

**The role of L1 Norwegian and L2 English in the Acquisition of Verb Placement in L3 German****Anne Dahl, Kjersti Faldet Listhaug, Guro Busterud****Abstract**

Focusing on the much-debated question of transfer from previously learned languages in L3 acquisition, we investigate acquisition of finite verb placement in L3 German. Participants are L1 Norwegian high-school students with L2 English, in years 1, 2, 4, and 5 of German instruction. Norwegian and German have V2 word order, while English does not. Participants completed acceptability judgments in L3 German and L2 English. Results show no clear preference for either V2 or non-V2 in German in the earliest learners, but later development towards target-like intuitions. Target-like L2 English judgments do not seem to be associated with more transfer from L2 to L3 of a given structure, and higher L2 proficiency does not predict more L2 transfer to L3.

*Keywords:* word order, verb placement, V2, second language, third language, acquisition, transfer Norwegian, English, German

## 1. Introduction

In research on additional language (L2, L3, Ln) acquisition, a central question is that of the influence of previously learned language(s). While such influence is certainly well documented, there is no consensus on exactly how and to what extent previous linguistic experience influences the acquisition of subsequent languages. One previously studied phenomenon is the acquisition of verb placement when the languages in question differ in whether they are verb second (V2) or non-V2. The present study aims to shed more light on questions of transfer of verb placement using a new language combination, investigating the L3 acquisition of German by L1 Norwegian speakers with L2 English. In this specific language combination, transfer from L1 Norwegian would lead to target-like verb placement in L3 German, while transfer from L2 English would lead to non-target-like verb placement. In our study, all participants were tested in both L2 and L3, and proficiency in both languages was considered. Participants were in their first, second, fourth or fifth year of learning German and had learned English for 11-12 years. We investigate transfer, L3 developmental trajectories, and the influence of L2 proficiency in the acquisition of L3 verb placement.

## 2. Theoretical Background

**2.1 Transfer in L2 and L3 Word Order.** The existence of L1 transfer in L2 acquisition is well established, and a number of studies have found transfer of non-target verb movement. A finding relevant to our study is that young Norwegians transfer the V2 word order of Norwegian main clauses to L2 English (Westergaard, 2002, 2003). Westergaard finds more prominent and lasting transfer for verb placement with adverbials than for topicalizations, and more transfer with auxiliaries than lexical verbs.

While questions of transfer processes in L2 address transfer from the L1, the acquisition of a third language introduces a number of new variables. The question is no longer limited to the extent to which the system of the L1 is transferred into the new language, but also which of the previously acquired language system(s), L1 and/or L2, may transfer. A general distinction can be made between models of L3 acquisition assuming transfer from only one of the previously acquired languages, and those assuming possible transfer from both L1 and L2. Among the former, some accounts assume that the L1 transfers in L3 acquisition, such as Hermas' (2010) study of verb raising in L3 French. Jin (2009) concluded similarly in her study of the acquisition of obligatory objects in L3 Norwegian. Other studies have found transfer from the L2 only, and when it comes to word order and V2, the opposite pattern compared to Westergaard (2002, 2003) has been observed. Some studies (Bohnacker, 2006; Håkansson, Pienemann, & Sayehli, 2002) have found that Swedish L1 speakers acquiring L3 German tended to use SVO word order without inversion rather than V2, which is grammatical both in Swedish and German. Håkansson et al. (2002) do not attribute this to transfer from L2 English, but rather see it as a general feature of additional language acquisition. However, Bonacker (2006) failed to find non-V2 structures in a small group of L2 learners of German with no prior knowledge of English, indicating that L2 transfer may indeed be the cause of this observed phenomenon. Bardel and Falk (2007) similarly found evidence of transfer from L2 for placement of negation in learners with various language backgrounds acquiring an L3 with V2 (Dutch or Swedish, respectively), as did Falk and Bardel (2011) for placement of object pronouns in L3 acquirers of German with English or French as their L1 or L2, respectively. Their conclusion is that L2 has a privileged status for transfer, at least with relatively low L2 proficiency. Bardel and Falk (2012) do,

however, hypothesize that this privileged status of the L2 may diminish when proficiency in L2 is high enough to approach that of the L1.

There are also studies whose findings indicate that language status (L1 vs L2) is not the determining factor for transfer in the initial stages, but rather similarity between languages, and that a previously acquired language that is (psycho-)typologically closer to the L3 is more likely to transfer. Many such studies have looked at Romance languages, often in combination with English (see Rothman, 2015), where at least one language pair is closely related, and defining which pair is most closely related is relatively straightforward. As such, they differ from the present study, where all three languages in question are Germanic.

Other studies have failed to find transfer from only one previously learned language, indicating that both L1 and L2 may transfer during the same acquisition process. Flynn, Foley, and Vinnitskaya (2004) interpret their results in a study of relative clause acquisition in speakers of L1 Kazakh/L2 Russian/L3 English as evidence that both previously learned languages can have a facilitative effect on the L3. Westergaard, Mitrofanova, Mykhaylyk, and Rodina (2017) found both facilitative and non-facilitative transfer from both languages for English word order in Russian-Norwegian bilinguals and argue for transfer on a property-by-property basis. Slabakova (2017) reviews a number of studies and similarly concludes that transfer cannot be wholesale, and that it can be facilitative or non-facilitative and come from either L1 or L2. Westergaard (2021) argues that rather than full transfer of a previously learned language, there might be full transfer potential of all prior languages in multilingual acquisition.

Highly relevant to the present study is a series of recent studies of word order in L3 French acquisition in speakers of L1 Dutch/L2 English (Stadt, Hulk, & Sleeman, 2016, 2018a, 2018b, 2020). They investigate on the one hand topicalized structures, which are similar in L2

English and L3 French, both non-V2 SVO languages, but different in L1 Dutch, which is V2. On the other hand, they study placement of short sentence adverbials, which is similar in Dutch and French, which both have verb raising, but different in L2 English where lexical verbs do not raise. They find that topicalizations are in place before sentence adverbial placement. Taken together, these studies find transfer from both L1 and L2, and that transfer from L1 is associated with the earliest stages of acquisition and is less pronounced later in the acquisition process. Exposure to L2 English, either in the form of immersion education or by virtue of more years of English in school, is associated with more L2 transfer. These findings do not immediately seem to support those studies arguing for wholesale transfer from one language. Furthermore, they indicate that the L2 does not necessarily have a privileged status for transfer in L3 word order acquisition. Finally, they do not support the suggestion in Bardel and Falk (2012) that high proficiency in L2 may lead to a weaker role for the L2 as a transfer source.

The above findings show no consensus on the source or extent of transfer from L1/L2 in L3 acquisition, nor of whether there is wholesale transfer from one language across all structures. It is unclear whether we can expect the same language to be most eligible for transfer at different stages of L3 development, since theories of wholesale transfer typically focus on the initial stages, while studies finding transfer from both languages may also take later stages into account. The role of L2 competence is also unresolved, i.e., whether specific structures must be “in place” to be eligible for transfer, and whether general L2 proficiency impacts transfer from L2. To address these unresolved questions, this study investigates developmental trajectories of lexical verb placement in L3 German. We test learners’ competence of the same structures in L2 and L3, and investigate the relationship between L2 competence and judgments in L3.

**2.2 Verb Placement in Norwegian, English and German.** The languages in question in the present study, i.e., Norwegian, English and German, vary with respect to both underlying word order and placement of finite verbs in main clauses. However, these differences are not visible in all sentence types. In the following, we discuss placement of the verb as the second (V2) or third (V3) constituent in the two sentence types included in our experiment. Our study focuses on two different types of declarative main clauses with lexical verbs: 1) main clauses with a topicalized adverbial, and 2) subject-initial main clauses with sentence adverbials of the type *often*, *always*, and *rarely*, see examples 1 and 2 below.

- |     |    |  |            |
|-----|----|--|------------|
| (1) | a. | [ <sub>CP</sub> Hver morgen <i>tar</i> [ <sub>IP</sub> Marianne <del><i>tar</i></del> [ <sub>VP</sub> <del><i>tar</i></del> bussen]]].         | (Top,V,SU) |
|     |    | Every morning takes Marianne bus-the   |            |
|     | b. | [ <sub>CP</sub> Every morning [ <sub>IP</sub> Marianne [ <sub>VP</sub> <i>takes</i> the bus]]].  | (Top,SU,V) |
|     | c. | [ <sub>CP</sub> Jeden Morgen <i>nimmt</i> [ <sub>IP</sub> Marianne <del><i>nimmt</i></del> [ <sub>VP</sub> den Bus <del><i>nimmt</i></del> ]]. | (Top,V,SU) |
|     |    | Every morning takes Marianne the bus.  |            |
|     |    |  |            |
| (2) | a. | [ <sub>CP</sub> Peter <i>spiser</i> [ <sub>IP</sub> <del><i>spiser</i></del> [ <sub>VP</sub> ofte <del><i>spiser</i></del> sushi.]].           | (V,SA)     |
|     |    | Peter eats often sushi.  |            |
|     | b. | [ <sub>CP</sub> Peter [ <sub>IP</sub> [ <sub>VP</sub> often <i>eats</i> sushi]]].  | (SA,V)     |
|     | c. | [ <sub>CP</sub> Peter <i>isst</i> [ <sub>IP</sub> <del><i>isst</i></del> [ <sub>VP</sub> oft Sushi <del><i>isst</i></del> ]].                  | (V, SA)    |
|     |    | Peter eats often sushi.  |            |

Norwegian has underlying SVO word order but obligatory movement of the finite verb via I/T to C in all main clauses ( see Holmberg & Platzack, 1995; Roberts, 2001), resulting in V2 order both for topicalized constructions (1a), and for sentences with sentence adverbials (2a).<sup>1</sup> German is SOV<sup>2</sup> and has obligatory movement of finite verbs via I/T to C in main clauses, resulting in V2 in topicalized structures (1c) and with sentence adverbials (2c). English is also SVO; however, lexical verbs remain in situ, whereas auxiliaries move to I/T. English is often

<sup>1</sup> Sentence adverbials (SA) are commonly analyzed as adjoined to the specifier of the VP (Pollock, 1989). For Norwegian, Åfarli and Eide (2003) argue that SA are adjoined to IP/TP. Whether SA is adjoined to VP or IP/TP is not relevant for this study, and we do not discuss this further.

<sup>2</sup> German SOV order is visible in main clauses with periphrastic verb constructions, where the object precedes the verb resulting in a separation of the finite and non-finite verb: *Peter hat oft Fisch gegessen*. SOV order is also visible in subordinate clauses, where the finite verb follows the non-finite verb: *Ich weiß, dass Peter Fisch gegessen hat*.

referred to as so-called residual V2 (Rizzi, 1996) due to subject-auxiliary inversion in *yes/no*-questions and *wh*-questions. For the structures in question in the present study, with lexical verbs only, English is clearly non-V2. In the topicalized construction in (1b), the verb follows the subject, whereas the verb follows the sentence adverbial in (2b).

### 3. Research Questions and Predictions

**3.1 Research Questions.** For acquisition of verb placement in L3, there is contradictory evidence from previous research. For example, Håkansson et al. (2002), Bohnacker (2006), and Bardel and Falk (2007) failed to find L1 transfer of V2 from L1 to L3, when L1 and L3 have V2 word order. On the other hand, Stadt et al. (e.g., 2018a, 2020) found transfer of V2 from L1 Dutch to L3 French. It is thus unclear under which circumstances V2 may transfer, and whether L2 English impedes transfer of V2. The main purpose of this study is to further explore this issue. Furthermore, we ask whether there is evidence that one prior language is preferred as the source of transfer, which may indicate wholesale transfer at early stages of acquisition. Since previous research (e.g., Stadt et al., 2018a) has found that source language for transfer may change over the course of acquisition, we also look at developmental trajectories.

The present study sought to answer the following research questions, investigating verb placement in L1 Norwegian learners of L3 German with English as L2:

1. Is there evidence of L1 and/or L2 transfer to L3 in Norwegian L3 learners of German?
2. If so, does transfer occur to the same extent in sentences with topicalizations and in sentences with sentence adverbials?
3. Does mastery of the relevant structure in L2 matter for whether it is eligible for transfer?

4. Does proficiency in L2 influence transfer in L3; and if so, does higher proficiency predict more or less evidence of transfer from L2?
5. What do L3 developmental trajectories look like, and specifically: Does evidence of L2 transfer become more or less pronounced with increasing L3 proficiency?

**3.2 Predictions.** For our participants, transfer from L1 Norwegian in the sentences in question would lead to target-like judgments, while transfer from L2 English would mean non-target-like judgments.

Based on previous findings on similar language combinations (e.g., Bardel & Falk, 2007; Bohnacker, 2006; Falk & Bardel, 2011; Håkansson et al., 2002), we expect to find evidence of transfer of non-V2 from L2 English in L3 German (RQ1). If there is wholesale transfer from either L1 or L2 (see Bardel & Falk, 2007; Rothman, 2015), the prediction is that transfer should occur to the same extent in both sentence types in the earliest learners, to the extent that both structures are in place in L2 (RQ2).

The basis for transfer from L2 is the learner's mental grammar of L2 English, which may differ from the grammar of L1 English speakers. We would expect L2 transfer to be more robust for structures that are solidly in place in L2 compared to those that are not (RQ 3). Based on the performance for L2 English students up to year 7 in Westergaard (2002, 2003), we expect English word order generally to be in place among our participants. However, previous studies (Stadt et al., 2018b; Westergaard, 2002, 2003) indicate that we might see more consistent transfer of V3 in sentences with topicalizations than with sentence adverbials. Such findings would be in favor of a property-by-property view of transfer (see Slabakova, 2017; Westergaard et al., 2017; Westergaard, 2021).

RQ 4 asks whether L2 proficiency affects L2 transfer. According to Bardel & Falk (2012) high proficiency in L2 may entail a less privileged role for the L2 as a transfer source. However, this prediction is in conflict with findings from Stadt et al. (2016, 2018b), who found increased L2 transfer with increased L2 proficiency. Thus, we expect some variability in the learner group regarding what transfers, depending on proficiency in L2 English, although we do not have a clear prediction for the direction of this relationship.

At higher L3 proficiency levels, we expect any effect of L2 transfer to decrease (RQ 5). Although impossible to say for certain, this may be a result of learning/converging on the target rather than more pronounced L1 transfer.

#### 4. Method

**4.1 Participants.** Participants were 154 students (56 female), age 16-17, in their first and second year of upper secondary school, corresponding to years 11 and 12 of school, respectively. They were in their first (n=18), second (n=15), fourth (n=70), or fifth (n=51) year of learning German.<sup>3</sup> All were native speakers of Norwegian, with English as their L2. All participants had started learning English in year 1, at age six. English is compulsory until year 11, and some continue studying it also in year 12. This means that the participants in this study all had English instruction in school for at least 11 years. In terms of hours of instruction in the L3, those in year 1 of German had roughly 80 hours, those in year 2 roughly 190 hours, and those in years 4 and 5 roughly 310 and 420 hours of German teaching, respectively. As an artefact of the Norwegian

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<sup>3</sup> In Norway, foreign language teaching starts in either year 8, i.e., the first year of lower secondary education, or year 11, i.e., the first year of upper secondary education. Foreign languages are not regularly taught in year 13. Since we tested students in upper secondary education (years 11 and 12), no participants in their third year of foreign language instruction (i.e., year 10) were included.

school system (see footnote 5), many of those who had started learning German in year 11 (age 15/16) would have learned another foreign language from year 8 (age 13) and switched upon starting upper secondary school.

Originally, 258 students from two larger cities in Norway participated.<sup>4</sup> We excluded participants indicating L1s other than Norwegian (both 2L1 and L1=non-Norwegian), and participants reporting that they spoke another language regularly with close family members. We also excluded participants who indicated having learned a different L3 than German (at school) before learning German, provided they also indicated higher proficiency in the other foreign language than in German. Remaining participants reported very low competence in the other language.<sup>5</sup> Furthermore, only participants who completed both the German and the English version of the experiment were included in the analyses. As a result, 104 participants were excluded from the study.

Participants reported their last term grades in L2 English and L3 German. Grading in Norway uses a scale of 1-6, where 2 is pass and 6 is excellent. Furthermore, participants self-rated their level in L2 English and L3 German on a scale of 1-6 with short descriptions of proficiency levels based on the Common European Framework of Reference for Languages (CEFR), where level 1 matched CEFR level A1, level 2 matched level A2, etc. Table 1 shows mean self-rated levels and mean grades per experimental group, as well as gender distribution.

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<sup>4</sup> Because reports exist of optional V3 in Norwegian urban multi-ethnolects (Opsahl, 2009), schools with particularly multiethnic student populations were avoided.

<sup>5</sup> Having started another L3 in year 8 does not necessarily entail three years of instruction before switching to German, as some may have given up the previous language after a short time. Too many of our participants reported rudimentary knowledge of another foreign language, instructed or not, for us to be able to exclude all participants with any such exposure.

	Year 1	Year 2	Year 4	Year 5
n (female/male)	18 (10/8)	15 (2/13)	70 (25/44)	51 (18/32)
L2 English self-rated level	4,7	4,8	5,2	5,1
L2 English grade	4,1	4,2	4,5	4,7
L3 German self-rated level	2,4	2,2	2,9	2,9
L3 German grade	4,7	3,0	4,0	3,8

The study was registered with and recommended by the Norwegian Centre for Research Data (NSD).

**4.2 Materials and Procedure.** The experimental method consisted of acceptability judgment tasks (AJT) with a 1–4-point Likert scale. Points in the scale were not labelled; rather, each end point was indicated with an emoji (smiley with thumbs up/down). Participants were instructed to rate how ‘good’ they thought the sentence was based on their own intuitions. The participants were tested both in L3 German and in L2 English.

Each test contained a total of 48 items, 24 of which were targets: Six sentences with topicalizations (see example 1 above) where the verb appeared in second position (V2) and six where it appeared in third position (V3), and six sentences with a sentence adverbial such as *immer/always* (see example 2 above) where the verb preceded the adverbial and six where it followed it. Additionally, the tests contained 12 grammatical and 12 ungrammatical filler sentences.

The German and the English versions of the test were not identical, but sentences in the two versions were compared across all three languages (German, English, Norwegian) during test development to ensure differences were limited to vocabulary and did not involve structural complexity or other potentially relevant factors.

On the lexical level, sentences were kept simple and used basic vocabulary which, based on consultations with textbooks and teachers, could be expected to be familiar to beginners. Structurally, only main clauses were included, and thus differences in underlying word order between Norwegian and German (i.e., SVO vs SOV) were not overt. All sentences contained lexical verbs in the present tense with habitual meaning in order to avoid aspectual differences between languages, and to avoid complex verb forms which may be beyond the participants' level of German. Topicalized elements were always adverbials compatible with habitual meaning, avoiding unnatural topicalizations in either language.<sup>6</sup> The distribution of different subject types (NP, pronominal, singular/plural etc.) was the same across conditions, and in both tests.

The fillers consisted of two types; grammatical and ungrammatical subject-initial declaratives without sentence adverbials, and grammatical and ungrammatical wh-questions (expressions typically taught early, such as *Wie alt bist du?* 'How old are you?'). Ungrammatical declaratives typically lacked an argument or the verb (e.g., *Ole und seine Freunde Playstation* – 'Ole and his friends Playstation'), whereas ungrammatical wh-sentences had deviant word order (e.g., *Wie du alt bist?* 'How you old are?'). Consequently, some filler sentences were probably more obviously grammatical/ ungrammatical than the target sentences.

Both tasks were administered on paper during school hours, the German AJT approximately two weeks before the English version. Instructions were given in Norwegian, and participants were told that they could ask for the meaning of individual words if necessary. The German version of the test took approximately 20 minutes, the English version a little less. Since test sentences in the two tests were very similar, the English test was relatively easier for

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<sup>6</sup> To avoid heavy topicalizations, topicalized elements were phrases of no more than three words.

participants, and ceiling effects could be expected. Participants also provided information about language background, proficiency, and any diagnoses that may affect language acquisition.

**5. Results**

Results from the L3 German test, particularly relevant to RQs 1,2 and 5 are presented first. Subsequently, results for L2 English are presented with RQs 3 and 4 in mind. Data were analyzed using Tibco Statistica 13.5.0.

**5.1 L3 German.** We first look at the L3 German filler sentences in order to establish whether participants distinguished between grammatical and ungrammatical sentences in L3 in the task. Table 2 shows mean scores and standard deviations for L3 German fillers per experimental group.

Table 2									
<i>Mean Scores and Standard Deviations for Filler Sentences in L3 German per Experimental Group</i>									
		Grammatical				Ungrammatical			
		Declaratives		Wh-questions		Declaratives		Wh-questions	
Years of German	n	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1	18	3.10	0.40	3.19	0.37	2.25	0.48	2.25	0.61
2	15	2.99	0.63	3.06	0.61	2.27	0.56	2.21	0.60
4	70	3.38	0.45	3.42	0.43	1.88	0.42	1.59	0.49
5	51	3.26	0.49	3.41	0.46	1.98	0.48	1.56	0.52

Fillers were compared using a 2 (grammaticality: grammatical vs ungrammatical) x 2 (sentence type; declarative vs Wh- sentence) repeated measures ANOVA with years of German instruction as the grouping variable. Results showed a main effect of grammaticality ( $F(1,150)=349.16, p<.0001, \eta_p^2 =.7$ ) where grammatical sentences received higher scores (mean score 3.23, SE=0.06) than ungrammatical sentences (mean score 1.99, SE=0.06). This effect was modulated by group, where students in years 4 and 5 discriminated more clearly between

grammatical and ungrammatical sentences than students in years 1 and 2; see Figure 1. There was also an interaction between grammaticality and sentence type, where ungrammatical wh-questions received lower scores than ungrammatical declaratives. This effect was in turn modulated by group ( $F(3,150)=3.47, p=.018, \eta_p^2=.7$ ), as only students in years 4 and 5 made this distinction.

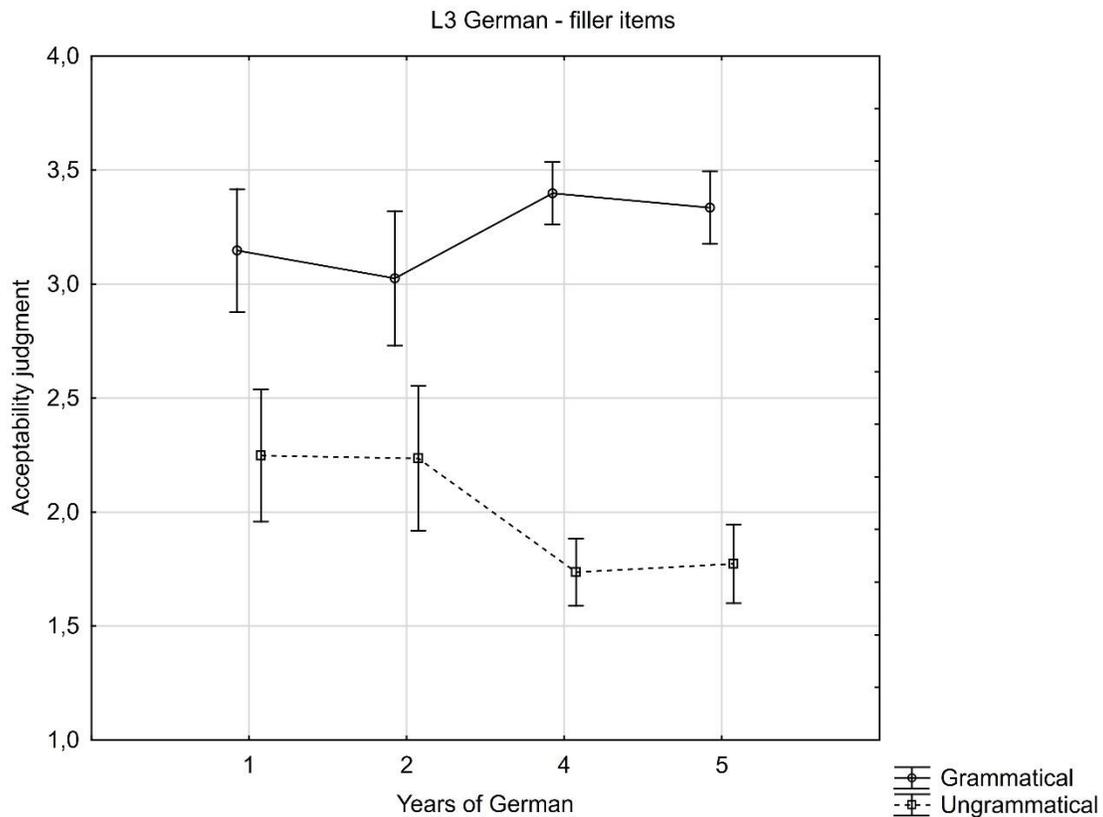


Figure 1. Two-way interaction of grammaticality and year of L3 German for filler sentences. (Note: Vertical bars denote 95% confidence intervals.)

The results showed development towards target-like judgments of filler sentences. While students in years 4 and 5 most clearly distinguished between grammatical and ungrammatical fillers, also students in years 1 and 2 showed a significant preference for grammatical over ungrammatical fillers. We take this to indicate that the acceptability judgment task validly measured the participants’ linguistic intuitions in L3.

Next, we present judgments on the German target sentences. Table 3 shows mean scores and standard deviations for L3 German target sentences per experimental group. We find fewer clear judgments than with the fillers, with means generally hovering around 2.5.

		V2				V3			
		Topicalization		Sentence adverbial		Topicalization		Sentence adverbial	
Years of German	n	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1	18	2.48	0.41	2.67	0.39	2.63	0.53	2.69	0.25
2	15	2.62	0.70	2.77	0.46	2.77	0.67	2.63	0.38
4	70	3.07	0.56	2.95	0.53	2.55	0.50	2.34	0.50
5	51	2.90	0.46	2.91	0.48	2.59	0.59	2.39	0.54

Results from the L3 German test were compared in a 2 (verb placement; V2 vs V3) x 2 (Sentence type; topicalization vs Sentence adverbial) repeated measures ANOVA with years of German instruction as the grouping variable. Results showed a main effect of verb placement ( $F(1, 150)=16.59, p<.0001, \eta_p^2=.10$ ), where sentences with V2 received higher acceptability scores (mean score =2.8, SE=0.6) than V3 sentences (mean score 2.6, SE=0.6). This effect was modulated by group ( $F(3, 150)=9.26, p<.0001, \eta_p^2=.16$ ), see Figure 2.

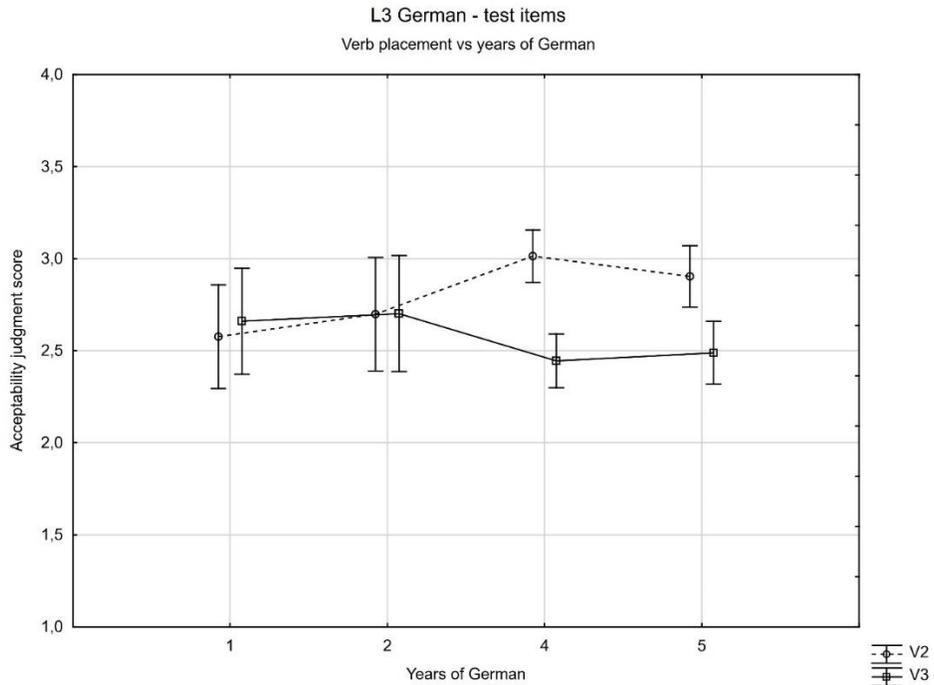


Figure 2. Interaction effect of verb placement and participant group in test items in L3 German. (Note: Vertical bars denote 95% confidence intervals.)

To break down the interaction between verb placement and group, Tukey HSD post-hocs were conducted. They revealed no significant difference in judgments on V2 and V3 for participants in years 1 and 2, with mean scores on both structures around the middle of the scale, i.e., no indication of a preference for one over the other. For participants in years 4 and 5, however, sentences with V2 received significantly higher scores (mean score year 4 3.05, SE=0.07 and year 5 2.90, SE=0.08) than sentences with V3 (mean score year 4 2.45, SE=0.07,  $p < .0001$ , and year 5 2.49, SE=0.09,  $p < .0001$ ). Thus, we see no evidence of full transfer of either L1 or L2 in the early learners. In years 4 and 5, the results indicate a preference for grammatical V2 sentences over ungrammatical V3 sentences.

Furthermore, the results showed an interaction effect of verb placement and sentence type, i.e., V2 vs V3 and topicalization vs sentence adverbials, ( $F(1, 150)=6.21$ ,  $p=.014$ ,  $\eta_p^2=.04$ ),

see Figure 3. There was no three-way interaction between verb placement, sentence type and group. Consequently, results below are for all groups combined.

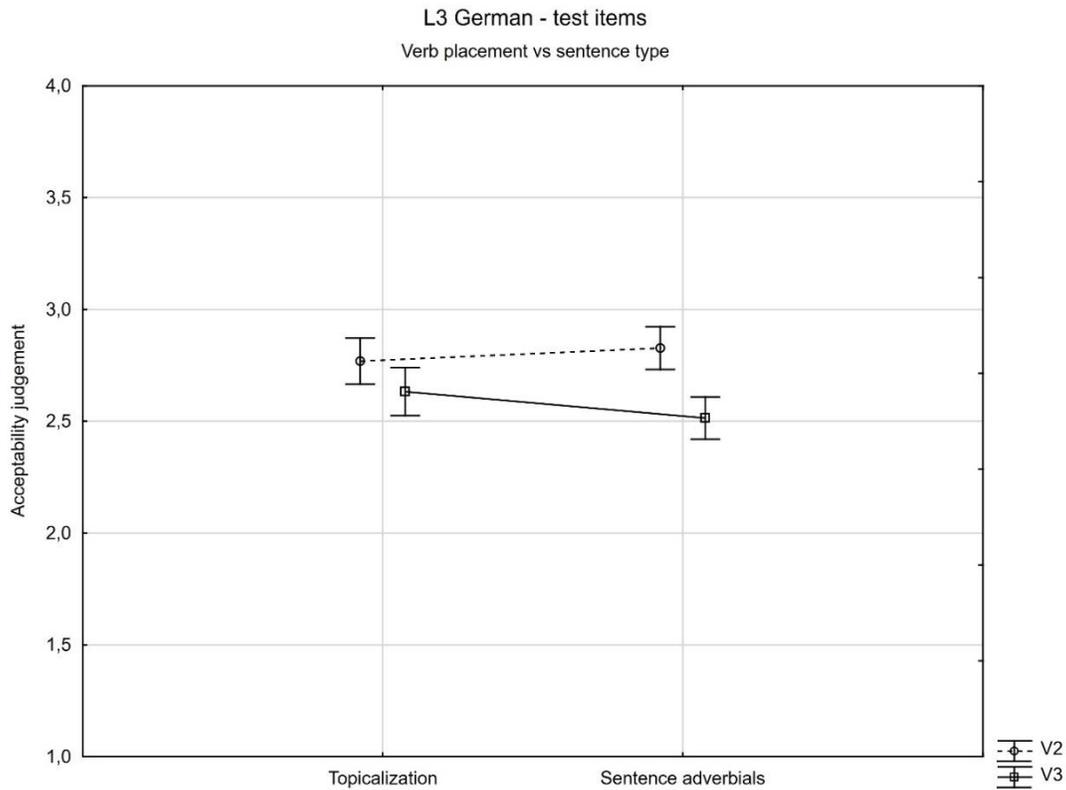


Figure 3. Interaction of verb placement and sentence type in L3 German. (Note: Vertical bars denote 95% confidence intervals.)

To investigate the interaction between verb placement and sentence type, Tukey HSD post-hocs were conducted. They revealed a significant difference between judgments for V2 and V3 word orders both for topicalizations ( $p < .0001$ ) and sentences with a sentence adverbial ( $p < .0001$ ), where V2 received higher acceptability scores than V3. Importantly, with V2, there was no difference in acceptability judgments for topicalizations (mean score 2.77,  $SE = 0.05$ ) and sentences with a sentence adverbial (mean score 2.83,  $SE = 0.05$ ). With V3, however, topicalizations received significantly higher acceptability scores (mean score 2.63,  $SE = 0.05$ ) than sentences with a sentence adverbial (mean score 2.51,  $SE = 0.05$ ,  $p = .0003$ ). To the extent that

participants accepted V3, this was not equal for both sentence types. Although mean scores for ungrammatical word order were lower than for grammatical word order in both structures, V3 word order cannot be said to be generally rejected, as mean scores are still above 2.5.

For the question of whether we see remaining evidence of wholesale transfer at the initial stages, inspection of individual data from participants in year 1 of German are particularly interesting, although we do not claim that they are still in the initial stages. For topicalizations, only 4 participants gave a mean score of 3 or above for one word order and 2 or below for the other. For sentence adverbials, no participants rated one word order on average 3 or above while rating the other 2 or below. This means that no participant consistently rejects one word order and accepts the other.

The overall conclusion is that we have no indication of wholesale transfer from either L1 or L2, and that there is a slight difference in judgments between the two sentence types. To the extent that there is any influence from the L2, it appears to become less pronounced with more L3 exposure as learners become more target-like in later years.

**5.2 L2 English.** We now discuss the results for L2 English in order to relate these to L3 German (RQs 3 and 4).

Performance on L2 English fillers was at ceiling across all groups; grammatical fillers were generally accepted (mean=3.71, SD=0.32) and ungrammatical fillers generally rejected (mean=1.39, SD=0.37). The similar performance across groups is not surprising, given that they all had 11-12 years of English instruction.

Table 4 shows mean scores and standard deviations for target sentences in L2 English per experimental group. Generally, performance is close to ceiling for all groups. Note, however,

that mean ratings for ungrammatical V2 with sentence adverbials are higher than for topicalizations.

Table 4									
<i>Mean Score and Standard Deviation for Test Items in L2 English per Experimental Group</i>									
		V2				V3			
		Topicalization		Sentence adverbial		Topicalization		Sentence adverbial	
Years of German	n	Mean	SD	Mean	SD	Mean	SD	Mean	SD
1	18	1.64	0.52	2.04	0.62	3.28	0.61	3.19	0.44
2	15	1.53	0.46	1.94	0.65	3.14	0.51	3.08	0.55
4	70	1.67	0.48	2.04	0.62	3.29	0.41	3.44	0.44
5	51	1.68	0.41	1.98	0.52	3.19	0.43	3.31	0.36

Sentence types were compared using a 2 (Verb placement: V2 vs V3) x 2 (Sentence type: Topicalization vs Sentence adverbial) repeated measures ANOVA with years of German instruction as the grouping variable. There were no significant differences between experimental groups. Thus, in the following, L2 English results are collapsed over all groups.

There was a main effect of verb placement ( $F(1, 150)=630.25, p<.0001, \eta_p^2 = .81$ ). Overall, grammatical V3 was accepted, whereas ungrammatical V2 was rejected (mean score= 3.24, SE=0.05 and mean score =1.82, SE=0.08, respectively). However, there was a main effect of sentence type ( $F(1, 150)=37.53, p<.0001, \eta_p^2=.20$ ), where sentences with a topicalized element received lower acceptability scores than sentences with sentence adverbials (mean score 2.43, SE=0.05 and 2.63, SE=0.05 respectively). Importantly, there was an interaction effect of verb placement and sentence type ( $F(1,150)=27.52, p<.0001, \eta_p^2 = .16$ ). This is illustrated in Figure 4 below.

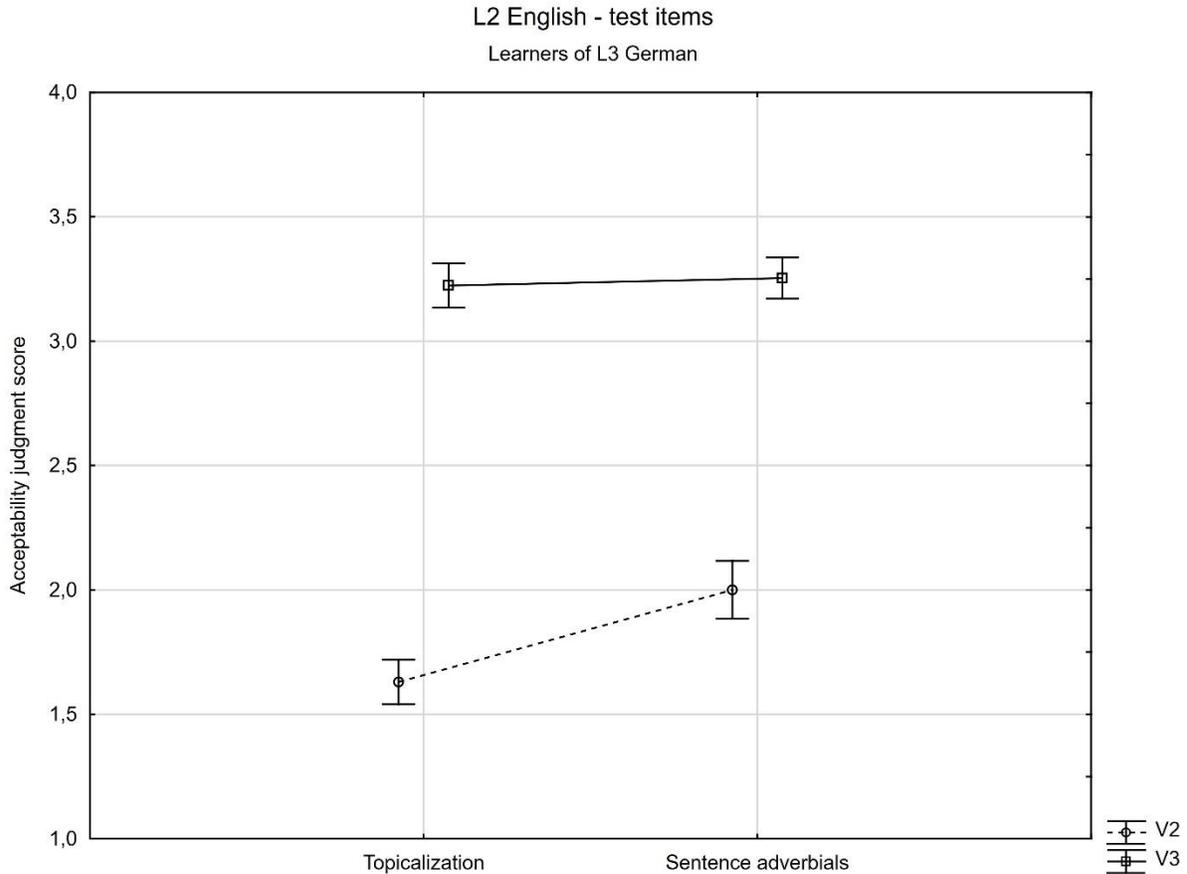


Figure 4. Interaction effect of verb placement and sentence type in L2 English. (Note: Vertical bars denote 95% confidence intervals.)

To break down the interaction, Tukey HSD post-hocs were conducted. The tests showed no significant differences in acceptance of grammatical (V3) sentences with topicalizations vs sentences with a sentence adverbial, mean scores 3.22 (SE=0.4) and 3.24 (SE=0.4), respectively. However, for the ungrammatical (V2) sentences, there was a significant difference ( $p < .0001$ ) between topicalizations (mean score 1.63, SE=0.5) and sentences with a sentence adverbial (mean score 2.0, SE=0.6). Thus, ungrammatical V2 sentences with a sentence adverbial were not rejected as consistently as ungrammatical V2 sentences with topicalizations.

**5.3 Relationship between L2 English and L3 German.** In order to investigate the relationship between the two structure types in each language, and between each structure across

L2 English and L3 German, we calculated the difference between each participant's mean score on the grammatical versus the ungrammatical condition of each sentence type by subtracting scores on the ungrammatical word order from scores on the grammatical word order (V2 and V3, respectively). This gives us a measure of the degree to which participants discriminated between the two, referred to as the discrimination score in the following. Discrimination scores constitute one variable for sentences with topicalizations and one variable for sentences with sentence adverbials in English and German, respectively. The maximum possible score for each variable is 3, indicating that the participant gave an overall score of 4 to grammatical structures and 1 to ungrammatical structures. A participant who gave a higher score in the ungrammatical condition than in the grammatical condition would receive a negative value. The higher the score, the greater the participants' discrimination between grammatical and ungrammatical word orders, and, if the score is positive, the higher their accuracy in judgments.<sup>7</sup>

To investigate the relationship between judgments in L2 and L3, correlation analyses were performed with Pearson's  $r$  across languages and structure types. Since L2 vs L1 transfer can be expected to differ at different stages of L3 acquisition (RQ5), we look both at all groups combined and at each experimental group separately.

Results for all participant groups combined showed a significant correlation between discrimination scores on both sentence types in L2 English ( $r=.503$ ,  $p<.0001$ ). This also held for each of the four experimental groups separately. Similarly, there was a significant correlation between discrimination scores on the two sentence types in L3 German ( $r=.479$ ,  $p<.0001$ ) for all groups combined. However, the relationship between the two structures in L3 differed across the

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<sup>7</sup> Note, however, that a discrimination score of for example 1 does not tell us whether participants generally accepted (e.g., mean scores 3 and 4) or generally rejected (e.g., mean scores 2 and 1) sentences.

experimental groups. For participants in years 1 and 2 of German instruction, there was no significant correlation between the two structures ( $r=-.062$ ,  $p=.806$  and  $r=.150$ ,  $p=.593$ , respectively). For participants in years 4 and 5, however, this correlation was significant ( $r=.547$ ,  $p<.0001$  and  $r=.351$ ,  $p=.012$ , respectively). Thus, in years 1 and 2 preferences for V2 vs. V3 word order in L3 do not seem to be related in the two structures, whereas in years 4 and 5, participants show similar preferences across structures. This corroborates findings from section 5.1 that we have no indication of wholesale transfer from either L1 or L2 across these structures in the earliest learners (RQ2).

As for relationships between judgments across languages (RQ3), there was no significant correlation between discrimination scores on sentences with topicalizations for L2 English and L3 German, and this holds for all four groups combined and across each experimental group separately. This may have to do with ceiling effects in L2 English for these structures. With sentence adverbials, however, there was a significant correlation between discrimination scores in L2 English and L3 German across all groups combined ( $r=.381$ ,  $p<.0001$ ). For this structure, the correlation was significant in year 1 ( $r=.530$ ,  $p=.024$ ), year 4 ( $r=.395$ ,  $p=.001$ ), and year 5 ( $r=.298$ ,  $p=.034$ ), but not in year 2 ( $r=.246$ ,  $p=.377$ ). These were the structures where V2 was not consistently rejected in L2 English. The results thus indicate that participants who did reject ungrammatical V2 in English preferred grammatical V2 in German.

To investigate the importance of L2 proficiency, we ran correlation analyses for English proficiency, as measured by self-rating scale and grade obtained, with discrimination scores in L3 German (RQ4). We found a significant positive correlation between both self-rated proficiency and grade obtained in English with discrimination scores on German sentences with sentence adverbials ( $r=.322$ ,  $p<.0001$  and  $r=.366$ ,  $p<.0001$ , respectively), but not with

topicalizations. Thus, higher proficiency in English seemed to predict more target-like performance with sentence adverbials in German.

As for proficiency in L3, we ran correlation analyses for the same measures of L3 proficiency with discrimination scores in L3 German (RQ5). For self-rated proficiency, there was a positive correlation across all groups with discrimination on judgments of German sentences with sentence adverbials ( $r=.311$ ,  $p<.0001$ ) and with topicalizations ( $r=.161$ ,  $p=.046$ ), indicating more target-like performance with higher self-rated proficiency.

For grades obtained in German, correlations were run separately per experimental group, since grades are relative depending on what can be expected in the given year; a high grade in year 1 does not reflect proficiency comparable to the same grade in year 5. There were no significant correlations with discrimination scores on either structure in years 1 and 2. In year 4, however, there was a significant positive correlation with both sentence adverbials ( $r=.348$ ,  $p=.003$ ) and topicalized structures ( $r=.390$ ,  $p=.001$ ). In year 5, there was a positive correlation with sentences with sentence adverbials only ( $r=.503$ ,  $p<.0001$ ). We return to these results in the discussion.

## **6. Discussion**

We now consider what our results mean for our five research questions. We first asked whether there is evidence of L1 and/or L2 transfer to L3 in Norwegian L3 learners of German. Our results make it difficult to argue for clear evidence of wholesale transfer from either L1 or L2 at the earliest stages (Rothman, 2015), with no participant consistently accepting one word order and rejecting the other. Arguably, this most clearly indicates no wholesale transfer from L1 (Hermas, 2010), as we would expect this to lead to target-like judgments right from the start. On the other hand, it is possible that judgments do reflect residual transfer from L2, as was our

prediction (in line with Bardel & Falk 2007; Bohnacker, 2006; Falk & Bardel, 2011), which could have been more evident at the very initial stages of acquisition, as our participants in year 1 had been learning the L3 for some months. However, our data most clearly show insecurity about verb placement in German, indicating unstable representations for the structures. This interpretation is supported by the lack of correlation between the two sentence types in L3 German in years 1 and 2, since residual transfer would be expected to be related for the two structures (RQ 2). We do, however, see some evidence in years 4 and 5 that development towards target-like word order with sentence adverbials happens earlier than with topicalized structures. This may indicate property-by-property transfer (Westergaard et al., 2017; Slabakova, 2017). The observed insecurity in the earliest learners could be due to the potential availability for transfer of structures from two previously learned languages, e.g., along the lines of full transfer potential (Westergaard, 2021). The earliest learners may not yet have had enough evidence to establish which language is more similar to German in the relevant respects, indicating that both structures are equally available for transfer.

Our third question was whether mastery of the relevant structure in L2 matters for transfer into L3. It seems obvious that learners can only transfer the L2 grammar such that it is, meaning that transfer of English V3 must depend on the relevant structure having been acquired in L2 English. However, in the present study, we do not see evidence of a relationship between target-like judgments in L2 and possible transfer to L3.

In L2 English, we saw evidence of ceiling performance, but less clear rejection of sentence adverbials with V2, consistent with our prediction based on Westergaard (2002, 2003). In German, ungrammatical V3 with sentence adverbials receives lower scores than V3 with topicalizations, possibly implying that V3 word order with sentence adverbials, which may not

be entirely in place in L2, is less eligible for transfer to L3 German. However, correlation analyses do not support this line of argument; those participants with most target-like performance on English verb placement also score more accurately on German verb placement for these structures. To the extent that there is evidence of transfer from English, it is less pronounced for those for whom these structures are firmly in place in English.

This finding relates to our fourth research question, about the role of proficiency in L2 and L3. Based on Bardel and Falk (2012) and Stadt et al. (2016, 2018b), we expected L2 proficiency to play a role, but had no prediction for the direction of the relationship. We find a positive correlation between our English proficiency measures and correct judgments on German sentences with sentence adverbials, but not with judgments on German topicalized structures. This indicates more accurate performance in German when English proficiency is higher, which could imply that L2 is less eligible for transfer at higher proficiency levels. Alternatively, however, individual factors that have facilitated the acquisition of L2 English may have had the same effect on L3 German.

We do not see clear evidence of a privileged status of the L2 as the L2 Status Factor (e.g., Bardel & Falk 2007) would predict. This could be due to generally high English proficiency in our participants, such that it approaches L1 competence in the relevant respects (Bardel & Falk, 2012). An explanation for why Stadt et al. (2016, 2018b) found different results may lie in how English proficiency was attained: In Stadt et al.'s studies, those with higher English proficiency had either studied English for longer, or they were in an immersion English class setting. In other words, their higher English proficiency was due to external circumstances.<sup>8</sup> In our study,

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<sup>8</sup> It should be noted that our participants were older than those in Stadt et al.'s studies. This could potentially entail cognitive differences in the learning process.

participants had been learning English for longer, and importantly, external circumstances for English were relatively constant across groups, with no important differences between groups in years of English instruction or learning environments. Thus, the main differences in English proficiency in our participants are likely to have been internal or at least due to individual factors, which may be common to L2 and L3 learning. This would explain the general correlation between target-like performance in the two languages.

For L3 proficiency (RQ 5), those with self-perceived higher German proficiency were also more accurate in judgments. However, there was no relationship between grades in German and discrimination scores in years 1 and 2. This may reflect a focus on for instance vocabulary learning, fixed expressions and rote learning of morphology in the first years of formal L3 instruction, such that grades do not reflect syntactic competence. The positive correlation between grades and discrimination scores in years 4 and 5 is to be expected, as syntactic competence is more likely to influence grades in later years of formal language learning.

RQ 5 also asked what developmental trajectories look like. From year 1 to year 5, we see a general development from judgments around the middle of the scale toward more target-like judgments. However, even in years 4 and 5, there is a relatively high degree of insecurity, especially for ungrammatical structures. Still, these participants do clearly distinguish between grammatical and ungrammatical. Moreover, variance decreases in years 4 and 5, which may indicate less insecurity, although it should be noted that group sizes differ. Overall performance on sentences with sentence adverbials was more accurate than on topicalizations. Still, the lack of interaction effect between groups and sentence types means that we cannot make claims about developmental trajectories for each structure individually.

Of course, the less accurate performance in years 1 and 2 could indicate development from more L2 transfer at the earlier stages to more L1 transfer at later stages, since the former would lead to non-target-like judgments and the latter to target-like judgments. However, a more likely explanation is, as argued above, that learners start out being insecure about German verb placement, and then acquire it with more exposure. In the earliest learners, both structures seem to be readily available for transfer. In later stages, the target-like structure (compatible with L1) seems to become more stable, while the L2 structure is clearly still available. This is compatible with a full transfer potential account of L3 acquisition (Westergaard, 2021).

## **7. Conclusion**

Our results did not show evidence which would indicate that wholesale transfer had taken place from either L1 or L2 at the earliest stages of L3 acquisition. Rather, our data seem to indicate insecurity indicative of unstable representations, and are compatible with property-by-property transfer and full transfer potential (Slabakova, 2017; Westergaard et al., 2017; Westergaard, 2021). We saw no indication that structures which are ‘in place’ (i.e., acquired or internalized) in L2 are more eligible to transfer into L3. Furthermore, higher proficiency in L2 English predicted more target-like performance on L3 German structures, despite the structures in question being different in the two languages. With additional years of instruction in L3 German, participants more clearly distinguished between grammatical and ungrammatical German sentences, indicating development towards increased stability in target-like representations.

The study used a simple methodology of acceptability judgments. While we might have gained more insight into the participants’ L3 competence by asking them to explain why they

rejected certain sentences, this might have introduced an undesired element of explicit metalinguistic knowledge. However, methods forcing participants to indicate a preference for either V2 or V3 word order might have provided clearer results. Still, it is not obvious that this would have given us clearer insight into transfer processes in L3 acquisition in this learning context. Production tasks, on the other hand, could have provided further insight into possible transfer processes. Furthermore, both structures in the test were generally in place in L2. Testing other types of structures which are known to be more problematic in L2 English, e.g., V2/non-V2 with auxiliaries (see Rankin, 2011), might have provided further understanding of the influence of the developing L2 grammar in L3. Moreover, measures of proficiency more objective than self-reports and grades might have allowed a more precise understanding of the role of L2/L3 proficiency. Finally, comparison to L3 learners of languages with word orders similar to L2 English rather than to L1 Norwegian would be useful to further gauge the role of L1 vs L2 as candidates for transfer in instructed L3 acquisition.

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