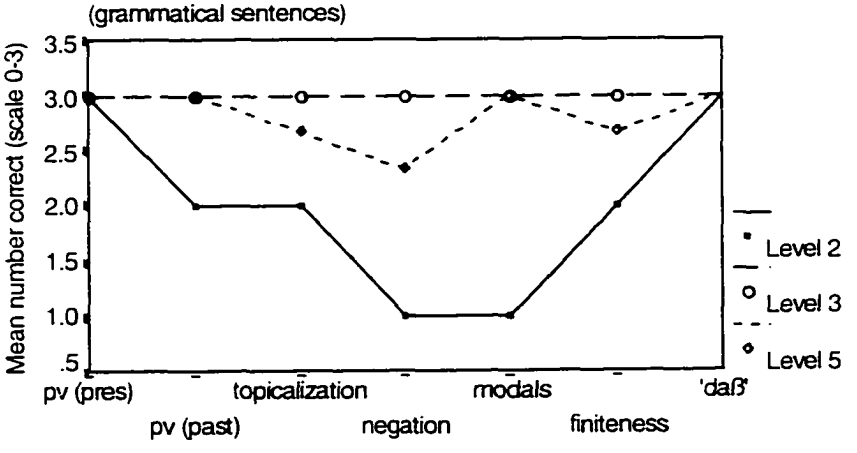

Figure 33: French Speakers

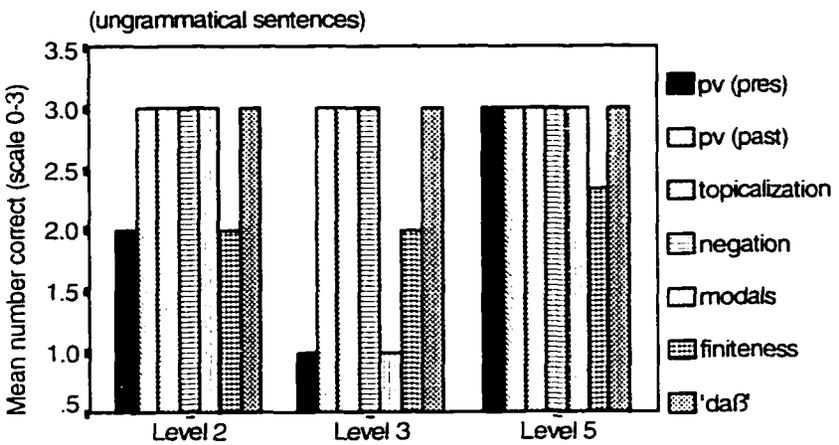

Figure 34: French Speakers

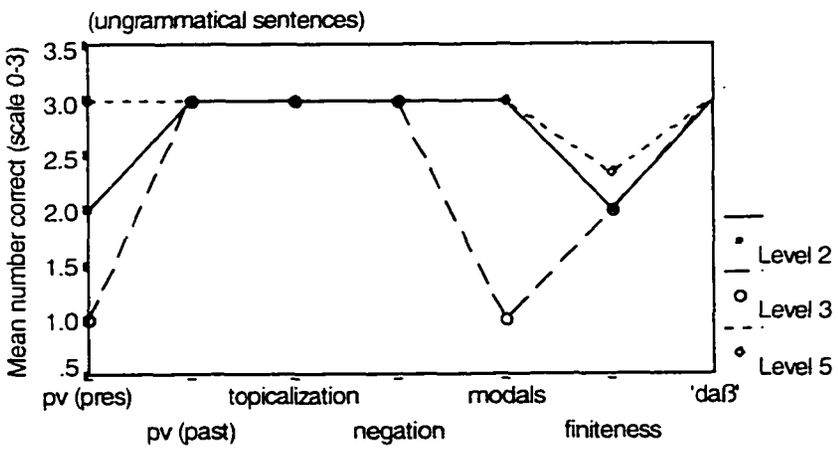

Figure 35: Korean Speakers

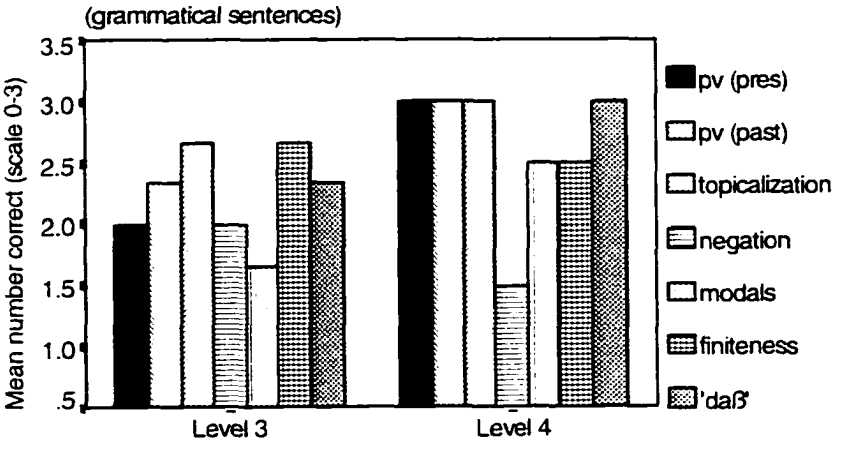

Figure 36: Korean Speakers

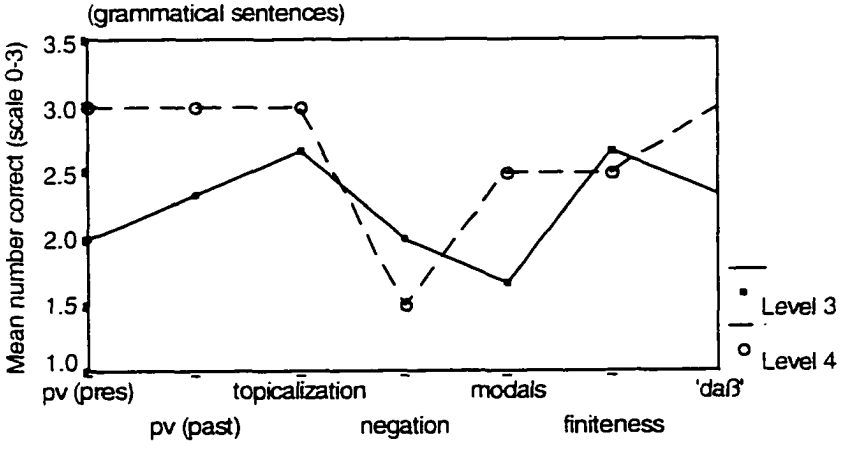

Figure 37: Korean Speakers

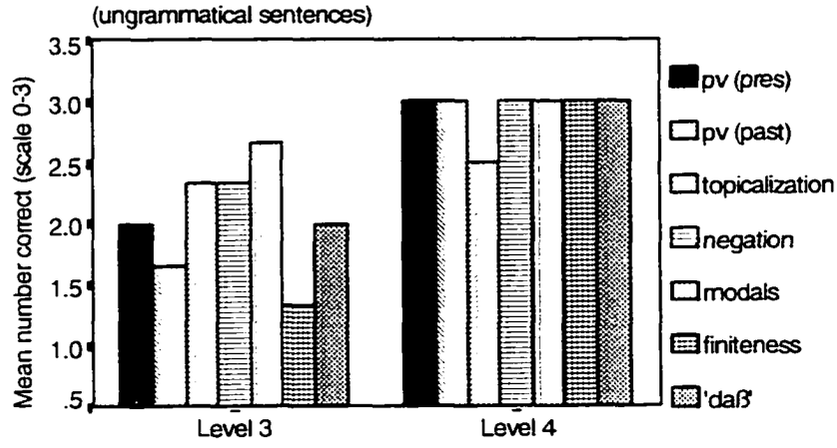

Figure 38: Korean Speakers

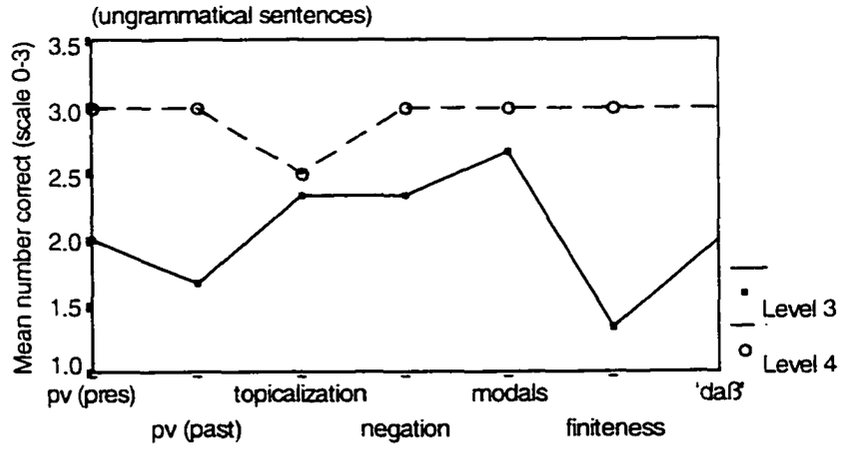

Figure 39: Spanish Speakers

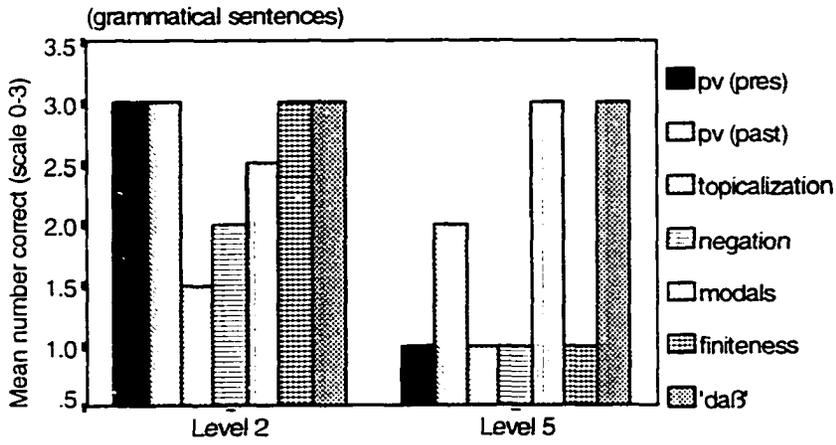

Figure 40: Spanish Speakers

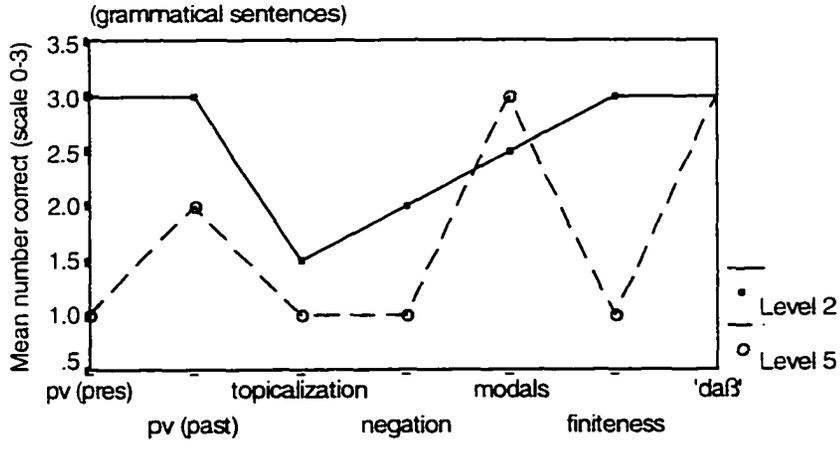

Figure 41: Spanish Speakers

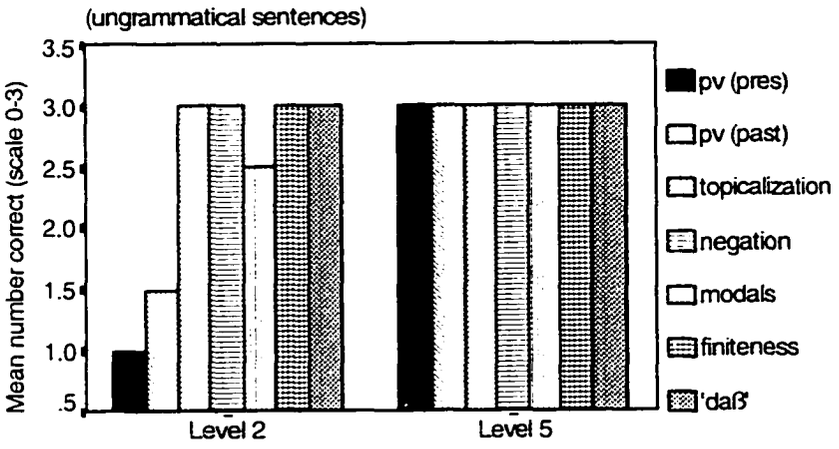

Figure 42: Spanish Speakers

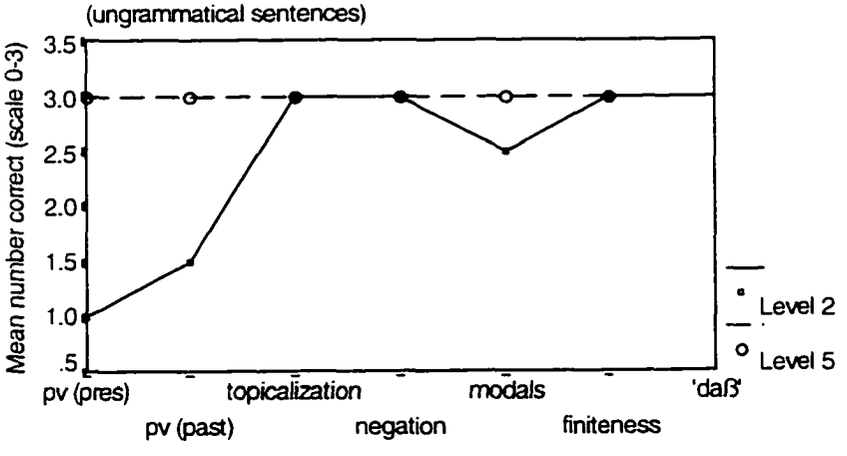

Figure 43: Turkish Speakers

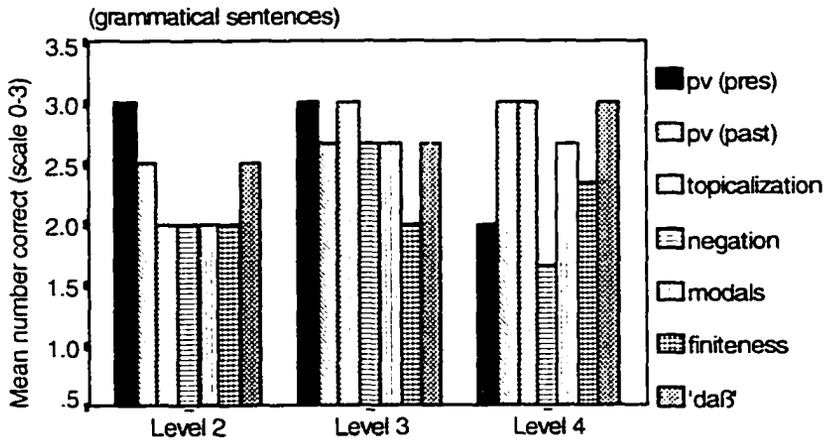

Figure 44: Turkish Speakers

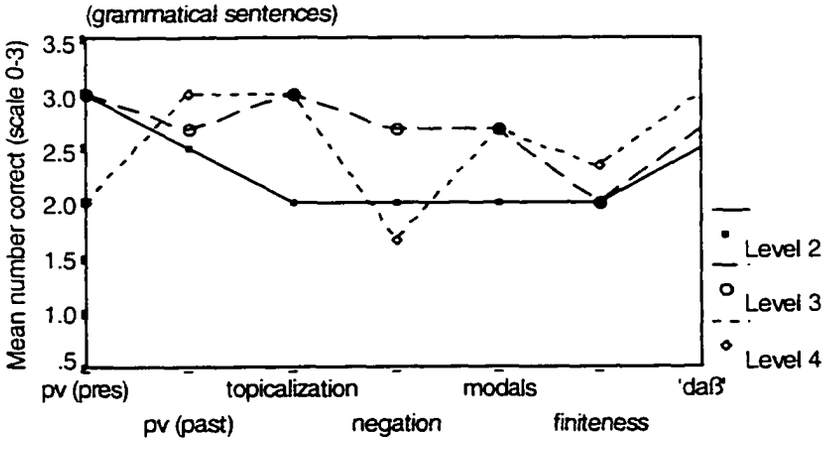

Figure 45: Turkish Speakers

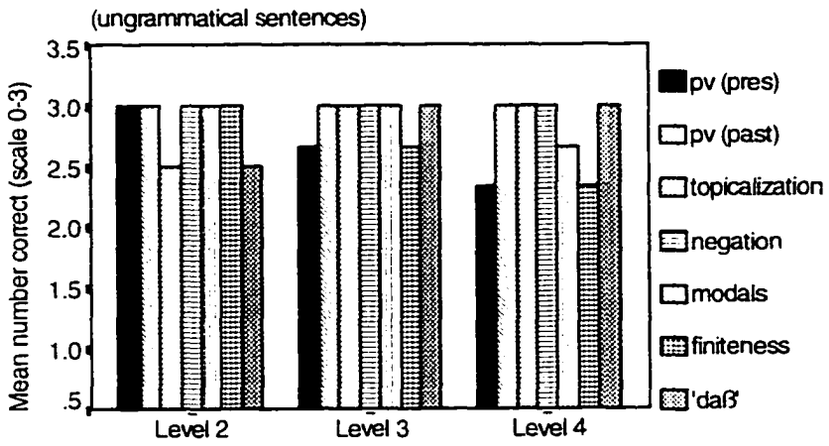

Figure 46: Turkish Speakers

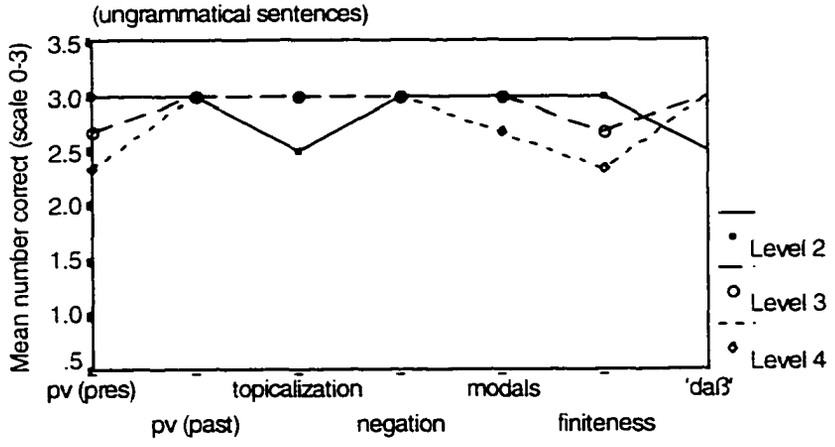

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IMAGE EVALUATION
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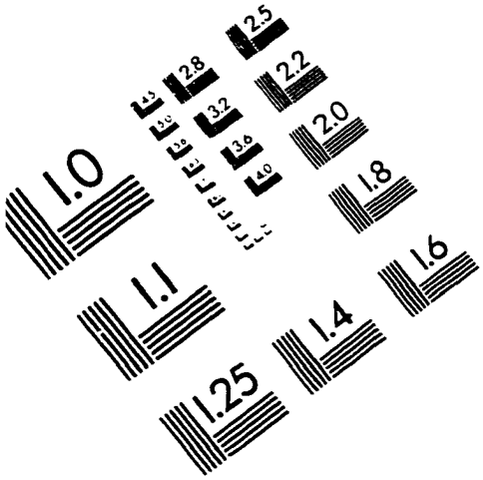

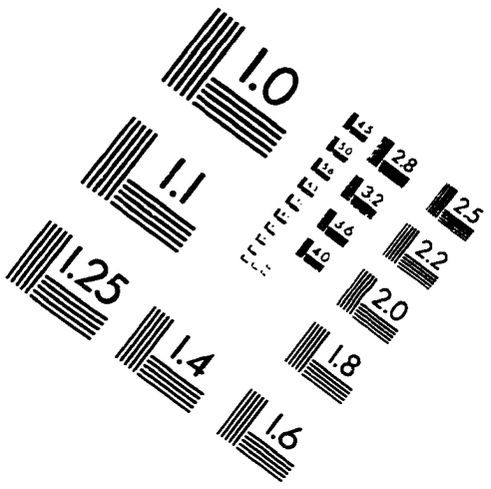

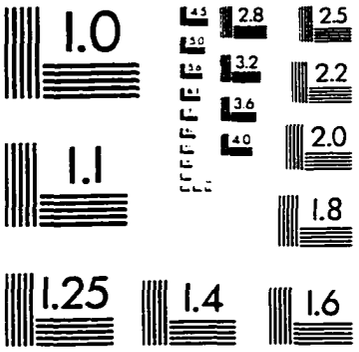

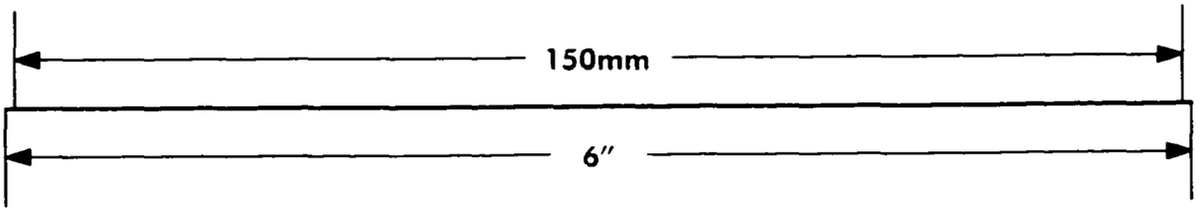

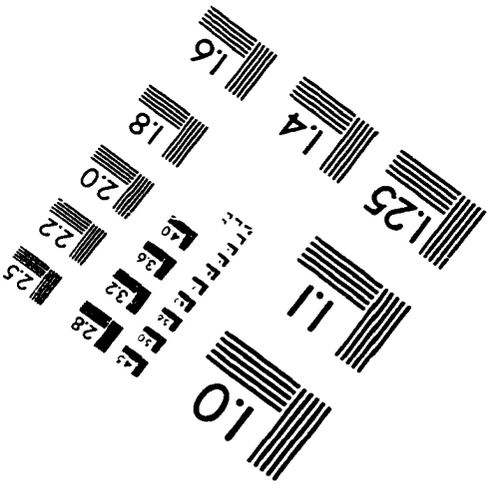

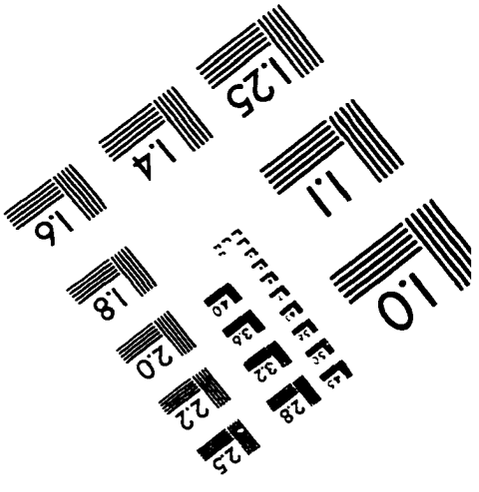

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