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THE ACQUISITION OF CASE, TENSE, AND AGREEMENT FEATURES: A STUDY OF THAI LEARNERS OF ENGLISH

by

PORNSIRI SINGHAPREECHA

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

THE ACQUISITION OF CASE, TENSE, AND AGREEMENT FEATURES:

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by

Pornsiri Singhapreecha

Adviser: Professor Gita Martohardjono

This study investigated a model of language acquisition predicted by Universal Grammar (UG), called clustering, in Thai learners of English. Clustering is defined as the concurrent development of structures related by a single syntactic operation, and is considered separately from 'relative difficulty' of structures, which is affected by factors extraneous to UG. These factors were stated in terms of L1, frequency of input, and complexity of the surface forms. Clustering and difficulty were evaluated differently, i.e., clustering by correlations, and difficulty by analyses of variance.

Clustering was attested in three syntactic operations, namely, Case checking, raising of auxiliaries and non-raising of lexical main verbs. Based on the Minimalist framework, clustering was predicted to occur in sentences containing regular objects and ECM, both of which involve accusative Case checking, and in Progressive and

Perfective Negatives where the same overt raising of the aspectual auxiliaries to higher functional heads is involved. Non-clustering was predicted in sentences containing subject pronominals and object pronominals which represent different ways the two Cases are checked. Clustering was also predicted in preverbal adverbs and *do*-support in negative clauses assuming their association to English weak Agr, based on the Economy of Derivation framework.

Sixty-nine Thai students who were learning English varying in school grades from five to twelve in Bangkok, Thailand were tested on the same Grammaticality Judgment and Elicited Production tasks. Results revealed that all predictions except for the one made according to the Economy of Derivation approach, are confirmed.

Clustering is argued to happen when three conditions hold, namely, types of morphological features, checking domains, and interface levels. As for difficulty, given data available in this study, when L1 background and input frequency coincide, they play significant roles in creating ease in learning the structure. When only input is available, the higher frequency structure is easier than the lower one and when only complexity in surface forms can be determined, the learners approach them as a totally new aspect and the structures are equally difficult.

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I wish I could express all my gratitude to the people to whom I am indebted. I will try here.

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Not long ago, I didn't think it possible for a completely average student like me to earn this highest degree. Once again I thank my parents for their encouragement, patience, understanding, and financial support. Now their trust in their daughter has been rewarded. I hope they rightfully enjoy my success.

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Chapter 1

1. Introduction

1.1 General Perspective

Early research in second language acquisition (SLA) focused on grammatical morphemes because they showed different rates of learning in second language learners.[1] Specifically, certain grammatical morphemes, e.g. regular past, third person -s, and possessive -s are often left out and become fossilized, while some others, such as V-ing, copula and auxiliary *be*, are learned earlier (cf. Bailey, Madden and Krashen 1974 and Larsen-Freeman 1975). Researchers attempted to find a common ordering of grammatical morphemes as a way to explain how L2 learners acquire their L2 grammars.

With the adoption of the Principles and Parameters model (Chomsky 1981, 1986; Chomsky and Lasnik 1992) in SLA research, focus has shifted to functional categories because they are the locus of cross-linguistic variation.[2] For example, functional categories and the operations associated with them result in word order variation across languages. In addition, researchers have studied functional categories in order to explain what constitute initial states of the L2. In part, research arguments involve whether functional categories develop at discrete stages (Vainikka and Young-Scholten 1994, 1996) or are available from L1 (Schwartz and Sprouse 1994,

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[1] The summary of the literature presented in this chapter is not exhaustive. We have selected certain studies which are representative of the issues we address in this dissertation.
[2] This assumption was originally stated in Borer (1984) which says "parametrization takes place in functional categories."

1996; Eubank 1996, White 1995), or from direct access to UG (Epstein, Flynn, and Martohardjono 1996).

Initial state issues are one approach to SLA theory formulation. Another approach with the same ultimate goal involves how L2 learners acquire grammatical structures of the L2. In the early Principles and Parameters (P&P) theory, there is a pattern of learning grammatical structures called "clustering". It is a model which was initially proposed in Chomsky 1981 to relate a set of structures as a consequence of the setting of the pro-drop parameter. Chomsky claims that when this parameter is set as a plus value, a related set of structures is assumed to follow.

Although the idea of clustering was originally stated to be a pattern of learning structures related to the pro-drop parameter, this idea has generated a substantial body of research in SLA, and clustering has been tested with other parameters. The main purpose of this type of research is to investigate whether people acquire structures of a second language in a clustering pattern. which is the model predicted by Universal Grammar.

Up to this point, we have discussed two issues. First, functional categories are the main interest of L2 studies since they are the locus of cross-linguistic variation. They have been used by researchers to argue for different constructs of L2 initial states. Second, the pattern of acquiring grammatical structures predicted by Universal Grammar and in particular, the P&P model, is clustering. In this study, we want to find out whether or not L2 learners acquire structures related to functional categories in a clustering fashion. We focused on a set of IP-related structures in English

because at this level, we can investigate whether or not learners have knowledge required for the English grammar for at least three different types of constructions. These involve morphosyntactic case instantiation and word order phenomena, namely auxiliary and main verb placement. In the following we discuss these in turn.

Case morphology has been used by Lardiere (1998) to argue for the presence of IP. Lardiere (1998) conducted a longitudinal study with an adult Chinese learner of English named Patty. She predicts that if Tense, specified for [+finite], is available to check the Case of a subject NP, then nominative Case marking should occur in the data. She contrasts supply of nominative Case marking in obligatory contexts to past tense marking on the verb to determine whether the learner has acquired Tense.[3] Lardiere found that Patty's speech showed past tense marking in obligatory contexts approximately 34% of the time in all recordings, showing no progress in terms of her production of past tense marking. However, supply of nominative Case, i.e., by way of pronouns, in the same obligatory contexts with past tense was absolutely perfect at 100%. If abstract Tense category is a better indicator of the presence of functional categories than verbal agreement marking, as Lardiere proposed, then L2 learners who can use distinct pronominal forms but miss tense markings should be considered as having knowledge of IP.

For auxiliary placement, Epstein, Flynn and Martohardjono (1996) investigated the position of the auxiliaries *be* and *do* relative to Neg in Progressive Negative and Negation-Do Support constructions. According to them, when L2

[3] In Lardiere's study, object pronouns were also taken into account so as to rule out the possibility that the nominative form has been chosen as a default form.

learners produce the correct order of *be* or *do* preceding *not* along with some form of the verb, which corresponds to the raising of the auxiliary *be* across NegP to INFL or insertion of *do* in INFL, that suggests the presence of IP. Epstein et al. conducted elicited imitation tasks with Japanese children and adults learning English as a second language in the US. They found that the children and adults produced IP (having X^0 in INFL relative to NegP) at 59 to 60% correctly. They suggest that the grammar of these learners contains IP at early stages.

Thus, morphosyntactic case instantiation and word order in auxiliary constructions have been used to argue for the presence of IP. As for main verb related constructions, they were tested in terms of clustering. Two types of main verb structures, preverbal adverb and *do*-support, have been proposed to be related as a consequence of weak Agr in the Economy of Derivation framework (Chomsky 1991/1995: chapter 2). Based on the role of English weak Agr, White (1990/1991) looked at whether the teaching of *do*-support in questions and negatives could trigger the learning of another property, the preverbal adverb structure in young French learners of English. She found that even with special training on *do*-support, the learners were unable to perform well on preverbal adverb structures of English. This result suggests that clustering of knowledge of do-support and adverb+verb structures does not occur.

In this study, IP-related structures, namely Case, auxiliary, and main verb constructions, were tested in order to investigate patterns of L2 development, rather than the status of L2 initial states. As noted by Klein and Martohardjono (1999),

studies of development are crucial to L2 acquisition theory because if we assume abstract knowledge underlying UG to remain constant across L2 learners, development in learning structures of the L2 might be the result of extra-grammatical factors such as input, processing (parsing), and learnability issues. Furthermore, they suggest that L2 acquisition is likely to produce different development patterns from those observed in L1 acquisition and can therefore serve as the basis of comparison.

This study follows Klein and Martohardjono's (1999) conceptual arguments with respect to the need for the investigation of L2 development. We will address not only predictions such as the clustering of grammatical properties in development, but also effects which are expected to create variability in L2 learners' treatment of different structures which would ultimately differentiate them from native-like proficiency.

Since clustering has been central to the investigation of how L2 learners acquire sentence structures, we will focus our discussion in this chapter on this notion. We begin with how it was originally stated in syntactic theory in 1.2. Then, two approaches to the study of clustering, i.e. parameter entailments and constraints on parameters, will be discussed in 1.3 and 1.4. In 1.5, we will describe various methodologies adopted in those studies. In 1.6, we will show how the current study differs from previous studies in terms of methodology and theoretical framework.

1.2 Clustering in the Principles and Parameters Theory

As discussed previously, the notion of clustering was originally stated in the earliest version of the Principles and Parameters model (Chomsky 1981). Chomsky (1981) introduces this notion when he relates pro-drop, a phenomenon in which an argument (normally a subject) of a verb can be absent and the subject can be identified by INFL, to the Nominative Island Constraint. The Nominative Island Constraint applies to wh-movement and its effect is that in English extraction from a wh-island is impossible from the nominative subject position. This effect cannot be directly observed in Italian because it interacts with the pro-drop parameter. Chomsky (1981, pp. 240-241) points out the clustering properties of pro-drop as follows.

> "In pro-drop languages (e.g., Italian), we tend to find among others the following clustering properties: (i) missing subject, (ii) free inversion in simple sentences, (iii) "long wh-movement" of subject, (iv) empty resumptive pronouns in embedded clauses, (v) apparent violations of the *[that-t] filter... The optimal assumption, hence the assumption that we will assume to be correct pending evidence to the contrary, is that there is a single parameter of core grammar - "the pro-drop parameter" - that distinguishes Italian type from French-type languages. When this parameter is set one way or another, the clustering of properties should follow. The language learner equipped with the theory of UG as a part of the initial state requires evidence to fix the parameter and then knows the other properties of the language that follow from this choice of value."

The clustering of properties resulting from a set parametric value in this sense is primarily intended to characterize the learning of L1 grammar. Research in first language acquisition (FLA) pertaining to clustering has been done to some extent. The most studied area involves the pro-drop parameter as shown in Hyams (1986, 1989). Hyams (1986, 1989) uses evidence from simultaneous occurrences of

subjectless sentences and the lack of the aspectual auxiliary *be* and modals in data of English speaking children from a number of studies (e.g. those of Bloom 1970; Bloom, Lightbown and Hood 1978; Brown 1973) to argue for the initial setting of [+ pro-drop]. Specifically, in her analysis of the grammar of early English, Hyams claims that there exists an AG/PRO parameter and the initial setting of this parameter is that AG, which consists of features of person, number and gender, equals PRO. Hyams accounts for the absence of the auxiliary *be* and modals in terms of the impossibility of occurrence of modals and the auxiliary *be* under Aux. When AG, a sister node of Aux, equals PRO, it cannot be governed. For the missing subject, Hyams accounts for this option by adopting Rizzi's (1982) claim for INFL in pro-drop languages that missing subjects occur because INFL is pronominal and a [+pronominal] INFL licenses an empty category in subject position.

Valian (1991) argues against Hyams' claim that the initial setting of the pro-drop parameter is [+ pro-drop]. Her evidence is a study she conducted with American English and Italian speaking children ranging in age from 1;10 to 2;8 and in mean length of utterance from 1.5 to 4.4. From spontaneous production data, Valian (1991) found that there were no correlations between frequency of usage of subjects overall and frequency of supply of modals. In addition, the American children produced instances of infinitival *to*, past tense, third person -s, and subordinate tensed clauses, which have been assumed to be lacking in early speech as a result of the initial setting of [+ pro-drop], according to Hyams. Compared to the Italian children, the American children produced subjects twice as often as their Italian counterparts did. Given her

findings which seem to indicate that various phenomena do not correlate, Valian offers an alternative explanation from Hyams' and claims that English speaking children might have had the adults' setting of [- pro-drop] but their performance is most likely restricted by the length of utterances that they can produce, and as a result, they inconsistently supply sentential subjects.

In SLA, clustering has been researched extensively. So far a range of parameters have been studied, including pro-drop, dative Case assignment, Subjacency, OV/VO word order, and Verb-Raising. In the next section, we classify studies on clustering into two different groups, i.e. parameter entailments and constraints on parameters.

1.3 Parametric Entailments

Clustering with regard to parametric entailments refers to a characteristic of learning grammatical structures in which a given parameter with two values is assumed and when the parameter is fixed one way or another a certain set of properties follows. Therefore, researchers in parametric entailment studies choose a parameter which is assumed to be set differently in L1 and L2 and investigate the proposed cluster of properties.

Studies concerning parameter entailments have investigated pro-drop (e.g. White 1985, 1986; Liceras 1989; Hilles 1991; Lakshmanan 1991), Verb-Raising (White 1990/1991), dative Case assignment (Montrul 1999), and OV/VO word order (Neeleman and Weerman 1997). Within the parametric entailment studies, there are

two types of studies: one conducted with primary data, and the other with non-primary data.

1.3.1 Studies Using Primary Data

White (1985, 1986), Liceras (1989), White (1990/1991), Neeleman and Weerman (1997), and Montrul (1999) have used primary data in their investigations. In these studies, researchers proposed a set of related structures to be theoretically associated with a given parameter, and recruited at least one group of subjects whose parametric value in the L1 was hypothesized to be different from that of the L2. Hypotheses involved whether the properties of L1 would appear as a cluster initially, and whether at a later stage this cluster would disappear, and L2 properties would be learned together. Most of the findings revealed either non-clustering or only partial clustering (i.e. of a subset of the structures predicted to be related). Pro-drop seems to be the most widely studied parameter with respect to clustering. White (1985, 1986) and Liceras (1989) assumed the cluster of properties postulated in Chomsky (1981). White chose two structures, i.e. subject/verb inversion in declaratives and that-trace effects which are licensed in Spanish and not in English and tested them along with omission of subject pronouns with Spanish and French learners of English. In part, the focus was on resetting from the [+pro-drop] to the [-pro-drop] value along with its related structures in the Spanish group, compared to the learning of the same value in a non-native language for the French group. Results from grammaticality judgment tasks showed that the Spanish group performed less accurately on missing subjects

than the French group did. As for subject-verb inversion, and that-trace, both groups were more accurate in detecting the ungrammaticality of subject-verb inversion in English than they were in detecting that-trace violations.

Similar to White, Liceras (1989) investigated the same three properties. In addition, she classified null-subjects into pleonastic, arbitrary, and specific reference *pro*, and inversion into the ergative and non-ergative verb contexts.[4] Liceras gave grammaticality judgments to English and French learners of Spanish, thus going in the reverse direction in parameter resetting compared to White (1985). That is, Liceras focused on the resetting of [-pro-drop] along with its consequences to [+pro-drop]. Liceras found that all types of *pro* were accepted in both groups; however, the acceptance of subject-verb inversion was very high with ergative verbs but not with non-ergative verbs. As for that-trace, the data were reported to be problematic, yielding no results for this property.

Thus, neither study shows clear evidence supporting clustering. White found that L1 transfer does not occur as a cluster since only one property, i.e. null subjects, appeared initially, and the set of L2 structures does not occur as a cluster either, since they appeared at different accuracy rates. Liceras found clustering in the subset properties of null-subjects of Spanish, i.e. pleonastic, arbitrary and specific reference *pro*, but she found non-clustering within the subset properties of subject/verb inversion and across the three structures in the entire set.

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[4] Liceras uses the term "pleonastic" *pro* to refer to instances of *pro* in existential and atmospheric sentences.

Neeleman and Weerman (1997), and Montrul (1999) take up different aspects of Case and investigate different sets of consequences. Neeleman and Weerman (1997) propose a version of the OV/VO parameter, which they claim to be a consequence of different Case checking directions, to have effects on four constructions: scrambling, the distribution of verb particles, ECM, and extraction from objects of particles. The four properties have been assumed to be created by the different ways Case is checked in Dutch and English, i.e. Case is checked rightward in English and leftward in Dutch. According to them, the OV parameter of Dutch is associated with the licensing of scrambling in three elements: adverbials, objects, and verbs, yielding possible orders of O Adv V and Adv O V, and extraction of objects of particles, while it allows only the V Prt NP order for the verb particle construction, and restricts a class of ECM verbs. On the other hand, the VO parameter of English is argued to pose restrictions on scrambling, yielding a fixed V O Adv order and extraction of objects of particles, but it is assumed to allow both V NP Prt and V Prt NP in the verb particle construction, and a wider range of ECM verbs.

Neeleman and Weerman (1997) examine the OV/VO word order along with the four properties with two groups of L2 learners: Dutch learners of English and English learners of Dutch who were pupils aged between 13 and 14.[5] They analyzed subjects' responses from written grammaticality judgment individually and set 75% of correct judgment of each construction type as a criterion for a subject to be considered as having acquired such a type. They did not find Dutch and English children to have

[5] Neeleman and Weerman analyzed the proposed properties in the CHILDES corpora of English and Dutch speaking children (MacWhinney 1995) and found all properties to be acquired between ages two and three, except extraction from objects of particles.

the knowledge of five construction types at the set criterion. There were children who mastered basic word order as well as one or more of the other constructions but none of the children mastered all of them.

Montrul (1999) investigated whether the learning of dative Case in Spanish would trigger AgrIOP, the functional projection of indirect object agreement, and have effects on ECM, preposition stranding, double objects, and indirect object passives. Montrul adopted Lightfoot's (1991) diachronic account of the loss of dative Case in English as a trigger for the emergence of these four constructions. She tested English and French learners of Spanish in a grammaticality judgment task and compared their performance to that of native Spanish speakers'. The English and French learners were pretested on a written task to ensure that they all were aware of the three way distinction (nominative/accusative/dative) in the Spanish pronoun system. Montrul predicted that once dative clitics were acquired, AgrIOP would be activated and the presence of AgrIOP would cause the English group to realize that certain ECM, indirect passive, preposition stranding, and double object constructions are not possible in Spanish. [6] As for the French group, they were expected to have no problem with rejecting these constructions. From group results, Montrul reported that there were no significant differences between the control group and the French speaking group. The English speaking group was less accurate in rejecting indirect passives and double object constructions, while they were very accurate in identifying

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[6] For ECM, Montrul refers to such ECM constructions as in a) below.
a) *Maria cree Juan ser un buen amigo.
"Mary believes John to be a good friend."
In Spanish, "believes" is not an ECM verb. The presence of "cree" in a) results in ungrammaticality, while the counterpart of a) is grammatical in English.

ungrammatical ECM and did not accept preposition stranding in Spanish. These results suggest that knowledge of dative clitics facilitates the learning of the presumed structures only in the French group but does not cause delearning of all the ungrammatical structures in the English group. From individual results, by using 80% accuracy in judgment as a criterion, Montrul found that most of the English speaking subjects had difficulties with indirect passive and double objects, but fewer subjects had difficulties with preposition stranding and ECM, showing a continuum of acquisition distinct from the ceiling performance of the French group.

To summarize, overall group and individual results do not support the full cluster pattern of acquisition. However, partial clustering was evidenced, since there seemed to be a split between ECM and preposition stranding on the one hand, and double objects and indirect passives on the other.

Another approach to the investigation of parametric entailment clustering involves generalization from explicit teaching of one structure as a trigger to the learning of another, both of which are assumed to be created by the same parameter. In other words, conscious learning of a given structure is expected to create unconscious learning of another related structure.

White's 1990/1991 study on the verb raising parameter, as briefly discussed earlier, exemplifies this category. She tested whether the explicit teaching of one property in a cluster associated with the lack of verb movement in English, namely question formation, would trigger the other property, namely adverb placement. French has been proposed as a language in which main verbs raise for their strong

features to be checked off in Agr and T positions in syntax (Pollock, 1989). It was further assumed that English has weak Agr features; therefore, main verbs stay inside VP in syntax, and only at LF do they raise to check off their features in Agr and T. The resulting differences between French and English include a fixed position of certain adverbs such as "always", which precedes the verb in English and follows it in French. Another property which presumably derives from the same operation involves English question formation, in which the main verb does not raise and the dummy *do* element is inserted in the modal position to bear Tense and Agreement (cf. Chomsky 1991).

White tested fifth and sixth graders who were French speaking learners of English. The children were considered beginners due to their slight exposure to English before participation in the study. They were divided into two groups: the adverb and question groups. The adverb group was taught placement of English adverbs of frequency and manner exclusively for two weeks and the question group was taught English question formation with auxiliaries and *do* in the same period of time. Before the two groups engaged in the training, they were pretested on their knowledge of adverb placement in English. After they finished the training, they were tested at two different times. Three tasks, grammaticality judgment, preference, and manipulation were administered. In grammaticality judgment, the children looked at cartoon stories and indicated any cases of incorrect word order and corrected them. In the preference task, they were to choose a single correct answer by judging a pair of

grammatical and ungrammatical sentences. In the manipulation task, they were asked to form sentences by laying out a set of cards.

Results from the three different tasks were similar in that the adverb and the question groups were not significantly different at pretesting. However, at both post-tests, the adverb group performed significantly better than the question group in identifying the preverbal adverb structure of English.

White concluded that the findings in this study indicate that instruction on one property does not generalize to another property, suggesting no clustering.

To summarize the above studies, partial clustering seems to be evident in Liceras (1989) and Montrul (1999) while non-clustering is found in White (1985), White (1990/1991) and Neeleman and Weerman (1997).

1.3.2 Studies Using Non-Primary Data

In Lakshmanan's (1991) and Hilles' (1991) studies, spontaneous production data of subjects in other studies were analyzed individually. Both Hilles (1991) and Lakshmanan (1991) investigate a parameter proposed by Jaeggli and Hyams (1988) called "the Morphological Uniformity Principle" (MUP), a later version of the pro-drop parameter. It states that languages can be morphologically uniform or morphologically non-uniform. According to the MUP, Spanish and Chinese are examples of morphologically uniform languages since in both all verb forms are consistently inflected or non-inflected, and a morphologically uniform language can have null subjects. A language like English is not morphologically uniform since not

all verb forms are inflected. Jaeggli and Hyams (1988) propose that children initially analyze their language as [+uniform] and that their grammar allows null subjects.

Hilles examined the transcripts of 6 Spanish learners of English who participated in the study of Cazden, Cancino, Rosansky, and Schumann (1975). The subjects came from three different age groups: children (Marta and Cheo), adolescents (Jorge and Juan), and adults (Dolores and Alberto). According to the MUP, mixed (non-uniform) languages do not license null subjects; therefore, the realization of mixed inflection should cause overt subjects to appear. Hilles predicted that a relationship would occur between usage of pronouns and inflections. Results showed that the use of pronominal subjects and inflections were significantly correlated in two children (Marta and Cheo) and one adolescent (Jorge), but no significant relationships were found in the two adults and the other adolescent. Therefore, Hilles concluded that clustering occurs only in child L2, which furthermore suggests that UG is accessible to children but not to other age groups.

Lakshmanan (1991) analyzed transcripts of three children, namely Marta (from Cazden et al. 1975), Uguisu (from Hakuta 1975), and Muriel (from Gerbault 1978), who were native speakers of Spanish, Japanese and French learning English as a second language. The children ranged in age from 4;6 to 5;4. Lakshmanan predicted the following consequences to derive from the [+uniform] setting: firstly, null subjects would occur in initial stages, secondly, the verb forms would be inflected initially, and finally, when children realized that English was not uniform, null subjects would disappear. She found that Marta and Uguisu, whose native

languages are morphologically uniform and allow null subjects, did not have null subjects at early stages and they both omitted the third person -s. As for Muriel, Lakshmanan did not find instances of null subjects either, and Muriel's usage of inflections (-s and -ed) did not reach the criterion for acquisition. It is clear that the three consequences predicted to derive from the [+uniform] setting did not occur. Specifically, the assumption that null subjects occur initially as a result of the early setting of [+uniform] does not hold.

From these two studies, clustering seems to find partial support in terms of relationships, as Hilles found in a connection between occurences of pronominal subjects and verbal inflections in the two children, but it does not find support with respect to consequences presumed to derive from the [+uniform] value as shown in Lakshmanan.

To summarize, studies on parametric entailments reveal two types of results: non-clustering or clustering of only a subset of related structures. Neither L1 transfer of a cluster of properties at the initial stage of L2 acquisition nor delearning of these properties in a clustering fashion occur.

1.4 SLA Studies Investigating the Effect of UG Constraints

Another set of SLA studies has investigated the effect of UG constraints on learners' grammars. Here, although clustering per se is not the primary focus, it is assumed that if a UG principle constrains learners' grammars, its effects will be detected across various syntactic structures governed by this principle.

Studies representing the investigation of constraints include those of Schachter (1991) and Martohardjono (1993). Both tested the Subjacency principle, a principle proposed by Chomsky (1973) which says no single application of a movement rule may cross more than one bounding node. Chomsky (1973) argues that what constitutes a bounding node may differ from one language to another. In English, bounding nodes are NP and S. A common way of testing knowledge of subjacency in SLA research is to create various ungrammatical instances of wh-movement and have subjects judge them. Since detecting subjacency violation requires knowledge of complex structures, L2 learners needed for this type of test are typically advanced learners.

Schachter (1989) tested subjacency by looking at the abilities of Chinese, Korean, and Indonesian advanced learners of English in judging wh-movement along with its constraints. Schachter administered two tests: one in which subjects were tested on acceptability of grammatical movement in sentential subjects, relative clauses, noun phrase complements, and embedded questions, and the other in which they were to detect subjacency violations in the ungrammatical counterparts of these four types of constructions. She predicted that subjects who were able to accept grammatical movement structures should be able to detect the ungrammaticality of violations. The results showed that only one third of the subjects had the knowledge of different types of movement and their constraints. The rest of the subjects demonstrated knowledge of legitimate movements without corresponding knowledge

of subjacency constraints. Schachter concludes that there is no relationship between knowledge of movement and knowledge of constraints.

In a more recent study on subjacency, Martohardjono (1993) investigated this principle with three groups of advanced learners of English. Their native languages were Italian, Chinese, and Indonesian, respectively. Instead of using absolute rate of acceptance of grammatical constructions and rejection of violations as done in Schachter, Martohardjono included strong and weak violations of movement constraints, namely subjacency and the ECP. She points out that although the accuracy rate of non-native speakers' judgment is inevitably lower than that of native speakers, their performance should show a pattern that conforms to strong and weak violations predicted by UG. Martohardjono tested several types of sentences which violated subjacency and ECP ranging from strong to weak violations. Extractions of wh-phrases out of relative clauses, adjuncts and sentential subjects, for example, are predicted to be strong subjacency violations, compared to extractions out of clauses headed by "whether" or noun-complement clauses which constitute weak subjacency violations. She found gradient acceptability rates in all three groups of learners, corresponding to the relative strength of the violation. That is, the acceptability rates were higher on weak violations than on strong ones, consistent with the native speaker group. Martohardjono (1993) concludes that since the pattern of acceptability of strong and weak violations of subjacency in L2 learners conforms to that of the native speakers, L2 learners' grammatical knowledge is constrained by UG. These studies can be cast in terms of clustering patterns: Schachter predicted knowledge of

movement to cluster with knowledge of constraints. Martohardjono predicted structures governed by weak constraints to cluster together, as opposed to structures governed by strong constraints. The tests of clustering from the perspective of UG constraints in these two studies revealed mixed results. Clustering is supported in Martohardjono's but not in Schachter's study.

Considering both parametric entailment and UG constraint types of studies, it is interesting to note that when subsets of structures were analyzed, such as in Liceras (1989), Martohardjono (1993) and Montrul (1999), clustering seems to be supported. However, for larger sets of structures, with the exception of a relationship found in Hilles (1991), only non-clustering is evident, as in White (1985), Schachter (1989), Lakshmanan (1991), Neeleman and Weerman (1997), and Montrul (1999). Without addressing methodological concerns, we may roughly estimate clustering to be inactive in a wide range of structures but operative in a closely related set of structures.

1.5 Methodological Issues

Studies reviewed so far have employed several methodologies in testing clustering. We will first discuss two methodological issues, subjects and tasks, and then quantitative analyses.

1.5.1 Subjects and Tasks

Excluding the two studies of Schachter (1989) and Martohardjono (1993), in which only advanced learners were included due to the complexity of structures, we

have seen three types of subject selection. One option was recruiting L2 learners who were at the same stage of interlanguage development, as shown in White (1990/1991) and Neeleman and Weerman (1997). Another was recruiting L2 learners while they were at different interlanguage stages as seen in White (1985), Liceras (1989) and Montrul (1999). The last option involves obtaining data from subjects in previous case studies as seen in Lakshmanan (1991) and Hilles (1991).

With respect to tasks, single tasks, i.e. either grammaticality judgment or spontaneous production, are primarily employed. Grammaticality judgment is predominant as shown in White (1985), Liceras (1989), Neeleman and Weerman (1997), and Montrul (1999). Non-primary spontaneous production was used in Hilles (1991) and Lakshmanan (1991). Only White (1990/1991) used multiple tasks.

Since clustering in the sense of parametric entailments is a development issue, and a cross-sectional approach is the primary method used in these studies, two major requirements need to be heeded. First, by adopting the cross-sectional approach, it is important that researchers include subjects from beginning to advanced levels. So far only three studies, i.e. those of White (1985), Liceras (1989), and Montrul (1999) have taken this criterion into consideration. Second is a requirement for multiple tasks. As suggested by Klein and Martohardjono (1999), multiple tasks are needed for a number of reasons. First of all, we expect results from production and perception tasks to be different if performance factors play a role. In addition, multiple tasks are required for accuracy since it is difficult to create a test which can be used with learners at the earliest as well as the most advanced intergrammar stages, and which at the same time

is able to distinguish learners' performance at different stages. Further, controlled tasks are recommended since they enable researchers to obtain substantial numbers of responses per construction type, which increases reliability of data. Most of the reviewed studies have not met the condition of controlled multiple tasks.

1.5.2. Quantitative Analyses

In terms of quantitative analyses for clustering of a given set of structures, analyses of variance and percent correct performance are the two major approaches. Other statistical analyses are Chi-square (White 1985), sign-test (Schachter 1989), and correlations (Hilles 1991). Analyses of variance were used in White (1990/1991), Martohardjono (1993), and Montrul (1999) for comparing performance of subjects obtained from differential treatments. White compared young French learners' performance of the preverbal adverb structure of English before and after special training in question formation was administered. Martohardjono compared subjects' identification of strong and weak subjacency violations within individual language groups (Italian, Chinese, Indonesian). Montrul compared English and French learners' abilities in identifying the set of structures assumed to be a consequence of the presense of AgrIOP. As for percent correct performance, it has been used by Liceras (1989), Lakshmanan (1991), Neeleman and Weerman (1997) and Montrul (1999). Specifically, Neeleman and Weerman, and Montrul set certain percentages, i.e. 75 and 80 respectively, for participants to be considered as having acquired a given structure.[7]

[7] Although both Liceras and Lakshmanan use percentages to compare subjects' performance in different constructions, neither of them explicitly state a set percent criterion for performance of a given structure.

The validity of a certain percentage correct as an indication of whether or not a given grammatical property has been acquired is in question. As noted in Epstein et al. (1996, 1998), it is not clear whether there is a correlation between any percentage correct usage of a particular grammatical aspect and knowledge of that aspect.

Despite the fact that most of the reviewed studies can be characterized as cross-sectional, there is inconsistency in the way researchers evaluate clustering. Between the two commonly used analyses, i.e., analyses of variance and attainment of certain percent criteria, a more desirable quantitative analysis is likely to be the former. which corresponds to group results and does not rely on an arbitrarily set criterion.

1.6 The Current Study

1.6.1 Methodology

As pointed out previously, most of the reviewed studies did not meet two major requirements for desirable research in L2 development, namely participants ranging in proficiency level, and multiple tasks to measure differences in processing modes. This study attempts to approach clustering with an improved methodology. In terms of subjects, it follows L2 development as closely to its initial state as possible by recruiting school age children from grade 5, when English instruction begins, to grade 12, when children finish their compulsory English instruction. Although children from eight grades were recruited, grades were not used as criteria for placing them into different development stages. Instead, they were categorized according to a

standardized proficiency test, the Michigan Test, which has proven to better estimate their knowledge of English, as will be seen in chapter 6.

With respect to tasks, we use two tasks -- elicited production and grammaticality judgment -- representing production and comprehension modes, to closely evaluate the knowledge of participants. Both tasks were controlled, i.e., they were created based on the same grammatical aspects in order to obtain target responses precisely. The subjects were tested on the same series of experiments and the same test materials. The test stimuli in both tasks were designed in such a way that they could be used with beginning, intermediate and advanced learners of English. These stimuli have been shown to be effective since they were able to distinguish the beginning from the advanced learners, and the results reported in chapter 6 show development trends in both tasks, and not floor or ceiling effects.

In terms of quantitative analyses, we seek a more systematic method in the investigation of clustering. We separate clustering, which is assumed to be knowledge of abstract grammatical properties, from difficulty of structures, which is expected to be affected by extra-grammatical factors. We define clustering broadly as the concurrent development of a set of syntactic constructions determined by their common association to a single syntactic operation. In this study, the concurrent development of a structural set is interpreted as a relationship, and we use correlation to evaluate it. Correlation has an advantage over other analyses since it can capture the performance of one structure relative to another across different points of development, independent of overall proficiency. Analyses of variance are used to

measure relative difficulty of structures, as distinct from concurrent relationships. The separation of analyses between clustering and difficulty, as well as the results obtained, will be discussed in chapters 5 and 6.

1.6.2 Theoretical Framework

In addition to improvements in methodology, we investigate whether clustering occurs in the most recent version of the generative model of syntax, the Minimalist Program. We pointed out earlier that studies based on the Principles and Parameters (P&P) framework show either non-clustering across the entire set of structures or clustering within subsets of structures. The resulting patterns probably suggest two possibilities. One is that if the theoretical formulation of clustering sets of structures can be assumed as correct, then the research summarized here has not yielded supporting data. This possibility awaits future research for it to be confirmed. The other is that more systematicity in theoretical analyses is needed in making predictions for a cluster of properties. This possibility can be dealt with more readily, and we attempt to seek systematicity in making predictions from the Minimalist framework. We adopt the Minimalist Program (MP) (Chomsky 1993/1995:chapter 3), which does not rely on a switch box metaphor, i.e., when a parametric value is fixed one way or another, a certain set of properties follows. Rather, the fundamental idea of Minimalism involves an invariant computational system and the roles of morphological features or features of functional categories, which control parametric differences between languages. Thus, as described by Munn (1997) and Herschensohn

(1997), what Minimalism has left for acquisition is in the learning of morphological properties of lexical items.

Since we are interested in a language acquisition model under Minimalism, and unlike the P&P model, the MP does not make any predictions about clustering per se, we need to redefine this notion. In the MP, the range of possible differences among structures is enabled by the strength and weakness of features of functional categories. Strong features are visible at PF and need to be checked before Spell-Out whereas weak features are invisible at PF and are optimally checked after Spell-Out. According to this fundamental idea, L1 and L2 learners alike need to identify strong and weak morphological features of the language, and perform overt and covert (i.e. pre and post Spell-Out) checking operations required for feature strength, which will enable them to produce different sets of structures reflecting this knowledge. Thus, we define Minimalist clustering as a phenomenon in which structures representing the same operation type, a consequence of common feature strength, occur as a cluster.

In this study, we have chosen to investigate English Case, auxiliary and main verb related constructions with Thai learners of English. Thai has been chosen due to its lack of overt grammatical items such as Case, tense, agreement, and auxiliaries, and its differences in syntactic operations from those of English.

The next chapter provides more theoretical background of how English Case, auxiliary, and main verb structures investigated in this study can be derived in the Minimalist framework. In Chapter 3, a brief description of Thai is given with examples of Thai declaratives and negatives to show differences between L1 and L2.

In Chapter 4, we formulate hypotheses and make predictions about how these constructions can be acquired. In Chapter 5, we present the methodology. Then we report the results in Chapter 6. Chapter 7 contains discussions and the conclusion.

Chapter 2

Theoretical Background

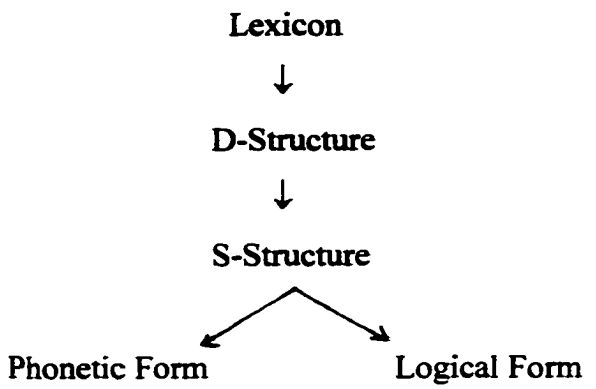
As discussed briefly in Chapter 1, the early Principles and Parameters (P&P) framework and the Minimalist Program (MP) differ considerably in the formulation of the language acquisition model. [1] In section 2.1, we further compare the two approaches with regard to language acquisition in particular, and elaborate the clustering model using the Minimalist framework. In section 2.2, we identify what morphological features L1 as well as L2 learners must learn to construct a basic English declarative. Then in section 2.3, we provide accounts for how sentential structures of English investigated in this study can be derived from the Minimalist perspective. Section 2.4 is a summary of the morphological features of English that Thai learners need to know in order to perform those sentence types.

2.1 The P&P and the MP Approaches toward Language Acquisition

We take the Government and Binding Theory (Chomsky 1981a) as a formulation of the P&P to compare to the MP. The Principles and Parameters model takes Universal Grammar (UG) as the initial state of language. It consists of a set of invariant principles and parameters, containing values to be fixed by primary linguistic data (PLD). The grammar of a language consists of five major components, lexicon, D-structure, S-

[1] However, the Minimalist Program is theoretically a continuation of the Principles and Parameters approach, differing in the nature and locus of application of the principles and parameters. In the Minimalist Program, principles have been reduced in number and perhaps only the Principle of Full Interpretation remains as a true principle referring to representations, alongside a number of economy guidelines for derivations (den Dikken, p.c.).

Structure, Phonetic Form (PF), Logical Form (LF) as shown in a diagram below. (Chomsky and Lasnik, 1977).



A grammar involves insertion of lexical items from the lexicon into D-Structure, the level of representation at which grammatical relations are determined. This lexical insertion conforms to X-bar theory, which requires that any lexical category be projected properly.[2] It also observes the Projection Principle which ensures that the subcategorizations and thematic roles assigned by a lexical item are maintained at every syntactic level. The path from D-Structure to S-Structure and S-Structure to Logical

[2] X-bar theory has been proposed to unify phrase structure rules of various syntactic categories in early Transformation Grammar (Chomsky, 1965). In the X-bar system, two types of relationship within a phrase structure are formulated. The relationship between a functional or lexical head and its complement is configured as a single bar (X') projection. Functional heads such as an I (Infl) and C (Complementizer) are related to their complements, i.e. VP and IP, by way of their imposing syntactic restrictions on the complements. Lexical heads such as V and P subcategorize for their complement, e.g., V destroy is subcategorized for NP (while say is subcategorized for NP or CP); and similarly P of is subcategorized for NP (while from is subcategorized for either NP or PP (cf. from under the table)). The relationship between a functional or a lexical head and its complement is called internal. The other relationship, considered as external, is configured as a double bar (XP) projection which consists of a single bar projection and its possible sister node. The element which occupies the sister node is called "specifier." Specifiers have been viewed as exhibiting some form of relationship with heads, in the so-called spec-head agreement notion. This notion has been substantiated by cross-linguistic facts, which seem to agree in that specifiers and heads share common features such as person, number, and gender. Thus, determiners should be regarded as specifiers in noun phrases (but later analyzed as heads of the determiner phrase (cf. Abney 1987)), and subject NPs as specifiers of IPs, since both determiners and subject NPs share common features with N and I, respectively.

Form (LF) is mediated by the rule Move-alpha, which is broadly stated as move category to a different position. Some instances of Move-alpha which apply to the path from D-Structure to S-Structure are NP movement to get Case in English passive and unaccusative verb constructions (such as "seem"). The operations of Move-alpha to the path from S-Structure to LF are essentially wh-movement and quantifier raising. In wh-movement, wh-phrases are moved to the specifier of a clause (Spec/CP) and quantifiers are typically moved to adjoin to IP, where they can be interpreted as operators binding variables.[3]

Move-alpha interacts with constraints assumed to hold in all natural languages with certain qualifications, namely invariant principles and language particular parameters. These invariant principles apply at different levels of representation. Some are observed at D-Structure (e.g. X-bar theory, the Projection Principle, Theta Theory); others are applied at S-structure (e.g. Subjacency, Case Theory), and still others apply at both D-Structure and S-Structure (Binding theory) or every level (the Projection Principle).

An output of Move-alpha at S-Structure is sent to PF, a level at which various phonological and phonetic operations take place, and LF, a semantic level where the meaning of a linguistic expression is interpreted.

What we have shown so far is a model of the adult's grammar. With respect to a child learning L1, the P&P theory states that UG (interchangeably used with Language

[3] Some instances of this type of movement are wh-movement at LF, as argued to occur in wh-questions (Huang 1982), and raising of quantifiers (May 1985) such as "everybody" in the sentence "Mary likes everybody." The LF form of this sentence is [everybody [Mary likes x]] , which can be expressed (LF-) semantically as 'For all x, Mary loves X.'

Acquisition Device or LAD) constitutes the initial state and invariant principles are biologically endowed so they need not be learned (argued in terms of poverty of the stimulus evidence). The major task of a child is to learn particular options (i.e. parametric values) associated with certain principles. It is argued that the learning of parametric values is done by exposure to triggering input, i.e. the kind of input which helps to make the choice between different parametric values. Since specific parameter settings have several consequences throughout the grammar, clustering of aspects of grammar is expected to occur.

With regard to the MP (Chomsky 1993/1995: Chapter 3), UG is also an initial state grammar which maps from experience (PLD) to a steady state grammar. UG in the MP consists of one lexicon and one computational system. The lexicon specifies three types of features: phonological, semantic, and morphological. Semantic features are assumed to be rather invariant across languages, whereas phonological and morphological features vary from language to language. The major task of the MP centers around these abstract morphological features. In this theory, morphological features can be strong or weak. Strong features are visible at PF and need to be checked off before Spell-Out, a point at which the derivation of a grammatical representation is split up to be processed by the PF and the LF components. Weak features are invisible at PF and can wait until after Spell-Out to be checked off. [4] Since languages differ in the strength/weakness of

[4] In the latest version of the MP (Chomsky 1995: Chapter 4), feature checking before Spell-Out is done by movement of lexical items or their syntactic projections (called category movement) while feature checking after Spell-Out involves movement of features without pied-piping the entire lexical items or projections thereof (called feature movement).

their morphological features, the checking operations associated with feature strength result in constituent (word) order differences across languages.

As for the computational system, it selects a numeration, i.e., a set of items drawn from the lexicon, and computes the numeration by Select, Project, Merge and Move. For example, a transitive verb is selected from the numeration. It projects a bar-level and creates an empty slot in a complement position. The complement slot is immediately replaced with an object NP (which has also been created by the projection of N up to N' and NP). The binary application, namely 1) creation of a slot and 2) filling the slot with a constituent (eg. NP, VP, IP) is called Merge. Move is a singulary application; it occurs when an empty slot is filled with a constituent within the structure being created, such as movement of a subject NP from Spec/VP to Spec/IP to check off its nominative Case features in English, or when a lexical item such as the English auxiliary 'be' raises from V to adjoin to I to check off its Tense and Agreement features.

Invariant principles in the sense of the P&P model (e.g., Binding, Case and Theta theories) have been renamed as "conditions on representation", which hold only at the interface and are motivated by modes of interpretation of performance systems. Parametric values have been reduced to morphological feature values, which are treated as central to the theory.

The MP also puts forward "invariant principles" as an important part of UG, but the definition has been changed to "economy principles"; Shortest Move, Greed, Procrastinate, and the Principle of Full Interpretation are of this type. Shortest Move involves movement of a constituent to the first possible position of the right kind. Greed

involves movement to satisfy the needs of the moved constituent. Procrastinate refers to a preferred delay of checking operations until after Spell-Out. The Principle of Full Interpretation is an economy principle on representations. Shortest Move, Greed, and Procrastinate, which constrain derivations, are still controversial (cf. Marantz 1995); however, they are proposed to determine what counts as a possible linguistic expression.

With respect to language acquisition, the MP states that since the computational system is the same in all languages, learning a given language involves fixing a correct set of features of functional categories as well as general properties of the lexicon of the language by exposure to the PLD. Each "linguistic expression" obtained from a computational process exists as a pair of the interface levels (PF, LF). A linguistic expression is said to be the optimal realization of the interface conditions, where "optimality" is determined by the economy conditions of UG.

It is clear that the MP takes language acquisition to be a process of fixing a set of morphological features. Therefore, it does explain what a child needs to learn. What it does not explain is how these morphological features are acquired, unlike the P&P theory which explicitly states that learning a parametric value results in a clustering of related structures.

Based on the acquisition apparatus provided in Minimalism, namely a computational system, which interacts with morphological features, and the process of identifying feature strength of a given language, we hypothesize that an L2 learner, like a child learning his L1, needs to possess this apparatus along with the required process in order to perform linguistic expressions of the target language. Specifically, by possessing

a computational system and having acquired morphological properties of the language, the L2 learner should be able to perform checking operations required by weakness or strength of morphological features, and as a result structures which involve the same type of checking operation, should be acquired as a cluster.

It is noteworthy that although we do assume the learning of grammatical features as central to SLA, we do not justify the status of features at the initial state. That is, we do not take a stand on the issue of whether grammatical features are primarily underspecified (Eubank 1996; Herschensohn 1997) or weak (Platzack 1996). Therefore, we will bypass the issues of the initial state of functional categories as well as the values of features, and hypothesize straightforwardly from the Minimalist framework that L2 learners are required to learn strength and weakness of grammatical features attached to the lexical items of the L2 in order to perform well-formed utterances.

2.2 Morphological Features in Functional Categories

The MP assumes that lexical items such as nouns, verbs, and adjectives are fully inflected in the lexicon before they enter a numeration. Lexical items have bundles of features including morphological, phonological and semantic features. Here we are concerned only with morphological features of functional categories -- AgrPs (AgrSP and AgrOP) and TP. There are two places where these features appear, namely in the functional category nodes themselves, and in the lexical items (e.g. N, V, and Adj). Let us take a transitive declarative shown in 1a) below as an example of how morphological features are assigned before the derivation.

1a) John sells computers.

Lexical items have three types of features: firstly, categorial features such as [nominal] for *John* and *computers*, and [verbal] for *sells*; secondly phi-features (person, number, gender) as [3 person], [singular], [+human] for *John* and [3 person], [plural], [-human] for *computers*, and the combination of both sets of phi-features for *sells*; thirdly, Case as [nominative Case] in T and *John* and [accusative Case] in *sells* and *computers*.

With regard to the heads of the functional category nodes, the Agr and T heads each contain N and V features. N features are those that are checked off against an NP in Spec/AgrP, and the V features are those that are checked off against a V that adjoins to a functional head (Marantz, 1995). These N and V features can be strong or weak. Strong features are visible at PF; therefore, they must be checked off to allow convergence at the interface of PF and LF. Weak features are invisible at PF and their checking is preferably delayed until after Spell-Out.

For English as in 1a), regarding Agr, N features of Agr refer to phi features (person, gender and number) of *John* and *computers*. V features of Agr are phi features of *sells*, and accusative Case for *computers*. As for T, the N feature of T is nominative Case, and V features of T are [+finite] and [+present]. [5] The strength/weakness of features in English are proposed as follows: N features of T (nominative Case) are strong and need to be checked off overtly; all others, namely V features of T, N features of Agr,

[5] It is assumed that nominative Case is associated with T and is checked by T in combination with AgrS, and that accusative Case is associated with V and is checked by V in combination with AgrO.

and V features of Agr, are weak. In the next section we will show how 1a) can specifically be obtained in the MP, along with other constructions related to this study.

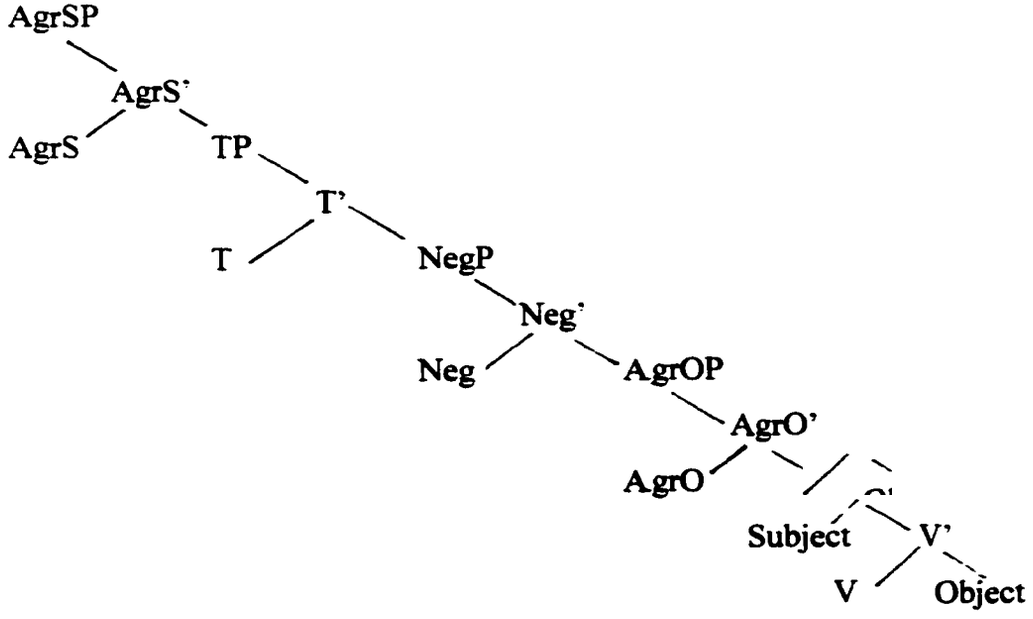
2.3 Derivations of English Case, Auxiliary and Main Verb Clauses

In this section we will start out with the derivation of 1a), a basic transitive clause in 2.3.1 and continue to other types of constructions which reflect movement/non-movement operations, namely, Case and Exceptional Case Marking (ECM) in 2.3.2, auxiliary in 2.3.3, and preverbal adverb and *do*-support in 2.3.4. These construction types correspond to those tested in this study.

2.3.1 Transitive Clause

We will discuss the derivation of an English transitive clause in terms of structure building. However, for simplicity, let us assume the following full-fledged schematic tree (Chomsky 1991/1995: chapter 2; Marantz 1995) of 1b) as an output.

1b)



A set of lexical and functional items selected from the lexicon for the computation (also called 'numeration') of 1b) consists of *John, computers, sells, T, and Agr*. First, we take the fully inflected *sells* from the lexicon and target V', which creates an empty complement position that needs to be filled by a constituent. We replace this empty slot with *computers*, and target V' and then project VP, creating a specifier of VP, which is immediately replaced by John. Here V has an accusative Case feature, which will be checked after Spell-Out, a Tense feature [present] to be checked against T, and Agr (phi) features of the subject and object, which will be checked against those of the two NPs. Then we take Agr, target it and project Agr' and immediately insert VP as a sister of Agr. Agr' is projected to create AgrP (identified as AgrOP by dominating VP). At this point, Agr contains phi features of the object NP. Next, we take T and target it to project T' in which AgrP is inserted as a sister to T. Here TP is created. T has [+finite], [+present] features to be checked against those of V which will adjoin to it. It also has nominative Case which will be checked overtly in combination with AgrS. We then take Agr, target it to create Agr' and insert TP as a sister of T. AgrP, which is identified as AgrSP by dominating TP, is created. AgrS here contains phi features of the subject NP.

As noted in 2.1, in English only N features of T are strong. Therefore, the nominative Case feature in T forces T to raise to adjoin to AgrS. The T-to-AgrS raising is forced on the assumption that nominative Case can only be checked in the checking domain of AgrS. Since a Spec/head relation is required for the checking operation, immediately after AgrSP is created, the subject *John* raises from Spec/VP to Spec/AgrSP, so nominative in the complex T+AgrS head and in *John* can be checked off. This

checking operation takes place before Spell-Out. After Spell-Out, V raises to adjoin to AgrO, then a combination of V and AgrO allows accusative Case to be checked with the object *computers*, which needs to raise to Spec/AgrOP. Here, the phi features of *computers* can be checked off as well.[6] Finally, the combination of V+AgrO has Tense features (Present, Finite) and Agr (phi) features of the subject *John*, so it raises further up to the T+AgrS combination (which has been created before Spell-Out) to have its Tense and Agr features checked off.

2.3.2 Case and Exceptional Case Marking (ECM) constructions

In the MP, as we have seen, lexical items are fully inflected with tense, agreement, and Case, therefore before entering a numeration, pronouns, like lexical NPs, must have already acquired nominative and accusative Case features. Although pronouns and lexical NPs are similar in that they both have phi-features and Case features, lexical NPs have semantic features but lack Case distinction, while Case distinction is shown in the morphological shape of pronouns but semantic descriptions of pronouns must be obtained from their antecedents.

From the Minimalist perspective, the ability to show distinct forms of pronouns in specifier and complement positions reflects the understanding of morphological requirements that Case features be checked to ensure convergence at both PF and LF. This is explained in 2 a) below.

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[6] Nowadays, with AgrS and AgrO abolished, Chomsky (1995: chapter 4) holds the Extended Projection Principle, or the so-called EPP feature, responsible for the overt movement of the subject. Since the EPP feature is strong, one might assume that both Nominative and Accusative are weak in English and the difference in overtness between subject and object movement follows independently of Case.

2a) He sells them.

Assuming that "he" refers to *John* and "them" *computers*, a learner who produces 2a) has crucially acquired nominative and accusative Case features as shown in the use of *he* and *them* fully inflected for Case . In addition, 2a) indicates that nominative Case checking (i.e. which occurs when T [finite] raises to AgrS and the subject NP raises to Spec/AgrSP overtly) has taken place since "he" is inflected for nominative Case and *sells* is inflected for T [finite], meeting the requirements of checking of nominative Case. As for accusative Case checking, which occurs after Spell-Out when V raises to AgrO and the object NP raises to Spec/AgrOP, it should also occur as shown by the matching of accusative Case features in the object pronoun "them" and the verb "sells".

On the other hand, if the learner produces a sentence such as 2b), he may not be considered to have acquired Case checking.

2b) *He sells they.

Under Minimalism, the derivation of 2b) crashes at LF. The pronouns "he" and "they" each have nominative Case features. For "he", its nominative Case is checked overtly in the domain of AgrS. As for "they", its nominative Case cannot be checked and after Spell-Out, "they" cannot raise to AgrO since it does not have an accusative Case feature. When this output is sent to be interpreted at LF, "sells" has an accusative Case feature that is unchecked since the numeration lacks an NP with accusative Case and "they" has a nominative Case feature that cannot be checked since T has already checked its nominative Case feature against "he" before Spell-Out, resulting in a crash at LF.

Data such as 2b) suggests that the learner may not have fully acquired morphological Case features which are attached to pronouns and verbs, leaving nominative and accusative Case features unchecked at LF as explained above. Alternatively, the learner may know that subject NPs have nominative Case features and object NPs have accusative Case features and the verb *sells* requires an object NP with accusative Case. However, he does not know that *they* is inflected for nominative only, and not accusative.

As for the ECM construction, take 2c) below as an example.

2c) He wants them to sell computers.

In the ECM construction, an IP along with its lower projections is created as a sister to VP as in the bracketed structure shown 2d) below.

2d) $[_{AgrSP}$ He $[_{AgrS}$ ... $[_{AgrOP}$ $[_{VP}$ wants $[_{IP}$ them $[_{I'}$ to$[_{AgrOP}$ $[_{VP}$ sell computers]...

As noted previously, accusative Case is checked at LF when V raises to AgrO and the object NP raises from Spec/VP to Spec/AgrOP. Similarly, to derive 2c) from the underlying structure in 2d), at LF *them* raises from Spec/IP of the lower clausal complement to Spec/AgrOP in the same way an NP object raises to Spec/AgrOP in a single clause structure. This part of the LF derivation is illustrated in 2e) below.

2e) $[_{AgrSP}$ He $[_{AgrS}$ ... $[_{AgrOP}$ them$_j$ $[_{AgrO}$ wants$_i$ $[_{VP}$ t_i $[_{IP}$ t_j $[_{I'}$ to$[_{AgrOP}[_{VP}$ sell computers]...

In this Spec/head configuration as shown in 2e), at LF accusative Case is checked off.

Although the checking of accusative Case is similar in the ECM construction and a typical single clause, the surface form of the ECM is marked compared to that of a single clause. The ECM contains a non-finite complement in which the subject NP has

accusative Case. Thus if 2c) is produced by an L2 learner, it suggests that he has acquired nominative and accusative Case features and has performed the checking operations required for PF and LF convergence. In particular, 2c) indicates that the learner knows that "wants" can take a complement clause in which the subject has accusative Case features. The morphosyntactic evidence, which is observable in the surface forms of "wants" and "them", confirms that the accusative Case features in both items have been checked.

On the other hand, 2f) below might occur in L2 data.

2f) *He wants they to sell computers.

One possibility for 2f) is that the learner has not acquired nominative and accusative Case features, leaving nominative Case unchecked in "they" and accusative Case unchecked in "wants". In particular, the learner may not know that "wants" requires the subject of the infinitive clause to have accusative Case features, so he uses "they" which fails to meet the need of "wants". Alternatively, the learner may realize this requirement of "wants" but he has not acquired the inflected form "them" yet.

2.3.3 Auxiliary Construction

Consider sentences containing the aspectual auxiliaries *be* and *have* such as 3a) and 3b) below.

3a) John is not selling computers.

3b) John has not sold computers.

It has been assumed that both auxiliaries are semantically vacuous and are used to express tense and aspects in connection with participles. Chomsky (1993/1995: chapter 3) proposes that since English auxiliary verbs lack semantic content, they are uninterpretable and are invisible at LF. It follows that the morphological features (i.e. Tense and Agreement) that they carry along must be invisible at LF as well. Due to their LF-invisibility, the auxiliaries are forced to perform all their feature-checking movement in overt syntax by raising to higher functional heads (i.e., from V to AgrO to T and AgrS).

As for the present and past participle forms (i.e. *selling* and *sold*), under Minimalism there have been few proposals addressing where they are in the derivation. The two participle forms were more extensively studied in pre-minimalist approaches such as the Extended Standard Theory, which attempts to account for the formation of them by way of affix-hopping. Besides the structure of participles, there have been a number of proposals pertaining to their thematic roles and Case assignment (cf. Baker, Johnson and Roberts 1989; Roberts 1992; Cowper 1993).

Viewing our particular cases of 3a) and 3b) from the Minimalist perspective, we may assume that the auxiliary and the participle each have their own VP projections, and that the auxiliary VP dominates the participle VP. One possibility is to create a functional category between the two VPs, which may be termed Aspect Phrase. This AspP may be identified as either present or past participle. The fully inflected *selling* and *sold* presumably have Aspect features so they raise from the lower VP to the Asp head to have their features checked off.[7]

[7] The alternative of creating an Aspect Phrase and the checking of aspect features has been suggested by den Dikken, p.c.

An L2 learner of English who performs 3a) and 3b) has shown that he/she knows that the auxiliaries "is" and "has" need to perform their feature-checking movement overtly due to their LF-invisibility. However, if the learner does not realize the needs of auxiliaries to raise to higher functional heads overtly, and treats them as lexical main verbs which do not raise over Neg, he/she may produce 3c) and 3d), which are ungrammatical.

3c) *John not is selling computers.

3d) *John not has sold computers.

2.3.4 Preverbal Adverb and Do-Support Constructions

In the MP, a preverbal adverb construction is derived by non-raising of lexical main verbs before Spell-Out and subsequent raising of main verbs to higher functional heads after Spell-Out as discussed in 2.3.1. An additional part of the basic declarative involves adjunction of an Adverb Phrase, which is projected when an adverb such as "always" is present in the numeration, to VP. 4a) below illustrates the output of such a derivation.

4a) John always sells computers.

Therefore, a given learner who performs 4a) correctly has shown that he/she realizes that V features as well as N features of Agr are weak, since V stays inside VP and the object NP does not raise across the adverb before Spell-Out, consistent with the Minimalist account. If the learner identifies V features of Agr to be strong and N features

of Agr to be weak as those of French learners, he/she will produce an ungrammatical 4b) as shown below.

4b) *John sells always computers.

In 4b), since V features of Agr are mistakenly analyzed as strong, the raising of V across the verb to AgrO, T, and AgrS occurs.

As the MP account for the derivation of *do*-insertion is under investigation, we will examine the Economy of Derivation approach (Chomsky 1991/1995: chapter 2). In the Economy of Derivation approach, Chomsky assumes Pollock's (1989) parameter that Agr is strong in French and weak in English. Pollock (1989) sets the initial hypothesis that verbs must theta-mark their complements throughout the derivation. He proposes strong Agr to be transparent for theta-role transmission, allowing V to move up to it and head a thematic chain. On the contrary, weak Agr is opaque for theta role transmission. The adjunction of V to weak Agr results in a violation of the thematic criterion. In addition to adopting Pollock's fundamental idea of parametric difference in terms of strength of Agr, Chomsky attempts to explain verbal morphology by way of overt movement of verbal stems to Agreement and Tense affixes, the case of French main verbs, or overt movement of Agreement and Tense affixes to verbal stems, the case of English main verbs. [8] Thus in the derivations of main verb and *do*-support constructions that we will explain next, let us assume that when functional heads move, they carry along their inflectional morphology to associate with the elements they adjoin to.

[8] Morphological affixation by way of syntactic movement no longer exists in Minimalism, which places word formation, including affixation, in the lexicon.

With regard to main verb constructions of French and English, assuming a structural tree in which TP dominates AgrP, Pollock (1989) argues that in French finite clauses V raises to Agr and T to maintain a thematic chain in the derivation, while in English T, and Agr lower to V due to the weakness of Agr. Chomsky (1991/1995: chapter 2) extends Pollock's account by proposing that the lowering of Tense and Agr, or Infl in Chomsky's term, yields an improper chain since the traces of T and Agr c-command the complex V+T+Agr head. To avoid the improper chain, subsequent LF raising of the complex V head to the positions of Agr and T is required to cover up the traces left by the lowering of both functional heads.

In English negative sentences, according to Chomsky (1995: chapter 2), the lowering of T and Agr to V in syntax and the raising of the complex head back up at LF does not apply. 5a) and 5b) below are given to illustrate the derivation.

5a) John T Neg Agr sell computers.

5b) John does not sell computers.

In 5a), the underlying structure of 5b), assuming that the lowering of T has occurred, when Agr lowers to V what is left is not a trace of Agr since Agr does not leave traces but an empty head without features.[9] When, at LF, V+T+Agr raises back up to Agr, it does not adjoin to Agr but substitutes for the head of this projection, making AgrP a derived VP. When the V complex subsequently raises up further to T, movement leaves a V-trace, and V-traces cannot be deleted since they have features. Proper

[9] In Chomsky (1991), traces of Agr delete on the assumption that Agr is meaningless for the interpretation at LF.

government of the V-trace fails due to the intervention of Neg P, which constitutes a barrier, resulting in a violation of the Empty Category Principle (ECP).

To save the derivation from violating the ECP, Chomsky's (1991) account is that *do*-insertion, a language specific rule used to bear Agr and Tense, is needed. As shown in 5b), the S-Structure of 5a), on the assumption that T is the position for Tense and modality (Pollock 1989), *do* is inserted in T, and Agr raises to adjoin to the complex *do*+T head. The raising of Agr across Neg violates the Head Movement Constraint (HMC) but not the ECP because the trace of Agr deletes, hence there is no trace to be properly governed.

An L2 learner who produces 5b) has acquired weak Agr of English as well as the language specific rule by virtue of not raising the verb over Neg and applying *do*-insertion, the rule contingent upon the weak features of English Agr. On the other hand, if the learner produces the ungrammatical version as 5c), it shows that he/she has acquired neither the weakness of Agr (since the verb raises over Neg) nor the language specific rule. In 5d), it shows that he/she has acquired the weakness of Agr (since the verb does not raise over Neg) but not *do*-insertion.

5c) *John sells not computers.

5d) *John not sells computers.

2.4 English Morphological Features and Thai Learners

With respect to the Thai participants in this study, in order to perform all of the above sentence types, they need to have knowledge of English morphological features in

the following three respects. Firstly, for Case, N features of T are strong and N features of Agr are weak, resulting in the overt checking of nominative Case in the domain of AgrS, and the covert checking of accusative Case in the domain of AgrO. Although the checking of nominative and accusative Case in lexical NPs may be considered as string vacuous, the MP allows us to evaluate it in pronouns since the checking of Case is tied in with the use of distinct pronominal forms. That is, under Minimalism the use of correct pronominal forms in positions where Case features are checked entails that Case checking has been acquired, whereas the use of incorrect pronominal forms indicates the failure of Case checking.

Thus, Thai learners need to know that pronouns are distinguished for Case, and as a consequence nominative and accusative Case features must be associated with correct pronominal forms. Therefore, we take supply and identification of distinct forms in pronouns to determine the presence of the two types of Case checking.

Secondly, according to the Economy of Derivation approach, English has weak Agr, yielding non-raising of lexical main verbs shown in structures containing preverbal adverbs and insertion of *do* to bear Tense and Agreement in negative clauses.

Thirdly, the auxiliaries *be* and *have* are different from lexical main verbs since they are semantically vacuous and need to perform their feature checking movement overtly due to their LF-invisibility.

We have therefore chosen seven sentence types which are hypothetically generated from this set of knowledge, namely, Nominative, Accusative, ECM (i.e. sentences containing subject pronominals, object pronominals, and object pronominals in

embedded non-finite complements, respectively) for Case checking, Progressive Negative and Perfective Negative for raising of auxiliaries, and Preverbal Adverb and *do*-insertion in Negative Clause for non-raising of lexical main verbs.

We determine the presence of the learner's knowledge of Case by morphosyntactic evidence (i.e. uses of distinct pronominal forms); however, in two syntactic phenomena, the raising of auxiliaries and non-raising of lexical main verbs, we use the order of elements as a criterion. Our position in assuming word order as crucial to revealing syntactic knowledge comes from substantial evidence which indicates that L2 learners are able to perform correct word order but are unable to produce morphological inflections such as third person present tense -s, and past tense endings (White 1992; Gavruseva and Lardiere 1996; Lardiere 1998). Thus, in evaluating L2 learners' intergrammar knowledge of auxiliary-raising and non-raising of lexical verbs, we assume that this is a consequence of feature assignment as predicted by Minimalism. However, we do not assume that L2 learners have fully inflected forms. In fact, it seems unlikely that the average L2 learner can always supply lexical items correctly inflected with tense and agreement, as presumed to be the case of adult native speakers according to the Minimalist view.

We will adopt morphosyntactic evidence in Case related structures and order of elements in auxiliary and main verb structures as criteria to determine the learners' knowledge of the L2, and discuss agreement morphology as a separate issue in analyses of errors in chapters 6 and 7.

Chapter 3

A Brief Description of Thai Clausal Structures

Thai has been chosen to represent the language background of L2 learners in this study. The Thai language assumed in this study is Standard Thai, the official language of Thailand. Thai is an SVO language. Thai morphology mainly comprises monomorphemic Thai words and multimorphemic loan words from Sanskrit. Word formation in Thai involves compounding and reduplication. Thai makes no use of inflection; therefore, there are no tense and agreement markings in clausal structures. Time reference is expressed by time adverbs or interpreted from discourse contexts. Thai has been regarded as an uninflected language in which tense and aspect are not grammaticalized (Chaiyaratana 1961; Suwattee 1971; Hudak 1990; Hoonchamlong 1991 among others). Thai expresses aspect and mood in terms of lexical items.

Although Thai and English exhibit SVO word order, various sentential constructions of Thai, particularly the counterparts of the English sentence types investigated in this study, differ considerably from those of English. This chapter shows examples of Thai clausal structures in the following categories: declaratives varying in tense and aspect in section 3.1, negative clauses in section 3.2, sentences containing adverbs in section 3.3, and those containing pronouns and ECM verbs in 3.4. In 3.5, we will predict problems which may arise when Thai learners encounter the types of English sentences tested in this study.

3.1 Declaratives

As noted earlier, Thai does not have tense and agreement markings and information about time can be conveyed by time adverbs or discourse contexts. In terms of aspect and mood, Thai uses certain markers. To illustrate the Thai uninflected clausal structure as well as aspect/mood markers, examples of declaratives varying in tense and aspect (Present, Past and Present Perfect) are shown in 6a) to 6c) and Future and Present Progressive in 6d) and 6e) below. Since these examples are single clauses without context, in order to assist interpretation, time adverbs, which are optional, are provided.

6a) kʰăw ʔà:n năŋsŭ: tʰúk wan

he read books every day

"He reads books every day."

6b) kʰăw ʔà:n năŋsŭ: mûːawa:nní:

he read books yesterday

"He read books yesterday."

6c) kʰăw ʔà:n năŋsŭ: tâŋtɛ̀: mûːawa:n contʰŭŋ tɔ:nní:

he read books since yesterday until now/this time

"He has read books since yesterday until now."

From 6a) to 6c), the verb [ʔà:n] remains constant in the present, past and present perfect contexts, indicating that there are no tense and agreement markings. Time reference is conveyed by time adverbs as in 6a) [tʰúk wan] and 6b) [mûːawa:nní:] and an adverbial phrase as in 6c) [tâŋtɛ̀: mûːawa:n contʰŭŋ tɔ:nní:].

Consider how future and present progressive are expressed in Thai in 6d) and 6e).

6d) kʰăw cà? ʔàːn nǎŋsŭ̌ː pʰrûŋníː

he will read books tomorrow

"He will read books tomorrow."

6e) kʰăw kamlaŋ ʔàːn nǎŋsŭ̌ː tɔːnníː

he progressive read books now/at this time

"He is reading books at this time."

In 6d) and 6e), the verb form remains the same. In addition, there is an element preceding the verb, namely [cà?], a future marker, in 6d) and [kamlaŋ], a progressive marker, in 6e).[1] Therefore, future and present progressive are expressed by adding [cà?] and [kamlaŋ], respectively, before the main verb. These two markers have been termed differently such as "adverb auxiliaries" (Hass 1964), "time indicators" (Bandhumedha 1988), and "preverbal elements" (Warotsikkadit 1989). In general, these mood/aspect markers function similarly to auxiliaries in a sense that they serve as a locus of expression for such categories as aspect or mood (Trask 1993).[2]

It can be seen from 2a) to 6c) that Thai does not have verbal inflection and from 6d) and 6e) that Thai has mood/aspect markers. The presence of mood/aspect markers

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[1] In 6e), if an adverb of time such as [mûːawaːnníː], meaning "yesterday" is added in sentence final position, the reading conveys past progressive, i.e. "He was reading books at this time yesterday". Therefore, [kamlaŋ] can be used in both present and past progressive contexts.

[2] The use of auxiliaries as a grammatical category in this sense may not be a purely Thai strategy. As suggested by Ekniyom (1979) (cited in Hoonchamlong 1991), the use of auxiliaries to express time/aspect/modality is a later development, influenced at various times from various sources: from verbs, nouns and compounding in the language, and also from borrowings of verbs, nouns and auxiliaries from Cambodian.

could be viewed as evidence for the abstract functional projection of IP in Thai. Cinque (1999) analyzes [cà?] as a future particle heading TP, and [kamlaŋ] a progressive particle projecting an aspect phrase. According to him, Tense and Progressive aspect have their own functional projections, and Tense is higher than Progressive in the hierachy of a universal order of functional projections. Based on Cinque's (1999) analysis of Thai tense and aspect, Thai can be assumed to have IP.

3.2 Negative Clauses

Consider how negation is expressed in the present, past, and present perfect contexts as shown in 7a), 7b), and 7c) respectively, below.

7a) kʰăw mâjdâj ʔà:n năŋsŭ: tʰúk wan

he not read books every day

"He does not read books every day."

7b) kʰăw mâjdâj ʔà:n năŋsŭ: mûi:awa:nní:

he not read books yesterday

"He did not read books yesterday."

7c) kʰăw jaŋ mâjdâj ʔà:n năŋsŭ: tâŋtè: mûi:awa:n contʰŭŋ to:nní:

he yet not read books since yesterday until now

"He has not read books since yesterday until now."

From 7a), 7b) and 7c) [mâjdâj] a negative morpheme, which is a compound of [mâj] "not" and [dâj] "able", meaning "not get to", precedes the main verb. Also in 7a)

[mâj] can be substituted for [mâjdâj] to convey negation, although [mâj] is relatively less frequent in usage. In 7c), [jaŋ mâjdâj], a combination of [jaŋ] "yet" and [mâjdâj], which appears in the preverbal position, is used to indicate that an event denoted by the verb has not happenned.

It should be noted that apparently one might take [jaŋ mâjdâj ʔà:n] in 7c) as an equivalent of "has not read" in English and further treats [jaŋ] on a par with the aspectual *have*. However, this analogy may not be possible due to at least three reasons. Firstly, [jaŋ] is somewhat freely distributed in a serial verb construction as in 7d) and 7e) below.

7d) kʰăw jaŋ ʔà:n năŋsŭ: mâj sèt

he yet read books not finished

"He has not finished reading books."

7e) kʰăw ʔà:n năŋsŭ: jaŋ mâj sèt

he read books yet not finished

7d) means the same as 7e), and they can be used interchangeably. In 7d), [jaŋ] precedes the first VP [ʔà:n năŋsŭ:] and in 7e), it precedes the second VP [mâj sèt]. Unlike [jaŋ], the English aspectual auxiliary *have* cannot be positioned freely.

Secondly, [jaŋ] is relatively versatile in terms of its grammatical function in a sentence, as seen in 7f) and 7g) below.

7f) kʰǎw jaŋ ʔàːn nǎŋsŭ̌ː jùː

he still read books progressive marker

"He is still reading books."

7g) kʰǎw ʔàːn nǎŋsŭ̌ː léːw rŭ̌ː jaŋ

he read books already or have not

"Has he read books?"

In 7f), [jaŋ] serves as an adverbial, while in 7g) it is part of a question particle.

Thirdly, it is most likely that the occurrence of [jaŋ] has no dependence on tense factors while *have* does. The aspectual auxiliary *have* is placed to the left of *not* when finite and must follow *not* when non-finite, but the position of [jaŋ] does not seem to be subject to these restrictions.

These three reasons lead us to conclude that [jaŋ] cannot be treated as a morphological equivalent of the aspectual auxiliary *have*.

As for negation in future and present progressive contexts, two different forms of negative are used as shown in 7h) and 7j), respectively.

7h) kʰǎw càʔ mâj ʔàːn nǎŋsŭ̌ː pʰrûŋníː

he will not read books tomorrow

"He will not read books tomorrow."

7j) kʰǎw mâjdâj kamlaŋ ʔàːn nǎŋsŭ̌ː tɔːnníː

he not prog mk read books now/at this moment

"He is not reading books now."

In 7h) the negative morpheme [mâj] follows the future marker [cà?] and in 7j) the negative compound [mâjdâj] precedes the progressive marker [kamlaŋ]. In 7h) if [mâj] is substituted for [mâjdâj], the sentence is grammatical but the reading is slightly different; it means "he will not get to read books tomorrow."

There have been observations regarding the uses of the two forms [mâj] and [mâjdâj]. Both Haas (1964) and Noss (1964) agree that the negative morpheme [mâj] has different manifestations depending on the individual constituents it combines with. and these variations are used for different purposes. In the above examples, we have seen three negative forms, namely [mâj] "not", [mâjdâj] "not get to/not" and [jaŋ mâjdâj] "not yet" in three different contexts.

With respect to the use of [mâjdâj], Noss (1964) defines it as "infact not" and states that it is used mainly in past situations but also occurs in the present and future. Haas (1964) defines [mâjdâj] as "didn't, didn't get to, not get/gain/obtain". Haas (1964) does not state "how" [mâjdâj] is used but all of her examples which contain [mâjdâj] are in the present perfect (i.e. in combination with [jaŋ]), past and future, corresponding to the above examples.

It should be noted that nowadays the meaning of [mâjdâj] in the sense of "not get to" seems to be disappearing in past and present contexts, but remains in the future as described in 7h). In other words, it seems that Thai is losing the distinction between [mâj] and [mâjdâj] in the present and past contexts, so that both forms can be used

interchangeably. In addition, it has been observed that the preference for native Thai speakers is to use [mâjdâj] in both contexts.

In brief, based on the above Thai examples of negative constructions, it can be stated that firstly, either [mâj] or [mâjdâj] can be used in the present and past contexts, presumably without any difference in meaning, and [mâjdâj] is preferable in both. In the future context, although either form appears, there is slight difference in meaning, i.e. [mâj] simply reverses the truth of a proposition, while [mâjdâj] has the sense of "not get to" added. In the present progressive, [mâjdâj] is obligatory and precedes the progressive marker. In the present perfect, [jaŋ mâjdâj] is required in the preverbal position.

3.3 Distribution of Adverbs

Thai adverbs are rigid in terms of their positions as shown in the following examples varying in manner, frequency, and time.

3.3.1 Manner Adverbs

Thai manner adverbs fall into two types in terms of morphological shape: compound and non-compound. A compound manner adverb consists of a classifier [jà:ŋ] and a verbal element or an adjective.[3] [jà:ŋ] as a classifier means "kind, sort" but when it combines with an adjective or a verb to make a manner adverb, it means in a manner

[3] Classifier is a grammatical word, which usually cooccurs with numerals in certain languages. The choice of classifier is said to be determined by the semantic characteristics of the head noun.

denoted by the adjective or verb. Non-compound manner adverbs are typically monosyllabic, e.g, [cʰáː] "slowly", [rew] "quickly". Examples of compound manner adverbs are shown in 8a) and 8b) and non-compound in 8c) below.

8a) kʰăw maːthŭŋ jàːŋ plɔ̀ːtpʰaj

he arrive manner safe

"He arrived safely."

8b) kʰăw cʰɔ̂ːp tʰəː jàːŋ nêːnɔːn

he like her manner definite

"He definitely lîkes her."

8c) kʰăw dəːn cʰáː

he walk slowly

"He walks slowly. "

Manner adverbs in Thai are in sentence final position as shown in all of the above examples.

3.3.2 Frequency Adverbs

Adverbs of frequency are also in sentence final position as shown in 8d) and 8e) below.

8d) kʰăw duːnăŋ bɔ̀j

he see movies often

"He often sees movies."

8e) kʰăw ma: săːj samɔ̆:

he come late always

"He always comes late."

In 8e) where manner and frequency adverbs cooccur, the manner adverb precedes the frequency adverb.

3.3.3 Time Adverbs

All time adverbs are in sentence final position as shown in 8f) and 8g) below.

8f) (mɯ̂ːawaːnníː) kʰăw maːthɯ̌ŋ mɯ̂ːawaːnníː

he arrive yesterday

"He arrived yesterday."

8g) (pʰrûŋníː) kʰăw càʔ dəːntʰaːŋ pʰrûŋníː

he will travel tomorrow

Adverbs of time can also be placed sentence initially, if time is a point of interest. as shown in the parentheses.

Given the data from the three types of adverbs illustrated so far, adverbs in Thai typically occupy sentence final position.

3.4 Case and ECM Constructions

Thai has no Case morphology, as shown in 9a) to 9d) below.

9a) tʰəː cʰɔ̂ːp kʰǎw

she like he

"She likes him."

9b) kʰǎw cʰɔ̂ːp tʰəː

he like she

"He likes her."

9c) mêː kʰɔ̌ːŋ kʰǎw paj talàːt

mother of he go market

"His mother went to the market."

In 9a) and 9b), [tʰəː] in the subject and object positions, and [kʰǎw] in the object and subject positions have the same morphological shape. In 9c), possessive Case is expressed by inserting the preposition [kʰɔ̌ːŋ] between the noun and the pronoun, and the form of the pronoun remains the same.

The ECM construction in Thai is formed by inserting [hâj] between the ECM verb, such as [tɔ̂ŋkaːn] "want" and [cʰɔ̂ːp] "like", and the IP in its complement as shown in 9d).

9d) kʰǎw tɔ̂ŋkaːn/cʰɔ̂ːp hâj tʰəː tʰamŋaːn nàk

he want/like for she work hard

"He wants/likes her to work hard."

9d) is considered an ECM construction based on the presence of [hâj], a complementizer, which presumably assigns accusative Case to [tʰəː]. In other contexts, [hâj] can function as a verb meaning "give" or a preposition equivalent to "for" in English.[4] Although [hâj] can be used as a verb or preposition, in this context we found crucial evidence from a constituency test and topicalization, both of which reveal that it is neither a verb nor a preposition, but a complementizer. Since it is more common for a topicalized element to be a proper name than a pronoun, we illustrate ECM and its topicalized counterpart with a proper name in 10a) below.

10a) John tôŋkaːn hâj Mary maːhăː

John want for Mary come over

John wants Mary to come over.

In 10a), [hâj Mary] is not a constituent, e.g. a prepositional phrase (PP), as shown in the fact that it cannot undergo fronting in 10b) below.

10b) *hâj Mary nîː John tôŋkaːn maːhăː

for Mary TM John wants come over [5]

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[4] Examples in which [hâj] functions as a verb and a preposition are shown in 9e) and 9f), respectively.

9e) John hâj ŋən kèː Mary
John give money to Mary
"John gave money to Mary."

9f) John tʰamŋaːn hâj Mary
"John works for Mary."

[5] TM is an abbreviation for Topic Marker. Topic markers are particles added after topic elements. According to Ekniyoum (1977), Thai has many devices to mark topics including various forms of topic markers and an internal pause between the topic and the clause following it.

In Thai, PPs can undergo fronting as in 10d) a topicalized version of 10c). Note that we choose the preposition [bon] "on", a clear example for a preposition, instead of [hâj] to illustrate in 10c) and 10d).

10c) Mary wa:ŋ nǎŋsŭ: bon tó?

Mary put books on table

"Mary put books on the table."

10d) bon tó? nî: Mary wa:ŋ nǎŋsŭ:

on table TM Mary put books

"On the table, Mary put books."

Since [hâj Mary] in 10b) fails to form a constituent such as PP, [hâj] in 10a) is most likely a complementizer heading an embedded clause in which "Mary" is the subject and [ma:hă:] is the VP complement.

The second piece of evidence comes from the fact that in topicalized constructions, [hâj] can be stranded while prepositions such as [bon] cannot as shown in 11a), and 11b), respectively.

11a) Mary nî: John tôŋka:n hâj ma:hă:

"Mary, John wants to come over."

*11b) tó? nî: Mary wa:ŋ nǎŋsŭ: bon

"The table, Mary put books on."

In 11a) the stranding of [hâj] is grammatical. In 11b), when the object of the preposition, i.e. [tó?], raises to the topic position, and strands the preposition [bon], the sentence becomes ungrammatical. Since in Thai prepositions cannot be stranded, it follows that [hâj] in 11a) is not a preposition, but a complementizer.[6]

With regard to ECM verbs, Thai has a very restricted class, compared to the class of ECM verbs in English. As shown in 9d) above, "want" and "like" are ECM verbs in Thai. When other ECM verbs in English such as "believe, suspect, expect" are compared to the Thai counterparts, i.e. c^{h}tûa:/sǒŋsǎj/k^{h}â:t, we find that they are not ECM verbs. The three verbs take [wâ:], another complementizer which heads a non-ECM embedded clause as shown in 12a) below.

12a) John c^{h}tûa:/sǒŋsǎj/k^{h}â:t wâ:/*hâj Mary t^{h}amŋa:n nàk

John believe/suspect/expect that/*for Mary work hard

"John believes/suspects/expects that Mary works hard."

"*John believes/suspects/expects Mary to work hard."

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[6] In Thai, subject extraction in ECM by way of stranding [hâj] is allowed as seen in 11a). However, when there is negation in the lower clause, subject extraction is illegitimate as in 11c).

11c)* Mary nî: John tôŋka:n hâj mâj ma:hă:

"Mary, John wants not to come over."

Apparently 11c) seems to be a counterexample of 11a), which may be used to argue against the status of [hâj] as a complementizer because [hâj] cannot be stranded when negation is present in the lower clause. However, we argue that 11c) cannot undermine the status of [hâj] as a complementizer since it is also illegitimate to topicalize the object when the embedded clause is transitive as shown in 11d).

11d)* Jim nî: John tôŋka:n hâj Mary mâj c^{h}ɔ:p

"Jim, John wants Mary not to like."

The ungrammaticality obtained in 11c) and 11d) indicates that the status of [hâj] as a marker for ECM is independent of the non-licensing of subject and object extraction. In addition, since neither subject or object arguments can be extracted, the illegitimate movement could probably derive from certain constraints on [tôŋka:n] "want", and not [hâj].

In 12a), if [hâj] is substituted for [wâ:], the sentence becomes ungrammatical. Other verbs taking [wâ:] include [k^{h}ít] "think", [rú:] "know" and [sǎnnítt^{h}ă:n] "assume," which are all non-ECM verbs. Since "believe/suspect/expect" in Thai take the same complementizer as "think/know/assume", they should belong to the class of non-ECM verbs.

To conclude, ECM is present in Thai but it is restricted to a very small class of verbs. Thai ECM is marked by [hâj], a special complementizer, which assigns accusative Case to subjects of embedded clauses, similar to the complementizer "for" in English.

3.5 Potential Problems for Thai learners of English

Given the lexical manifestations of Thai sentential constructions shown in all of the above examples, Thai learners of English are expected to have the following problems in the learning of the sentence types investigated in this study.

1. Thai does not have tense and agreement inflections. Tense, aspect, and modality are expressed by lexical items in Thai. The verbal inflection and auxiliary systems, particularly the aspectual auxiliaries, of English are unfamiliar to Thai learners. Specifically, they are expected to have difficulty with instantiating English present tense and third person agreement, in the auxiliary *be*, *have*, *do* and main verbs, used in this study.

2. English negation in the three forms, namely progressive negative, perfective negative and *do*-support, may pose problems for Thai learners. As discussed earlier in section 3.2, progressive negative in Thai is marked by inserting [mâjdâj] before the

progressive aspect marker [kamlaŋ]. In perfective negative and main verb constructions, [jaŋ mâjdâj] and [mâjdâj] are added before the main verb, respectively. Therefore, the Thai strategy for converting an affirmative into a negative clause is by inserting certain forms of negative elements, depending on time or aspect of reference.

In English, a totally different strategy needs to be adopted. Firstly, the learners have to identify the three forms of English auxiliaries *be*, *have*, and *do* and match them with the three different contexts. Secondly, they need to know that auxilaries *be*, *have*, and *do* are the elements in which tense and agreement are expressed. Thirdly, all three auxiliaries precede *not* while the non-finite verbs, which bear progressive and perfective aspect or null (as in main verb constructions), follow the negative. Thus, problems can be expected in all of these areas, i.e. choice of auxiliaries, inflectional morphology, and order of the three elements: auxiliary, negative and non-finite verb.

3. As discussed earlier in sections 2.1 and 2.2, Thai has a way to express the present perfect by adding an adverb phrase to a declarative, and a negative form before the main verb as shown in 6c) and 7c), repeated below as 13a) and 13b), respectively.

13a) kʰăw ʔà:n năŋsŭ: tâŋtè: mŭ:awa:n contʰŭŋ tɔ:nní:

he read books since yesterday until now/this time

"He has read books since yesterday until now."

13b) kʰăw jaŋ mâjdâj ʔà:n năŋsŭ: tâŋtè: mŭ:awa:n contʰŭŋ tɔ:nní:

he yet not read books since yesterday until now

"He has not read books since yesterday until now."

Present perfect in the sense that an event has or has not continued from some point in the past to the present time as shown in 13a) and 13b) is clear in Thai. However, another sense of present perfect which expresses a state resulting from an earlier event as in 13c) in English, is probably lacking in Thai. In this situation, the most likely alternative is to use a completive marker [lé:w], meaning "already" which marks past events as in 13d).

13c) John has gone.

13d) John paj lé:w

John go already

"John went already."

In 13d) [lé:w] is added in sentence final position. There seems to be no other alternative to express 13c) but 13d) which is in a past form, whereas the negative version of 13c) is clear as shown in 13e) below.

13e) John jaŋ mâjdâj paj

John yet not go

"John has not gone yet."

Therefore, a problem arises if Thai learners adopt the Thai strategy, i.e. using adverb such as "already" in the English present perfect instead of the auxiliary *have* in combination with a past participle form of the verb. This confusion may affect the learning of all contexts of present perfect, i.e. declarative, interrogative, and in particular, negative used in this study.

4. Adverbs in Thai are mainly located at sentence final position. The English adverb "always" investigated in this study has a fixed preverbal position. Therefore, if there is L1 transfer of adverb position, Thai learners will place "always" in sentence final position.

5. Case morphology does not exist in Thai. Distinguishing Cases by morphological shapes in the English pronominal system is expected to be difficult for Thai learners. In addition, as described in 3.4, Thai has ECM only in the for-to construction type. Since Thai lacks non for-to ECM constructions and allows a very restricted class of ECM verbs, the learning of ECM in English might be problematic for Thai learners.

Chapter 4

Hypotheses

As discussed in chapter 1, the clustering pattern in L2 development has mainly been attested by comparisons of L2 learners' performance on different sentence structures. Two major analyses were performed: attainment of criterion and analysis of variance. We pointed out that the latter is more adequate for comparing learners' abilities on different types of structures because it corresponds to group performance, a characteristic of cross-sectional study, and does not rely on an arbitrarily set criterion.

Although analysis of variance is a more desirable alternative between the two measurements, it can only roughly estimate performance among structures. i.e. whether at a given point in acquisition, structures are treated similarly and therefore represent the same degree of difficulty. However, it cannot show whether performance of one structure develops along with performance of another which is presumed to be theoretically related.

In this study, we separate two aspects in the acquisition process, the relationship between any structures and the relative difficulty of the structures, and we use two different methods, i.e, correlation and analysis of variance, to evaluate these aspects separately. The separation of relationship and difficulty has not been adopted in any studies which have tested clustering. We argue for distinct analyses because any structures may be related in development even if one structure is more difficult than another. Analysis of variance can generally estimate whether or not any given

structures are equally difficult; however, it is not informative with regard to whether or not growth of one structure is related with another, irrespective of relative difficulty. Thus, we define clustering as a relationship which occurs between any given structures regardless of overall proficiency. On the other hand, relative difficulty is a combination of various kinds of effects, e.g. L1 influence, frequency in the input, and relative complexity between structures.[1] We analyzed degrees of difficulty of sentence structures based on these three effects. It is important to note that in this study, we are developing an informal notion of complexity; one contrast involves lexical complexity while others involve surface complexity. The lexical or surface complexity may or may not be a confirmed phenomenon.

We state all our hypotheses from two perspectives: that of clustering and that of difficulty. Since three types of syntactic operations were investigated, namely, Case, raising of auxiliaries, and non-raising of lexical main verbs, we state clustering and difficulty hypotheses operation by operation in sections 4.1, 4.2 and 4.3, respectively. Clustering predictions were strictly based on the analyses of the three operations predicted by Minimalist and the Economy of Derivation frameworks. In accordance with the broad definition of clustering laid out in chapter 1, which states that clustering will occur when there is concurrent development of a set of syntactic

[1] L1 influence in this study refers to similarities or differences in the surface forms of the L1 compared to those in the L2. For example, Thai has grammatical morphemes such as a progressive marker [kamlaŋ] equivalent to "be+V-ing" of English and the order of [cà mâj] "will not" preceding a verb similar to that of English. In terms of differences, Thai does not have morphological instantiations of Case, and adverbs are mainly in sentence final position. Thus, the term L1 influence used in this study is different from those of Vainikka and Young-Scholten (1994, 1996) and Schwartz and Sprouse (1996). Both assume L1 transfer of deeper grammatical properties (rather than surface strings), for example, transfer of all lexical categories such as VP at an L2 initial state, and both lexical and functional categories in the interlanguage.

constructions resulting from the same syntactic operation, under MP the relevant syntactic operation is feature checking. Difficulty hypotheses on the other hand relate to differences in levels of accuracy across various structures due to various extra-grammatical effects, as pointed out above.

4.1 Case

4.1.1 Clustering

With respect to English Case, as described in Chapter 2, nominative Case is checked overtly when T raises to AgrS and a subject NP raises to Spec/AgrSP, and accusative Case is checked covertly when V raises to AgrO and an object NP raises to Spec/AgrOP. Since nominative and accusative Case are not checked at the same interface level and the checking of nominative does not entail the checking of accusative or vice versa, we do not generalize the checking of nominative to the checking of accusative Case. Therefore, a relationship in subjects' performance of nominative and accusative forms of pronouns should not occur. We predicted that Nominative would cluster neither with Accusative nor ECM. However, Accusative would cluster with ECM since in both structures accusative Case is checked in the same checking domain, i.e. the domain of AgrO.

4.1.2 Difficulty

We predicted relative difficulty among the three structures, Nominative, Accusative, and ECM, using potential effects from L1/L2 differences and frequency in the input.

As discussed earlier in Chapter 3, Thai does not morphologically mark Case; therefore, the distinct forms of both subject and object pronominals in English will be difficult for Thai learners to master. To predict whether a nominative or accusative form would be more difficult, we estimated relative difficulty from frequency of input. It is likely that Thai learners are exposed more frequently to nominative pronominals than accusative pronominals since the nominative form is used in both transitive and intransitive clauses whereas the accusative form is used mainly as complements to transitive verbs.[2] Based on the tendency of relative exposure from classroom input, we predicted that nominative forms (in the Nominative structure) would be easier than their accusative counterparts (in the Accusative and ECM structures).

For Accusative and ECM structures, we predicted that Accusative would be easier than ECM. The two predictors are frequency in the input and surface forms.

Considering frequency in the input between Accusative and ECM structures, we estimated more input for Accusative than ECM. It is unlikely that the entire class of English ECM verbs is taught in classroom, particularly with explicit teaching on

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[2] Here we ignore contexts in which English uses accusative for subjects, e.g., subjects of absolutes (me go to that party? never!), subjects of subject-ing (me/my showing up at that party surprised everyone), and coordination (Mary and me are going to go to that party), since input from these contexts is likely to be infrequent in classroom settings.

how they are used as ECM verbs. In contrast, the teaching of English transitive verbs, in which accusative pronominals are often incorporated, starts earlier. As a consequence, more frequent input is expected to be found in a typical transitive clause than a clause containing ECM.

With respect to Case identification, ECM constructions can be considered more complex than single clauses containing regular objects, since subject NPs inside embedded clauses of ECM structures are marked accusative while in typical single clauses with transitive verbs, only object NPs are marked accusative. In this respect, mismatching of Case forms occurs in ECM constructions.

Thus the two factors, namely, infrequency in the input for English ECM, and surface complexity of ECM due to potential mismatching of Case forms, should contribute to creating more difficulty in the ECM structure than in the Accusative structure.

As for L1, we do not estimate it to facilitate the learning of either structure since accusative Case is not morphologically realized and in particular for ECM, Thai and English differ considerably in structural forms and classes of ECM verbs. As described in Chapter 3, in Thai the class of ECM verbs is very small compared to that of English and the surface form of ECM construction in Thai is constantly marked by a complementizer [hâj]. In English ECM can be marked by a complementizer "for" with a verb like prefer, or by the verbs themselves. Further, although want and like are ECM verbs in both Thai and English, other verbs which are considered ECM verbs in English such as believe, suspect, and expect are not ECM verbs in Thai. Therefore, it

is plausible that Thai ECM may not facilitate the learning of English ECM due to the smaller class of ECM verbs in Thai and differences in Thai and English ECM structures.

4.2 Raising of Auxiliaries

4.2.1 Clustering

As described in chapter 2, in raising of auxiliaries, both *be* and *have* alike raise from V, crossing Neg to T, and further up to AgrS in order to have their Agr and T features checked off overtly. The raising of *be* and *have* is forced by their semantic vacuity and non-interpretability at LF (Chomsky 1993/1995: chapter 3). Since Progressive and Perfective Negative structures are obtained by the same raising operation, we hypothesize that they would cluster.

4.2.2 Difficulty

For difficulty, we made a prediction for relative difficulty of Progressive Negative and Perfective Negative based on three factors, namely, L1 influence, input and surface form, all of which favor the progressive aspect.

With respect to L1 influence, two aspects from Thai could facilitate the learning of the progressive. Firstly, Thai has progressive aspect as described in chapter 3, which is grammaticalized as a preverbal marker [kamlaŋ], and is used productively. When [kamlaŋ] appears, adverbs of time, denoting present progressive, are optional.

Unlike the Present Progressive, the Present Perfect is not grammaticalized and it is conveyed by an adverb phrase. Given the data discussed in 3.1 and 3.2, the present perfect is used in two respects: to express continuation of an activity from a given point in the past to the present and to indicate that an activity denoted by the verb has not begun. It lacks an aspect of usage which is relatively prevalent in English, i.e. denoting a state resulting from an earlier event.

Furthermore, comparing Thai and English in terms of progressive and perfective aspects, we found more similarities in the Present Progressive in both grammaticalization of elements and usage than in the Present Perfect.

With regard to frequency in the input, according to a teachers' manual provided by the Ministry of Education, the Present Progressive is taught at Grade 5 while the Present Perfect is taught at Grade 9. In this respect, the Progressive is taught long before and is highly likely to be more frequently used in classroom activities than the Perfective. Therefore, Thai learners should be exposed to more input in the Progressive than the Perfective aspect due to the sequence of instruction and more frequent occurrences in classroom input.

In terms of surface forms of both aspects, more difficulty should be posed by the Present Perfect than the Present Progressive since the past participle form requires knowledge of English verbal morphology (i.e. which classes take -en, -ed, or no endings), whereas the progressive suffix "-ing" is consistent across all verbs.

To conclude, we expected that the Progressive Negative structure would be easier than the Perfective Negative structure due to L1/L2 similarities, more

frequency in the input and simplicity of surface form, which favor the learning of the Present Progressive over the learning of the Present Perfect.

4.3 Non-Raising of Lexical Main Verbs

4.3.1 Clustering

We assume a link to occur between Adverb+Verb and Do+Neg based on the role of weak Agr in English as postulated in the Economy of Derivation approach (Chomsky 1991/1995: chapter 2). As described in chapter 2, in the preverbal adverb structure, the account centers around the role of weak Agr in causing T and Agr to lower to V and the complex V+T+Agr head raises back to cover the unbound traces of T and Agr.

In the *do*-support structure, weak Agr is involved primarily in the first step of the derivation. In the first step, i.e., lowering of T and Agr to V and the raising of the complex head back up, which is required for weak V features of English, fails to occur due to the barrierhood of NegP and ECP violation. Therefore, *do* is inserted, as the next step, to save the derivation from violating the ECP.

Thus, the predicted relationship between the two structures is based on weak Agr, which a) is forcing the lowering of T and Agr to V in syntax and the raising of the complex V head at LF in the preverbal adverb structure, and b) triggers *do*-insertion due to the failure of lowering and raising of the complex V head in main verb negative clauses.

In addition, there is an assumption for a link between the two structures available from a learnability perspective. According to Lightfoot's (1991) theory of input, parameter settings are claimed to be triggered by properties of the input which must be available to the child. Based on this assumption, White (1992) specifically formulates a connection between the preverbal adverb and *do*-support structures by stating that for a child learning English, evidence of *do*-support in questions and negatives should indicate that main verbs do not move, with the associated consequences for the grammar of English.

Thus on theoretical and learnability grounds, there might be a connection between the preverbal adverb and *do*-support structures, and we will investigate if such a link exists.

4.3.2 Difficulty

The prediction for relative difficulty is twofold; it is dependent on whether L1 or surface complexity is more influential.

With respect to L1 background, we predicted that the Do+Neg structure would be easier than the Adverb+Verb structure. The prediction was based on L1/L2 similarity regarding the order of elements in negative constructions. Although Thai has no form corresponding directly to negative structures containing do-support of English, it has the order of modals preceding Neg which parallels the order of *do* preceding *not* in English negative clauses. An example of the Thai modal sentence

structure is repeated below in 14), in which the modal [cà] precedes the negative morpheme [mâj].

14) kʰăw cà mâj ʔàːn năŋsŭː pʰrûŋníː

he will not read book tomorrow

"He will not read books tomorrow."

With respect to adverbs, they are mainly in sentence final position in Thai; therefore, the preverbal adverbs such as "always" in English will be unfamiliar and misplaced in sentence final position if Thai learners are influenced by the position of adverbs in their L1.

We expected that L1/L2 similarity with respect to the negative form containing modals in Thai would facilitate the learning of English *do*-support in negative clauses, whereas the difference in the placement of adverbs in Thai and English would adversely affect the learning of the English preverbal adverb.

With respect to the relative complexity of the two structures, we predicted that Do+Neg would be more difficult than Adverb+Verb. Adverb+Verb mainly involves the placement of adverbs in preverbal position, whereas Do+Neg involves not only word order, i.e. main verbs following *not*, but also lexical retrieval of *do*, to be inflected for tense and agreement and inserted before *not*. The complexity in identifying word order and finding a correct auxiliary term to fill in a required context distinguishes Do+Neg from its main verb declarative counterpart. Based on this type of relative complexity, the Do+Neg structure should be more complex than the Adverb+Verb structure.

We do not expect effects from frequency in the classroom input to play a significant role since there are no justifiable means to predict which structure should be higher in frequency. As far as the guidelines in a teacher's manual are concerned, they are to be taught at grades 6 and 7, so Do+Neg and Adverb+Verb are quite close in sequence of instruction. Further, it is not obvious which structure is higher in frequency, compared to the pairs of Progressive and Perfective Negative, and Nominative and Accusative, in which input frequency can be clearly determined.

Therefore, for this pair of structures, on the one hand we predicted that Adverb+Verb would be more difficult than Do+Neg based on L1 background, and on the other we predicted that Do+Neg would be more difficult than Adverb+Verb based on relative complexity between the two structures.

In the chapters 5 and 6, we will present methods for testing all of the above hypotheses, and results for clustering and difficulty of structures, respectively.

Chapter 5

Methodology

5.1 Subjects

There were mainly two groups of subjects: Thai subjects and monolingual American English speaking subjects who served as a control group.

5.1.1 Thai Subjects

Sixty-nine Thai students, residing in Bangkok, Thailand participated in a series of experiments. They were paid volunteers who were studying in 20 different classes from Grades 5 to 12 in two public schools. The number of subjects from Grades 5 to 12 were 11, 12, 9, 7, 5, 11, 8, and 6, respectively. They ranged in age from 9 to 18 years old. The fifth and sixth graders were in an elementary school and the seventh to twelfth graders were in a secondary school. The subjects were recruited as early as Grade 5 because that is the grade in which children in Thai public schools begin learning English at a sentential level.[1] In order to measure students' development with respect to English sentences, it is necessary to initiate tracking as soon as the children begin Grade 5 English instruction and continue until they complete public school in Grade 12.

The English instruction approach being employed in Thai public schools is communicative. Basically, Thai students spend one hour a day learning English. In addition, 10th to 12th Graders can choose an English course from a number of

[1] Although Thai children in lower Grades also learn English, they are taught at a preparatory level. They learn English consonants and vowels, simple English vocabulary, and pronunciation. In Grade 5, students are introduced to English sentences and paragraphs.

elective courses in reading, translation, and science and technology, to supplement their fundamental English.

In daily learning settings, a teacher acts out dialogues which simulate different real life situations, and plays recorded tapes which were made for the dialogues. Then he/she divides students into small groups to have them practice role playing. At the end of each chapter, the teacher discusses grammatical structures drawn from the dialogues. Therefore, English grammatical structures are not taught independently. They are brought to students' attention in association with certain situations. With respect to the seven structures being investigated -- Nominative, Accusative, ECM, Progressive Negative, Perfective Negative, Preverbal Adverb, and Do Support -- all except ECM are scattered throughout the dialogues in the textbooks for Grades 5 to 12. ECM was not found anywhere in these textbooks. It can be assumed under these circumstances that the six structures are not taught explicitly.

In terms of English instruction background, the Thai student participants can be considered to form a homogeneous group for the following reasons. First, a lot of student participants reported that they had slight exposure to English spoken by native speakers. Although the pedagogical approach is communicative, none of their English teachers were native speakers of English; they received English instruction from Thai teachers only. Therefore, the only means of exposure to native speakers' English was by listening to recorded tapes in classrooms or language laboratories. Second, the students had relatively the same amount of English instruction per week. As previously mentioned, all students had five hours per week of learning English in

class. Third, the students were in approximately the same class-size. They were all in a typical class size of 35 to 40 students.

Given the same learning settings, it can be concluded that the Thai student participants had a common English background in English instruction. The only difference among them is the amount of English instruction they had had before they participated in this study. Grade difference was required in this crossectional study since with grade difference, we were able to draw student participants who varied in their English abilities and placed them into different stages by a standardized English Placement test.

5.1.2 Control Subjects

Ten monolingual American English speaking participants served as a control group. They were children of friends and acquaintances who resided in New Jersey and New York City. They ranged in age from nine to eighteen years old and were studying between Grades four and twelve. There were four fifth graders; the remaining six subjects were in Grades 4, 6, 8, 9, 10 and 12, respectively. The control subjects were chosen to match the Thai group in terms of age range and school Grades.

5.2 Test materials and tasks

Two controlled tasks, grammaticality judgment (GJ) and elicited production (EP), were conducted. Test stimuli in GJ and EP were created based on seven

sentence types -- Nominative, Accusative, ECM, Progressive and Perfective Negative, Preverbal Adverb, and Do-Support. In addition, the subjects were administered a standardized test called the English Placement test comprising 50 items (20 for listening and 30 for grammar). This test was developed by the English Language Institute of the University of Michigan, and was used in this study to establish levels of English proficiency among the Thai subjects. It divided subjects into three different groups, and their responses from GJ and EP were analyzed according to their levels of proficiency. The following cut-off ranges were adopted. The subjects who scored from 9-14 were categorized as level 1; those who scored from 15-20 were in level 2; and the ones who scored from 21-38 were in level 3.

5.2.1 Grammaticality Judgment (GJ)

Materials

A total of 40 pairs of stimulus sentences were constructed. There were six stimuli per type except for ECM which had 4 stimuli.[2] A set of six verbs, namely speak, drive, take, give, fall, and break were used in constructing six stimulus sentences in Progressive Negative, Perfective Negative, Preverbal Adverb and Do-Support. These verbs were selected because they all have the same past participle form '-en' and its phonetic realization is relatively salient. This participle suffix was expected to be picked up when it was pronounced in the EP task.

[2] To administer the GJ task within a manageable length of time, we included only target items, although it would have been desirable to have filler items. As for ECM, we mistakenly created only four stimuli.

The GJ task was a preference task (cf. White 1990/1991; White 1992). In a typical preference task, each pair differs in only one grammatical aspect and subjects are to choose a correct description of the given pair of sentences. In the GJ test session, the subjects were shown two sentences at a time and were to choose whether both were correct, both incorrect, only a) was correct or only b) was correct. Stimulus sentences in the GJ task were 12-13 syllables in length and the words were commonly used ones. Their ungrammatical counterparts were included. The sentences were randomized and two different forms (A and B) were used. Form A is provided as an example in Appendix A. To illustrate, ten pairs of the GJ test sentences are given from 15-24 below. For Nominative, Accusative, and ECM, four pronominals: he vs. him and they vs. them, which differ in number and Case: were used in the subordinate clause. In Nominative and Accusative, there were three tokens per pronominal. In ECM, there were two.

Case sentences are shown in 15-20, Auxiliary-Raising sentences in 21 and 22. and Non-Raising of Lexical Verb sentences in 23-24.

15. a) The boy believes that *him* will enjoy the science class.

    b) The boy believes that *he* will enjoy the science class.

16. a) The workers believe that *them* can get higher pay.

    b) The workers believe that *they* can get higher pay.

17. a) The waiter thinks that the customers will thank *him*.

    b) The waiter thinks that the customers will thank *he*.

18. a) The nurses think that the doctor will like *them*.

    b) The nurses think that the doctor will like *they*.

19. a) Jane loves her son. She wants *he* to go to college.

    b) Jane loves her son. She wants *him* to go to college.

20. a) Steve likes his neighbors. He wants *them* to be happy.

    b) Steve likes his neighbors. He wants *they* to be happy.

21. a) The daughter *is not taking* her lunch to school.

    b) The daughter *not is taking* her lunch to school.

22. a) The man *has not taken* his son to the doctor.

    b) The man *not has taken* his son to the doctor.

23. a) The woman *always takes* her son to the market.

    b) The woman *takes always* her son to the market.

24. a) The man *does not take* his son to school anymore.

    b) The man *not takes* his son to school anymore.

Procedure

For the Thai participants, the GJ task was administered in a group. Subjects read 40 pairs of sentences from a small test booklet, in which each page consisted of only one pair and four answer choices. The experimenter told them to open each page at the same time and not to go back to make changes in the previous test items. The subjects were allowed 15 seconds to choose the correct answer from each pair of sentences. It took approximately 20 minutes in total to finish the entire task.

For the control group, the GJ task was conducted individually with the same materials. The experimenter did not set a time limit and subjects finished the task within approximately 5-7 minutes.

5.2.2. Elicited Production (EP)

Materials

In the EP task, 40 test stimuli were created (see Appendix B). As in the GJ task, there were four stimuli for ECM and six each for all other sentence types, and the same set of verbs was used. The test material consisted of two parts: cartoon pictures with written statements describing the pictures, and questions. The cartoon pictures and written descriptions were used to elicit Case, Progressive Negative and Perfective Negative. The questions were used to obtain the position of the adverb "always", and *do* relative to "not".

Case test stimuli were introduced by using "it" as a model. To obtain responses for Nominative, different activities denoted by full NPs were given, and the answers expected were the pronominal subjects, he or they in the subject position. For Accusative, questions focusing on direct objects were given, and the answers expected were the pronominal objects, him or them in the object position. For ECM, descriptions were given and in the concluding statements the pronominal objects, him or them, were required.

Questions involving Progressive Negative were concerned with events that are not happening. Perfective Negative stimuli were situations set in a way that they were about to happen or something prevented them from happening.

For the Preverbal Adverb type, six questions were asked by the researcher and the subjects answered them by adding the adverb "always" in their sentences. For Do-support, six declaratives were read and the subjects were asked to change them into negative forms.

Procedure

For the Thai group, interviews were conducted individually. A subject was seated next to the interviewer in the schools' library, a classroom, or in a teachers' office. The subject was asked to look at one series of cartoon pictures at a time and answer a question or complete a sentence describing an activity. There was no time limit for interviews. Subjects were allowed to ask any questions and to take as much time as they wanted to answer a question. The interviews were primarily conducted in English; however, whenever any subjects did not understand questions or instructions, the interviewer clarified them both in English and Thai. Subjects' responses were taped, transcribed and randomly rechecked by a linguistics graduate student, for data analysis.

For the control group, similar to the Thai group, subjects were interviewed individually in their homes and no time limit was set; they finished the EP task in approximately 15 minutes. The responses were taped and transcribed.

5.3 Order of presentation

The three tasks -- elicited production, grammaticality judgment and the English Placement test -- were administered in that order to the Thai group. There were two test sessions, one for the elicited production task and the other for the grammaticality judgment task and the English Placement test. The two test sessions were administered on different days. The time taken for an interview varied from 20 to 35 minutes. The grammaticality judgment task was administered before the English Placement test in the same session. They took approximately 20 and 40 minutes, respectively.

The English speaking group was tested on the grammaticality judgment and the elicited production tasks only. The researcher carried out both tasks with each subject individually in one session and the subjects' responses in the EP task were tape recorded.

5.4 Scoring

Scoring of responses from the GJ task was carried out as follows. Subjects were assigned a score of 'correct' when they chose the single correct answer for a pair. They were assigned a score of 'incorrect' for any other choice whether they indicated that only one sentence (choice 'a or b') was correct, both sentences were

correct (choice 'c'), or incorrect (choice 'd').[3] The GJ scores obtained from Case indicate correct identification of Case morphology while the ones from raising and non-raising reveal pure knowledge of word order.

Scoring of responses from the EP task was carried out as follows. For Case, the concern was whether subjects were able to produce the correct morphological form regardless of number or gender. The Case stimuli were designed to elicit he/him and thev/them. Therefore, when subjects gave wrong forms in gender and number but maintained the Case distinction (for example, using "him" or "her" in a context where "them" was required), their responses were scored as correct. "It" was given as a response frequently in the Accusative and ECM contexts and marginally in the Nominative context. "It" responses were considered unscorable because Case is not overtly detectable.

For raising of the auxiliaries *be* and *have*, the following criteria were adopted. First the correct word order (be/have>not>lexical verb) was required but the form of the lexical verb could be bare or suffixed with -ing or -en. Second, the correct auxiliary term was required; only inflected or uninflected forms of *be* or *have* were counted as correct instances of *be* or *have*. No other auxiliaries used as alternatives

[3] One hindsight issue about the scoring in the GJ task should be noted here. We found that except for Be+Neg, 'c and d' choices (both correct and incorrect) were chosen varying between 13% to 18% of the responses regardless of structure, in addition to the real errors 'a or b'. Assuming that a 'c or d' (both correct or neither correct) choice represents uncertainty about the item, one may want to interpret that when subjects chose wrong options, there might be some kind of uncertainty involved. This uncertainty could derive from the lack of filler items for which 'c or d' was the correct choice or unsureness about which was correct. In sum, it seems that the alternative of being correct varies between uncertainty ('c or d') and definitively choosing the wrong option ('a or b').

of *be* or *have* were counted as correct. Number and Tense agreement on *be* and *have* were not required. Thus, the use of *are* or *have* instead of *is* or *has* was accepted.

For non-raising of lexical verbs, in the Adverb+Verb type, the position of the adverb "always" preceding a lexical main verb was the only concern. Appropriate use of the third person -s on lexical main verbs was not required.

In the Do+Neg type, the criterion to be met was correct word order (aux>not>V). Use of the auxiliary *do* was not required. Therefore, use of some forms of *be* or *do* instead of "does" was accepted. This criterion was adopted in order to be consistent with the scoring of Adverb+Verb, which focused on word order.

The EP task aims at discovering how different structures of the same syntactic phenomenon were acted out in speech. Scoring for this task did not take Number and Tense agreement on the auxiliaries and lexical main verbs into account. However, it maintained the correct choice of auxiliary forms in the Progressive and Perfective structures. This was due to the fact that subjects from all proficiency levels mismatched the two auxiliaries *be* and *do* by using them in Progressive Negative, Perfective Negative, and Do-support structures. If all forms of auxiliaries were accepted, it would be very difficult to distinguish performance differences among the Progressive and Perfective Negative structures.

In brief, correct responses in Raising and Non-raising of the EP task were those in which word order and selection of auxiliaries were correct.

With respect to errors in the EP task, an analysis of errors is provided under each operation type analysis in chapter 6. Scoring criteria in error analyses were

independent of those set earlier. Basically, any responses deviating from targets in any respects were scored as incorrect. In Case sentences, Case, Number and Gender were required. In Raising and Non-Raising sentences, auxiliary forms, Number and Tense agreement on the auxiliaries and main verbs as well as the participial suffixes *-ing* and *-en* were required. Findings from error analyses reveal that Thai student participants, especially those at proficiency levels 1 and 2, had difficulties with English Case, auxiliaries, and agreement marking and not with word order as shown in the next chapter.

Chapter 6

Results

As described in Chapter 4 (Hypotheses), in measuring performance for this study, we need to consider two aspects separately: a) whether there is a relationship or clustering between learners' performance of two structures, and b) whether a given structure is more difficult than another. The learning of two structures may be related even if they do not represent the same degree of difficulty. This study defines clustering as a relationship in which performance on one structure is correlated with performance on another, controlling for overall level of proficiency. That is, if there is a relationship, it is not the case that the relationship occurs only with the learners who did well in both structures; a relationship occurs across learners independent of overall performance. We thus measure clustering via correlations. This study measures difficulty by way of analyses of variance, comparing performance on the members of a given pair of structures.

In the following presentation, we will report results of subjects' performance on structures representing Case, Auxiliary-Raising, and Non-Raising of Lexical Verbs in sections 6.1, 6.2, and 6.3, respectively. In each section, three types of results will be shown. Results from correlations in EP and GJ will be presented to show whether or not the clustering predictions are confirmed in each task. For clustering of any two structures, only significant relationships after level of proficiency has been removed will be shown. Further, results from ANOVAs will follow to show the relative difficulty of pairs of structures within each task. In addition to results from correlations and analyses of variance, error analysis will be provided under each section to illustrate correct and

incorrect responses in subjects' performance as well as general types of errors in the elicited production task.

6.1 Case

6.1.1 Non-Clustering and Clustering Predictions

Three predictions pertaining to clustering for Case were made. The first two predictions were that Nominative would cluster with neither Accusative nor ECM, since nominative Case is checked in the domain of AgrSP before Spell-Out, while accusative Case in both structures is checked in the domain of AgrOP after Spell-Out. Thus, the checking of nominative before Spell-Out does not force the checking of accusative after Spell-Out. The third prediction was that there would be clustering between Accusative and ECM structures, since accusative Case in the object of a single clause or in the subject of an infinitive clause is checked in the same domain, i.e. AgrO.

All predictions were confirmed in the elicited production task and partially in the grammaticality judgment task. The control group performed 100% accurately in identifying and producing distinct pronominals in the three structures. As for the experimental group, data from 51 subjects who gave scorable responses in both tasks were analyzed. Table 1 below shows intercorrelations and a summary of descriptive statistics of performance of this group of students on the three Cases.

Table 1: Percent Correct Performance on Nominative, Accusative, and ECM in Elicited Production and Grammaticality Judgment: Intercorrelations and Summary Statistics

		Elicited Production Structure-type			Grammaticality Judgment Structure-type		
	Prof Level	Nom	Acc	ECM	Nom	Acc	ECM
Prof Level		.02	.40**	.46**	.34*	.33*	.35*
Nominative			.20	.17		.30*	.12
Accusative				.66**			.32*
Mean	2.12	100	62	55	70	72	57
S.D.	.71	3	46	48	32	34	41
Range	1-3	80-100	0-100	0-100	0-100	0-100	0-100

N = 51

* $p < .04$

** $p < .005$

Notes: 1. Nom = Nominative; Acc = Accusative; ECM = Exceptional Case Marking; Prof Level = Proficiency Level.

2. The r values for proficiency level and structures represent zero-order correlations; all others were partial correlations (i.e. after proficiency level had been removed).

In EP, level of proficiency did not correlate with Nominative (r (49) = .02, ns), but it significantly correlated with Accusative (r (49) = .40, p <.004), and ECM (r (49) = .46, p <.001). As predicted, no interrelationships were found between Nominative and Accusative (r (48) = .20, ns) or Nominative and ECM (r (48) = .17, ns) while a strong interrelationship was found in Accusative and ECM (r (48) = .66,

$p < .001$). In order to assess whether clustering relationships occur at lower levels of proficiency, we reanalyzed the data by removing level 3. For Accusative and ECM after data from level 3 were excluded, we found a significant relationship ($\underline{r}$ (32) = .60, p < .001), which strongly suggests that a relationship between Accusative and ECM occurs at a very early stage of the development of Case, independent of the advanced group.

In GJ, level of proficiency significantly correlated with Nominative ($\underline{r}$ (49) = .34, $p < .02$), Accusative ($\underline{r}$ (49) = .33, $p < .02$), and ECM ($\underline{r}$ (49) = .35, $p < .02$). Interrelationships were found between Nominative and Accusative ($\underline{r}$ (48) = .30, $p < .04$) and Accusative and ECM ($\underline{r}$ (48) = .32, $p < .03$). For Nominative and ECM, no interrelationship was found ($\underline{r}$ (48) = .12, ns). When data from level 3 were removed, an interrelationship remained only in the pair of Accusative and ECM ($\underline{r}$ (32) = .35, $p < .05$).

Thus in GJ, Nominative is not clustered with ECM while Accusative is clustered with ECM overall and when level 3 was excluded, corresponding to the predictions. However, there is a relationship between Nominative and Accusative overall. which was unexpected. In the next section, we will argue for disregarding the results of GJ in the part of Nominative since they do not reflect true knowledge of nominative Case of these Thai learners.

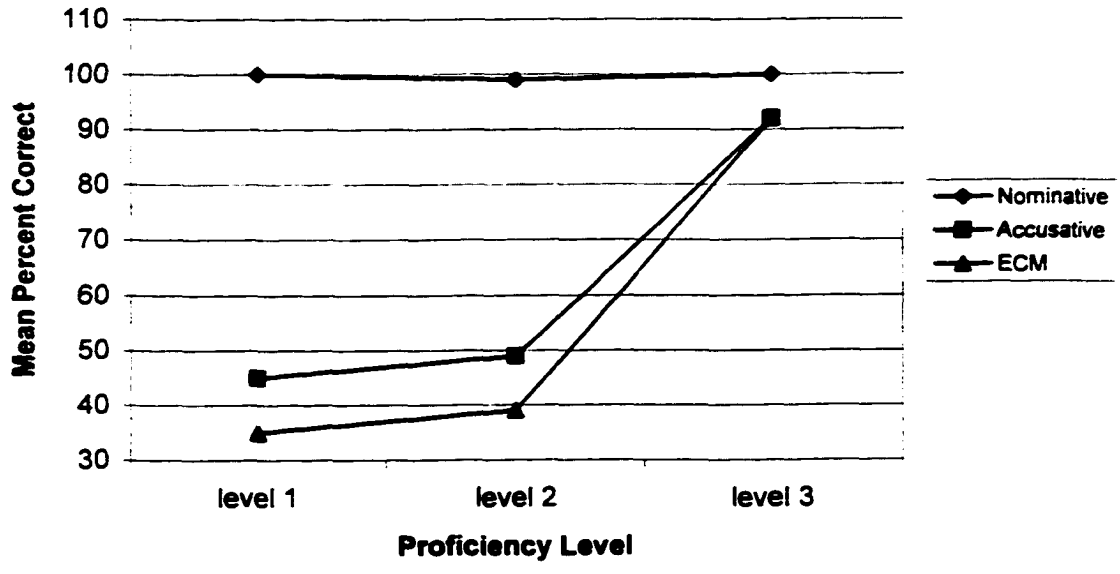
6.1.2 Predictions for Difficulty

In terms of relative difficulty, we predicted that Nominative would be easier than both Accusative and ECM due to frequency in classroom input. We also predicted that

Accusative would be easier than ECM based on higher frequency of input and less complexity in the surface form of Accusative.

As shown in Figure 1, in EP there was a main effect of level of proficiency in comparisons between Nominative and Accusative (F (2,48) = 5.97, p < .006), Nominative and ECM (F (2,48) = 9.16, p < .001) and Accusative and ECM (F (2,48) = 9.16, p < .001). Mean correct percentages at the three proficiency levels are 100 $_{(0)}$, 99 $_{(4)}$ and 100 $_{(0)}$ for Nominative, 45 $_{(50)}$, 49 $_{(46)}$ and 92 $_{(26)}$ for Accusative and 35 $_{(47)}$, 39 $_{(48)}$ and 92 $_{(25)}$, for ECM, respectively. [1] As is evident, participants were at ceiling on nominative from the lowest levels of proficiency but improved markedly on the other two structures.

Figure 1: Mean Correct Percentages of Nom, Acc, and ECM in EP



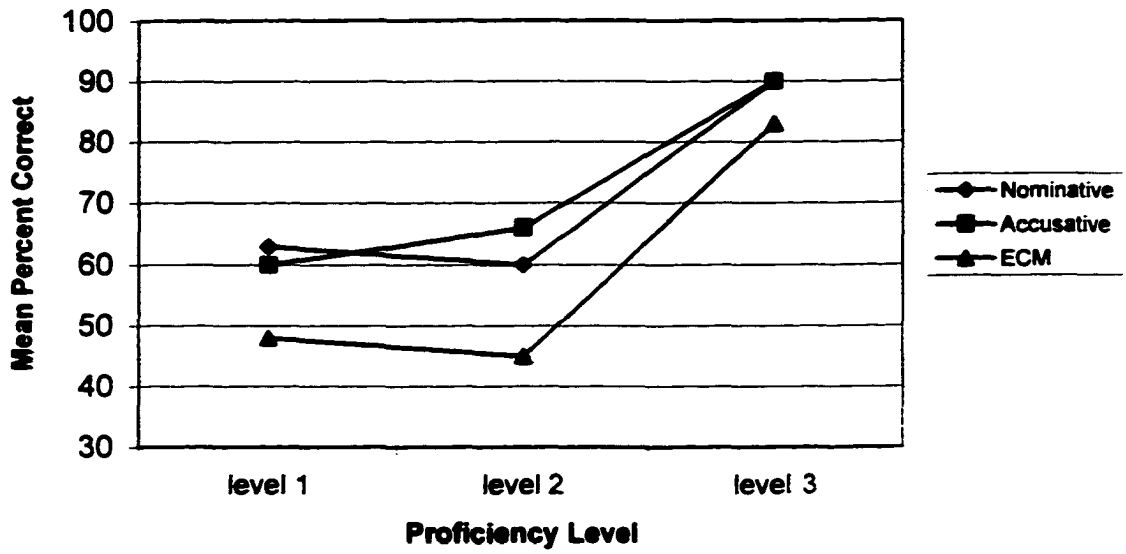
[1] Numbers in parentheses represent standard deviations of mean correct percentages.

As predicted, Nominative was significantly easier than both Accusative (F (1,48) = 36.94, $p < .001$) and ECM (F (1,48) = 50.03, $p < .001$). Contrary to prediction, however, Accusative was not significantly easier than ECM (F (1,48) = 1.56, ns).

There was also an interaction between level of proficiency and Nominative/Accusative (F (2,48) = 5.97, $p < .006$), and Nominative/ECM (F (2,48) = 9.13, $p < .001$), but not with Accusative/ECM (F (2,48) = .51, ns). The significant interactions were due to ceiling performance on nominative Case, independent of level of proficiency.

In GJ, there were main effects of level of proficiency on Nominative/Accusative (F (2,48) = 6.46 , $p < .004$), Nominative/ECM (F (2,48) = 9.97, $p < .001$), and Accusative/ECM (F (2,48) = 6.58, $p <.003$). Mean correct percentages at the three proficiency levels are 63 $_{(29)}$, 60 $_{(31)}$ and 90 $_{(25)}$ for Nominative, 60 $_{(36)}$, 66 $_{(39)}$ and 90 $_{(16)}$ for Accusative, and 48 $_{(36)}$, 45 $_{(39)}$ and 83 $_{(37)}$, respectively for ECM as shown in Figure 2 below. In this task, performance on all structures was relatively poor at the first two levels of proficiency.

Figure 2: Mean Correct Percentages of Nom, Acc, and ECM in GJ



Contrary to prediction, Nominative was not significantly easier than Accusative (F (1,48) = .025, ns) or ECM (F (1,48) = 3.19, p < .09). However, Accusative was significantly easier than ECM (F (1,48) = 4.50, p < .04). There were no interactions between level of proficiency and any structural comparisons (Nominative/Accusative (F (2,48) = .27, ns), Nominative/ECM (F (2,48) = .18, ns), and Accusative/ECM (F (2,48) = .57, ns)).

Since the overall comparison of Accusative and ECM showed significant differences, another set of ANOVAs was performed level by level to check where these differences occur. It was found that Accusative was easier than ECM only at level 2 (F (1,24) = 5.18, p <.04) but not at level 1 (F (1,9) = 1.23, ns) or level 3 (F (1,15) = .48,

ns). With respect to Accusative and ECM, the results from both tasks generally agree in that they are not more difficult than each other, disconfirming the prediction that Accusative would be easier than ECM.

To summarize, the findings from the two tasks with respect to relative difficulty of Nominative, Accusative, and ECM differed only when Nominative was compared to either Accusative or ECM. In EP, Nominative was easier than Accusative and ECM, whereas in GJ, Nominative was as difficult as Accusative and ECM. In both tasks, Accusative and ECM were equally difficult.

Another point worth noting here concerns the use of nominative form in EP. It was found that 81% and 93% of the total number of errors (see error analysis in 6.1.3) within Accusative and ECM structures, respectively, involved the use of nominative pronominals. Thus, a question remained whether or not subjects, especially at levels 1 and 2, were able to distinguish between nominative and accusative Cases or whether they used the nominative forms (i.e. "he" and "they") in all three contexts. To answer this question, analyses of variance were undertaken level by level on percentages of the use of nominative in the nominative context and the use of nominative in the accusative and ECM contexts. Mean percent usage of nominative at the three levels indicates that nominative is used more in its own context than in either of the other two contexts, i.e., 100 for the use of nominative in the nominative context, 55, 45, and 6 for the use of nominative in the accusative context, and 65, 60, and 8, for the use of nominative in the ECM context, respectively. Overall mean percent usage of nominative in the three contexts are 100, 34, and 44, respectively. Table 2 below shows mean percent usage of

nominative in nominative, accusative, and ECM contexts both level by level and overall along with standard deviations and ranges.

Table 2: Percent Use of Nominative Pronominals in Nominative, Accusative, and ECM Contexts

	English Proficiency				
	Level 1	Level 2	Level 3	Overall	Range*
Nom	$100_{(0)}$	$99_{(4)}$	$100_{(0)}$	$100_{(3)}$	80-100
Acc	$55_{(50)}$	$45_{(44)}$	$6_{(25)}$	$35_{(44)}$	0-100
ECM	$65_{(48)}$	$60_{(47)}$	$8_{(25)}$	$45_{(48)}$	0-100
N	10	25	16	51	

Note: 1) * = overall.

2) Numbers in parentheses represent standard deviations.

Results from ANOVAs performed level by level confirmed that the use of nominative in its own context was significantly higher than the use of nominative in the accusative context (for level 1, $F(1,9) = 8.19, p < .02$; for level 2, $F(1,24) = 36.16, p < .001$; for level 3, $F(1,15) = 225.00, p < .001$) and higher than the use of nominative in the ECM context (for level 1, $F(1,9) = 5.44, p < .05$; for level 2, $F(1,24) = 16.54, p < .001$; for level 3, $F(1,15) = 211.40, p < .001$). In addition, intercorrelations were found between the uses of nominative in the accusative and in the ECM contexts ($\underline{r} = .72, p < .001$, and $\underline{r} = .65, p < .001$, before and after proficiency level has been removed,

respectively), showing that the subjects who used the nominative form frequently in the accusative context also used it frequently in the ECM context.

These findings indicate that learners at levels 1 and 2 already realized a distinction between nominative and accusative Cases, because they used nominative more frequently in its context than they did in the accusative and ECM contexts. Overall, the more proficient learners were in English, the better they were able to produce distinct Case forms.

Thus, we have seen relative use of nominative pronominals in three different contexts, which is marked by ceiling performance of 100% accuracy in the use of nominative in its own context across learners from the EP task. Compared to the GJ task, learners at levels 1 and 2 were able to identify nominative pronominals in subject position only around 60% of the time, contrary to their performance in the EP task. The discrepancy in the production/identification of nominative Case between the two tasks is likely to be due to the presence of an embedded clause which appeared only in the GJ task.[2] To illustrate, the following examples are drawn from GJ and EP test sentences, which were used to investigate knowledge of Nominative, Accusative, and ECM, respectively. Note that in GJ, subjects were to choose whether either a or b was correct, both were correct, or neither was correct. In EP, they were to answer questions or fill in the blanks illustrated with pictures.

[2] In the creation of test stimuli for nominative and accusative constructions, it was neccessary to have an equal number of syllables with those in other structures, position subject pronominals further inside sentences to avoid subjects' guessing, and provide antecedents to help understanding. These needs called for embedded clauses.

Nominative:

GJ: a. The cook thinks that he can open a food shop.

b. The cook thinks that him can open a food shop.

EP: What is the boy doing?

Target response: He is listening to music/the radio.

Accusative:

GJ: a. The young man hopes that the people will admire him.

b. The young man hopes that the people will admire he.

EP: Do you remember that man?

Target response: Yes, I remember him. or No, I don't remember him.

ECM:

GJ: a. Jane loves her son. She wants he to go to college.

b. Jane loves her son. She wants him to go to college.

EP: The boy is eating a snack. The mother is angry, she wants _____ supper first.

Target response: him to eat

We conjecture that in the examples regarding Nominative, the presence of the embedded clause in GJ adversely affected the identification of the nominative form, preventing learners at levels 1 and 2 from revealing their knowledge of nominative Case. In the absence of it in EP, they produced the nominative form approximately 100% of the time. The EP performance with respect to nominative Case is a crucial piece of evidence suggesting that the poor performance in GJ in identifying subject pronominals is most

probably due to the difficulty created by sentence embedding rather than learners' inability to distinguish nominative and accusative pronominals in subject position. Therefore, with respect to Nominative, the results from EP seem more revealing than those from GJ. When we focus on the EP results, we see solid evidence in favor of the predictions that Accusative and ECM cluster together, distinct from Nominative, and are more difficult than Nominative.

With respect to Accusative in GJ, although the test sentences, shown in the above examples, contain an embedded clause, the presence of the embedded clause should not contaminate identification of accusative pronominals. This is due to the fact that across single and embedded clauses, object NPs consistently follow the main verbs. As for ECM, the test sentences in GJ are very similar to those used in EP. So the GJ results from Accusative and ECM should remain for interpretation.

We will discard Nominative results from GJ and use the entire results from EP and Accusative and ECM results from GJ to represent true knowledge of English Case for these Thai learners. Consequently, all predictions for clustering are confirmed, i.e. Nominative is not clustered with Accusative, nor is it clustered with ECM, while Accusative is clustered with ECM. In terms of difficulty, Nominative is easier than Accusative as well as ECM, confirming the prediction; however, generally ECM is as difficult as Accusative, disconfirming the prediction.

6.1.3 Error Analysis for Case Structures

Scoring in all of the following error analyses was different from the previous analyses. Generally, responses deviating from target items in any respect were scored as incorrect. With respect to Case, target items were "he/they" in Nominative, and "him/them" in Accusative and ECM. Any non-corresponding forms were scored as incorrect. Data from the same group of 51 participants (level 1: N = 10 , level 2: N = 25, level 3: N = 16) were analyzed. Note that the total number of possible responses was 306 (6 items per person) for Nominative and Accusative and 204 (4 items per person) for ECM. Lexical NPs and no responses were counted as missing items.

Nominative

Only four errors were found in the Nominative sentence type. Three errors involved the use of "she" instead of "they". The last one was the use of "it" where "he" was required. Therefore, errors accounted for only 1 percent of the total number of responses.

Accusative

From the total number of 287 responses, there were 174 (61%) correct responses, and 113 (39%) errors. All responses are classified in Table 3 below.

Table 3: Types of Responses in Accusative by Proficiency Level

Response Type	English Proficiency Level			
	Level 1	Level 2	Level 3	Total
	N = 10	N = 25	N = 16	N = 51
Correct				
Accusative	23	66	85	174
% within level	45%	46%	91%	61%
Incorrect				
Nominative	24	62	6	92
% within level	47%	43%	6%	32%
Other	4	15	2	21
% within level	8%	10%	2%	7%
Total	51	143	93	287
% of Total	18%	50%	32%	100%

As seen in Table 3, there are two major categories: the use of accusative pronominals, the correct ones, which occurred 61% of the time and the use of nominative pronominals, which occurred 32% of the time. The "other" type consists of the uses of possessive forms and "it". Within proficiency levels, the use of nominative objects declined dramatically from levels 1 and 2 , i.e. 47% and 43%, to 6% at level 3, while the use of accusative subjects increased abruptly from levels 1 and 2, i.e. 45% and 46%, to 91% at level 3.

Exceptional Case Marking (ECM)

From the overall 198 responses, there were 109 (55%) correct responses, and 89 (45%) errors as shown in Table 4 below.

Table 4: Responses in ECM by Proficiency Level

Response Type		English Proficiency Level			
		Level 1	Level 2	Level 3	Total
		N = 10	N = 25	N = 16	N = 51
Correct					
	Accusative	14	38	57	109
	% within level	36%	40%	89%	55%
Incorrect					
	Nominative	25	54	4	83
	% within level	64%	57%	6%	42%
	Other		3	3	6
	% within level		3%	5%	3%
Total		39	95	64	198
	% of total	20%	49%	33%	100%

As shown in Table 4, performance on the ECM structure is similar to that on the Accusative structure, subjects' uses of accusative objects and nominative objects in ECM are in a reverse pattern. The use of accusative objects increased considerably from levels 1 and 2 to level 3, i.e. 36% and 40% to 89%. In contrast, the use of nominative objects declined sharply from levels 1 and 2 to level 3, i.e. 64%, 57% to 6%.

In the "other" type, errors were distributed among the uses of possessive and accusative pronominals with incorrect number, incorrect gender and number, incorrect Case and number, and "it".[3]

6.2 Raising of Auxiliaries

6.2.1 Prediction for Clustering

We predicted that Progressive Negative (Be+Neg) and Perfective Negative (Have+Neg) structures would cluster with each other since both *be* and *have* need to perform their feature-checking movement overtly by raising from V, crossing Neg to T, and further up to AgrS, due to their LF-invisibility. This prediction was confirmed from the GJ results. For EP, no statistical analysis could be performed because of the absence of data in Have+Neg. In the Perfective Negative context, all subjects except for one student at level 3 failed to produce the auxiliary *have*. This structure was therefore excluded from all statistical analyses in EP.

All the native speakers performed 100% correctly in the GJ task for both structures. In the EP task, although all of them showed 100% accuracy in producing the Progressive Negative form, there were 3 children, aged between 9 and 10, who consistently supplied 'did not' or 'didn't' in all of their responses in the Perfective

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[3] Examples of the errors in the "other" type are shown 1 a) to 1 e) below, with the correct answers in quotation marks.
"The secretaries are talking with each other. The boss wants them to work."
1 a) Possessive: The boss wants their to work.
1 b) Number: The boss wants her to work.
1 c) Gender and Number: The boss wants him to work.
1 d) Case and Number: The boss wants she to work.
"The man is late for his appointment. The doctor is angry; he wants him to be on time."
1e) "it": He wants it to be on time.

Negative context. In addition, within the remaining group of subjects who produced the target Perfective Negative form, two children (aged 10) did not supply the correct past participle form. One gave the finite form of "speak" and the past form "broke" for "break." The other gave the past form "drove" for "drive." Thus, the Perfective Negative seemed to pose problems for young children in the control group, since their performance varied between uses of simple past tense and the present perfect aspect and the ones who had acquired the present perfect were in the process of learning the correct past participle forms.

As for the Thai group, data from the total number of 69 subjects were analyzed in the GJ task. Table 5 below shows intercorrelations and a summary of statistics of performance of this group of students on Be+Neg and Have+Neg in GJ.

Table 5: Percent Correct Performance on Be+Neg and Have+Neg in Grammaticality Judgment: Intercorrelations and Summary Statistics

	Prof Level	Be+Neg	Have+Neg
Prof Level		.21	.37**
Be+Neg			.43**
Mean	2	88	75
S.D.	.69	20	34
Range	1-3	16.67-100	0-100

N = 69

** $p < .002$

Note: The r values for proficiency level and structures represent zero order correlations; the one for Be+Neg and Have+Neg was partial correlation, controlling for proficiency level.

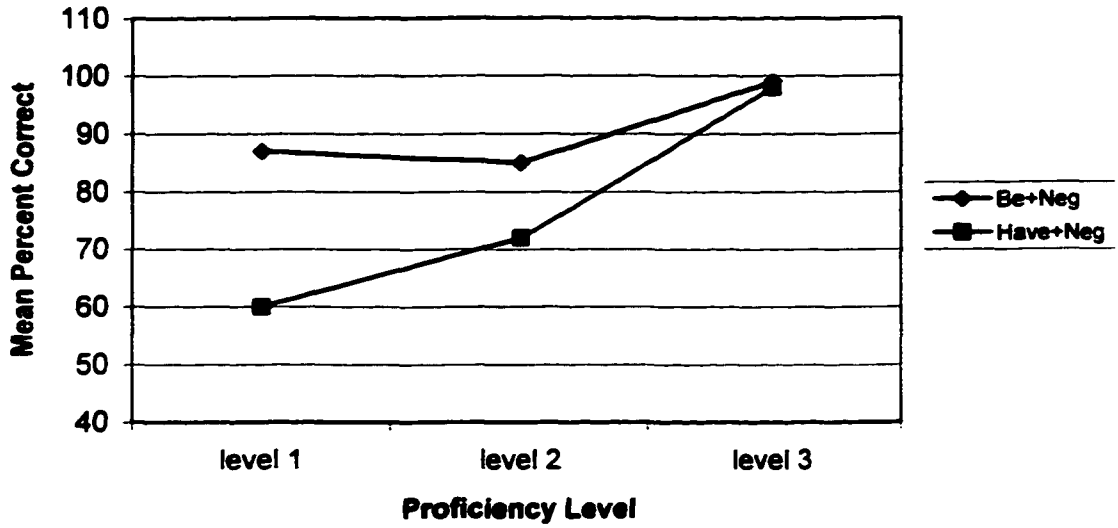
From Table 5, it can be seen that level of proficiency did not correlate with Be+Neg ($\underline{r}$ (67) = .21, $p < .08$) but did correlate significantly with Have+Neg ($\underline{r}$ (67) = .37, $p < .002$). As predicted, clustering occurred as shown by the significant relationship found in Be+Neg and Have+Neg ($\underline{r}$ (66) = . 43, $p < .001$). In addition, a significant relationship for this pair remained after data from level 3 were excluded ($\underline{r}$ (50) = . 41, $p < .003$).

6.2.2 Prediction for Difficulty

In terms of relative difficulty between the two structures, we predicted that Be+Neg would be easier than Have+Neg due to L1/L2 similarities, more frequency in the input and simplicity of surface form, which should create ease on the learning of Be+Neg and difficulty on the learning of Have+Neg. This prediction was confirmed.

Results from ANOVAs show that Be+Neg was significantly easier than Have+Neg (F (1,66) = 11.53, $p < .002$). Mean correct percentages at the three proficiency levels are 87 $_{(15)}$, 85 $_{(24)}$, and 99$_{(4)}$ for Be+Neg and 60 $_{(38)}$, 72 $_{(36)}$, and 98 $_{(8)}$ for Have+Neg as shown in Figure 3. The interaction between Be+Neg/Have+Neg and proficiency level just missed significance (F (2,66) = 2.79, $p < .07$).

Figure 3: Mean Correct Percentages of Be+Neg and Have+Neg in GJ



As for EP, although we could not perform a statistical analysis, we could roughly estimate relative difficulty of the two structures from an analysis of errors of 57 subjects whose responses in EP were usable in both structures (see section 6.2.3 below). The error analysis showed that the use of "is not/isn't" in combination with the -ing form of the verb accounts for 75% of the total number of responses while the use of "has not/hasn't" in combination with the past participle form of the verb never occurred in the responses for the Have+Neg context. Errors in the Have+Neg context were mainly distributed among the uses of some forms of "Do+Neg", "Be+Neg", and dropping of an auxiliary. Thus, the highly accurate performance of these learners on Be+Neg and their total failure in giving target responses in Have+Neg confirms that Be+Neg is easier than Have+Neg in both tasks.

6.2.3 Error Analysis for Raising of Auxiliary Structures

In this section, scoring was focused on both the order of the three elements and the correct form of these elements in each structure. That is, in Be+Neg, correct responses must contain either *isn't* or *is not* before any given verb suffixed with "-ing". In Have+Neg, the forms were *hasn't* or *has not* followed by any given verb suffixed with "-en". Data from a group of 57 subjects (level 1, N = 11; level 2, N = 30; level 3, N = 16) whose responses were usable in both structures were analyzed.

Progressive Negative (Be+Neg)

From a total of 334 responses, there were 257 (77%) correct responses, and 77 (23%) errors. All responses are classified in Table 6 below.

Table 6: Responses in Be+Neg by Proficiency Level

Response Type		English Proficiency Level			
		Level 1 N = 11	Level 2 N = 30	Level 3 N = 16	Total N = 57
Correct					
	Be+Neg	48	118	91	257
	% within level	75%	68%	95%	77%
Incorrect					
	Aux Drop	6	27		33
	% within level	9%	16%		10%
	Do+Neg	5	24	1	30
	% within level	8%	14%	1%	9%
	-ing Drop	5	2	4	11
	% within level	8%	1%	4%	3%
	Word Order		3		3
	% within level		2%		1%
Total		64	174	96	334
	% of Total	19%	52%	29%	100%

As seen in Table 6, overall the use of *is not* and *isn't*, the correct forms, occurred most frequently (77%) while omission of an auxiliary (i.e. Aux-Drop) and the use of some form of Do+Neg occurred only 10% and 9% of the time. Within three proficiency

levels, both omission of an auxiliary and the substitution of some form of Do+Neg, the two major categories of errors, occurred to some extent at levels 1 and 2 (9% and 16% for Aux-Drop, and 8% and 14% for Do+Neg) and disappeared by level 3.[4]

The remaining error types, which consisted of omission of the -ing suffix (i.e.-ing Drop) and incorrect word order, accounted for only 4% of the overall responses.

Perfective Negative (Have+Neg)

Within the Perfective Negative structure, excluding 12 missing items, all responses (330) were errors, which are classified into error types in Table 7a below.

[4] In the Do+Neg substitution type, 25 errors occurred in the use of *don't* as in "the woman don't driving" and five occurred in the use of *doesn't* as in "the woman doesn't driving."

Table 7a: Errors in Have+Neg by Proficiency Level

Error Type	English Proficiency Level			
	Level 1	Level 2	Level 3	Total
	N = 11	N = 30	N = 16	N = 57
Aux Drop	37	47	6	90
% within level	57%	28%	6%	27%
Do+Neg	14	70	54	138
% within level	22%	41%	57%	42%
Be+Neg	14	44	21	79
% within level	22%	26%	22%	24%
Modal+Neg		3	8	11
% within level		2%	8%	3%
Have+Neg		1	6	7
% within level		1%	6%	2%
Word Order		5		5
% within level		3%		2%
Total	65	170	95	330
% of Total	20%	52%	29%	100%

As pointed out previously, none of the subjects received scores from this sentence type, causing the Perfective Negative to consist of errors only. As shown in Table 7a, the most frequent source of errors was substitution of Do+Neg, which accounted for 42% of

the total number of errors, followed by dropping an auxiliary (27%) and substitution of Be+Neg (24%). The less frequent sources of errors were the uses of some forms of Modal+Neg, which accounted for 3%, incorrect forms of Have+Neg (2%), and incorrect word order (2%).[5] Within proficiency levels, the use of some forms of Do+Neg increased steadily (22%, 41%, and 57%, at the three levels) while the use of Be+Neg was relatively stable (22%, 26%, and 22%, at the three levels). Difference in frequency of the uses of *do* and *be* might be attributable to the learners' realization that *do* was a more appropriate form to be used in the Perfective context than *be*.

With respect to omission of an auxiliary, there was a substantial decline across the three levels, i.e. 57%, 28%, and 6%, respectively, which is similar to the pattern we have seen in the Be+Neg context.

[5] A breakdown of error subtypes for individual error types in the Perfective Negative is provided in Table 7b, Appendix C.

6.3 Non-Raising of Lexical Main Verbs

6.3.1 Prediction for Clustering

We predicted that the Preverbal Adverb (Adverb+Verb) structure would cluster with the Do-support (Do+Neg) structure since both forms involve the role of weak Agr of English, which results in non-raising of lexical main verbs before Spell-Out. This prediction was disconfirmed in both tasks.

The control group identified and produced both Adverb+Verb and Do+Neg structures at 100% accuracy. For the Thai group, data from 53 subjects with usable responses from both tasks were analyzed. It should be noted that scoring of Adverb+Verb and Do+Neg in EP was focused only on word order in order to be consistent with scoring in GJ. Specifically, in Do+Neg, dropping of an auxiliary was not scored as an error but as an unscorable response. Further, supply of *be* instead of *do* was scored as correct if the correct order of elements was maintained. Table 8 shows intercorrelations and a summary of statistics of performance of this group of students on Adverb+Verb and Do+Neg in EP and GJ.

Table 8: Percent Correct Performance on Adverb+Verb and Do+Neg in Elicited Production and Grammaticality Judgment: Intercorrelations and Summary Statistics

	Prof Level	Elicited Production		Grammaticality Judgment	
		Structure-type		Structure-type	
		Adv	Do	Adv	Do
Prof Level		.36**	.22	.47**	.34*
Adv			-.06		.21
Mean	2.11	72	95	68	74
S.D.	.70	44	20	35	31
Range	1-3	0-100	0-100	0-100	0-100

N = 53

* $p < .02$

** $p < .009$

Notes: 1. Adv = Adverb+Verb; Do = Do+Neg

2. The r values for Adverb+Verb and Do+Neg represent partial correlations, controlling for level of proficiency; all others represent zero order correlations.

In EP, level of proficiency significantly correlated with Adverb+Verb (r (51) = .36, $p < .009$) but not with Do+Neg (r (51) = .22, ns). No interrelationship was found between the two structures (r (50) = -.06, ns). In GJ, level of proficiency significantly correlated with Adverb+Verb (r (51) = .47, $p < .001$) and Do+Neg (r (51) = .34, $p < .02$), as in EP. Contrary to prediction, Adverb+Verb and Do+Neg were not significantly

correlated (r (50) = .21, ns). Thus, clustering did not occur in these two Non-Raising structures.

6.3.2 Prediction for Difficulty

In terms of difficulty, we predicted two different patterns: Do+Neg would be easier than Adverb+Verb based on L1 background, while Adverb+Verb would be easier than Do+Neg based on surface complexity. Therefore, either pattern was expected to occur depending on whether L1 or relative complexity between the two structures was more influential on subjects' performance.

Neither pattern was confirmed in the two tasks. In GJ, level of proficiency was significant in the comparison between Adverb+Verb and Do+Neg (F (2,50) = 9.27, p < .001). Mean correct percentages at the three proficiency levels for Adverb+Verb are 47 $_{(30)}$, 62 $_{(35)}$ and 92 $_{(25)}$ and 63 $_{(35)}$, 67 $_{(29)}$ and 91 $_{(25)}$ for Do+Neg, respectively. However, Adverb+Verb and Do+Neg were not significantly different (F (1,50) = 1.45, ns) and there was no interaction between level of proficiency and structure type (F (2,50) = .67, ns).

In EP, level of proficiency was also significant (F (2,50) = 6.099, p <.005). Mean correct percentages at the three proficiency levels are 57 $_{(50)}$, 62 $_{(48)}$ and 98 $_{(8)}$ for Adverb+Verb and 88 $_{(32)}$, 94 $_{(20)}$ and 100 $_{(0)}$, respectively for Do+Neg. Adverb+Verb was significantly different from Do+Neg (F (1,50) = 10.15, p <.003) and there was no interaction effect between level of proficiency and the two Non-Raising structures (F (2,50) = 2.39, ns). However, when another set of analyses of variance was performed level by level, it was found that Adverb+Verb was significantly different from Do+Neg

only at level 2 (F (1,26) = 11.920, p <.003), but not at level 1 (F (1,9) = 2.03, ns) or level 3 (F (1,15) = 1.00, ns).

Therefore, both sets of results from GJ and EP agree in that generally Adverb+Verb and Do+Neg are equally difficult, disconfirming the prediction that L1 or relative complexity in surface forms will pose different degrees of difficulty on the two structures.

6.3.3 Error Analysis for Non-Raising of Lexical Main Verb Structures

Data from the same group of 53 participants were analyzed. There was a total of 318 possible responses for each structure. Scoring for Adverb+Verb was focused on the use of *always* preceding the main verbs inflected with the third person -s. As for Do+Neg, correct responses involved *does not* or *doesn't* preceding the uninflected verb forms.

Preverbal Adverb (Adverb+Verb)

In Adverb+Verb, from overall 306 responses, there were 20 (7%) correct responses, and 286 (93%) errors as shown in Table 9 below.

Table 9: Responses in Adverb+Verb by Proficiency Level

Response Type	English Proficiency Level			
	Level 1 N = 10	Level 2 N = 27	Level 3 N = 16	Total N = 53
Correct				
Adv+V w/-s	2	7	11	20
% within level	3%	5%	12%	7%
Incorrect				
Adv+V w/-s Drop	32	91	83	206
% within level	53%	60%	87%	67%
Word Order				
S Final Adv	14	40	1	55
% within level	23%	26%	1%	18%
Other	12	13		25
% within level	20%	9%		8%
Total	60	151	95	306
% of total	20%	49%	31%	100%

As shown in Table 9, correct responses, which involved maintaining the order of *always* in the preverbal position and correctly associating main verbs with -s, accounted for only 7% of the total number of responses. The most frequent source of errors (67% of overall responses) involved third person -s missing in the presence of the correct order of *always* and main verbs, followed by incorrect word order (26%). Within the word order type, the placement of *always* in sentence final position accounted for the highest

number of errors, followed by the "other" type, which consisted of the placement of *always* in postverbal position and sentence initial position.

Within the sentence final *always* subtype (S Final Adv), the omission and supply of -s on main verbs accounted for 36 and 8 errors, respectively and the remaining 11 errors involved the use of *does* preceding the main verbs. In the "other" subtype, 24 errors involved the placement of *always* in postverbal position; the supply and omission of -s on main verbs accounted for 20 and 4 errors, respectively. Only one error appeared in the misplacement of *always* in sentence initial position.

Do+Neg

From 314 responses, there were 139 (44%) correct responses, and 175 (56%) errors as shown in Table 10 below.

Table 10: Responses in Do+Neg by Proficiency Level

Response Type		English Proficiency Level			
		Level 1 N = 10	Level 2 N = 27	Level 3 N = 16	Total N = 53
Correct					
	Does+Neg	9	72	58	139
	% within level	16%	45%	60%	44%
Incorrect					
	Do+Neg	13	53	26	92
	% within level	23%	33%	27%	29%
	Aux Drop	17	11	9	37
	% within level	30%	7%	9%	12%
	Be+Neg	14	22	3	39
	% within level	25%	14%	3%	12%
	Word Order	4	3		7
	% within level	7%	2%		2%
Total		57	161	96	314
	% of Total	18%	51%	31%	100%

From Table 10, within the correct response category, percent results showed a substantial increase in the use of *does not* and *doesn't* across proficiency levels, i.e, 16, 45 and 60. Within the incorrect response category, the highest number of errors involved the use of incorrect forms of Do+Neg (29% of overall responses), followed by "Be+Neg" (12%) and "Aux-Drop" (12%); only seven errors (2%) occurred in the word order error type.

Within the Do+Neg error type, the use of *don't* and the base form of the verb accounted for 83 responses. Within the Be+Neg error type, 36 errors were made using *isn't* and *is not* with the base form of the verbs. For the Aux Drop error type, 36 errors involved the use of "not" and "no" with the uninflected verb form. Within the word other error type, most errors involved the use of a verb preceding "not", in which the verb was either inflected with third person -s or uninflected.

Comparing the uses of Do+Neg in both correct and incorrect forms on the one hand and Aux-Drop on the other, we see an increase in supply of Do+Neg across three levels (39%, 78%, and 87%) and a decline in Aux-Drop from level 1 to levels 2 and 3 (30%, 7%, and 9%). This pattern is similar to those found in the Be+Neg and Have+Neg contexts.

In the next chapter, we will summarize the patterns of correct responses and errors and discuss how they might explain L2 development.

Chapter 7

Discussion

In this chapter, we will discuss how the results shed light on two major issues in SLA theory: the role of syntactic theory and L2 development. In 7.1, we will summarize the results pertaining to clustering and non-clustering and in 7.2 we will show how well Minimalism predicts the outcome, and how the results reflect the validity of UG as a language acquisition model. In 7.3, we will discuss the results pertaining to developmental factors which are not directly determined by UG, namely, the influence of L1, the role of input, and complexity of the surface structures. Error analyses will be discussed in section 7.4, in which we summarize major categories of errors and suggest how they reflect L2 development and L1 transfer. In 7.5, methodological suggestions from the Grammaticality Judgment and Elicited Production tasks are provided and 7.6 gives some conclusions of the current study. To begin our discussion, we provide a summary of the results pertaining to clustering and difficulty in Table 11 below.

Table 11: Results Chart

Structures	**Clustering**	**Difficulty**
Nom vs. Acc	Nom nc Acc	Nom > Acc
	pred. confirmed	pred. confirmed
Acc vs ECM	Acc c ECM	*Acc = ECM*
	pred. confirmed	*pred. disconfirmed*
Be vs Have	Be c Have	Be > Have
	pred. confirmed	pred. confirmed
Adv vs Do	*Adv nc Do*	*Do = Adv*
	pred. disconfirmed	*pred. disconfirmed*

Notes: 1. c : correlates with; nc : does not correlate with

2 = : is as difficult as

3. > : easier than

7.1 Clustering and Non-Clustering Findings

As shown in Table 11, we found clustering in the pairs of Accusative and ECM, and Progressive and Perfective Negatives, confirming our predictions. We presented interrelationship results in such a way that level of proficiency was removed (for Accusative and ECM in EP, $\underline{r}\,(48) = .66, p < .001$, in GJ, $\underline{r}\,(48) = .32, p < .03$, and for Be+Neg and Have+Neg, $\underline{r}\,(66) = .43, p < .001$). Furthermore, these relationships remain even when data from level 3 were excluded (for Accusative and ECM in EP, $\underline{r}\,(32) = .60, p < .001$, in GJ, $\underline{r}\,(32) = .35, p < .05$ and for Be+Neg and Have+Neg, $\underline{r}\,(50) = .41, p < .003$). Since after the two major factors, namely level of proficiency and the group of advanced learners, which are most probably the strongest

candidates to create relationships, had been removed and the relationships remain, these findings should indicate that clustering is actually occuring.

We also obtained additional information about clustering when we focus on the pattern of subjects' performance of Accusative and ECM in EP across proficiency levels. As shown in Figure 1, chapter 6, it is obvious that the two structures co-develop; there is no random pattern at any point. Given the fact that there is no special training in Accusative and ECM, the result that the two structures develop in tandem strongly suggests that there is real development, which is relatively slow between levels 1 and 2 and abrupt between levels 2 and 3.

On the non-clustering side, we did not find relationships in the pairs of Nominative and Accusative, Nominative and ECM, and Adverb+Verb and Do+Neg. The lack of relationships confirms our predictions for Nominative and Accusative or ECM constructions, but disconfirms the prediction, which was made according to the Economy of Derivation framework, for the preverbal adverb and do-support structures. In the next section, we will draw generalization from these clustering and non-clustering findings.

7.2 Minimalism and L2 Acquisition

Recall that in this study we assume a language acquisition model based on the Minimalist Program as an initial hypothesis to investigate L2 development of certain grammatical structures which have been the focus of much recent research. According to this model, UG consists of one computational system, which is the same

in all languages, and one lexicon, which consists of phonological, morphological, and semantic features. These features may vary across languages, but a certain set of semantic features is assumed to be constant. Language acquisition involves fixing a correct set of morphological features of the language, since identification of morphological features (strong and weak) will enable language learners to construct grammatical sentences of the language. We assume acquisition abilities to be intact in L2 learners, and further hypothesize that the acquisition of morphological features in the L2 will result in the clustering of certain constructions associated with those features. Furthermore, we state the clustering hypotheses by assuming that L2 learners acquire a given pair of structures derived from the same syntactic operation in a related fashion, and we assume that this development occurs independently of relative structural difficulty.

Our results suggest that, firstly, two types of the raising mechanism are operative in L2 acquisition, i.e., overt head-to-head movement in the aspectual auxiliary *be* and *have* structures, and covert object NP movement to AgrO's checking domain in typical transitive and ECM clauses. Secondly, the clustering of structures associated with the same syntactic operation occurs only when three conditions are met, namely, type and strength of features, checking domain, and interface level. Alternatively, when some or all of these conditions are lacking, clustering may not occur.

Correspondence in the three conditions is shown in the pairs of Accusative and ECM, and Progressive Negative and Perfective Negative, where we found clustering.

Both Accusative and ECM involve checking of accusative Case features in AgrO's checking domain. To enable checking of accusative Case, two types of movement are required. Firstly, V raises to AgrO and secondly, an NP, irrespective of an object of a matrix clause or a subject of an embedded clause, raises to Spec/AgrOP. Since the feature of accusative Case is weak, it is checked at LF. Thus, the two structures represent the same type of features, checking domain, and interface level, namely, weak features, the domain of AgrO, and LF, respectively.

Progressive and Perfective Negatives involve movement of two auxiliary verbs, i.e. *be* and *have* across negation. Specifically both auxiliaries raise from the V position to some higher functional heads, i.e. Agr crossing Neg to T, and tense and agreement are checked in the domains of Agr and T, respectively. The two auxiliaries are forced to raise prior to Spell-Out due to their non-interpretability at LF (Chomsky 1993/1995: chapter 3). Their LF invisibility requires these auxiliaries to perform all their feature-checking movement in overt syntax. Thus, Progressive and Perfective Negatives represent the same type of features, checking domains, and interface level, namely, tense and agreement of semantically vacuous elements, the domains of Agr and T, and PF, respectively.

When there are distinctions in strength and weakness of features, checking domain, and interface level, non-clustering can be expected. As we have discussed in

the checking of two Cases, nominative Case is strong and checked in the checking domain of AgrS before Spell-Out, while accusative Case is weak and checked in the checking domain of AgrO after Spell-Out. The non-paralleled operations seem to create a non-clustering pattern, evidenced by the lack of correlations in Thai learners' performance of the Nominative and Accusative, and Nominative and ECM constructions.

Thus, the findings indicate that for clustering to happen, the same criteria of movement of features must be involved in two different structures. However, when two structures represent different types of features, different checking domains and different levels of representation, a non-clustering pattern is expected.

As for the non-raising of lexical verbs, we found no relationships in performance of Adverb+Verb and Do+Neg in both tasks, disconfirming the prediction made according to the Economy of Derivation framework.

A relationship established for this pair is assumed from a link presumed to occur when one acquires the knowledge of weak Agr of English. That is, weak Agr forces V not to raise overtly in the Adverb+Verb structure and triggers *do*-insertion, the requirement for weak Agr of English. We also conjecture that this relationship might occur from White's (1992) assumption based on the notion of "triggering experience" (cf. Lightfoot 1991) in learnability. White (1992) speculates a pattern of learning English main verbs that for a child learning English, evidence of *do*-support in questions and negatives should indicate that main verbs do not move, and triggers occurrence of certain properties such as placement of frequency adverbs in preverbal

position. Therefore, according to theoretical and learnability perspectives, if L2 learners acquire English main verbs in the same way as L1 learners do, there might be a connection between the two structures.

As far as the findings in White (1990/1991, 1992) and this study are concerned, this type of triggering experience may not be operative in L2 acquisition and furthermore there seems to be no theoretical link between the two types of structures. In White's study, young French learners of English did not improve significantly in their performance of the preverbal adverb structure of English after they were intensively taught question formation and negatives, in which *do*-support was included. In this study, although we assume naturally implicit classroom input instead of special training on the structures as done in White, we found no relationship in the performance of young Thai students on the two structures, consistent with White's findings.

These findings tally with what our theoretical point of view leads us to predict, i.e. that Adverb+Verb and Do+Neg are considerably different. In addition to differences in technicality to derive the two structures discussed earlier in chapter 2, a simple set of facts clearly differentiates them not to be related. In the preverbal adverb structure, finiteness is manifested in the main verb, which is always to the right of the adverb, and INFL is checked covertly when the main verb raises to it. In *do*-support, finiteness is always manifested in the dummy *do*, an element to the left of Neg, and INFL is checked overtly by *do*, while the main verb is "bare" and never

raises to INFL to check tense and agreement features.[1] Thus the non-clustering pattern of this pair could simply be attributed to the fact that a structure where finiteness is shown in a dummy element different from the verb is not going to enhance the learning of a structure where finiteness is shown in the verb itself.

In fact our data seem to suggest a pattern where *do* falls in the same category with *be* and *have*. We performed post-hoc correlation analyses on subjects' performance in the GJ task on "Do+Neg" and "Have+Neg" and "Do+Neg" and "Be+Neg", with the overall 69 subjects. These results showed significant relationships (which are weaker compared to those between "Be+Neg" and "Have+Neg") before and after proficiency level had been removed ($\underline{r}$ (67) = .31, $p < .01$, and $\underline{r}$ (67) = .33, $p < .006$, respectively, before controlling for proficiency level and $\underline{r}$ (66) = .24, $p < .05$, and $\underline{r}$ (66) = .26, $p < .04$, respectively, after controlling for proficiency level).

Compared to the assumed pattern of *do*-support and the main verb structures, an alternative where *do* may pattern with *be* and *have* is quite clear from the Minimalist perspective which takes these auxiliaries to share the following two major aspects. Firstly, *do* forms a natural class with *be* and *have*, called a class of verbs invisible at LF (cf. Chomsky 1993/1995: chapter 3), since they all are semantically vacuous, distinct from other verbs. Secondly, *do*, *be* and *have* behave similarly in that they all carry finiteness features, i.e. tense and agreement, which need to be checked either by insertion in or raising to INFL in overt syntax. In addition to the Minimalist

[1] The assumption for non-movement of V is based on the account for Modern English *do*-support of Bennis, Beukema, and den Dikken (1997). According to them, V does not move before or after Spell-Out and surfaces as non-finite form, while [+FIN] is licensed by the insertion of the dummy *do*.

grounds, in terms of word order they all invert with subjects in Yes/No questions. Thus, the resulting clustering pattern of *be*, *have*, and *do* is reasonable. This suggests that syntactic considerations such as the three conditions suggested here should be incorporated if triggering experience remains as crucial to the theory of input.

Our findings show the necessity of a more refined analysis to the acquisition pattern of grammatical structures than those of previous studies which have tested clustering did. Sentence structures are acquired according to types of morphological features, which determine their checking domains and levels of representation. As for clustering, we found sentences containing the auxiliaries *be*, *have* and *do*, and sentences containing the same Case features, i.e. accusative in Accusative and ECM, to have relationships with each other. On the non-clustering side, we found sentences containing different Case features as in Nominative and Accusative, and Nominative and ECM, and different modes of checking of finiteness, as in Adverb+Verb and Do+Neg to have no relationships with each other.

Since the predictions made according to Minimalism were confirmed, i.e., relationships were found in structures representing Auxiliary Raising, and accusative Case, and lacking in structures representing nominative and accusative Cases, we have empirical evidence to support a language acquisition model put forward in this framework. Specifically for L2 acquisition, the learning of sentential structures is not random but systematic, characterized by a cluster of structures containing the same formal feature types.

7.3 Effects on Difficulty

In 7.2, we suggested that the acquisition model in the MP is possible provided that three conditions regarding movement of morphological features are met. Our evidence came from a clustering pattern in structures differing in lexical manifestation -- Be+Neg and Have+Neg-- and structural types -- Accusative and ECM. Although from the Minimalist perspective, the clustering pattern finds its support in terms of relationships, in real time development it is obvious that the structures found to be related present different degrees of difficulty to L2 learners, as shown in the findings. In the hypotheses chapter (chapter 4), we postulated that three factors, namely, L1, input, and complexity in lexical items and surface forms, affect the learners' performance both for the clustering and non-clustering patterns. Therefore, in this part of the discussion, we will evaluate the roles of these factors drawn from the findings. Table 12 below is given to provide what we predicted in the hypotheses to affect the learning of all the structures.

Table 12: Factors Contributing to Difficulty

Structures	L1 influence	Input	Complexity
Nom vs Acc/ECM	no distinction	Nom>Acc	N/A
Acc vs ECM	no distinction	Acc>ECM	Acc>ECM
Be vs Have	Be> Have	Be>Have	Be>Have
Adv vs Do	Do> Adv	N/A	Adv>Do

Notes: > = is more favorable from an L1 perspective; is higher in frequency with regard to input; is less complicated in terms of complexity

N/A = Not possible to estimate

Since the structures we investigated vary in number and type of factors predicted to affect them, we need to consider the factors relative to one another. As far as our findings are concerned, the structures can be divided according to availability of the three potential effects into three conditions. One is a case where L1, input, and lexical complexity are available as a basis for making predictions. Another is a case where only input is available. The last one is a case where only relative complexity between structures is available. We discuss the three conditions in 7.3.1, 7.3.2, and 7.3.3, next.

7.3.1 Availability of L1, Input, and Lexical Complexity

It has been observed that in a given pair of structures (S1, S2), if three factors, namely L1 background, input, and lexical complexity, favor S1 over S2, then S1 is easier and acquired earlier than S2. This is the case only for Be+Neg and Have+Neg.

In Table 12, we predicted that all three factors, namely, the presence of the progressive aspect along with its grammaticalization in L1, higher frequency in the input for *be*, and consistency in affixation of *-ing* to the verb in the progressive, contribute to creating ease on *be* and difficulty on *have*. The findings confirmed that the structure which is favored by the three factors is easier and acquired earlier.

Among these factors, the least effect is possibly verbal morphology, since it is in the verb ending, compared to the inability to relate time sequence via grammaticalization, a problem deriving from the absence of this strategy in L1, and low frequency in the input. The latter two effects seem to pose difficulty not only to Thai learners but also to English speaking children.

A comparison between the perfective and progressive found in Cromer (1976), who studied Brown's (1973) data, showed that the meaningful use of the perfect aspect occurred at age 4;6 in Adam and 5;5 in Sarah but the use of present progressive, *be -ing*, occurred before the age of 3 in both children. Regarding the present perfect, evidence has shown that it appeared relatively later than other grammatical forms. In Nussbaum and Naremore's (1975) study with American English speaking children between the ages of four and six, the use of *have* was not stabilized by age six although the form began to appear by age four. Fletcher (1981)

found that British English speaking children at age 3;3 had not yet mastered the function of the present perfect although some forms were apparent. Gathercole (1986) compared uses of the present perfect between Scottish English and American English speaking children between the ages of 3 to 6 and found that American English speaking children acquired the present perfect much later than their Scottish counterparts. There seems to be disagreement among researchers with regard to which factor plays a more significant role in the late acquisition of the present perfect, i.e., children's cognitive inability to relate time sequence (Cromer 1976) or low frequency of input, which seems to be the case for American English speaking children (Gathercole 1986).

With regard to the Thai learners in this study, it is likely that both inability to relate time sequence in English, and low frequency of input in their exposure to the L2 play an interactive role in the learning of the English present perfect of these Thai students.

7.3.2 The Role of Input

With respect to the role of input, we state a generalization as follows. In a pair where L1 makes no distinction between S1 and S2, i.e., L1 does not facilitate the learning of either structure, the next factor to take effect is input. If input is higher in frequency in S1 than in S2, then S1 is easier than S2. We found this to be the case of Nominative and Accusative, and Nominative and ECM.

As seen in Table 12, we did not use L1 and complexity in surface form to determine relative difficulty for these pairs, since Thai does not have Case morphology and as a result we could not estimate whether sentences containing nominative Case would be easier or more difficult than those containing accusative Case. The only available potential effect was input frequency. We predicted that Nominative, which was expected to be higher in input frequency, would be easier than Accusative and ECM. This prediction was confirmed.

It is worth noting that our finding that nominative was easier and acquired earlier than accusative goes in the reverse direction of the learning of Case in English speaking children. There has not been any clear explanation regarding what influences English speaking children at an early stage to use accusative or oblique subjects earlier than nominative subjects.[2] It seems that input does not cause children to use accusative subjects, since input is most likely to be overwhelming in nominative and not in accusative Case. English speaking children might learn this strategy from adults' use of accusative pronominals as default in colloquial English.

As for Thai learners of English, it is much clearer why they are at ease in performing nominative Case. The reason involves special emphasis put on the teaching of nominative, which inevitably causes higher frequency in the input for nominative. As discussed previously, Thai learners are exposed only to classroom input, in which use of accusative as default may not occur. English Case is introduced to Thai students as early as grade 3; however, subject pronominals are

[2] Rather, researchers attempt to use the early occurrence of oblique subjects to argue for different positions with regard to L1 initial state, e.g. those of Weak Continuity (Radford 1990, Loeb and Leonard 1991, and Vainikka 1993) and Strong Continuity (Deprez and Pierce 1993, 1994).

taught as an entire class (i.e. *I, we, you, he, she, it, they*) while only two members of object pronominals --*you* and *me* are taught.[3] Recall that in this study, we chose *he/they* and *him/them* to represent nominative and accusative pronouns, and not *you* and *me*, which are more familiar to them. At grade 5, students learn all forms; however, they are initiated to English tense and agreement by matching up subject pronominals with two different verb forms, e.g., *I/we/you/they* and *have* on the one hand and *he/she/it* and *has* on the other. Thus, although children at grade 5 learn both forms, only nominative is learned in association with tense and agreement, while accusative is not.

Compared to Thai students learning English, it is obvious that English speaking children are exposed to a totally different type of input. It is naturalistic and colloquial, emerging largely from children's interaction with their parents and siblings. There is certainly no explicit teaching of subject pronouns relative to tense and agreement as is the case for Thai learners.

Thus, the role of classroom input might have enhanced the learning of nominative and delayed the learning of accusative for Thai learners.

7.3.3 The Role of Complexity in Structure

In the absence of L1 and input and only complexity in the structure can be determined, we draw the following generalization. In a pair where L1 makes no distinction between S1 and S2 and frequency of input is low in both of them, or it

[3] This information came from a teachers' manual, which provides guidelines for the teaching of the English subject to Thai students from grades 3 to 12. The teachers' manual was published by the Ministry of Education, Thailand.

cannot be estimated, S1 and S2 are equally difficult regardless of differential complexity. We found this to be the case of Accusative and ECM and perhaps Adverb+Verb and Do+Neg as well.

For Accusative and ECM, we stated in our hypothesis that L1 should not be used to predict different degrees of difficulty because the surface forms of Accusative and ECM in Thai are considerably different from those of English. That is, in Thai accusative Case is marked only by position and ECM is marked by a special complementizer, along with a very restricted class of verbs. These different strategies might prevent Thai learners of English from generalizing the presence of accusative and ECM structures in Thai to the English ones. In terms of frequency in the input, as discussed earlier, despite the possibility that Accusative is higher in frequency than ECM, the role of input in both structures is suppressed by their infrequent occurrences. Therefore, the two structures may not be different with respect to frequency of input. In this respect, it seems that neither L1 nor input can make a distinction between the two structures.

The only available potential effect expected to be responsible involves relative complexity which may arise from the way Case is morphologically instantiated in the two structures, i.e., the presence of accusative in the subject position of an embedded infinitival should create more difficulty on the ECM structure than the presence of accusative in the object position of a typical transitive clause. However, the results from both tasks showed that they were equally difficult, disconfirming the validity of this factor. Therefore, relative complexity does not cause negative or positive effects

on the two structures. This indicates that in the absence of L1 and input, the Thai learners approached Accusative and ECM as something totally new, and as a result, the two structures represent the same degree of difficulty, and proceed at the same rate irrespective of complexity in marking subjects as accusative in ECM.

These findings may be viewed as consistent with those of Flynn (1987). In Flynn (1987), Japanese learners did not show a preference on pre-posed/backward anaphora, the head-final parametric value of Japanese, over post-posed/forward anaphora, the head-initial parametric value of English in a sentence imitation task. Thus, there is a tendency that when L1 does not have corresponding surface forms as in the pair of Accusative and ECM in this study, or differs in parametric value as in Flynn's (1987) study, L2 learners treat the related structures as a totally new grammatical aspect. The same treatment is evidenced by equal degrees of difficulty between performance of Accusative and ECM by the Thai learners in this study and no preference in directionality of Japanese learners in Flynn's (1987) study.

With regard to the pair of Adverb+Verb and Do+Neg, it could be viewed as a pattern analogous to the pair of Accusative and ECM. In Adverb+Verb, the negative role we predicted to arise from the placement of adverbs in sentence final position in Thai has perhaps caused only slight effects. As shown in the error analysis, from the total number of responses within each proficiency level, the placement of "always" in sentence final position, accounts for 24%, 28%, and 1% respectively. This result indicates that L1 transfer of this sort is not strong enough to cause negative effects on the preverbal adverb structure. With regard to Do+Neg, we expected favorable

effects to arise from subjects' ability to make an analogy from the order of modal+Neg in Thai to the order of do+Neg in English. However, this analogy seems to be a much weaker type of L1 influence, compared to L1/L2 similarities in the progressive aspect, which do not correspond in the surface forms but do correspond in sharing the same grammatical aspect. And as a result, the analogy fails to show positive effects on the structure of Do+Neg. Rather, the pair of Adverb+Verb and Do+Neg could be another case in which L1 does not make a distinction.

Further, the fact that Do+Neg and Adverb+Verb are taught relatively close in time, i.e. at Grades 6 and 7, respectively, and that frequency in the input cannot be estimated between them, might have suppressed the role of input for this pair. Thus, the only potential effect available is surface complexity. We predicted that Do+Neg would be more complicated than Adverb+Verb because Do+Neg involved a different word order than its declarative counterpart, and filling in the context with the required auxiliary term -- the dummy *do*, while Adverb+Verb involves only correct placement of adverbs. However, this part of the prediction was also disconfirmed. This could be another situation where neither L1 nor input play a role in creating favorable effects on one over the other, as discussed to be the case for Accusative and ECM. We may similarly conclude that the learners might have approached Do+Neg and Adverb+Verb as a new grammatical aspect, which may cause the learning of the two structures to develop at the same rate independent of differential complexity of surface forms.

It is necessary to point out that there are two different types of complexity posed by the three pairs of structures, namely Accusative and ECM, Adverb+Verb and Do+Neg, and Be+Neg and Have+Neg. In the first two pairs, relative complexity was assessed from surface forms of the structures. In the pair of Accusative and ECM, complexity was expected to derive from the tendency for learners to mismatch Case forms of the NP subject inside an embedded clause of the ECM structure, while no such complexity should arise from the single clause containing an accusative structure. For Adverb+Verb and Do+Neg, more complexity in the Do+Neg structure was estimated from the addition of the dummy *do* and the order of *not* preceding main verbs, while less complexity in the Adverb+Verb structure was expected since the only change to be made involves placement of the adverb *always* in the preverbal position. The pair of Be+Neg and Have+Neg presents another type of complexity, which may be called lexical complexity. It involves associating different types of suffixes on non-finite verbal stems, i.e. an invariant -ing for progressive versus various forms of -en for perfective. Since we found only lexical complexity to be supported in the presence of the other two major factors, namely, L1 and input, we conclude that complexity in surface form by itself does not play a significant role in predicting relative difficulty of any given structures.

7.3.4 Summary of Interactive Roles of the Three Factors

In brief, we make an observation for L2 development of the pairs of structures we have investigated as follows. If L1 and input are available, they are interactive and decisive factors. When L1 is not available or does not make a distinction, there are two options. First, if frequency of input is higher in one and lower in the other, the high frequency one is easier. Second, if the two structures are low in frequency of input or cannot be estimated by input, they are equally difficult. Relative difficulty of grammatical structures seems to be determined by L1 and input. If both fail to take effect, a learner treats the structures in the same way and the structures are equally difficult, regardless of differential complexity.

7.4 Errors and L2 Development

In 7.3, we discuss how various structures are affected by some or all of the three factors, namely L1, input, and complexity of the structure, and suggest relative roles these factors contribute in causing ease and difficulty on different sentential structures across tasks. In this section, we focus specifically on performance of the Thai learners in the Elicited Production task, using data from the error analyses. As far as major error types are concerned, the following pattern arises. In learning a structure where L1 is not available, at early stages L2 learners create a default form. If L1 has a directly corresponding term with the one in L2, L2 learners probably transfer the L1 correspondence. Use of default and L1 transfer are temporary, and

both disappear when learners are higher in proficiency in the L2. As for tense and agreement, the morphology is acquired in auxiliaries but not in main verbs.

In the following, we will discuss major error types which reflect the above pattern beginning with use of default in 7.4.1, L1 transfer in 7.4.2, and supply of tense and agreement inflection in 7.4.3.

7.4.1 Use of Default

The term 'default' used in this chapter refers to a commonly used form among the Thai learners in this study particularly at their early stage, which may not correspond to those of native English speakers. The first type of default involves use of nominative forms in Accusative and ECM structures, which we do not consider as L1 transfer since Thai has no Case morphology and we have no means to determine whether pronominal forms in Thai convey nominative or accusative Case.

As shown in the error analyses, there was a reverse pattern of decline in the use of nominative pronominals and increase in the use of accusative pronominals in both Accusative and ECM. Noticeably, the pattern is marked by an abrupt increase and decrease between levels 1 and 2, where performance of the incorrect forms was slightly higher than the correct ones, and level 3, where performance showed full knowledge of distinct Case forms. Apparently, these results may not agree with those of Lardiere's (1998) in which both nominative and accusative pronominals were correctly produced 100% of the time in Patty's speech. However, since Patty is an advanced learner of English, we compared Patty's performance to the performance of

the subjects at level 3. Results showed that the Thai group and Patty performed at ceiling on distinguishing between nominative and accusative pronominals. This suggests that L2 learners whose L1 does not mark Case morphologically can eventually acquire distinct Cases. In addition, our findings showed a development trend from the use of nominative form at an early stage to full knowledge at a final stage.

With regard to omission of auxiliaries, it can be viewed in the same way as the use of nominative pronominals as default. We found a reverse direction between omission of auxiliaries and supply of auxiliaries. Three structures, namely, Be+Neg, Have+Neg, and Do+Neg conform to this pattern. Considering the three auxiliaries together, omission of auxiliaries decreased and supply of correct forms, i.e. *is not* or *isn't* and *does not* or *doesn't*, in Be+Neg and Do+Neg, and *do* in Have+Neg increased across three proficiency levels. Be+Neg is different from the other two auxiliaries in that performance was already high at level 1 (75%), indicating that Be+Neg was the easiest among the three. There was a slight increase in the use of *is not* and *isn't* from levels 1 and 2 to level 3 (75 and 68% to 95%). Although auxiliary omission and wrong choice of auxiliaries (i.e. supply of *don't* or *doesn't*) was evident, they accounted for a very small percentage (8 to 16%) at levels 1 and 2 and disappeared at level 3.

As for Do+Neg, omission of auxiliaries accounted for a larger percentage (37%) than it did in Be+Neg, and decreased from level 1 (30%) to levels 2 and 3 (7 and 9%). Supply of *do* in both correct and incorrect forms increased in a reverse

direction (39%, 78%, 88%, respectively), while a wrong auxiliary, *be*, occurred to some extent (12% overall) and declined steadily (25%, 14%, and 3%, respectively).

Among all the three auxiliary structures, Be+Neg and Do+Neg consist of both correct and incorrect responses while Have+Neg consists of incorrect responses only. In Have+Neg, omission of auxiliaries occurred to some extent (27% overall) as in Do+Neg and declined steadily across proficiency levels. With respect to supply of auxiliaries, it distributed among two major categories, i.e. *do* and *be*. Since *do* is much closer to the target *have* than *be*, it is reasonable that supply of some form of *do* increased steadily (22%, 41%, and 57% at three levels) while supply of *is not or isn't.* was relatively stable (22%, 26%, and 22%).

The pattern of decrease in omission of auxiliaries and increase in supply of them suggests that omission of auxiliaries could be a default strategy on a par with use of nominative objects. Both phenomena are short-term strategies and they are most likely precursors of the next step, i.e. the use of accusative objects and supply of auxiliaries.

As mentioned earlier, we do not consider use of default as an L1 transfer phenomenon, but rather an initial step to the acquisition of a grammatical aspect. Considering the fact from L1, neither use of nominative objects nor that of null auxiliaries seems to have any direct L1 correspondence, unlike the clear case of misplacement of adverbs. Although it is true that Thai has only one form, which could be called "default", for each pronoun to convey nominative and accusative, we cannot assume that the default is nominative in Thai. Therefore, incorrect use of

nominative pronominals in accusative contexts cannot be categorized as L1 transfer. As for omission of an auxiliary, there are three structures, i.e. Be+Neg, Have+Neg, and Do+Neg, differing in lexical manifestation, but not a single one finds its surface correspondence in Thai. One might perhaps want to argue that since Thai expresses negation by way of inserting a negative element before a verb, this order might be an equivalent of omission of an auxiliary, and as a result, L1 transfer. However, this should not be the case since dropping an auxiliary appears not only in *do*-support, the most likely context, but in the progressive and perfective, the unlikely contexts, suggesting that auxiliary dropping is a default strategy, rather than L1 transfer.

With respect to omission of auxiliaries in particular, this phenomenon has been evidenced in child English (Valian 1994; Klima and Bellugi 1966, Bloom 1970 cited in Radford 1994). Two different views have been proposed for the cause of the lack of auxiliaries: a limited performance system (Valian 1994) and absence of IP (Radford 1990, 1994). Valian (1994) conducted a study with American children ranging in age from 1;10 to 2;8 and found that the aspectual auxiliary *be* appeared and was used later than the copula *be*. Assuming that children have a full-fledged CP, she accounted for the early appearance of the main verb *be* in terms of a basic template versus a more complex template in the auxiliary structure, e.g. the Progressive context. Specifically, the main verb *be* structure has only one verbal element, projected as VP, while the auxiliary *be* structure has two verbal elements, a complement of I and a complement of V. Since the latter is more costly because it requires iteration within VP, a child learning American English at an initial state opts

for a less complex template by analyzing verbs suffixed with -ing as occupying the V head. She concluded that children have IP and the lack of the auxiliary *be* came from the child's attempt to reduce the costs of the structure, and lexicalization of the nodes which has not been mastered, rather than the absence of IP.

Radford (1990, 1994) takes a different position from that of Valian (1994), and argues for the lack of AgrP, or IP in Valian's terms, at an intial state of L1 acquisition. He collected primary and non-primary data of English speaking children who produced auxiliariless utterances, termed "null auxiliaries", sporadically between ages two to three. In these utterances, the aspectual auxiliaries *be* and *have* and the dummy *do* were omitted in declaratives, and particulary in negative clauses, similar to those found in the Thai students' case. [4] Radford (1994) argues against a null auxiliary hypothesis, in which null allomorphs are assumed to be generated in the V head and raise to Agr, a higher functional head. He raises a counterexample, i.e."She cried and she not be a friend" and argues that since *be*, which he analyzes as a copula, is to the right of Neg, it suggests non-movement of V to Agr and the lack of AgrP at an initial state.

As for the Thai learners, findings from the GJ task suggest that they have acquired tacit knowledge of auxiliary raising, particularly in the context of Be+Neg, where performance across proficiency levels reached ceiling. In the EP task, we found cases where the same subjects produced both null and overt auxiliaries in the same or

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[4] Examples of omission of *have*, *be*, and *do*, drawn from Radford's (1994) primary and non-primary data are shown in a), b), and c) below.

a) I not got that.
b) Teddy not crying.
c) Daddy not mend his car.

different contexts. Examples of the availability of both options in the same context are found in Progressive Negative, in which a subject produced "is not driving" at the same time as "not taking", and in Do+Neg, in which another subject produced both "doesn't take" and "not break". A case where two options were chosen in two different contexts involved when a subject produced "is not speaking", a target response, in the Progressive Negative context while he gave "no speak", a null auxiliary response for the Perfective Negative context. The Thai learners in this study seem to differ from the American children in Valian's study since they have already shown substantial occurences of the auxiliary *be* and *do* preceding Neg in both tasks. which strongly suggests the presence of IP.

Although our production data were obtained from controlled EP, in which data of the copula *be* were not available, we did not find any counterexamples where the auxiliary *be* is to the right of Neg. Therefore, we suggest a possibility to analyze omission of auxiliaries as showing optionality of raising of a null allomorph or an overt auxiliary across Neg to I. Thai learners who have not mastered a full set of six verbs might have chosen the null auxiliary option because they were indecisive about the auxiliary form to be filled in the V position, especially when they encountered unfamiliar lexical verbs. When the entire set of verbs has been mastered, raising of auxiliaries was consistent as seen in the performance of subjects at level 3.

This null auxiliary option can be viewed as a problem of lexical learning as pointed out in Valian (1994) for L1 learners and Epstein et al. (1996) for L2 learners. Valian (1994) and Epstein et al. (1996) agree that the major task in acquiring the

grammar of a language even with complete knowledge of what categories are possible is to solve the problem of mapping particular items onto the categories they belong to, which is language-particular information.

Thus the possiblity for a null-auxiliary analysis as well as the above conceptual arguments lead us to conclude that omission of auxiliaries in our data is most likely a predecessor of the supply of auxiliaries.

7.4.2 L1 transfer of Adverb Position

A clear case of L1 transfer appears in misplacement of *always* in sentence final position, the position of most adverbs in Thai. The direct matching of the English adverb *always* onto the Thai adverb position was adopted to some extent at proficiency levels 1 and 2. Overall, it accounted for 18% of the total number of responses, and 20% of the total number of errors.[5] Within proficiency levels, the placement of the adverb *always* in sentence final position accounted for 23%, 26%, and 1%, at levels 1, 2, and 3, while placement of *always* in the preverbal position accounted for 55%, 65%, and 99%, respectively. It can be seen that at the two early stages, a direct transfer of the Thai adverb position was evident but it disappeared mostly at the end state. In this respect, we may conclude that in a situation where the same lexical equivalents appear in L1 and L2, L1 transfer may be found at an early stage. Similar to the use of default forms, this type of transfer can be resolved at the end state.

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[5] It ranked second to missing of the third person -s in the preverbal adverb order, which accounted for 67% of the total number of responses and 72% of the total number of errors.

7.4.3 Tense and Agreement

We investigated the third person -s, which represents tense and agreement, specifically, present tense and singularity. Instantiation of present tense and number by way of associating -s with verbs can be observed in the auxiliaries *be* and *do* and the main verbs in the preverbal adverb structure. Use of *be* inflected for present tense and singularity, i.e. *is*, is most accurate. As pointed out in 7.4.1, within proficiency levels, percent results of the use of *is* in the Be+Neg context at three proficiency levels were at 75, 68, and 95, respectively. Tense and agreement on *do* is more difficult; however, percent results within proficiency levels for the use of *does* in the Do+Neg context showed an increase, i.e. 16, 45, and 60, at three levels. It is important to note that in EP, the auxiliary choices in these two contexts are not binary. Therefore, when subjects performed 95% and 60% in using *is* and *does*, this does not imply that for the remaining 5% and 40% of the time, they produced *are* or *do*. As we have seen in the error analyses of Be+Neg and Do+Neg, there are other options which basically involve dropping an auxiliary and making wrong choice of auxiliaries.

Thus, the percent results obtained from the Be+Neg and Do+Neg contexts in EP reflect two types of knowledge: ability to choose a correct auxiliary and ability to manifest a correct verb form with tense and agreement.

The most difficult task subjects across proficiency levels encountered was inflecting main verbs with third person -s. Percent results within proficiency levels are very low, i.e. 3, 5, and 12 at levels 1, 2, and 3, respectively.

The pattern of low and high performance in marking third person agreement on main verbs and auxiliaries has been evidenced in previous research. Zobl and Liceras (1994) reviewed L2 morpheme order studies (eg. those of Bailey, Madden and Krashen 1974 and Larsen-Freeman 1975) and found a common ordering of -ing, copula-be, article and auxiliary-be, regular past, third person-s, and possessive-s. [6] Thus in Zobl and Liceras (1994), the auxiliary *be* is acquired earlier than the third person -s, consistent with our findings.

The most corresponding findings can be found in White (1992). In addition to the investigation of young Francophone learners' performance on adverb placement of English, White (1992) analyzed presence of third person -s in the production task. She found that marking third person agreement with *be* was very accurate (95% of the time) at both pretest and post-test while supply of -s on main verbs occurred marginally (0% at pretest and 4% at post-test). Assuming the Economy of Derivation approach (Chomsky 1991), White suggests that the contrast in the acquisition of agreement in auxiliaries and main verbs is probably due to the more economical derivation, i.e. raising of auxiliaries to pick up agreement in Agr and T, versus the less economical affix lowering in the case of main verbs.

The problem of lack of tense and agreement in main verbs and supply of it in the auxiliary *be* for Thai learners might also be approached from a syntactic point of view as suggested in White (1992). This approach seems to account for both French and Thai learners of English. Viewed in terms of Minimalism, it seems that they use a

[6] Zobl and Liceras (1994) suggest that in L2 grammars, free morphemes instantiate functional categories in advance of their affixal counterparts.

non-raising strategy for main verbs and probably overgeneralize it to do-support contexts, by uninflecting both main verbs and *do*, which also suggests that main verbs and *do* enter a numeration uninflected. As for *be*, due to its LF-invisibility it must raise, and is fully inflected as *is*. In this respect, the supply and lack of tense and agreement marking in L2 data seems to pattern with the raising of auxiliaries and non-raising of main verbs pre Spell-Out.

In part, the problem of lack of tense and agreement in main verbs may also be viewed in terms of L1/L2 phonological differences. This phonology-based account is unique to the participants in this study. In Thai, /s/ occurs only in syllable initial position, and /z/ does not exist. In addition, Thai does not have final consonant clusters. The six inflected verbs, namely speaks, takes, breaks, drives, gives, and falls, which are targets in terms of inflection, all have final consonant clusters /ks/, /vz/ and /lz/, which are totally unfamiliar to Thai learners. Further, in the preverbal adverb sentences *always* was required. Although we are not concerned with the pronunciation of /s/ or /z/ in *always*, the fact that there are at least two positions to pronounce final consonant clusters ending with /s/ or /z/, i.e. in *always* and in the six main verbs in the preverbal adverb structure must have posed extreme difficulty in pronunciation. Thus, the lack of third person agreement marking in main verbs found in this study could partially be attributed to phonological malperformance.

To conclude this section, we have classified three major types of errors, namely use of default as discussed to be the case of the uses of nominative objects, and null auxiliaries, L1 transfer of adverb position, and marking of third person

agreement in auxiliaries and main verbs. The analyses of correct and incorrect responses in the individual sentence types have shown that use of default declined while more target-like forms increased across proficiency levels. This phenomenon is also the case for L1 transfer of adverb position. These findings reveal that default usage and L1 transfer are temporary and can be resolved when L2 learners are higher in their language proficiency. As for the last type of errors, there is a development trend in marking tense and agreement in auxiliaries but not in main verbs. This suggests that while Case morphology and placement of adverbs can be mastered, tense and agreement marking especially on main verbs may not be. In the production mode, accuracy of tense and agreement marking in L2 acquisition is characterized by a pattern of auxiliaries preceding main verbs. We suggest that the contrasting pattern of the acquisition of auxiliaries and main verbs may derive from the raising of auxiliaries and non-raising of main verbs before Spell-Out under Minimalism. For the lack of third person agreement marking in main verbs per se, we address that it may partially be attributed to phonological malperformance, a result of L1/L2 differences.

7.5 Problems from Tasks and Recommendations

With regard to overall subjects' performance, we found problems with using GJ in testing Nominative, and EP in testing Perfective Negative. As pointed out in chapter 6, we needed to disregard the results in GJ on the part of Nominative because they are not as revealing as the ones in EP. We reasoned that embedded clauses must

have obscured performance of subjects at levels 1 and 2 since in the absence of them, subjects performed at ceiling from the lowest proficiency level, as shown in EP. Without EP, we would have interpreted that there were relationships between Nominative and Accusative, and Nominative and ECM, and subjects at levels 1 and 2 found the three structures to be equally difficult, which does not correspond to the fact.

The fact that the result in EP is more informative than the result from GJ with respect to the Nominative structure can be contrasted to the pattern we obtained from the pair of Be+Neg and Have+Neg. For these two auxiliary structures, only GJ can bring out the fact that they are related. As reported in chapter 6, performance on the Progressive Negative correlated with performance on the Perfective Negative in GJ. In EP, subjects across proficiency levels failed to give responses for the Perfective Negative, while they performed quite well in the Progressive. Without GJ, we would have missed the relationship between the two structures, which is likely to be derived from subjects' ability to abstract away from potential effects.

Although the problems from both tasks could be peculiar to this study, we suggest the use of both comprehension and production tasks to yield the kind of results which can closely capture learners' grammatical knowledge. Particularly, when one fails to bring out results, the other may compensate for the missing part.

7.6 Conclusion

In this study we investigated a UG-based model of language acquisition, clustering, in L2 acquisition of various IP-related structures. These structures represent Case checking, auxiliary raising, and non-raising of lexical verbs in English. For auxiliary raising and Case checking, we assumed the Minimalist framework in making predictions that structures representing similar operations, i.e. Progressive Negative and Perfective Negative, and Accusative and ECM would cluster. Conversely, structures which do not represent the same operation, i.e. Nominative and Accusative, and Nominative and ECM would not cluster. For non-raising of lexical verbs, we predicted clustering based on the characteristic of English weak Agr assumed in the Economy of Derivation Approach (Chomsky 1991/1995: chapter 2) and a theory of triggering experience in L1 acquisition reformulated for L2 acquisition in White (1992), which states that for L1 and L2 learners alike, evidence from *do*-support should indicate non-movement of English main verbs.

In measuring clustering, we take it to be a relationship between two structures performed by L2 learners, distinct from relative difficulty which is expected to be affected by various factors. Thai learners of English who were studying between Grades 5 and 12 in Bangkok, Thailand participated in this study. Thai was chosen due to its differences in syntactic operation and lexical manifestation from English. We conducted two different tasks, Elicited Production and Grammaticality Judgment, on the same participants.

We found clustering in structures where commonality in three conditions are met, namely type of morphological features, checking domains, and interface levels. This clustering pattern occurred in a relationship between Accusative and ECM, where checking of accusative Case is involved, and between Progressive Negative and Perfective Negative, where checking of tense and agreement in the auxiliaries *be* and *have* are involved. When some or all of the three conditions are lacking, we did not find clustering. Evidence for the non-clustering pattern was shown in the lack of correlations between Nominative and Accusative, and Nominative and ECM, where checking of nominative and accusative takes place at different domains and interface levels. We also found non-clustering in the preverbal adverb and *do*-support structures, disconfirming our prediction. This finding suggests that a presumed link from association of weak Agr does not occur, nor does the type of triggering experience assumed from non-movement of main verbs seem to be operative. Instead. the lack of correlations in the preverbal adverb and *do*-support structures confirms our generalization about conditions for clustering, since in these two structures, tense and agreement features are checked in different items, i.e. the main verb and the dummy-*do*, and at different interface levels, i.e. LF and PF.

In terms of difficulty, we predicted that L1 background, input frequency and sentence complexity would create relative difficulty on the learning of various structures. We found that both L1 background and input play significant roles in facilitating the learning of a structure, as evidenced by ease of performance on Progressive Negative and difficulty on Perfective Negative. When only input is

available, the high frequency structure is easier and acquired earlier than the infrequent one. This is the case we found in the pairs of Nominative and Accusative, and Nominative and ECM, in which Nominative was easier than Accusative and ECM. When only complexity in surface forms can be determined, L2 learners learn sentence structures as a totally new aspect, as evidenced in the pairs of Accusative and ECM, and Preverbal Adverb and Do-support. Thus, commonality in L1/L2 background and frequency of input play a more significant and interactive role than relative complexity in surface forms in the learning of structures of the L2.

To complete the picture of L2 development, we classified types of subjects' responses from the Elicited Production task into use of default, L1 transfer, and marking of tense and agreement. Use of 'default' -- forms commonly used by the Thai learners -- was evident in the occurrence of nominative objects and omission of auxiliaries. L1 transfer appeared in misplacement of the preverbal adverb *always* in sentence final position. We found a decline in use of default and L1 transfer and an increase in use of target-like forms (e.g. accusative objects, supply of *is* in Progressive Negative and some form of *do* in *do*-support and Perfective Negative contexts, and correct placement of the preverbal adverb *always*) across proficiency levels, suggesting both default usage and L1 transfer as short-term strategies. As for supply of tense and agreement, specifically third person -s, we found that it was performed most accurately in *be*, and there is a tendency for progress in *do*, while it was missing in main verbs, consistent with those found in Zobl and Liceras (1994) and White (1992). We suggest that the contrasting pattern of the supply of tense and agreement

marking on auxiliaries and the lack of them on main verbs may parallel the raising and non-raising of these two verb types before Spell-Out. As for the lack of third person agreement marking in main verbs per se, it could in part be attributed to differences in L1/L2 phonology.

The last issue we address concerns methodology in L2 research. We suggest the use of both Grammaticality Judgment and Elicited Production to evaluate learners' performance on a given structure, particularly for low proficiency learners since using only one task may cause incomplete results or misinterpretation of data.

We hope to have shown that there is systematicity in interlanguage development both in the knowledge part and in the part of effects which create different learning patterns of grammatical structures. We also provide methodological suggestions to refinement in L2 research, which include distinguishing knowledge from difficulty as well as the needs for multiple tasks to closely evaluate L2 learners' competence.

Appendix A: Grammaticality Judgment Test Sentences (Form A)

Instructions: You will see pairs of English sentences. For each pair of sentences, there are four choices. Choose choice a) if you think only sentence A is right, choice b) if you think only sentence B is right, choice c) if you think both sentences A and B are right, and choice d) if you think both sentences A and B are wrong. Please mark only one answer --a), b), c) or d) on your answer sheet. You will have about 15 seconds to decide. Please do not go back to make changes on the items you have chosen. Let's practice the following pairs of sentences.

Practice Sentences:

I. a) Mary believes that will go to the market.
   b) Mary believes that Bill will go to the market.
      a) Only A is right.
      b) Only B is right.
      c) Both A and B are right.
      d) Both A and B are wrong.

II. a) Ann thinks that Jim can speak many languages.
   b) Ann thinks that can speak many languages.
      a) Only A is right.
      b) Only B is right.
      c) Both A and B are right.
      d) Both A and B are wrong.

Now look at the following pairs of sentences and choose the correct answer for each pair.

1. a) The teacher believes that the students will like he.
   b) The teacher believes that the students will like him.

2. a) The cook thinks that he can open a food shop.
   b) The cook thinks that him can open a food shop.

3. a) The waiter thinks that the customers will thank him.
   b) The waiter thinks that the customers will thank he.

4. a) The workers believe that them can get higher pay.
   b) The workers believe that they can get higher pay.

5. a) Jane loves her son. She wants he to go to college.
   b) Jane loves her son. She wants him to go to college.

6. a) The nurses think that the doctor will like them.
   b) The nurses think that the doctor will like they.

7. a) Steve likes his neighbors. He wants them to be happy.
   b) Steve likes his neighbors. He wants they to be happy.

8. a) The boy believes that him will enjoy the science class.
   b) The boy believes that he will enjoy the science class.

9. a) The man hopes that he will get a new computer.
   b) The man hopes that him will get a new computer.

10. a) The children believe that their grandfather will love they.
    b) The children believe that their grandfather will love them.

11. a) The soldiers hope that them can talk with their parents.
    b) The soldiers hope that they can talk with their parents.

12. a) Nancy likes Ben. She wants he to find a better job.
    b) Nancy likes Ben. She wants him to find a better job.

13. a) The young man hopes that the people will admire him.
    b) The young man hopes that the people will admire he.

14. a) The students think that they can finish the homework.
    b) The students think that them can finish the homework.

15. a) Peter loves his children. He wants they to be strong.
    b) Peter loves his children. He wants them to be strong.

16. a) The workers hope that the policeman will protect they.
    b) The workers hope that the policeman will protect them.

17. a) The woman is not falling into the water.
    b) The woman not is falling into the water.

18. a) The man speaks always to his parents on the phone.
    b)The man always speaks to his parents on the phone.

19. a) The sunlight not falls onto the kitchen.
    b) The sunlight does not fall onto the kitchen.

20. a) The woman always takes her son to the market
    b)The woman takes always her son to the market.

21. a) The man has not taken his son to the doctor.
    b) The man not has taken his son to the doctor.

22. a) The woman not speaks German with her mother.
    b) The woman does not speak German with her mother.

23. a) The daughter is not taking her lunch to school.
    b) The daughter not is taking her lunch to school.

24. a) The man not has spoken to his wife since last week.
    b) The man has not spoken to his wife since last week.

25. a) The house key falls always out of my pocket.
    b) The house key always falls out of my pocket.

26. a) The student is speaking not to his new teacher.
    b) The student not is speaking to his new teacher.

27. a) The man does not take his son to school anymore.
    b) The man not takes his son to school anymore.

28. a) The ball not has fallen into the basket yet.
    b) The ball has not fallen into the basket yet.

29. a) The mother gives always money to the poor.
    b) The mother always gives money to the poor.

30. a) The man is not breaking the floor with the hammer.
    b) The man not is breaking the floor with the hammer.

31. a) My brother has not driven to the new theater.
    b) My brother not has driven to the new theater.

32. a) The father breaks always the pictures in his house.
    b) The father always breaks the pictures in his house.

33. a) My sister not drives on the highway at night.
    b) My sister does not drive on the highway at night.

34. a) The girl not is giving a doll to her sister.
    b) The girl is not giving a doll to her sister.

35. a) The son does not break his toy cars anymore.
    b) The son not breaks his toy cars anymore.

36. a) The father is not driving to the football field.
    b) The father not is driving to the football field.

37. a) The boy not gives any money to his friend.
    b) The boy does not give any money to his friend.

38. a) The waiter not has broken the glasses on the tray.
    b) The waiter has not broken the glasses on the tray.

39. a) The teacher always drives to the park on Sunday.
    b) The teacher drives always to the park on Sunday.

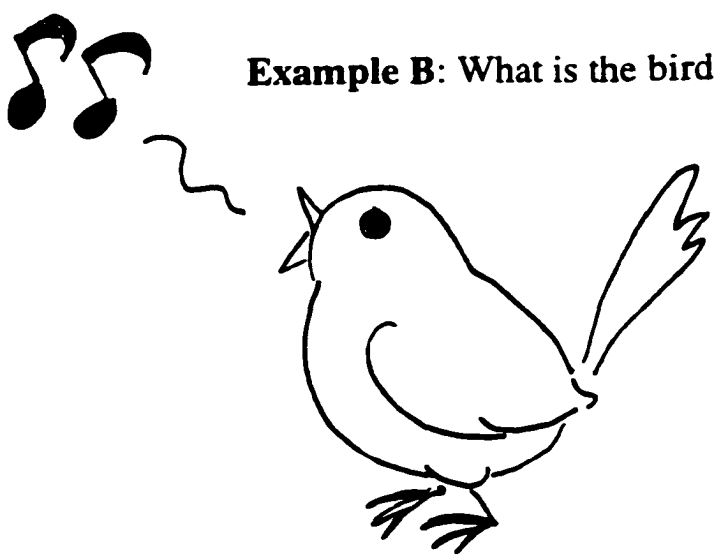
40. a) The father has not given the shirt to his son.
    b) The father not has given the shirt to his son.

Appendix B: Elicited Production Test Stimuli

Instructions: I will ask you a number of questions. Please answer my questions with complete sentences. Let's practice the following examples.

Example A: What is the moon doing?

It is travelling around the Earth.



Example B: What is the bird doing?

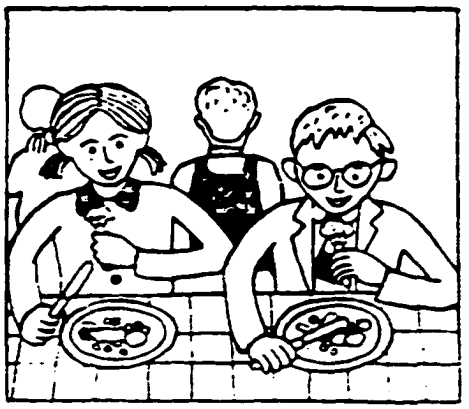
It is singing.

What is the boy doing?

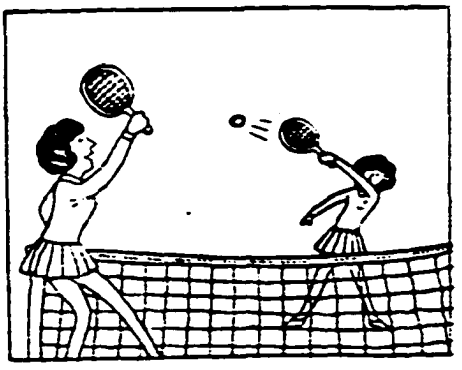
What is the boy doing?

What is the man doing?

What are the girls doing?

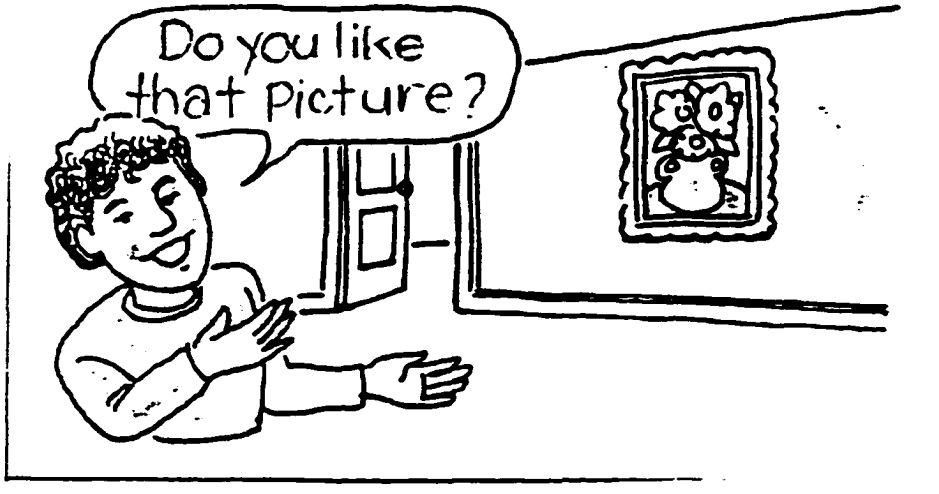


What are the girl and the boy doing?



What are these women doing?

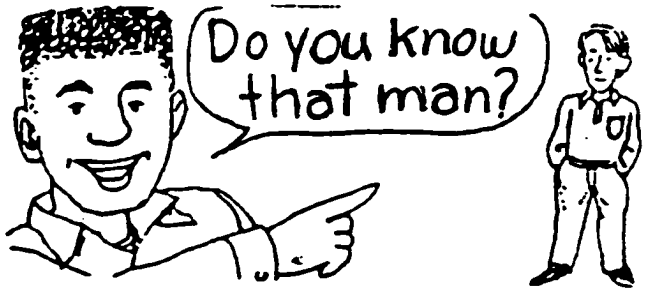
Example A:

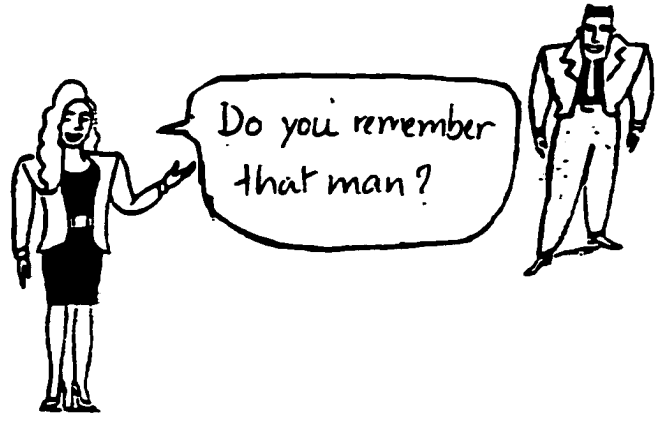


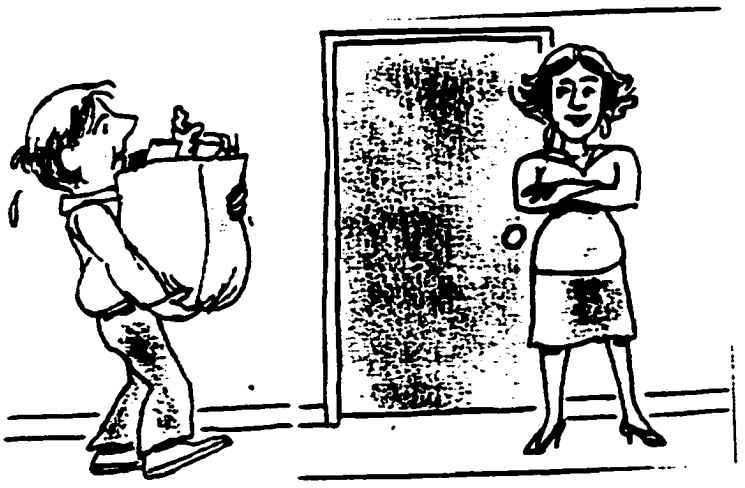
Yes, I like it.
No, I don't like it.

Example B: Do you remember this hat?

Yes, I remember it.
No, I don't remember it.

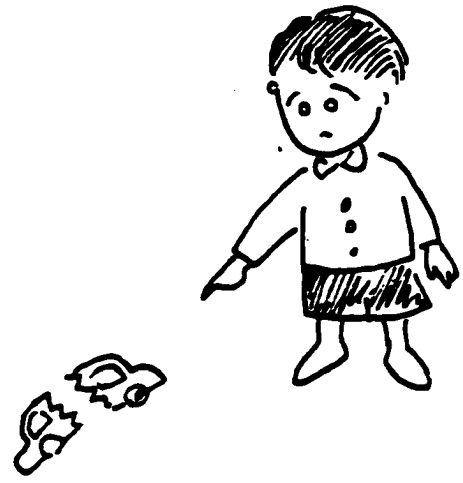




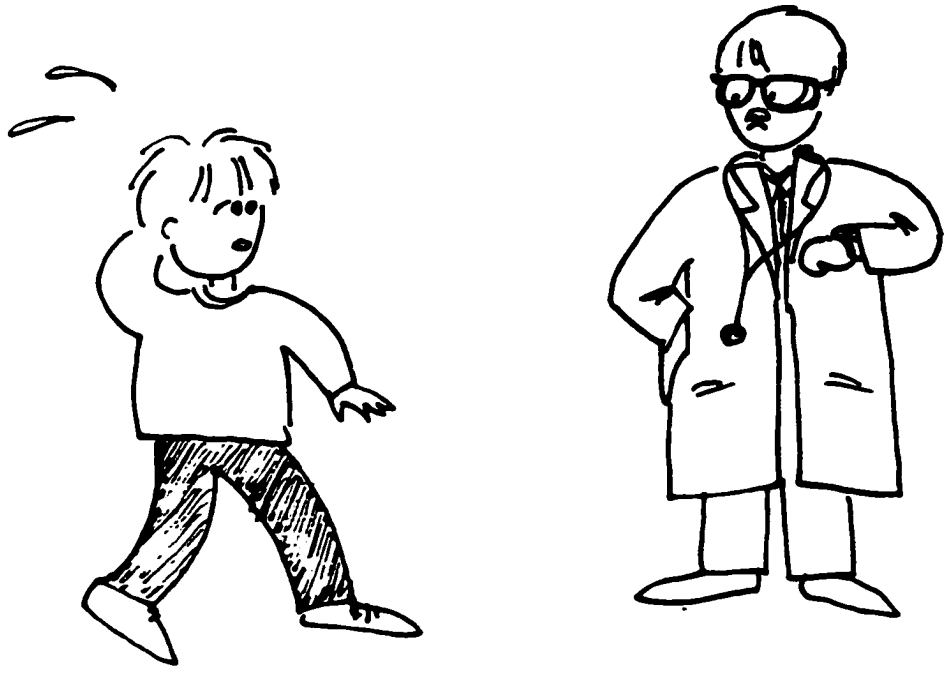


Will the woman help the man?

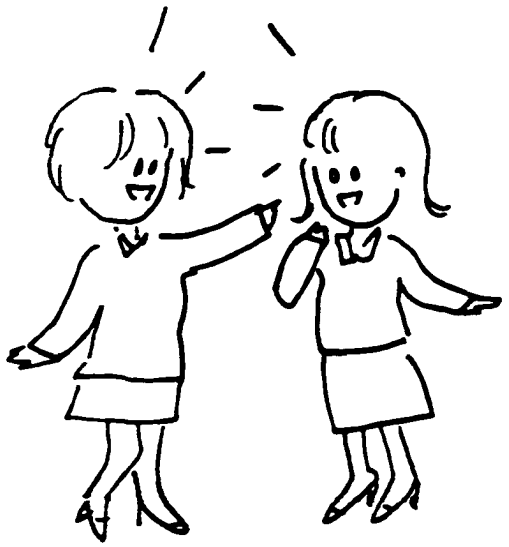
Will the woman eat these cookies?



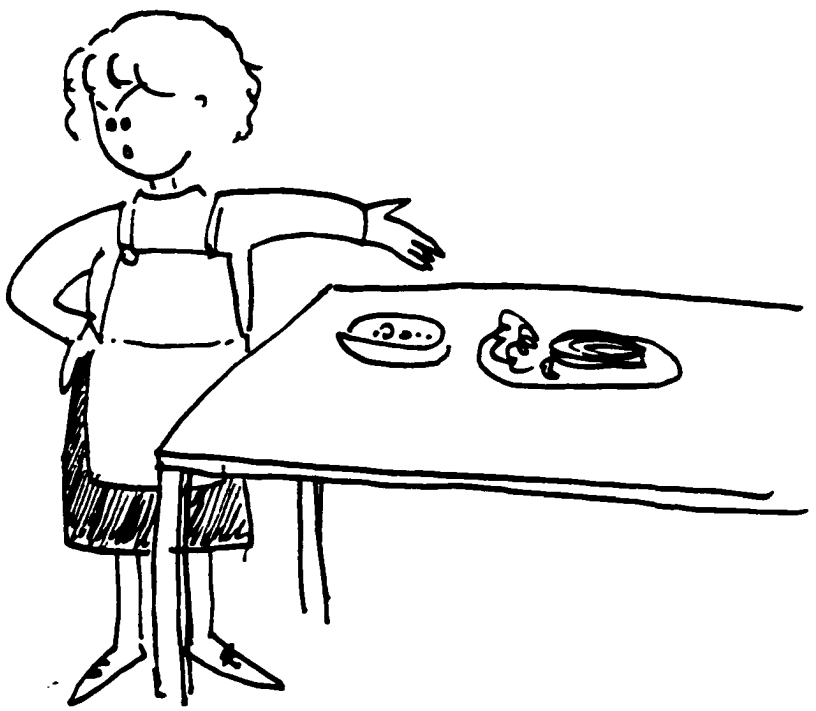
Example A: The toy is broken. The boy is upset; he wants it to be fixed.



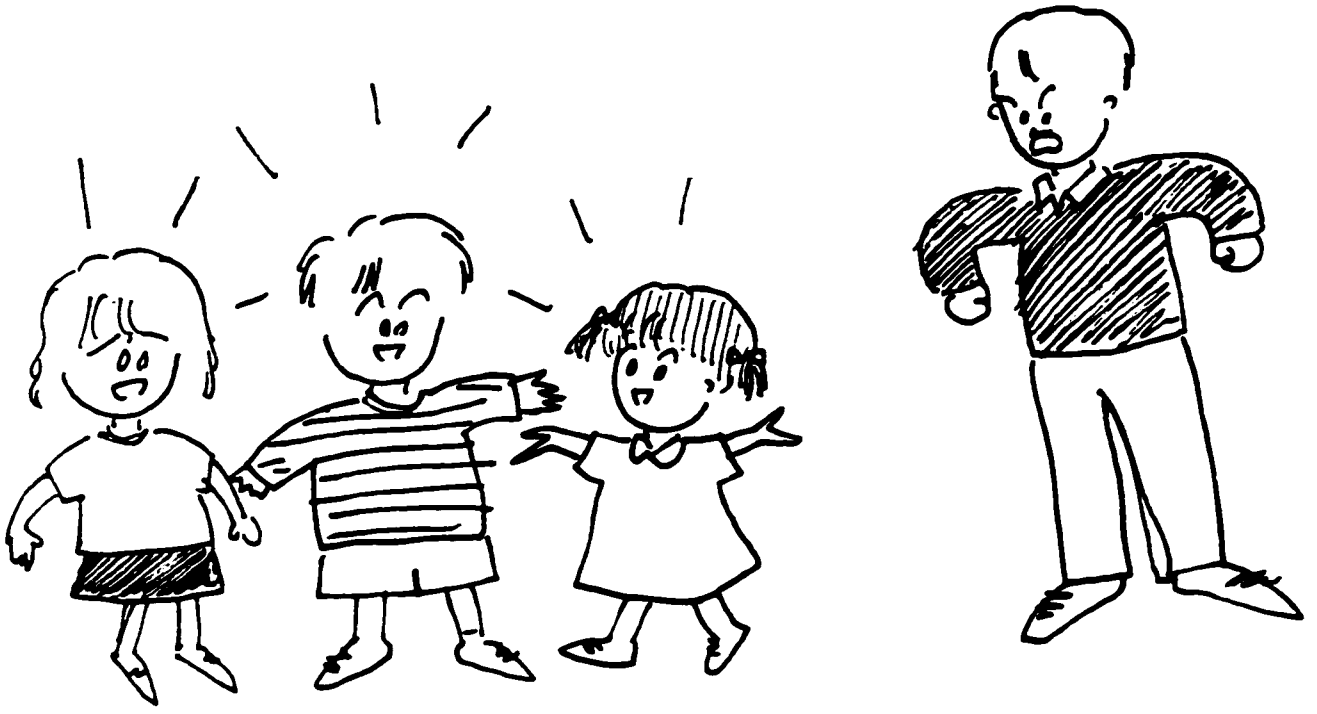
The man is late for his appointment. The doctor is angry;
he wants _____ on time.



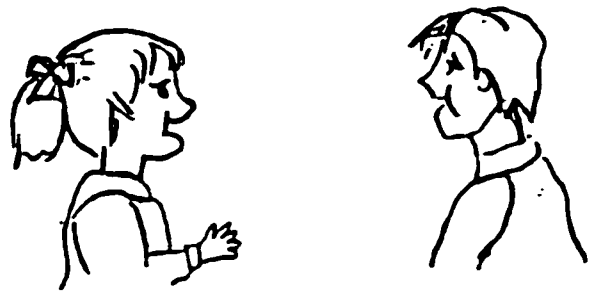
The secretaries are talking with each other.
The boss is angry; he wants _____ work.



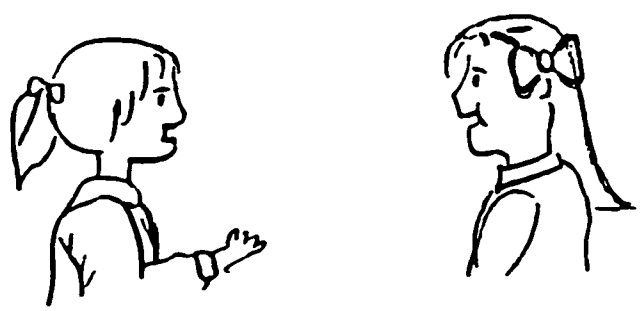
The boy is eating a snack. The mother is angry; she wants _____ supper first.



The children are noisy. Their father is upset; he wants _____ quiet.



a) The girl is speaking to the boy.

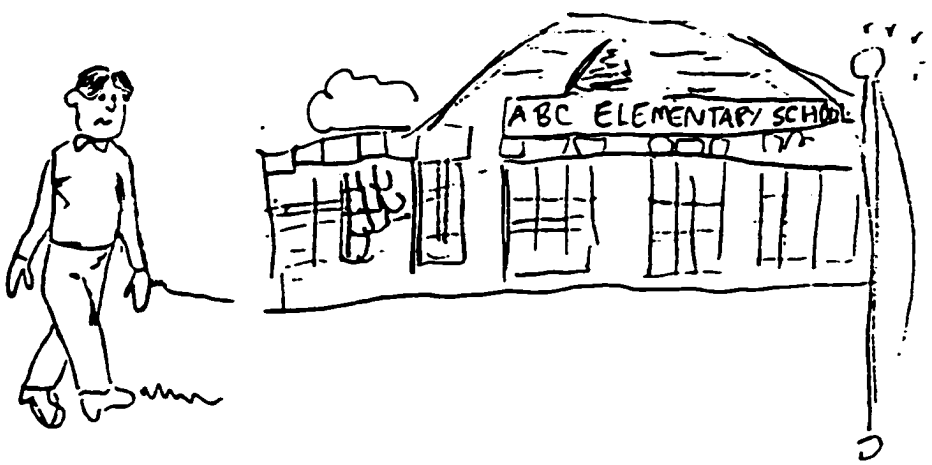


b) Is the girl speaking to the boy?

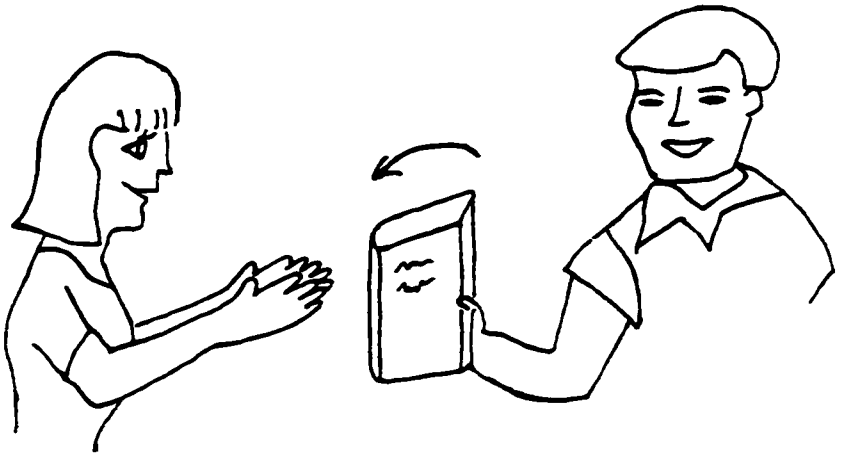
a) The woman is driving.

b) Is the woman driving?

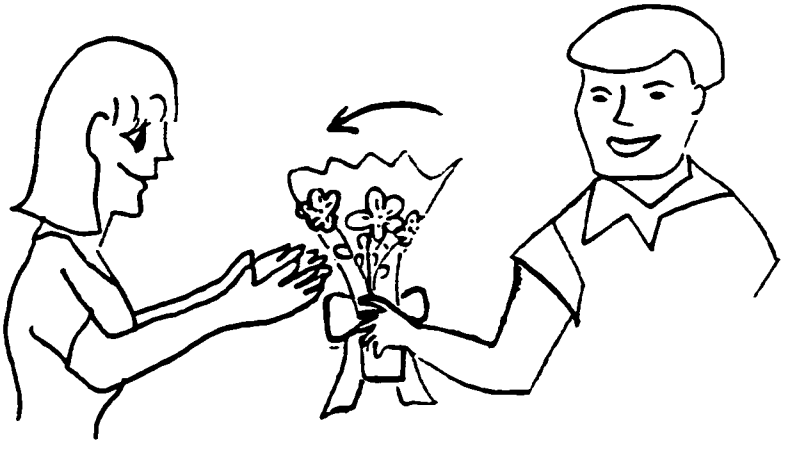
The man is taking his son to school.



Is the man taking his son to school?



a) The man is giving a book to the woman.

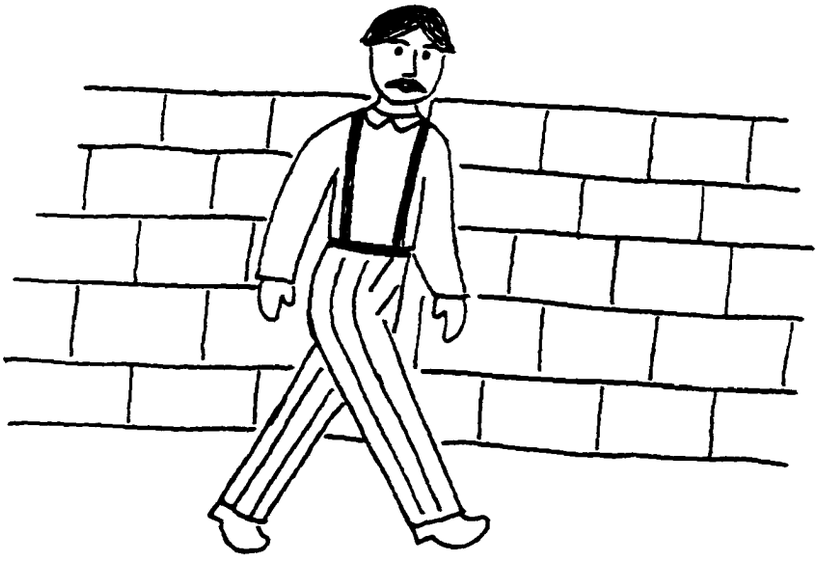


b) Is the man giving a book to the woman?

a) The girl is falling off the ladder.

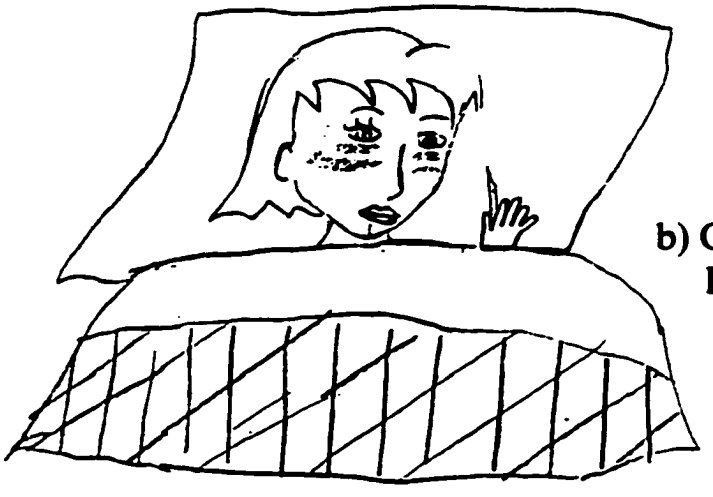
b) Is the girl falling off the ladder?

a) The man is breaking the wall.

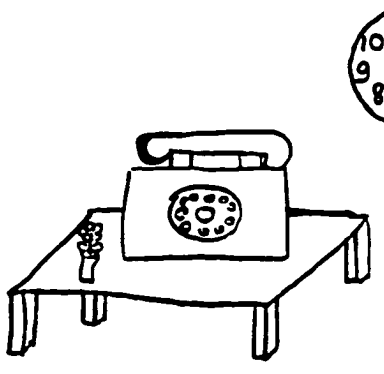


b) Is the man breaking the wall?

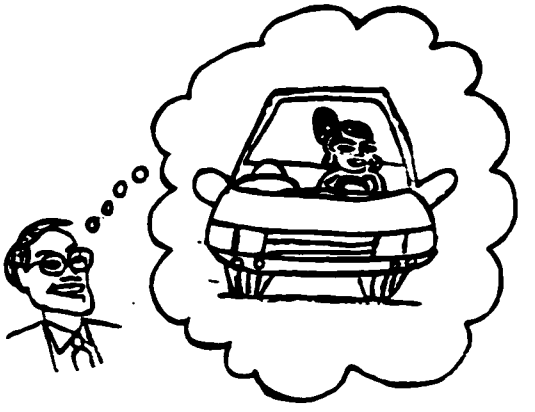
a) Ann speaks to Bill on the phone every day at 4 o'clock in the afternoon.



b) One day she got a very bad cold and had to stay in bed.

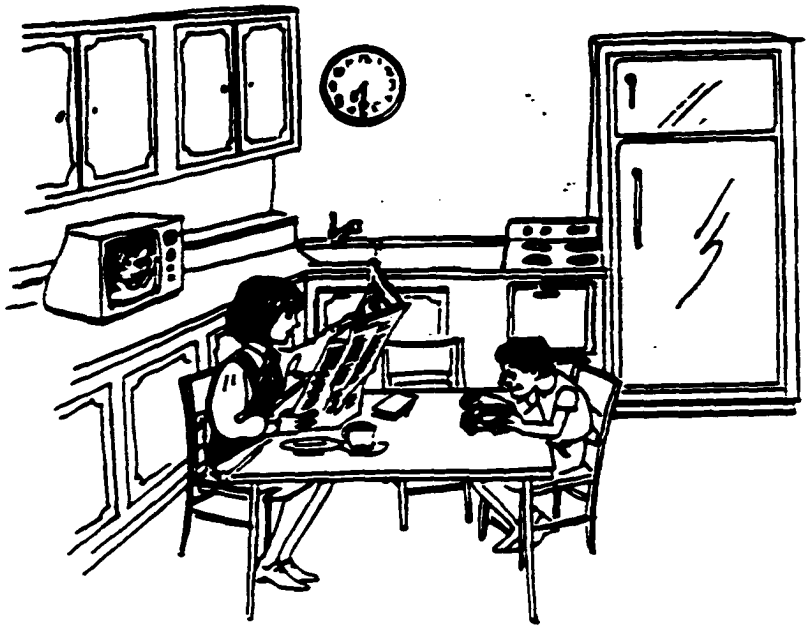


c) Now it is 5 o'clock but Ann _____ to Bill yet.

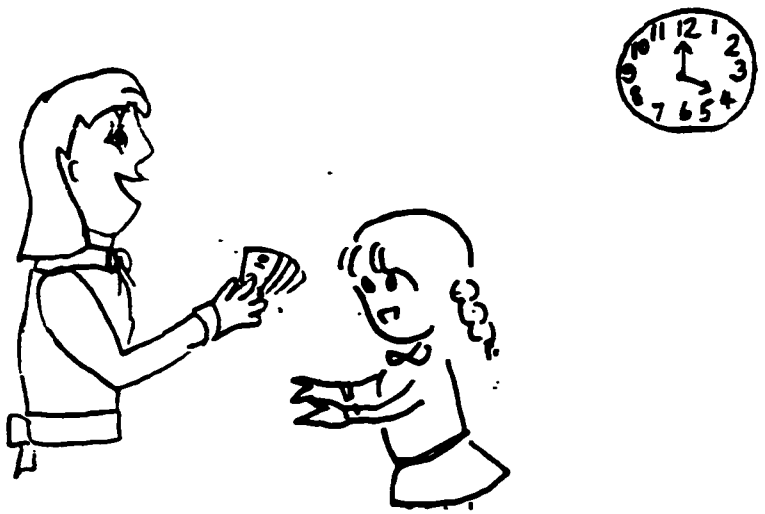


Tom bought a new car for his wife, Linda.
He hopes that she will drive it to go shopping.

Two weeks later, the car is in the garage. It is still brand-new and not used. So Linda _____ it yet.

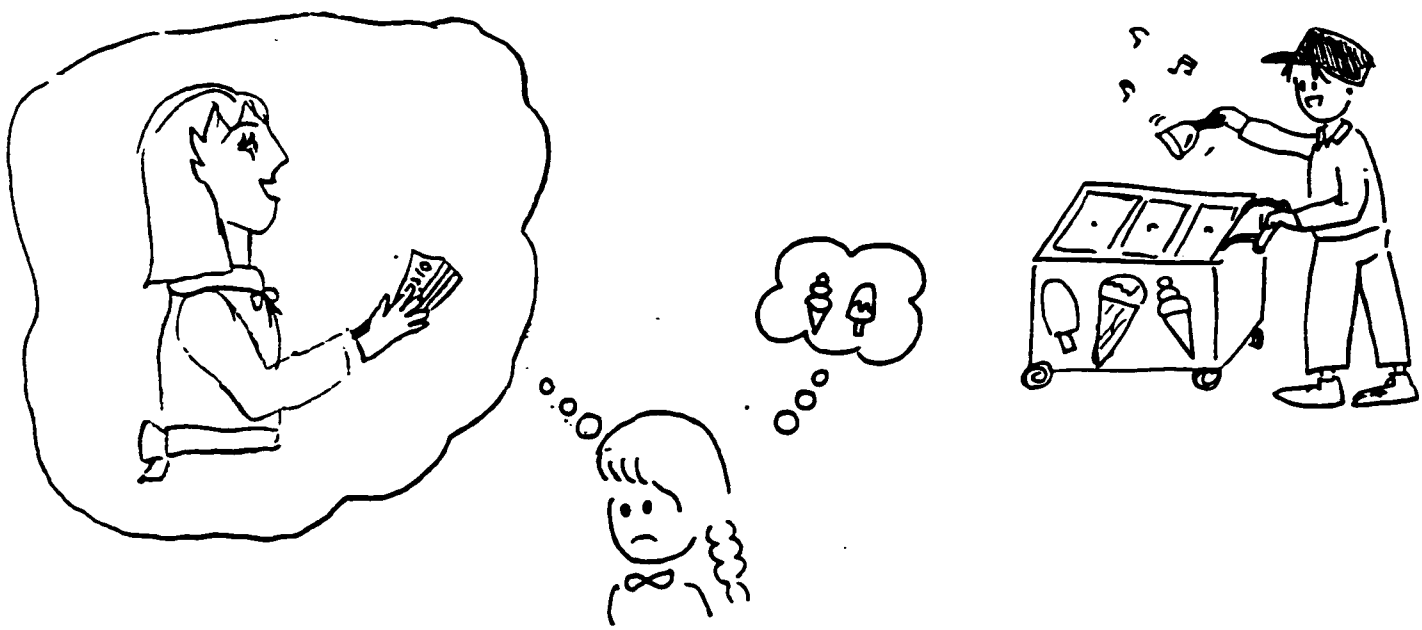


The woman is going to take her son to school at 7.45 a.m.
Right now it is 7.30 and she is reading a newspaper.
So she _____ her son to school yet.

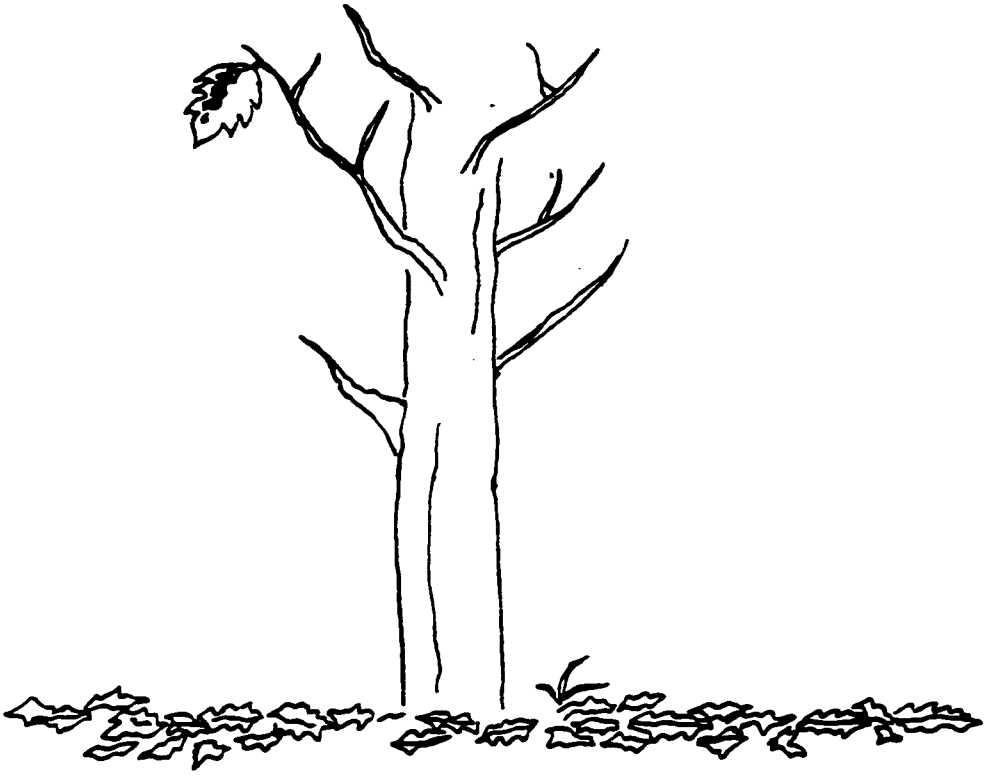


The mother gives some money to Susan to buy icecream every day at 4 o'clock in the afternoon.

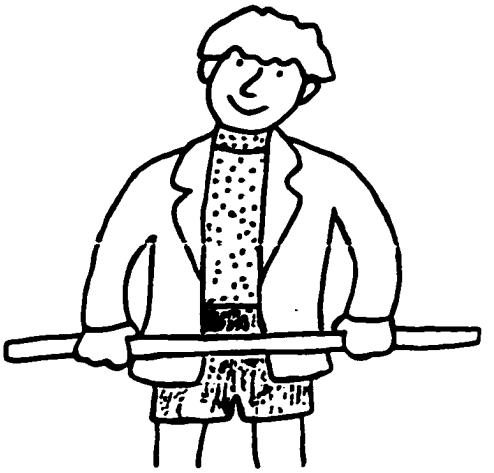
It is 4 o'clock now. The mother is speaking to her friend. She started talking to her friend at 3 o'clock.



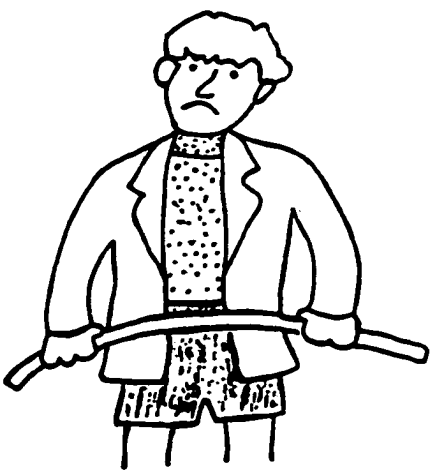
The icecream man came but the mother _____ the money to Susan yet.



It is late fall. The leaves are all over the ground except this very last leaf. It is about to fall but it _____ from the tree yet.



Steve is holding the stick with both hands.



Now he is about to break the stick but he _____ it yet.

Steve broke the stick.

Questions/Answers

Adverb+Verb

Answer my questions by using an adverb which I will tell you after each question. (always,never,sometimes,often)

1. Does the woman take her son to school?

2. Does the man drive to the park?

3. Does the teacher give a lesson to the class?

4. Does the man speak English with his wife?

5. Does the light fall onto your room?

6. Does the man break the windows?

Do+Neg

Give me a negative form of the following sentences.

1. My father takes me to the doctor.

2. My mother gives money to me every week.

3. My brother drives carefully at night.

4. The boy speaks English well.

5. My hair falls out a lot.

6. The woman breaks a lot of eggs.

Appendix C

Table 7 b: Distribution of Errors by Subtypes in Have+Neg across Proficiency Levels

Error Type		English Proficiency Level			
		Level 1 N = 11	Level 2 N = 30	Level 3 N = 16	Total N = 57
Aux Drop	no(t) +V	30	36	5	71
Subtype	no(t) +V-ing	7	6	1	14
	not +V-ed or en		2		2
	no(t) + to+V		3		3
	Subtotal	37	47	6	90
Do+Neg	don't+V	9	48	23	80
Subtype	doesn't+V	5	16	24	45
	didn't+V			4	4
	don't+V-ing		5		5
	doesn't+V-ing or en		1	3	4
	Subtotal	14	70	54	138
Be+Neg	isn't+V	13	32	12	57
Subtype	isn't+V-ing	1	10	9	20
	isn't+V-ed or-en		2		2
	Subtotal	14	44	21	79
Modal+Neg	will/won't		3	6	9
Subtype	can't			2	2
	Subtotal		3	8	11
Have+Neg	has+not+V		1		1
Subtype	have+not+V-en			6	6
	Subtotal		1	6	7
Word Order	V+not		4		4
Subtype	aux+modal		1		1
	Subtotal		5		5
Total		65	170	95	330

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