

# Syntax and its Interfaces in L2 Grammars - Situating L1 effects<sup>1</sup>

Holger Hopp  
University of Groningen

## 1. Introduction

Studies on the first language (L1) acquisition of word order optionality (e.g. Krämer 2000) report a developmental disjunction between syntactic and interpretive knowledge. We find suggestive evidence for a similar disjunction in the second language (L2) acquisition of German optional word order, so-called scrambling. This study examines scrambling in advanced and near-native English-German and Japanese-German Interlanguage (IL). Advanced L2 learners are found to have robust knowledge of underdetermined UG-specified syntax, but they show non-target-like behaviour on interpretive aspects of scrambling. We suggest that this distinction owes to protracted L1 transfer effects at the Interfaces, but does not necessarily entail representational deficits in the architecture of adult L2 grammars.

Section 2 of this paper reviews scrambling in native and non-native language acquisition. In section 3, we formulate the experimental hypotheses. The study is presented in section 4, and its results are discussed in section 5. Section 6 concludes.

## 2. Scrambling

Many SOV languages like German, Dutch and Japanese license argument-adjunct or argument-argument reordering, i.e. scrambling. In German, Dutch and Japanese, objects can alternatively surface in front or behind sentential adverbs or negation (1), as indicated by antecedent-trace relations (e.g. Haider and Rosengren 1998). In addition, German and Japanese allow for objects to appear in front of subjects (2).

- (1) a. ... dass John gestern das Buch kaufte. (German)  
that John yesterday the book bought  
“that John bought the book yesterday.”  
b. ... dass John [das Buch]<sub>1</sub> gestern t<sub>1</sub> kaufte.  
c. ... dat John [het boek]<sub>1</sub> gisteren t<sub>1</sub> kocht (Dutch)  
that John the book yesterday bought  
d. John-ga [sono hon-o]<sub>1</sub> kino t<sub>1</sub> katta. (Japanese)  
John-NOM that book-ACC yesterday bought
- (2) a. ... dass [das Buch]<sub>1</sub> John gestern t<sub>1</sub> kaufte. (German)  
b. [Sono hon-o]<sub>1</sub> John-ga kino t<sub>1</sub> katta. (Japanese)

Despite scrambling being syntactically optional in these languages, it is typically used under particular information-structural and semantic interpretations.

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Information Structure: The licensing of scrambling is partially governed by Information Structure, i.e. the ‘given-new’ contrast (e.g. Vallduví 1992). In all three languages, scrambling typically concerns ‘given’ constituents, that is those previously mentioned in discourse. Due to their information-structural status as ‘non-new’, given constituents are typically defocussed, i.e. unstressed (e.g. Abraham 1986; Ishihara 2001). This entails that ‘new’ constituents are focussed and hence do not scramble easily. We will call this the ‘focussing constraint’ on scrambling.

Semantics: Whereas definite NPs (as in 1&2) scramble freely in German and Dutch, indefinite NPs (‘a book’) scramble only marginally under specific, generic or partitive interpretations (de Hoop 1996). For instance, if the object ‘book’ were indefinite in examples (1b,c), the interpretation would be ‘that John read a specific book yesterday.’ A scrambled indefinite can never receive the existential reading of indefinites according to which ‘a book’ can refer to any book. We will call this the ‘definiteness constraint’. Japanese does not mark definiteness grammatically, so that Japanese scrambling does not instantiate the definiteness constraint (Saito 1989).

## **2.1 L1 acquisition of scrambling**

Research into the L1 acquisition of scrambling has shown that Dutch, German and Japanese children initially go through a stage up to around age three to four when scrambling is nearly absent or optional in children’s production (e.g. Schaeffer 2000; Eisenbeiss 1994; Otsu 1994). By age four, children appear to have acquired adult-like syntax of scrambling, that is, they predominantly raise objects across negation and scramble discourse-given objects across adverbials.

In comprehension experiments, however, Dutch children as old as 8 years (Krämer 2000) and even 12 years (Philip 2003) fail to assign adult-like interpretations to scrambled indefinites. Whereas they interpret unscrambled noun phrases like adults, they do not appear to relate scrambled noun phrases to the preceding discourse. Moreover, they are not aware of the semantic effects of scrambling in that they interpret scrambled and non-scrambled orders alike. In light of the delay in the comprehension data, Krämer (2000) suggests that the integration of discourse in syntax is a gradual process whose pace is determined by the awareness and coordination of context, morphology and information structure. Crucially, children are hypothesized to start mapping discourse onto syntax only when the input makes the context-form pairing evident, such that convergence on the adult grammar will be delayed for rare or underdetermined interpretation-to-form mappings. Hence, the correct mapping of discourse function onto syntactic form is predicted to emerge at different ages for different constructions.

## **2.2 L2 acquisition of scrambling**

In a cross-sectional elicited production study of child and adult L2 acquirers, Unsworth (2003) found that, after initial L1 influence, beginning to intermediate English learners of Dutch pass through similar stages in their Interlanguage development as child L1 acquirers. Initially, the L2 developmental trajectory of scrambling is characterized by the transfer of the canonical English SVO word order. Secondly, an SOV stage is attested in which learners do not scramble at all.

This gives way to an optional scrambling stage, which is followed by target-like scrambling in the L2. When they scramble, child and adult L2 learners respect the definiteness constraint on scrambling across negation, although the production of correctly scrambled indefinites lags behind target-like scrambled definites.

Iwasaki (2003) studied the knowledge of scrambling by three groups of beginning, intermediate and advanced English adult acquirers of Japanese (n=31). In production and judgement tasks, all learners showed above-average performance on scrambling. Yet, their accuracy on scrambled sentences was significantly lower than on unscrambled orders. In fact, some subjects from all proficiency groups did not produce or accept any scrambled sentences at all. Finally, Schreiber and Sprouse (1998) report that high-intermediate English learners make relative distinctions between scrambled and illicit orders in German in an acceptability judgement task. However, these learners a) show low absolute levels of acceptance for scrambling, and b) they overgeneralize word order options derived by scrambling in the L2.

In sum, previous research suggests that English learners of scrambling languages accept and produce scrambled orders in the L2 at least some of the time. What has not yet been studied is a) whether L2 acquirers of different L1s systematically recognize syntactic restrictions on scrambling, and b) whether the L1 affects performance on the syntax or the interpretation of scrambling in the L2.

### 2.3 Remnant scrambling

Scrambling in German and Japanese of the types in (1) and (2) interacts with other movement types, i.e. *wh*-movement and topicalization. Depending on the type of movement, identical surface orders can contrast in grammaticality. In the German example (3a), the DP *den Wagen* ('the car') first scrambles out of the larger phrase containing it; subsequently, the remnant infinitival phrase (*zu reparieren*, 'to repair') topicalizes to sentence-initial position. In (3b), the same order of constituents is ungrammatical in embedded clauses, where scrambling takes place twice. Here, scrambling of the object DP feeds scrambling of the remnant infinitival phrase.

- (3) a. [<sub>α</sub> t<sub>1</sub> Zu reparieren]<sub>2</sub> hat Peter [<sub>DP</sub> den Wagen]<sub>1</sub> schon t<sub>2</sub> versucht.  
 To repair has Peter the car already tried.
- b. \*Ich glaube, dass [<sub>α</sub> t<sub>1</sub> zu reparieren]<sub>2</sub> Peter [<sub>DP</sub> den Wagen]<sub>1</sub> schon t<sub>2</sub>  
 I think that to repair Peter the car already  
 versucht hat.  
 tried has  
 "I think that Peter already tried to repair the car."

Müller (1998) and Takano (2000) argue that the asymmetry in (3) reflects the operation of a putatively universal constraint on syntactic movement – the Principle of Unambiguous Domination (*UD*) as given in (4).

- (4) **Principle of Unambiguous Domination (*UD*)** (Müller 1998; Takano 2000)  
 In a derivation yielding the configuration ...[<sub>A</sub> ... t<sub>i</sub> ...]<sub>j</sub> ...B<sub>i</sub> ... t<sub>j</sub> ..., movement of B and movement of A may not be of the same type.

*UD* prohibits remnant movement if both movements are of the same type, where type means scrambling, *wh*-movement or topicalization. The effects of *UD* can also be seen in the context of Japanese (*wh*)-scrambling. Remnant movement in cases where scrambling feeds *wh*-movement (5a) is licit, since different types of movement are involved. By contrast, remnant scrambling across scrambling (5b) is disallowed (examples from Tsujioka 2001: 492).

- (5) a. [<sub>CP</sub> [<sub>SC</sub> t<sub>1</sub> donna-ni kirei-ni]<sub>2</sub> [<sub>TP</sub> biyoosi-ga [<sub>DP</sub> Mary-o]<sub>1</sub> t<sub>2</sub> sita] no]  
           how.much beautiful beautician-NOM Mary-ACC did Q  
       b. \* [<sub>TP</sub> [<sub>SC</sub> t<sub>1</sub> kirei-ni]<sub>2</sub> [<sub>TP</sub> biyoosi-ga [<sub>DP</sub> Mary-o]<sub>1</sub> t<sub>2</sub> sita]]  
           beautiful beautician-NOM Mary-ACC did

Importantly, English does not effect the same grammaticality contrasts governed by *UD*. Since English does not have scrambling, the available movements in English do not allow for any grammatical remnant movement. Since topicalization independently creates strong islands, the interaction of topicalization and *wh*-movement cannot yield grammatical derivations (6a). (6b), a case of remnant *wh*-movement across *wh*-movement, is independently ruled out by subadjacency.

- (6) a. Who<sub>1</sub> do you think [the book]<sub>2</sub> she gave t<sub>1</sub> t<sub>2</sub>?  
       b. \* [<sub>NP</sub> Which picture of t<sub>1</sub> ]<sub>2</sub> do you wonder [<sub>CP</sub> who<sub>1</sub> she likes t<sub>2</sub>] ?

In sum, although regulated by a universal principle (*UD*), remnant movements are differently realized in languages due to the availability of relevant movement types. Lacking scrambling, English does not effect a grammaticality contrast in remnant movement configurations. Accordingly, there is no evidence of the operation of *UD* for these movement types in English, whereas there is in Japanese. The typological asymmetries in properties of scrambling (Table 1) bear different implications for the learnability of word-order optionality for L2 acquirers of German.

	English	Japanese	German
<i>UD</i> contrasts (syntax)	-	+	+
Focussing constraint	-	+	+
Definiteness constraint	-	-	+

Table 1: Properties of scrambling in English, Japanese and German.

### 3. Hypotheses and predictions

In order to acquire scrambling, learners of German face three tasks. First, they have to recognize that scrambling and topicalization of full phrases (2a) are possible and that remnant topicalization across scrambling (3a) is also licit. Second, they must learn that remnant scrambling across scrambling (3b) is illicit. Third, they must learn the information-structural and interpretive constraints on German scrambling.

Whereas the possibility of scrambling might be inducible even from its rare occurrences, the syntactic constraints and the interpretive constraints on scrambling are underdetermined in the input (Hopp 2002; Schreiber and Sprouse 1998). Due to Poverty of the Stimulus and the differential realization of scrambling in English,

Japanese and German (Table 1), one may expect differences in syntactic and interpretive knowledge by advanced English and Japanese L2 learners of German.

We will frame this study in the context of three different models of (advanced) L2 acquisition. First, ‘syntactic impairment’ models hold that a mismatch in syntactic properties between L1 and L2 precludes the target-like acquisition of L2 syntax (e.g. Hawkins and Chan 1997). On this account, English learners, on the one hand, should behave differently from Japanese learners and German natives, on the other hand, at least on knowledge of syntactic *UD* constraints on scrambling. Second, ‘Interface’ approaches postulate that protracted L1 transfer effects preclude native-like behaviour at the Interfaces of syntax, rather than in the computational syntactic system (Sorace 2003). According to this model, advanced English and Japanese learners are predicted to behave similarly to native speakers on syntactic *UD* effects, yet differ in Interface knowledge relative to the properties of their respective L1s. Note that both of the above models posit L1-induced representational deficits in L2 grammars, namely at the level of syntax (Hawkins and Chan) or Interfaces (Sorace). Finally, some approaches posit that L2 grammars are not deficient in any domain (e.g. Schwartz and Sprouse 1996). However, protracted effect of L1 transfer are still expected, in particular on properties for which the L2 input is not sufficiently robust or unambiguous to occasion grammatical restructuring from the L1 properties. According to this model, L1-specific behaviour at advanced and near-native levels should be manifested only on underdetermined aspects in the L2, since grammatical knowledge is seen as unimpaired (the ‘Full Transfer/Full Access’ model). The predictions of the different models will be tested in the study below.

#### 4. The study

This study tested scrambling, topicalization, licit remnant movement and illicit remnant movement in advanced L2 German as in the infinitival paradigm (7).

##### (7) Infinitival paradigm

- a. *scrambling of intact phrase (int. scr.):*  
 Ich glaube, dass [ den Wagen zu reparieren]<sub>k</sub> Peter schon t<sub>k</sub> versucht hat.  
 I think that the car to repair Peter already tried has  
 “I think that Peter already tried to repair the car.”
- b. *topicalization of complete phrase:*  
 [Den Wagen zu reparieren]<sub>k</sub> hat Peter schon t<sub>k</sub> versucht.
- c. *remnant topicalization across scrambled phrase:*  
 [t<sub>i</sub> Zu reparieren]<sub>k</sub> hat Peter [den Wagen]<sub>i</sub> schon t<sub>k</sub> versucht.
- d. *remnant topicalization (acr. scr. phrase) across finite clause boundary:*  
 [t<sub>i</sub> Zu reparieren]<sub>k</sub> glaube ich [ t'<sub>k</sub> hat Peter [den Wagen]<sub>i</sub> schon t<sub>k</sub> versucht]
- e<sub>1</sub>. *remnant scrambling across short-scrambled phrase:*  
 \*Ich glaube, dass [t<sub>i</sub> zu reparieren]<sub>k</sub> Peter [den Wagen]<sub>i</sub> schon t<sub>k</sub> versucht hat.
- e<sub>2</sub>. *remnant scrambling across medium-scrambled phrase:*  
 \*Ich glaube, dass [t<sub>i</sub> zu reparieren]<sub>k</sub> [den Wagen]<sub>i</sub> Peter schon t<sub>k</sub> versucht hat.
- f. *remnant topicalization across topicalized phrase:*  
 \*[ t<sub>i</sub> Zu reparieren]<sub>k</sub> glaube ich [den Wagen]<sub>i</sub> hat Peter schon t<sub>k</sub> versucht.

We tested two paradigms of (remnant) movement, the infinitival paradigm as in (7) and an analogous DP paradigm, where PPs are extracted from complex DPs (see Hopp in press). All sentences in (7) are truth-conditionally identical and differ solely with respect to information structure. Overall, a 74-item grammaticality task was devised comprising three tokens for each experimental sentence type and 35 filler items. In total, 40 items were grammatical and 34 items ungrammatical.

All items were embedded in discourse contexts and presented visually and auditorily. Pilot studies showed that the provision of context and intonation facilitates the acceptance of marked non-canonical and even ungrammatical orders (Hopp 2002). Subjects rated the acceptability of sentences on a five-point scale ranging from ‘-2’ (‘not possible’) to ‘+2’ (‘possible’); ‘x’ for ‘don’t know’.

Twenty-six English-speaking and 13 Japanese learners of German, as well as 26 native speaker controls, took part in the experiment (Table 2). The 39 L2 speakers were allocated to three proficiency groups on the basis of a 40-item cloze test: E/J<sub>1</sub> - High Intermediate (scores from 14 to 25), E/J<sub>2</sub> - Advanced (26-34) and E<sub>3</sub> - Near Native (>35, i.e. in the native range). The means in the cloze test were significantly different between proficiency groups, yet not between proficiency-matched groups.

		E <sub>1</sub> H. Inter- mediate	E <sub>2</sub> Advanced	E <sub>3</sub> Near Native	J <sub>1</sub> H. Inter- mediate	J <sub>2</sub> Advanced	Natives
N		7	13	6	8	5	26
Cloze test (max. 40)	range	14-25	26-33	36-40	14-24	27-34	35-40
	<i>x</i>	19.3	28.7	39.2	18.8	30.4	37.2
Length of exposure	range	9.5-20	9.5-40	16-45	4-9	16-35	
	<i>x</i> (yrs)	12.5	16.7	29.2	6.4	22	

Table 2: Subject information by group.

## 5. Results

As for the syntax of word order optionality, successful acquisition of German word order would require L2 speakers to make clear contrasts in their acceptance of optional word orders and ungrammatical orders (for numerical results, see Appendix). All groups indeed demonstrate clear relative contrasts in their acceptance of grammatical and ungrammatical word orders (for details, see Hopp 2002, in press). Table 3 (overleaf) shows the differences in acceptance between grammatical and ungrammatical sentence types for both paradigms. Statistically significant differences are in bold print. In the infinitival paradigm, all native and non-native groups establish robust relative contrasts between licit and illicit sentence types at a level of at least  $p < 0.05$  (Wilcoxon Signed-Rank test). Due to the small sample sizes the differences reach only marginal significance for groups E<sub>3</sub> and J<sub>2</sub>. In the analogous DP paradigm, all L2 subjects equally distinguish between grammatical and ungrammatical sentence types ( $p < 0.05$ ). The exception is remnant topicalization across topicalization in the DP paradigm (7f), which is not significantly different from licit remnant movements for any group, including the native controls. Presumably, some subjects assign the main clause in this

construction (*glaube ich*, ‘I think’) a parenthetical reading, which voids the syntactic constraints (see Hopp 2002). In sum, however, all L2 groups make firm contrasts along the target-language grammaticality divide.

Type	Type	Infinitival paradigm	DP paradigm	Groups
		significant difference		
Scrambling of complete phrases (7a)	*Remnant scrambling across scrambling (7e)	<b>p&lt;0.05</b>	<b>p&lt;0.05</b>	all
Topicalization of complete phrases (7b)	*Remnant topical. acr. topicalization (7f)	<b>p&lt;0.05</b>	<b>p&lt;0.05</b>	all
Remnant topicalization across scrambling (7c)	*Remnant scrambling across scrambling (7e)	<b>p&lt;0.05</b>	<b>p&lt;0.05</b>	all exc. E <sub>3</sub> & J <sub>2</sub>
Remnant topicalization across scrambling (7c)	*Remnant topical. acr. topicalization (7f)	<b>p&lt;0.05</b>	p>0.05	all
Long remnant topical. acr. scrambling (7d)	*Remnant scrambling across scrambling (7e)	<b>p&lt;0.05</b>	<b>p&lt;0.05</b>	all exc. E <sub>3</sub> & J <sub>2</sub>
Long remnant topical. acr. scrambling (7d)	*Remnant topical. acr. topicalization (7f)	<b>p&lt;0.05</b>	p>0.05	all

Table 3: Comparison of acceptance of sentence types. By groups and paradigms.

These robust distinctions are replicated in the individual results of the L2 subjects (see Hopp in press). Each L2 subject, irrespective of proficiency level and L1, shows a strong acceptability contrast between licit scrambling (7a) and illicit remnant scrambling (7e) as well as between grammatical remnant movement (7c,d) and ungrammatical remnant movement (7e,f). This shows that the hypothesis space in the L2 acquisition of optional word order is systematically constrained, and that advanced L2 learners do not overgeneralize syntactic options in German.

In sum, individual and group data show that advanced English and Japanese learners a) recognize optional word orders in L2 German, and b) correctly rule out illicit instances of remnant scrambling and topicalization. Especially given the Poverty of the Stimulus for the English learners, these results imply that abstract IL representations of syntax a) are not deficient and b) extend beyond the L1 grammar.

### 5.1 Interpretive knowledge

In the comparison of the absolute acceptance rates across sentence types, a construction-specific asymmetry surfaces between L1 groups and between the non-native and the native groups for scrambling (e.g. 7a). By contrast, no statistically significant differences are measurable for topicalization (e.g. 7b). Figure 1 (overleaf) graphs the comparison of acceptance rates between the proficiency-matched High Intermediate L2 groups and the native controls for scrambling and topicalization. The English group, E<sub>1</sub>, accepts scrambling at significantly lower levels (p<0.05) than the matched Japanese group, J<sub>1</sub>, in the infinitival paradigm (Mann-Whitney U test). There is also a sizeable difference in acceptance of scrambling between E<sub>1</sub> and the native group. By contrast, the Japanese groups do not differ from natives. In the

DP paradigm, all Japanese groups accept scrambling at significantly higher levels than the English groups ( $p < 0.05$ ) and the natives ( $p < 0.01$ ). Equally, the English groups accept scrambling significantly more than native controls ( $p < 0.05$ ). These differences persist to a slightly lower degree in the performance of the advanced groups (Hopp 2002). For topicalization, there are no differences between any of the groups in any paradigm.

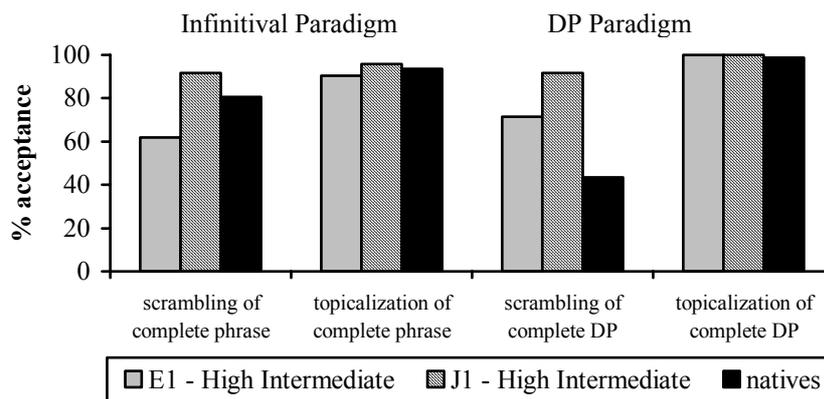


Figure 1: Acceptance of scrambling (7a) and topicalization (7b). E<sub>1</sub>-J<sub>1</sub>-natives.

How can we interpret these asymmetric findings between the L2 groups and between the non-natives and the natives? Given that it is unlikely that the English and Japanese L2 groups were exposed to systematically different input, the differences between the groups reflect the distinct L2 initial states, i.e. the transfer of L1 grammatical properties (Schwartz and Sprouse 1996). Yet, differences between groups are not simply explicable by the availability of scrambling in the L1. If so, the Japanese groups would be expected to perform like the German natives, because both languages have scrambling. Rather, the differentiated results point to L1 effects at the interfaces, i.e. the Syntax-Information Structure for the infinitival paradigm, and the Syntax-Semantics interface for the DP paradigm. We discuss these in turn.

### 5.1.1 Information Structure

Recall from section 2 that scrambling in both German and Japanese is subject to information-structural conditions, namely, that scrambled constituents must not be focussed. Since it does not have scrambling, English does not encode the focus condition. Moreover, the closest match to scrambling in English, topicalization, is not subject to a focussing constraint, and both focussed and unfocussed constituents can topicalize (Prince 1997). Accordingly, neither the L1 provides any relevant information about the interface licensing conditions of scrambling for English learners, nor are these inducible from the input. This contrast between English and Japanese is systematically reflected in the results on scrambling in the infinitival paradigm. The Japanese and German groups behave indistinguishably, whilst the English groups differ from both. Arguably, the non-convergence of the English groups reflects protracted L1 transfer at the Syntax-Information Structure interface.

### 5.1.2 Definiteness

In German, scrambling of DPs (8) is subject to a definiteness constraint (sec. 2).

- (8) ?Ich denke, dass [einen Film über Frankreich]<sub>i</sub> Thorben gestern t<sub>i</sub> gesehen hat.  
 I think that a film about France Thorben yesterday watched has  
 “I think that Thorben watched a film about France yesterday.”

The low overall acceptance of (8) by native speakers (43.6%) bears out the operation of the definiteness constraint (see also Hopp in prep.). By contrast, all L2 groups accept this type of scrambling at more than 60%. The discrepancy between groups becomes even more striking if we compare the acceptance of scrambling in the DP (8) and the infinitival paradigm (7a) (Table 4). This comparison isolates the effects of definiteness. While scrambling in the infinitival and the DP paradigm are similar in terms of movement operations and information structure, scrambling in the infinitival paradigm is not subject to definiteness effects. Hence, differences in the acceptance of these types of scrambling likely reflect the effects of definiteness.

Group	DP paradigm (8) (def. constraint)	Infinitival par. (7a) (no def. constraint)	Difference in percent	Significance level
Natives	43.6%	80.5%	36.9%	<b>p&lt;0.001</b>
E <sub>1</sub>	71.4%	61.9%	9.5%	p=0.817
E <sub>2</sub>	59%	64.1%	5.1%	p=0.615
E <sub>3</sub>	61.1%	66.7%	5.6%	p=0.717
J <sub>1</sub>	91.7%	91.7%	0	p=0.296
J <sub>2</sub>	80%	73.3%	6.7%	p=0.750

Table 4: Relative difference between acceptance of scrambling across paradigms.

Table 4 shows that native speakers make a stark difference in accepting scrambling between the two paradigms. None of the non-native groups evidences similar behaviour in so far as scrambling is deemed equally acceptable in both paradigms. Neither L1 nor proficiency level affects performance on the scrambling of indefinites. Such uniform treatment of scrambling in both paradigms suggests that the L2 subjects are not sensitive to the definiteness constraint. Again, it appears that this is a reflex of protracted L1 influence at the interfaces: Japanese does not encode definiteness grammatically, and scrambling is not affected by semantic factors (e.g. specificity) in Japanese (Saito 1989). English does not instantiate definiteness constraints on optional movements, i.e. topicalization, either, as both definites and indefinites topicalize (Ward and Prince 1991). For definiteness effects on German scrambling, English and Japanese learners retain the divergent L1 configuration.

## 6. Discussion

The finding of this study that syntactic knowledge is fully instantiated in IL grammars is clearly incompatible with accounts that postulate L1-specific syntactic impairment in adult L2 acquisition (Hawkins and Chan 1997). Even under Poverty of the Stimulus, L2 grammars demonstrably extend beyond the L1 representations in

syntax. This result disconfirms models which posit differences between native and IL grammars in L1-specific or incomplete representations of syntactic knowledge.

Rather, the present study unearthed a disjunction between universally represented syntactic knowledge and L1-specific Interface knowledge in advanced adult L2 acquisition. This finding is in line with previous research on very advanced and near-native IL grammars. In cross-linguistic studies, e.g. Bruhn de Garavito (2000), Coppieters (1987), Cranshaw (1997) and Sorace (1993) report that identity in L1 and L2 grammatical properties constitutes an important factor for native-like performance. Moreover, these studies found that the strongest divergence between native and non-native speakers was not in syntax, but where interpretation constrains syntactic options, e.g. aspectual distinctions (Coppieters, Cranshaw), animacy (Bruhn de Garavito) and semantically governed auxiliary selection (Sorace). In areas of interpretation, advanced speakers showed protracted L1 transfer. Sorace (1993) suggests that these Interface domains are most susceptible to persistent L1 effects.

What is the nature of these protracted L1 transfer effects? Sorace (2003) argues that interpretable features, i.e. grammatically encoded features of semantic interpretation, undergo maturation and thus are not robustly represented in adult L2 acquisition. L2 acquirers are claimed to waver between the L1 and the L2 options. A similar prediction is made by the Full Transfer/Full Access model (Schwartz and Sprouse 1996), according to which the L1 grammar fully informs Interlanguages initially. Where the L2 input does not provide robust, overt and unambiguous evidence of the L2 grammatical properties that expunges the L1 settings, the IL grammar will retain the L1 properties. Note that the predictions by Sorace and Schwartz and Sprouse differ in one crucial respect. Sorace claims that interpretable features are generally subject to protracted L1 influence in L2 acquisition due to maturational change, while Schwartz and Sprouse hold that L1 effects will prevail solely on empirically underrepresented aspects of the L2 at near-native levels.

With respect to the scrambling in this study, it is difficult to arbitrate between these two views. In the target-language input, it is typically the form-to-function mappings that are underdetermined, since the relations between form and context of use are often not transparent. As the real-world and discourse contexts of linguistic utterances are extremely rich, learners will find it difficult, if not impossible, to identify the specific aspects of the context that licenses the use of a particular linguistic form. Provided the L1 and the L2 employ different mappings in this respect, the L2 input will typically provide few, if any, input-context pairings that unambiguously conflict with the L1 mapping. As negative evidence is likely not to be available, English and Japanese learners face an insuperable superset-subset problem in learning that e.g. definiteness constrains German scrambling. If learners assume on the basis of their L1s that definiteness does not constrain scrambling, learners will not receive any counterevidence in the input, since the statistically few occurrences of scrambled definites are not discernible from the non-occurrence of scrambled indefinites. Without an analogous definiteness constraint in the L1, learners will thus fail to converge on the target-language properties even at ultimate attainment.

Research on the L1 acquisition of the Interface conditions on scrambling has emphasized the importance of robust input for convergence. According to Krämer (2000), discourse integration is delayed in the L1 acquisition of scrambling as there

are few relevant context-input pairings that are necessary for establishing mappings from discursal to syntactic structure. In L1 acquisition, children gradually integrate discourse interpretation into syntax. In L2 acquisition, we argue, successful discourse integration can be blocked by L1 transfer, which creates a subset problem that precludes convergence on the target language. Due to L1 transfer, L2 learners thus construct locally dissimilar grammars from native speakers, whenever learnability considerations lead L2 learners to accommodate input differently than L1 acquirers. Given that the L1 initially informs IL grammars, the differential analysis of input can entail divergent endstates in native and non-native grammars even if both are supported by the same universal architecture. Accordingly, representational deficits do not appear to be necessarily implicated in any of the grammatical IL domains investigated in this study. Whether this analysis holds for different phenomena and across different L1s is for future research to show.

## Appendix

Infinitival Paradigm	(7a) scr.	(7b) top.	(7c) rem. top. (scr.)	(7d) l. rem. top (scr.)	(7e1) *rem. scr./s-scr.	(7e2) *rem. scr./m-scr	(7f) *rem. top./top
Natives (n=26)	62/77	73/78	31/52	22/52	10/78	19/78	2/78
E <sub>1</sub> (n=7)	13/21	19/21	8/14	10/14	1/21	5/21	2/21
E <sub>2</sub> (n=13)	25/39	35/39	10/26	10/26	4/39	3/39	4/39
E <sub>3</sub> (n=6)	12/18	17/18	3/11	4/11	2/17	1/18	3/18
J <sub>1</sub> (n=8)	22/24	23/24	7/16	6/16	0/24	4/24	2/24
J <sub>2</sub> (n=5)	11/15	13/15	5/10	5/10	1/15	4/15	2/15
DP Paradigm	(8)						
Natives (n=26)	34/78	77/78	48/77	59/78	4/78		45/78
E <sub>1</sub> (n=7)	15/21	21/21	17/21	17/21	4/21		10/21
E <sub>2</sub> (n=13)	23/39	38/39	34/39	34/39	4/39		22/39
E <sub>3</sub> (n=6)	11/18	18/18	13/17	16/18	0/17		10/18
J <sub>1</sub> (n=8)	22/24	24/24	16/23	14/24	4/24		12/24
J <sub>2</sub> (n=5)	12/15	15/15	15/15	11/15	2/15		11/15

Acceptance of sentence types in infinitival and DP paradigm by group (numbers).  
Judgements of [+1] and [+2] collapsed.

## References

- Abraham, W. (1986) 'Word order in the middle field of the German sentence', in: W. Abraham and S. de Meij (eds.) *Topic, Focus and Configurationality*. Amsterdam: John Benjamins, 14-38.
- Bruhn de Garavito, J. (2000) *The Syntax of Spanish Multifunctional Categories and Near-native Competence*. PhD. dissertation, McGill.
- Coppieters, R. (1987) 'Competence differences between native and near-native speakers'. *Language* 63: 544-573.
- Cranshaw, A. (1997) *A Study of Anglophone Native and Near-Native Linguistic and Metalinguistic Performance*. Ph.D. dissertation. University of Montreal.

- Eisenbeiss, S. (1994) 'Kasus und Wortstellungsvariation im deutschen Mittelfeld. Theoretische Überlegungen und Untersuchungen zum Erstspracherwerb', in: B. Haftka (ed.) *Was determiniert Wortstellungsvariation?* Westdeutscher Verlag: Opladen, 277-298.
- Haider, H. and I. Rosengren (1998) *Scrambling*. Lund: University of Lund.
- Hawkins, R. and Y. Chan (1997) 'The partial availability of Universal Grammar in second language acquisition: The 'failed functional features hypothesis''. *SLR* 13, 185-211.
- De Hoop, H. (1996) *Case Configuration and Noun Phrase Interpretation*. Garland: New York.
- Hopp, H. (2002) *Constraints on Word Order Variation: Learnability and UG in Advanced English-German and Japanese-German Interlanguage*. MA thesis, Durham University.
- Hopp, H. (in press) 'Constraining L2 word order optionality: Scrambling in advanced English-German and Japanese-German Interlanguage'. *Second Language Research*.
- Hopp, H. (in prep.) 'Definiteness and focus effects on scrambling in German – A psycholinguistic study', ms. University of Groningen.
- Iwasaki, N. (2003) 'L2 acquisition of Japanese: Knowledge and use of case particles in SOV and OSV sentences', in: S. Karimi (ed.) *Word Order and Scrambling*. Oxford: Blackwell.
- Ishihara, S. (2001) 'Stress, focus and scrambling in Japanese', in: E. Guerzoni and O. Matushansky (eds.) *A Few From Building E39*. Cambridge, MA: MIT Press, 151-186.
- Krämer, I. (2000) *Interpreting Indefinites: An Experimental Study of Children's Language Comprehension*. Ph.D. dissertation. University of Utrecht.
- Müller, G. (1998) *Incomplete Category Fronting*. Dordrecht: Kluwer.
- Philip, W. (2003) 'Extreme delay in the acquisition of a syntax-semantic interface rule: The case of the obligatorily specific Dutch indefinit'. Talk at VU Amsterdam, October 23.
- Prince, E. (1997) 'On the functions of left-dislocation in English discourse', in: A. Kamio (ed.) *Directions in Functional Linguistics*. Amsterdam: John Benjamins, 117-143.
- Saito, M. (1989) 'Scrambling as semantically vacuous A'-movement', in: M. Baltin and A. Kroch (eds.) *Alternative Conceptions of Phrase Structure*. Chicago: University of Chicago Press, 182-200.
- Schaeffer, J. (2000) *The Acquisition of Direct Object Scrambling and Clitic Placement: Syntax and Pragmatics*. Amsterdam: John Benjamins.
- Schreiber, T. and R.A. Sprouse (1998) 'Knowledge of topicalization and scrambling in English-German interlanguage'. *McGill Working Papers in Linguistics* 13, 162-172.
- Schwartz, B.D. and R.A. Sprouse (1996) 'L2 cognitive states and the Full Transfer/Full Access model'. *Second Language Research* 12, 40-72.
- Sorace, A. (1993) 'Incomplete vs. divergent representations of unaccusativity in non-native grammars of Italian'. *Second Language Research* 9, 22-47.
- Sorace, A. (2003) 'Near-nativeness', in: C. Doughty and M. Long (eds.) *Handbook of Second Language Acquisition Theory and Research*. Oxford: Blackwell, 130-151.
- Takano, Y. (2000) 'Illicit remnant movement: An argument for feature-driven movement'. *Linguistic Inquiry* 31, 141-156.
- Tsujioka, T. (2001) 'Improper remnant movement'. *Proceedings of NELS* 31, 483-500.
- Unsworth, S. (2003) 'Direct object scrambling in adult and child L2 Dutch'. Paper presented at the Tokyo Conference on Psycholinguistics, March 15.
- Vallduví, E. (1992) *The Informational Component*. New York: Garland Press.
- Ward, G.L. and E. Prince (1991) 'On the topicalization of indefinite NPs'. *Journal of Pragmatics* 16, 167-177.