

## **Verb second and verbal subclasses in L2 German**

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### **1 Introduction**

Much recent generative work on the second language acquisition (L2A) of syntax has focused on the implications of morphological acquisition and associated morphological feature strength (Pollock 1989; Chomsky 1995) on the acquisition of head movement, and in particular verb placement (Eubank 1996; Schwartz and Sprouse 1996, 2000; Vainikka and Young-Scholten 1996, 1998; Lardiere 2000; Parodi 2000; Prévost and White 2000; Herschensohn 2001; White 2003). When analyzing the development of L2 morphological feature strength and its effects on verb raising, several scholars have noted an empirical distinction in syntactic distribution between thematic (lexical) and nonthematic (auxiliary, or “light”) verbs (Vainikka and Young-Scholten 1996; Eubank 1996; Parodi 2000). Regardless of the verb raising parameter of the learner’s native language (L1) or second language (L2), early L2 learners seem to obligatorily produce finite nonthematic verbs in raised positions (i.e., to the left of VP-adjoined adverbs and sentential negation) (Vainikka and Young-Scholten 1996; Eubank 1996; Parodi 2000), while producing thematic verbs either optionally raised (Eubank 1996; Prévost and White 2000) or obligatorily in-situ (Vainikka and Young-Scholten 1996; Hawkins 2001). Interpretations of this phenomenon range from positing nonthematic verbs, such as modals, copular verbs, and aspectual auxiliaries, as triggers for projection of functional phrases (Vainikka and Young-Scholten 1996; Hawkins 2001) to representing nonthematic verbs as the spell-out of the syntactic features tense and agreement (Parodi 2000). What is clear in these cases, however, is that finite nonthematic verbs are raising

to (or being base-generated in) a functional head dominating VP, presumably  $T^0$ , while thematic verbs do not seem to be subject to this obligatory raising. Thus, while there remains debate over why this happens, it is clear that nonthematic verbs are more likely to appear in functional head positions than their thematic counterparts in the early stages of second language acquisition.

However, the empirical evidence in the studies cited above only motivates a thematic/nonthematic disjunction in raising when raising is taken to be raising to  $T^0$  (i.e., to the left of VP-adjoined adverbs and sentential negation (Pollock 1989)). Certain languages, such as German, show a pattern where the finite verb in matrix clauses obligatorily surfaces in second position, the so-called V2 phenomenon. In these cases the finite verb is said to raise past  $T^0$ , to  $C^0$  (Schwartz and Vikner 1996; Rohrbacher 1999). So the question remains, does the thematic/nonthematic raising disjunction persist when verbs have unambiguously raised to  $C^0$ ? Since following Pollock (1989), raising to  $T^0$  is empirically motivated by the appearance of a verb to the left of adverbs and negation, to test raising to  $C^0$ , one must capitalize on a feature particular to V2 structure—the appearance of nonargumental material, such as temporal or locative adverbs, in sentence initial position followed immediately by the finite verb, with the subject falling in third position (so-called subject-verb inversion). Thus, the focus of this study is precisely that phenomenon: will L2 learners of a V2 language (German), coming from a nonraising L1 (English), make a distinction between thematic and nonthematic verbs in unambiguous V2 strings, allowing raising of nonthematic verbs to  $C^0$  to take place sooner than raising of thematic verbs? The following study presents arguments that when raising to  $C^0$  is implicated, learners do not distinguish between thematic and nonthematic verbs. Rather,

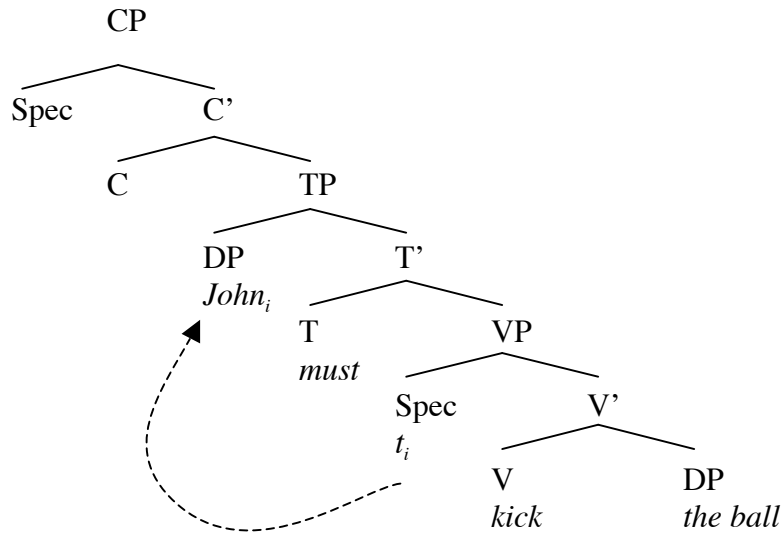
an analysis will be presented which suggests that regardless of the head parameter of the learner's L1 for VP and TP, early L2 learners posit a head-initial TP which hosts base generation of nonthematic verbs; raising to C<sup>0</sup> then follows as a strictly formal syntactic V-feature associated with a spec-head criterion (i.e., not one associated with overt morphology, as is the case for T<sup>0</sup>) is acquired in that functional head. In presenting these arguments, the paper is organized as follows: section two will present theoretical background of English and German clause, followed by a discussion of the distinction learners make between thematic and nonthematic verbs. Section three will present data collected in the current study and discuss their implications for analyses of head movement in L2A.

## **2 Theoretical Background**

The following section will explain the theories assumed in this study regarding the native phrase structures of the languages involved and how current generative L2A theory has addressed the thematic/nonthematic verb distinction.

### ***2.1 Elements of native English and German Syntax***

In this study I adopt a framework of generative grammar (Chomsky 1981, 1995) and will assume English to have the basic clause structure in Figure 1:



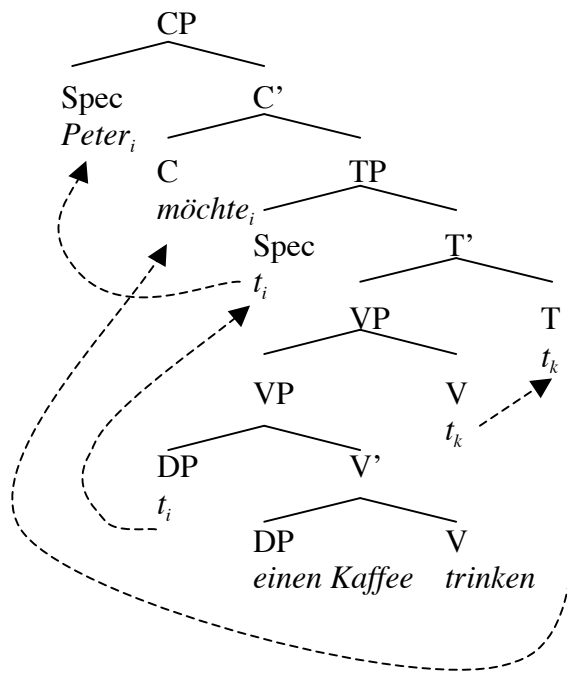
**Figure 1 Native English clause structure**

I will assume that the functional category CP dominates the functional category TP, which in turn dominates the lexical category VP.<sup>1</sup> Furthermore, I assume the VP-internal subject hypothesis, where the subject DP originates in the thematic Spec-VP position and subsequently raises to Spec-TP in order to satisfy an <EPP> feature on T<sup>0</sup>, as well as satisfy agreement and case requirements. Following Haegeman (1994), I assume that English lexical verbs and aspectual auxiliaries are generated within VP, but only finite auxiliaries may raise to T<sup>0</sup> overtly. Chomsky (1995) motivates this asymmetry with regard to raising by postulating that English has <weak> features in T<sup>0</sup>, causing lexical verbs to remain in-situ until after Spell-Out. Aspectual auxiliaries, on the other hand, must raise overtly (prior to Spell-Out), since he claims that being void of semantic features, auxiliaries are invisible to LF rules and therefore will cause the derivation to crash if not raised overtly (since LF rules cannot raise invisible elements). Modal verbs

<sup>1</sup> The current discussion ignores the internal structure of the VP discussed in Chomsky 1995 and related work in which VP is the projection of the lexical verb and its internal argument, while vP checks the accusative case of the internal argument and subcategorizes an external agent argument. Furthermore, ‘traces’ will be used for notational convenience to represent phonetically empty ‘moved’ elements under the copy theory of movement.

form a slightly different class of verbs in English, as Haegeman (1988, 1994) argues that they are generated in  $T^0$  and are inherently finite. She bases this claim on their complete lack of an agreement paradigm (*\*he cans*), their lack of an infinitival form (*\*to can*), and the fact that they cannot co-occur with *do*-support (*\*He does can go*), which is also thought to be generated directly in  $T^0$ . Thus, in English modals and finite aspectual auxiliaries will always appear in  $T^0$ , while all lexical verbs and nonfinite auxiliaries will remain in VP until after Spell-Out.

The basic clause of German patterns somewhat differently from that of English, and has the assumed structure in Figure 2:



*Peter möchte einen Kaffee trinken*  
 Peter would like to a coffee drink  
 "Peter would like to drink a cup of coffee."

**Figure 2 Native German clause structure**

As shown above, German is generally thought to have a head-final TP and VP<sup>2</sup>, which accounts for the OV order in finite subordinate clauses and the fact that unraised, nonfinite verbs appear after objects in all clauses. Additionally, finite verbs in matrix clauses uniformly appear in second position, conforming to the so-called “Verb Second” parameter (V2) seen in declarative matrix clauses in many Germanic languages.

Traditional accounts of the V2 phenomenon postulate C<sup>0</sup>, the usual position of the complementizer, as the landing site for the finite verb in declarative matrix clauses; an additional XP moves to Spec-CP, thus leaving the finite verb always in second position in matrix clauses. This fronted XP is often the subject DP, but other fronted elements can include other argumental DPs, adverbials, prepositional phrases, and full clauses (CP); however, the finite verb is invariably in second position. Despite some arguments claiming that V2 may occur either uniformly within TP or involve CP only under subject-verb inversion, there is robust evidence for the “V2 outside IP” analysis and the reader is directed to Vikner (1995) and Schwartz and Vikner (1996) for empirical and conceptual evidence. Since in Chomsky’s (1995) minimalist framework head movement must be driven by <strong> features in the attracting head, I will assume German to have <strong> V-features in C<sup>0</sup>. However, since this feature is not dependent upon tense or agreement checking (as features in T<sup>0</sup> may be), I will also follow Santelmann (1999) in assuming that this V-feature may be part of a spec-head criterion in the CP projection in V2 languages (an Affect criterion along the lines of Rizzi’s (1996) WH-criterion and Haegeman’s (1995) Neg-criterion). While this criterion requires overt verb movement in

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<sup>2</sup> See Rohrbacher (1999) and Zwart (1993) for arguments supporting the possibility of a head-initial TP in German.

English WH-questions and negative topicalization constructions, it is active in all clause types in German.

The categorial status of modals and the process of verb raising is somewhat different in German versus English. As noted above, the landing site for all finite verbs in German matrix clauses is  $C^0$ . There is also reason to believe that all subclasses of verb in German, including modals, may originate in VP (as shown in Figure 2), with overt raising of the finite verb to  $T^0$  and finally to  $C^0$  to check <strong> inflectional features in the head of TP and an additional feature in C. Evidence for VP-generation of all German verbs comes from inflectional patterns.<sup>3</sup> German modals do not constitute a distinct morphological class, as they do in English: German modals inflect the same way as the simple past form of lexical verbs:

(1)

	<i>möchten</i> ‘would like to’		<i>machten</i> ‘made’	
	sg.	pl.	sg.	pl.
<i>1<sup>st</sup></i>	<i>möchte</i>	<i>möchten</i>	<i>machte</i>	<i>machten</i>
<i>2<sup>nd</sup></i>	<i>möchtest</i>	<i>möchtet</i>	<i>machtest</i>	<i>machtet</i>
<i>3<sup>rd</sup></i>	<i>möchte</i>	<i>möchten</i>	<i>machte</i>	<i>machten</i>

German modals can also appear with nonfinite morphology embedded under a finite auxiliary:

(2)

...., *daß er hat das kaufen müssen*<sup>4</sup>  
 that he has it buy-INF must-INF  
 “... that he had to buy it”

<sup>3</sup> This argumentation follows Haegeman (1988) where she establishes base-generation within VP for Dutch modals.

<sup>4</sup> The non-final placement of the finite verb in this instance is due to what is sometimes called the “Oberfeld” effect in traditional German grammar. In cases where a subordinate clause contains two nonfinite verbs in addition to a finite auxiliary, the embedded clause shows main clause-type syntax. This phenomenon, however, is irrelevant to the current discussion of V2 in nonnative German.

Additionally, German modals can appear in infinitive constructions:

(3)

... *um*            *das* *machen zu können*  
    COMP    that do-INF to can-INF  
    “... in order to be able to do that”

Thus, it seems clear that German modals cannot be inherently finite, as their English counterparts are, and are formally generated within VP along with auxiliary and lexical verbs. The highest verb within VP, regardless of subtype, then undergoes raising to C<sup>0</sup> (via T<sup>0</sup>).

## ***2.2 L2 Theory and the thematic/nonthematic distinction***

Having seen that UG allows different subtypes of verbs to show different syntactic characteristics in native language systems, a logical next question might be to ask how different subtypes may pattern in interlanguage (IL) systems, especially since evidence arguing for “full access” to UG in L2A has shown that IL grammars may show properties of neither the L1 nor the L2, but which nonetheless conform to UG-provided options (Schwartz and Sprouse 1996, 2000). In fact, recent work looking at the distribution within TP of thematic and nonthematic verbs in IL syntax has been argued to show evidence of steady-state UG principles, functioning independently of language specific choices, in the L2 acquisition of verb movement. The empirical grounding for this observation comes from Parodi (2000), which examines a corpus of Italian and Spanish L1 speakers learning L2 German. Parodi’s analysis assumes that Romance and German verbs show similar properties, namely that nonthematics constitute neither a special morphological nor syntactic class in either language group and that all verbs undergo raising (to C<sup>0</sup> in German and to T<sup>0</sup> in Romance). However, when analyzing the



Romance-German IL, Parodi notes that the IL systems of her speakers nonetheless treat thematic and nonthematic verbs differently. For example, the learners in Parodi's corpus showed nearly perfect accuracy for finite morphology on nonthematic verbs from the first data collection, while thematic verbs showed significantly lower rates of agreement at the start, but with increasing target-like accuracy as time progressed:

**Table 1 Subject-verb agreement (Parodi 2000, p. 370)**

Learner/Session	Nonthematic verbs		Thematic verbs	
G/I	14/14	(100%)	20/79	(25%)
G/II	12/12	(100%)	33/77	(43%)
G/III	47/47	(100%)	24/38	(63%)
J/I	49/49	(100%)	2/12	(17%)
J/II	243/245	(99%)	58/85	(68%)
J/III	41/44	(93%)	23/27	(85%)
B/I	198/200	(99%)	42/103	(41%)
B/II	403/431	(93%)	151/179	(84%)
B/III	57/57	(100%)	23/23	(100%)

Syntactically, Parodi shows that the learners also showed different distributions of verbs with respect to negation. That is, when taking appearance to the left of negation to represent raising, nonthematic verbs appeared in raised positions from the start of data collection, whereas thematic verbs showed no raising (or perhaps optionality of placement) when they showed no finite morphology (cf. Eubank 1996), but appeared raised quite consistently when they did show finite morphology:

**Table 2 Position of the negator with respect to the verb (adapted from Parodi 2000, p. 374)**

Subject/ Session	-agr				+agr			
	nonthematic		thematic		nonthematic		thematic	
	negV	Vneg	negV	Vneg	negV	Vneg	negV	Vneg
G/I	-	-	9	2	-	-	1	2
G/II	-	-	1	-	-	-	2	-
G/III	-	-	2	-	1	1	-	2
J/I	-	-	-	-	-	2	-	2
J/II	-	-	1	-	-	23	-	8
J/III	-	-	-	-	1	1	-	-
B/I	-	-	1	-	-	5	1	1
B/II	-	1	1	-	-	30	1	17
B/III	-	-	-	-	-	8	-	-
Total	0	1	15	2	2	70	5	32

As can be seen in Table 2, out of 73 clauses with nonthematic verbs and negation in the corpus analyzed, only two showed the nonthematic verb to the right of the negator (that is, 97% target-like placement for nonthematic verbs). The results for thematic verbs are more mixed, though there are clear tendencies: thematic verbs without agreement morphology appear overwhelmingly to the right of negation, while finite thematic verbs appear mostly to the left of negation. Still though, even when showing finite verb morphology, thematic verbs are still more likely to appear incorrectly to the right of negation (13.5% incorrect placement in the reported data) when compared to nonthematic verbs (2.8% incorrect placement). To explain these observations, Parodi argues that the two subclasses of verbs represent different types of knowledge for learners at an early stage in L2A: thematic verbs act as carriers of lexico-semantic information within VP while nonthematic verbs act as carriers of syntactic information and spell-out the category T. Thus, this differential distribution, while being a temporary stage in the acquisition process, reflects a UG option found neither in the L1 nor L2.

Though not dealing explicitly with the thematic/nonthematic distinction in verb raising, other recent studies have also noted that there seems to be a difference in how early L2 learners treat the two verb subclasses. For example, Eubank (1996) notes that in German-English IL data, the nonthematic copula *be* consistently surfaces to the left of sentential negation. Furthermore, he notes that although finite thematic verbs raise optionally, finite nonthematic verbs always appear in raised positions. Vainikka and Young-Scholten (1996) present data from L1 Romance, Korean, and Turkish speakers learning L2 German, which show similar distributional patterns for thematic and nonthematic verbs as Parodi's data. However, since they assume a weak-continuity "Minimal Trees" model of L2 acquisition, they take nonthematics as the triggers for projection of a head-initial functional phrase (FP) dominating VP. The commonality between these analyses is that they allow for the UG-provided option of base generation of modals and aspectual auxiliaries in a functional head to the left of VP and adopt Steele, et al's (1981) analysis of nonthematics as inherently AUX-related elements (or T-related in modern terminology).

Thus, based on the above-mentioned studies, there seems to be robust evidence for different syntactic patterning of thematic and nonthematic verbs in the development of IL grammars, even when the two subclasses of verb pattern identically in the native and target language grammars. However, these analyses only show this difference within the TP domain. For example, Vainikka and Young-Scholten explicitly state that they assume nonthematics to project a TP-level functional head. Parodi, on the other hand, makes no clear statement about the final landing site of raised verbs in her study, offering both  $T^0$  and  $C^0$  as proposed landing sites. She asserts that her subjects use nonthematic

verbs to spell out the category Tense, giving rise to their overwhelming pre-negation distribution (p. 377); however, she also states that post-verbal negation follows from her subjects' acquisition of the target syntax and raising of verbs to C<sup>0</sup> (p. 376).<sup>5</sup> It should also be noted here that following standard assumptions about negation as a diagnostic for verb raising, raising to the left of negation only empirically argues for raising within TP (Pollock 1989). Thus, in order to unambiguously establish raising to C<sup>0</sup>, one must capitalize on CP-related phenomena such as emergence of subject-verb inversion in V2 strings in declarative matrix clauses. The question of whether this syntactic distinction between thematic and nonthematic verbs remains when raising to the CP domain is implicated remains unanswered and is the focus of the study that follows.

### **3 The Study**

#### **3.1 Subjects, Tasks and Methods**

Classrooms of first year, second year, and third year German courses at the University of Washington were visited by the investigator, and the students were then asked to voluntarily participate in the study.<sup>6</sup> Those who chose to participate were given a survey form consisting of the two test paradigms: grammaticality judgments and sentence translation. Furthermore, as the focus of this study is the acquisition of grammatical structures, and not lexical items, the vocabulary used on the survey was drawn from the

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<sup>5</sup> This follows from her assumption that L1 syntax transfers to the L2 (Schwartz and Sprouse 1996). Since *no* and *non* are heads in Romance, step-wise head movement must move through the head of NegP and 'pick up' the negation clitic. However, in caption (1) (p. 357), Parodi also indicates that *nicht* is the head of NegP in German; she does not show the verb moving through NegP on its way to IP and CP, apparently in violation of the Head Movement Constraint. Thus, under her analysis it's unclear why German sentential negation remains in NegP.

<sup>6</sup> The academic year at U. of Washington is divided into three 10-week academic quarters. Three first year classrooms, and one classroom each for second and third year learners were visited. Learners in the first year were in week five of their second quarter of German (German 102), second year learners were in week six of the third quarter of second year German (German 203), and third year learners were in week six the third quarter of the third year (German 303).

first five chapters of the introductory German textbook used in first year German courses at the university. These five chapters are typically covered in the first academic quarter of classroom German, and thus, all of the lexical items used on the survey should be familiar to the test subjects.

Four versions of the survey were made; each contained the same tokens, but the tokens were randomly ordered between the four versions to help control for any list effects. The grammaticality judgment section of the survey had twenty-three tokens, twelve of which were experimental tokens, the rest distracters (see appendix one version of the survey). In order to make sure the test was explicitly looking for unambiguous V2 phenomena, the experimental tokens all contained either a temporal or locative adverb in initial position. Following the adverb was either a subject DP, modal verb, or thematic verb, with the Adv-Subj strings constituting the ungrammatical cases. All verbs in the grammaticality judgment task contained target-like agreement morphology, regardless of verb subtype or sentence grammaticality. Thus, there were four sub-paradigms within the grammaticality judgment section, each with an equal number of tokens on the survey:

**(4) Grammaticality judgment paradigms with examples of each**

- a) Adv-Modal-Subject: *Heute will sie ins Kino gehen.*  
Today wants she to the cinema go-INF  
“Today she wants to go to the cinema.”
  
- b) \*Adv-Subject-Modal: *\*Jetzt ich möchte eine Cola trinken.*  
Now I would like to a cola drink-INF  
“Now I would like to drink a cola.”
  
- c) Adv-ThematicV-Subject: *Heute kaufe ich Tomaten.*  
Today buy I tomatoes  
“Today I’m buying tomatoes.”

- d) \*Adv-Subject-ThematicV: \**Heute wir gehen ins Konzert.*  
Today we go to the concert  
“Today we’re going to the concert.”

Participants were asked to write “yes” next to tokens which they believed to be well-formed in German, or “no” next to those which they found to be ill-formed in German.

The translation task consisted of seven sentences in English, four of which were experimental tokens. These experimental tokens were simple, grammatical sentences in English with a temporal adverb in first position. Two experimental sentences contained lexical verbs common to both languages (“wear”~*tragen*, “go”~*gehen*); two experimental sentences contained English translations of German modals (“want”~*wollen*, “would like to”~*möchten*). The instructions did not explicitly ask the subjects to retain the linear ordering of constituents; rather, subjects were simply asked to translate each sentence into German to the best of their ability and as closely to the English stimulus as possible. Thus, the subjects were given the opportunity to place adverbs in initial position, which would in-turn create an opportunity for V2-like subject-verb inversion.

Results for all tasks and groups were recorded in Microsoft Excel; statistics were calculated using SPSS for Mac OSX v11.0.2. For the grammaticality judgment task the independent variables in this study were the individual stimulus (i.e., the particular sentence), stimulus type (the four stimulus categories demonstrated in (4) above), verb-type of the stimulus (modal or thematic verb), and grammaticality of stimulus (grammatical or ungrammatical); the dependent variable was the subject’s response. On the translation tasks, the subjects’ written productions were recorded for whether the subject provided the adverb in initial position, whether the translation showed subject-verb inversion, and whether the verb showed agreement morphology. The agreement

variable was then further subdivided as a separate variable into target-like agreement and non-target-like agreement.

On the production task it was necessary to eliminate certain responses because of either failure to respond, failure to follow directions, failure to translate the sentence, or production of an uninterpretable response. The ultimate criteria for elimination of an individual token were failure to provide an adverb and failure to translate the verb.<sup>7</sup> Even though some subjects produced fully grammatical sentences without adverbs, it is the adverb in this study that provides the grammatical context crucial for subject-verb inversion—the diagnostic for verb raising used in this study; failure to translate the verb was chosen as a criterion for elimination because this eliminated the possibility to evaluate the subjects' use of agreement morphology. In certain other cases in the first year data, some subjects did not overtly write the adverb, but rather provided a grammatical “slot” for it—sometimes this took the form of an extended, blank underscore in sentence-initial position, and other times it took the form of the English adverb written into sentence-initial position, with the rest of the sentence translated properly into German. These types of tokens were not eliminated since I believe these cases represent failure to retrieve the L2 lexical item, not a breakdown of grammar; as noted earlier, it is grammar and not the lexicon that is the focus of this study. In cases where two individual production tokens from a single subject had to be eliminated, one cannot assume that any data, production or judgment, for that subject were reliable; therefore, no production and

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<sup>7</sup> In several cases where the subjects failed to supply the adverb, the production could not be interpreted at all—some produced sentence fragments (e.g., some wrote only a bare, nonfinite verb), some rewrote the English sentence, and some simply doodled). Failure to supply an adverb thus served as an adequate “umbrella” criterion for elimination of these types of responses.

judgment data for these subjects were counted in the final statistics.<sup>8</sup> Thus, after eliminating unreliable data, this study focused on grammaticality judgments and production data from n=30 first year learners, n=17 second year learners, n=21 third year learners, and n=5 native German speaker control subjects. Finally, in order to hone in on the phenomenon of V2 and subject-verb inversion after sentence-initial adverbials, production tokens in which the subjects did not place the adverb in initial position were also eliminated. In the first year data 12 tokens were eliminated on this ground; no tokens from the second year data were eliminated on this ground, while two such tokens were eliminated from the third year data. Additionally, in the second and third year data there were instances where the subjects translated either the progressive aspect or future tense word-by-word from English into German, yielding an illicit German sentence. In these cases, German would normally use simple present tense; furthermore, these illicit sentences also contained nonthematic verbs (either *wird* “become” or *ist* “is” in stimuli that were intended to elicit thematic verbs. Four such sentences were eliminated from the second year data and five from the third year data; none were found in the first year data.

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<sup>8</sup> It was necessary to fully eliminate data from 12 of the original 42 first year learners, and none from the second and third year learners.



## 3.2 Results

### 3.2.1 Grammaticality Judgments

**Table 3 Percentage of correct responses by stimulus type and subject group**

Group	Stimulus paradigm			
	Adv-Modal-Subj	*Adv-Subj-Modal	Adv-ThemV-Subj	*Adv-Subj-ThemV
First year (n=30)	72.7%	61.1%	72.2%	62.0%
Second year (n=17)	91.5%	93.8%	95.8%	93.8%
Third year (n=21)	90.5%	95.2%	98.4%	100.0%
Native speaker control (n=5)	100.0%	100.0%	100.0%	100.0%

The percentages in the table in Table 3 refer to the percentage of correct responses given by each group. Thus, for the grammatical strings (Adv-Mod/ThemV-Subj) the correct response would be “yes,” and for the ungrammatical strings (\*Adv-Subj-Mod/ThemV) the correct response would be “no.”

As can be seen, the native speaker control subjects responded as anticipated 100% of the time; both the second and third year test groups responded correctly in excess of 90% of the time, indicating near mastery of Subj-V inversion when an adverb is in sentence-initial position. The first year group performed slightly worse, but binomial tests for all four stimulus types showed that first year subjects responded correctly significantly more often than chance (50%) on each: for Adv-Modal-Subj and Adv-ThemV-Subj  $p < .001$ , for \*Adv-Subj-Modal  $p = .045$ , and for \*Adv-Subj-LexV  $p = .011$ . Evaluating the relationship between the verb type and response accuracy, a Chi-square

test for goodness of fit showed no significant relationship between these two variables,  $\chi^2(1, n=357)=0.069, p=.793$ . A similar result was found when evaluating the relationship between stimulus type,  $\chi^2(3, n=357)=4.170, p=.244$ . Interestingly, the same test did show an effect for stimulus grammaticality,  $\chi^2(1, n=357)=3.990, p=.046$ , thus indicating that the first year subjects may be significantly more likely to respond correctly to grammatical stimuli than ungrammatical stimuli.

In the second and third year data subjects responded significantly better than chance for all individual tokens and stimulus types ( $p<.001$  for all tokens and stimulus types). Additionally, the second year data showed no effect for verb type,  $\chi^2(1, n=191)=.378, p=.538$  or stimulus grammaticality,  $\chi^2(1, n=191)=.000, p>.985$ . Statistics for the interaction of response accuracy and stimulus type could not be computed in the second year data, as the subjects performed so well that assumptions for neither Pearson's Chi-square test nor Fisher's Exact test were met; however, a superficial view of the outcome percentages show no major variations in response accuracy between stimulus types. The third year data had an unexpected finding, with subjects performing significantly more accurately on tokens containing thematic verbs than modal verbs (Fisher's Exact test,  $p=.019$ )<sup>9</sup>. However, the third year data showed no significant difference in response accuracy for grammatical versus ungrammatical stimuli (Fisher's Exact test,  $p=.334$ ). Although, as with the second year data, statistics for the effect of stimulus type on response accuracy could not be calculated accurately, one can infer from the modal/thematic significance that there would be a significant difference at least between the Adv-Modal-Subj type and the \*Adv-Subj-ThemV type.

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<sup>9</sup> In some cases Fisher's Exact Test was used instead of a Chi-square test, since the more advanced learners' data was skewed to the point of violating the assumption of a minimum expected value of 5 per cell required for the Chi-square test.

### 3.2.2 Production Results

The following table presents a summary of the percentage of adverb-initial responses showing subject-verb inversion, by subject group:

**Table 4 Percentage of correct subject-verb inversion by subject group**

	Overall % of correct S-V inversion	% of S-V Inversion by verb type	
		Modal	Thematic
First year	69.4% ( <i>n</i> =98)	69.2% ( <i>n</i> =52)	69.6% ( <i>n</i> =46)
Second year	95.0% ( <i>n</i> =60)	100.0% ( <i>n</i> =32)	89.3% ( <i>n</i> =28)
Third year	98.3% ( <i>n</i> =58)	96.8% ( <i>n</i> =31)	100.0% ( <i>n</i> =27)
Native speaker control	100.0% ( <i>n</i> =18)	100.0% ( <i>n</i> =10)	100.0% ( <i>n</i> =8)

In the above table, the first column of percentages refers to the total percentage of adverb-initial responses showing subject-verb inversion; the second and third columns show the percentage by modal and thematic verb types, respectively. The *n* number underneath each percentage shows the total number of acceptable response tokens that factored into the percentage for each group and verb type.

The first year group shows an overall accuracy rate of 69.39% in correctly inverting the subject and verb after a sentence-initial adverb. While not indicative of native-like mastery, their response accuracy is nonetheless significantly above chance ( $p < .001$ ), indicating that inversion is not a random phenomenon. Additionally, the very close percentages for inversion with the two different verb types, 69.23% and 69.57%, show that the independent variable of verb type does not have a significant effect on accuracy of inversion,  $\chi^2(1, n=98) = .001, p = .971$ . The data from the second and third

year subjects show much higher accuracy on inversion. Both groups correctly inverted subject and verb in adverb-initial sentences in excess of 90% of the time, indicating near mastery of this process. The second year data showed three total errors (i.e. non-inversion), all of which were in sentences containing thematic verbs. The third year data showed one error, occurring in a sentence with a modal verb. Although the second year data show a large difference in percentage of accurate responses for sentences containing modal (100%) and thematic verbs (89.29%), Fisher's Exact test showed no significant relationship between the two variables of inversion and verb type ( $p=.096$ )<sup>10</sup>. Additionally, no significant effect for these two variables was found for the third year subjects either (Fisher's Exact test,  $p=1.00$ ).

#### **4 Discussion**

Upon initial evaluation one might view the results outlined above as uninteresting: nearly every variable interaction outlined in this study showed no significant effect. However, what is interesting in these findings is how greatly they differ from others' investigations of the acquisition of verb raising and feature strength in functional heads. Recall the findings of Parodi (2000) and others cited above, which showed a marked difference in the structural position for nonthematic and thematic verbs, respectively, when the diagnostic for raising is appearance to the left of sentential negation. As argued previously, that diagnostic only empirically motivates raising within the IP domain, and indeed, claims made by both Parodi and Vainikka and Young-Scholten indicate that that in early IL, nonthematic verbs may be base generated in an IP-level functional head,

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<sup>10</sup> This statistic nears significance, but because of the small sample size and skewed distribution of data, is relatively unreliable.

serving as either a spellout of, or trigger for,  $T^0$ . When raising is motivated to  $C^0$ , through the acceptance and production of subject-verb inversion after sentence-initial adverbs (i.e. V2), the data from this study indicate that this thematic-nonthematic difference does not persist; the feature responsible for triggering verb movement to CP in English-German IL seems to be blind to thematic features of the verb being raised. Rather, the feature responsible for raising verbs to  $C^0$  in IL grammar, as in native language systems, targets  $T^0$  and raises it to  $C^0$  to satisfy the spec-head criterion in the overt syntax. Thus, any verb that is located  $T^0$ , whether base generated, as with nonthematic verbs, or raised, as with thematic verbs, will subsequently be raised to  $C^0$ . It should be noted here that the data and findings of Eubank, Vainikka and Young-Scholten, and Parodi were all based on analysis of data from naturalistic learners; the current data comes from classroom learners. This difference in learning environment could be one source of difference between previous findings and those in the current study; thus a corpus analysis of naturalistic learners and the emergence of thematic and nonthematic verbs in V2 strings remains an area for future research. However, it should be noted that research has indicated that classroom learning does not fundamentally change the sequence or process of L2 grammatical acquisition (Pienemann 1998; Gass and Selinker 2001; Hawkins 2001b). Thus, drawing a comparison between data provided by naturalistic learners and classroom learners is not methodologically problematic.

As Parodi and Vainikka and Young-Scholten assume that the differential distribution of thematic and nonthematic verbs within TP in early IL may reflect a universal process in L2A, whereby language learners learn to spell out  $T^0$  by base generating nonthematic verbs with tense and agreement morphology in the functional

head, it is also likely the case that the equal distribution of these two subclasses of verbs in  $C^0$  found in this study also reflects properties of UG that would be seen in all language learners (for example, see Zwart 2001 and Koster 2003 for arguments that all tensed verbs move at least covertly to  $C^0$  in UG-constrained systems). The generalization that emerges from these observations is that the developmental sequence for the acquisition of V2 may involve a period of non-target-like asymmetric V2, where raising to CP only occurs under XP topicalization accompanied by subject-verb inversion. SV(X)O sentences produced by early learners of a V2 language should then be analyzed as involving the verb raising to a non-target-like head-initial TP projection. Positing that learners universally project a head-initial TP in the early stages of acquiring German is not a controversial analysis (see White 1991; Vainikka and Young-Scholten 1996) and is to be expected when one considers the incredible amount of L2 input of the form  $SV_{+fin}(X)O$ .<sup>11</sup> Additionally, this generalization follows from the observation that verb raising within TP correlates with acquisition of agreement morphology and finiteness in both L1 and L2 acquisition (Eubank 1996; Vainikka and Young-Scholten 1998; Parodi 2000; but see Prévost and White 2000 and Herschensohn 2001 for a discussion of problems this hypothesis).

## 5 Conclusion

In this study we have seen that early L2 learners of German, a V2 language, coming from native American English, a non-verb-raising language, do not distinguish between thematic and nonthematic verbs in unambiguous raising to  $COMP^0$ , the assumed landing

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<sup>11</sup> This analysis raises issues for Schwarz and Sprouse's (1996) paper, in which they propose that their subject, whose L1 was Turkish, transfers his head-final TP to German and raises verbs to CP as soon as they appear to the left of DP objects, negation and adverbs. See Tanner (2005) for a discussion.

site of the verb in V2 languages. This finding contrasts with empirical data which suggests that nonthematic verbs are more likely to appear in raised positions than thematic verbs when appearance to the left of sentential negation and VP-adjoined adverbs is taken as the diagnostic for verb raising (i.e., raising to T<sup>0</sup>). In order to explain this contrast with Parodi's data I propose that V2 may be 'asymmetric' in early L2A. This follows from Parodi's finding that raising correlates with production of agreement morphology, which is only shown to correlate with raising within TP in UG-based systems; furthermore, assuming base generation of nonthematics in TP-level functional heads maintains a more economical derivation, consistent with current notions of operational economy within grammar.

However, further research into this area is still needed before firm conclusions can be drawn. Particularly interesting would be to study a corpus of spontaneous productions by early learners longitudinally. Using L1 English speakers for such a study would allow us to see this developmental sequence in a more fine-grained fashion, free from the possible L1 transfer effects that precluded Parodi from examining S-V inversion structures. Based on the current findings, I predict that such a longitudinal study would show evidence of construction-based learning of V2, consistent with those found in L1 acquisition by Santelmann (1999) and in L2 acquisition by Herschensohn (2000).

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