

## LATVIAN/ENGLISH AND GERMAN/ENGLISH BILINGUAL ACQUISITION: NEW LIGHT ON UNIVERSAL GRAMMAR

*Christina Schelletter<sup>1</sup>*

*Indra Sinka*

*Michael Garman*

*Department of Linguistic Science, University of Reading*

### 1. Introduction

Over the past ten years, new insights into the mechanisms of language acquisition have been due to the principles-and-parameters model of acquisition (Hyams, 1986; Chomsky, 1986, 1995; Freidin, 1992; Meisel, 1995). According to this model, children are innately endowed with a set of principles which are part of Universal Grammar (UG). These principles are the same for adult and child grammars. Language-specific differences are explained by different settings of parameters. Hence the acquisition process involves finding out how such parameters in a particular language are set.

One area of discussion has been the availability of UG principles to children at the onset of language acquisition. One view is that all are available to the child from the start and that there is a continuum between the child and adult grammars: this is the Continuity Hypothesis (Pinker, 1984). The other is the Maturation Hypothesis (Borer & Wexler, 1987; Radford, 1990, 1995) which assumes that certain principles of UG need to mature in order to become available to the child.

The Continuity Hypothesis generates two distinct versions: the Full Competence Hypothesis (FCH: Poeppel & Wexler, 1993) and the Lexical Learning Hypothesis (LLH: Clahsen et al., 1994). Both assume that UG principles are available from the start. By the FCH, minimal exposure to primary linguistic data is required for parameters to be set –just a handful of examples of SVO order constructions in English would act as a ‘trigger’ to set the word order parameter for that language, for example. According to the Lexical Learning Hypothesis, grammatical development starts as early as the child’s learning of the first lexical and morphological items together with their contingent grammatical properties.

By contrast, the Maturation Hypothesis allows for the concept of readiness, prior to which any amount of primary linguistic data would not trigger parameter setting. Radford (1990, 1995) found that English-speaking children did not employ any functional categories

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(FCs) before the age of 24 months. At around this age, children are said to have reached the functional stage and to have ‘acquired’ (though Radford stresses not necessarily ‘mastered’) a full set of FC systems.

Previous studies have investigated the different hypotheses on the basis of monolingual children and by cross-linguistic comparisons between different monolingual populations. However, in order to make a judgment about the availability of UG principles to children at the onset of language acquisition, it is necessary to control for stage of cognitive development. This is difficult to achieve with distinct monolingual populations, because it might be that a child’s experience with a language in which, e.g., tense is highly marked makes the underlying concept involved more available. It is also difficult to determine the child’s cognitive stage by language-independent means (Atkinson, 1992). So, while cross-linguistic studies involving distinct monolingual populations are suggestive, they cannot be conclusive on the issue of the continuity vs maturation hypotheses.

The necessary control for stage of cognitive development is found by using a single case-study approach with bilingual children. We expect such children to employ different linguistic means in relation to the same stage of cognitive development. If a child who is not using FCs in English is simultaneously using corresponding FCs in his/her other language, this cannot be attributed to differing stages of cognitive development or differing availability of UG principles in the same child.

## **2. Method**

### **2.1. Subjects and procedure**

Sonja is acquiring English and German: her father is English, her mother German, and there is a German au-pair and an English child minder. Maija is acquiring English and Latvian: her father is English, and is the primary caretaker, and her mother is Latvian, as are her grandparents. For each child, the input in the two languages has been equal. Recordings of around 45 minutes of free conversation have been made fortnightly, separately for each language; for Sonja, and we will report here on data from the age of 1;11 to 2;6, and for Maija from the age of 1;3 to 1;11.

### **2.2. Analysis**

The data have been coded and analysed in SALT (Miller & Chapman, 1993). For the notion of functional categories (FC) we are adopting the GB framework as described in

Chomsky (1986) with the modifications suggested by Pollock (1989). In this paper, we will deal with three FCs: Tense, Agreement and Complementiser.

The richness of the inflectional morphology in the Latvian data leads us to focus on the tense, agreement and case systems in Maija's development. For Sonja, we also look at tense and agreement, complementiser systems, with the latter reflecting the importance of the acquisition of verb movement in German.

### 3. Results

#### 3.1. General measures (both children)

The first stage of analysis involved looking at general measures such as *type-token ratios* for both children. Tables 1 and 2 provide an overview of the verb types/tokens for Sonja and Maija that occur at different stages of the period under investigation.

Table 1. Types/tokens for verbs in English and German

<i>Age</i>	<i>English verbs</i>		<i>German verbs</i>	
	<i>Types/tokens(TTR)</i>		<i>Types/tokens (TTR)</i>	
2;0	2/10	(0.2)	4/19	(0.21)
2;2	4/14	(0.29)	4/28	(0.14)
2;3	6/23	(0.26)	11/46	(0.24)
2;6	9/59	(0.15)	14/57	(0.25)

Table 2. Types/tokens for verbs in English and Latvian

<i>Age</i>	<i>English verbs</i>		<i>Latvian verbs</i>	
	<i>Types/tokens (TTR)</i>		<i>Types/tokens (TTR)</i>	
1;3	0		1/9	(0.1)
1;4	2/8	(0.25)	5/18	(0.28)
1;6	6/15	(0.4)	13/25	(0.52)
1;7	10/21	(0.48)	16/58	(0.28)
1;11	18/47	(0.38)	24/96	(0.25)

The counts tend to increase over time, indicating that both languages are developing simultaneously, yet with a clear 'lead-lag' pattern emerging between Latvian and English.

### 3.2. Specific measures: Sonja, English/German

#### 3.2.1. English data: verbs

There is no evidence of tense-marking or 3rd person-marking in Sonja's English. Examples (1) show some verbs have an *-ing* inflection, the others are unmarked and the context suggests that some appear as imperatives:

- |     |     |                         |         |
|-----|-----|-------------------------|---------|
| (1) | (a) | teddy doing             | (2;2.7) |
|     | (b) | I want this one         | (2;3.6) |
|     | (c) | get stuck               | (2;3.6) |
|     | (d) | this is Natalie         | (2;6.3) |
|     | (e) | look, a teddy want shoe | (2;6.3) |

Even at 2;6.3, the only type that appears to be marked for 3<sup>rd</sup> person singular present tense is the verb 'to be' but there is no contrastive use with other forms of this verb. There is not much evidence of tense marking, however, although occurrences of perfective forms might indicate developments relating to this category.

#### English data: wh-movement

There is no evidence of wh-movement in Sonja's English data prior to age 2;3. At 2;3, the examples in (2) represent the only attempts to form a wh-question, but the utterances have elements missing:

- |     |        |   |
|-----|--------|---|
| (2) | Child  | <i>(missing question word)</i> is that? |
|     | Father | What's that?                            |
|     | Child  | <i>(missing subject)</i> is a bed.      |

In each of the above child utterances, an element is missing. The first child utterance is an attempted wh-question where the wh-word is missing. In reply to the full wh-question form by the adult, the child produces a structure where the subject is missing. As the example shows, Sonja responds appropriately to the wh-question by the examiner, hence she is able to comprehend the structure. However, due to the fact that she is not able to produce a full wh-question, there is no evidence that she has a *complementiser phrase*.

At the age of 2;6, different wh-questions are used by the child in English, thus showing that the emergence of the Comp system in English lies between 2;3 and 2;6:

- |     |       |                              |
|-----|-------|------------------------------|
| (3) | Child | <i>who's</i> that?           |
|     | Child | <i>what's</i> in this?       |
|     | Child | <i>where's</i> the pussycat? |

On the basis of her verbs as well as her incomplete *wh*-questions up to the age of 2;3, we conclude that Sonja's English data up to this point corresponds to the *categorical stage* of development (Radford, 1990). This is further supported by a lack of oblique case pronoun marking, which is consistent with the FC Agreement not being acquired. The emergence of *wh*-questions in English shows that the child enters the functional stage between 2;3 and 2;6, although there is still no evidence for the other FCs at 2;6.

### 3.2.2. German data: verbs

Studies of the acquisition of the verb position in German (Clahsen, 1986; Jordens, 1990) have focused on the acquisition of a verb movement rule, which enables children to move verbs from final position to second position. While Clahsen links verb movement to the acquisition of agreement, Jordens' study (1990) explores the occurrence of different verb classes in the two different positions.

In Sonja's early data, there is already a difference in the form of verbs occurring in non-final position as opposed to final position, but there is little evidence of person marking. Verbs occur either as infinitives in final position or as stems without the infinitive ending. Stems occur mainly in non-final position. From 2;2 onwards, Sonja uses verb forms that can be identified as reduced participle forms. These forms occur mainly in final position. The following examples illustrate Sonja's use of verb forms up to the age of 2;3.11. German has both weak (regular inflection) and strong (irregular inflection) verb forms. The majority of verbs used contrastively by Sonja are strong forms:

- |     |   |        |
|-----|---|--------|
| (4) | trinken (strong) = 'to drink'                           |        |
|     | (a) <i>trink</i> was (stem, non-final)                  | 2;2.28 |
|     | (b) Junge <i>trinken</i> (infinitive, final)            | 2;2.28 |
| (5) | essen (strong) = 'to eat'                               |        |
|     | (a) Pizza <i>essen</i> (infinitive, final)              | 2;0.0  |
|     | (b) Fische <i>ess</i> da (stem, non-final)              | 2;2.7  |
|     | (c) Miau <i>iss</i> da (stem + vowel change, non-final) | 2;2.14 |
|     | (d) Baby <i>gessi</i> (reduced participle, final)       | 2;1.0  |
| (6) | umfallen (strong) = 'to fall down'                      |        |
|     | (a) ne Junge <i>umfall</i> (stem, final)                | 2;3.2  |
|     | (b) <i>umefalln</i> Junge                               | 2;3.2  |

Sonja's command of verb positions at this stage implies that she is able to move the verb from final position to non-final position, as well as to make changes to the verb form. This requires at least one functional position, thereby showing that she must be beyond the *categorical stage*.

The child's command of verb positions from 2;4 to 2;6 is illustrated in Table 3.

Table 3. Finite and Non-finite forms in V1/V2 and V-final position for German 2;4 to 2;6

	<i>Finite</i>			<i>Non-finite</i>		
	2;4	2;5	2;6	2;4	2;5	2;6
Age	2;4	2;5	2;6	2;4	2;5	2;6
V1/V2	14	42	51	0	0	4
V-final	0	4	0	3	9	4

The finite forms are increasingly marked for different persons. There are a few sentences containing just one nonfinite verb form. Overall, there is evidence for verb movement in the early stages and the acquisition of the FC Agr(eement) between 2;3 and 2;6.

### 3.2.3. German data: w-movement

In contrast to English, w-questions occur in German from quite early on and they do include the w-word wo ‘where’. The majority of these questions do not contain missing elements, as can be seen from (7):

- (7) (a) 2;0 wo is die Piep? (‘where is the bird’?)  
 wo is e Pizza? (‘where is a pizza’?)
- (b) 2;3 wo s die Tisch? (‘where is the table’?)  
 wo is die Junge? (‘where is the-fem boy’?)
- (c) 2;6 wo is die Tablette? (‘where is the tablet’?)  
 wo is das? (‘where is this’?)

The last example occurred in a context where the child asked for the name of an object, hence should have asked ‘*was ist das*’ (‘what is this?’).

W-questions in Sonja’s German data were restricted to those illustrated above. However, the occurring full forms and her command of the verb positions do suggest that she is making use of at least one functional category from 2;0 onwards.

Summarising the findings for the German/English data, in the period up to the age of 2;3 there is no evidence of FCs in English but there is evidence for at least one FC in her German. Hence Sonja would have to be placed at two different stages of development, the categorial stage for English and the beginning of the functional stage for German. In the period from 2;3 to 2;6, there is evidence for Comp in English, while in German, there is evidence for Agr(eement) as well as Comp. Although the child has entered the functional stage for both languages, the lead lag pattern still persists.

### 3.3. Specific measures: English/Latvian

We have noted that the richness of the inflectional marking present leads us to focus on the Tense and Agreement systems within these datasets. We shall first look at the English data and the verbs used by Maija in her early development.

#### 3.3.1. English data: verbs

There is no firm evidence of tense-marking or 3<sup>rd</sup> person-marking in Maija's early English (1;3-1;6), though the context suggests that some appear as imperatives:

- |     |     |            |          |
|-----|-----|------------|----------|
| (8) | (a) | all finish | (1;2.30) |
|     | (b) | get book   | (1;4.21) |
|     | (c) | come on    | (1;6.2)  |
|     | (d) | go put in  | (1;6.2)  |

Other utterances include: push, play 'gain, sit down, stand up.

From age 1;7 - 1;11, Maija's English shows considerable development. Table 4 reveals the picture across 3 age bands:

Table 4. Types/tokens for verbal contrasts in Maija's English at 1;3, 1;7 and 1;11

<i>Infinitive</i>	<i>Tense</i>	<i>3<sup>rd</sup> Sg</i>			<i>Other Sg/Pl</i>		
		<i>Ages</i>			<i>Ages</i>		
<i>Ages</i>	<i>(Mood, Aspect)</i>	1;3	1;7	1;11	1;3	1;7	1;11
1;3 1;7 1;11							
1/1 3/3	Pres Reg			1/1	2/4	6/9	
	+Neg					1/1	
	Pres Irreg		1/3	1/19	1/2		
	+Neg			1/1			
	Simple Past						1/1
	Present			1/1	1/1		
	Perfective						
	Modal						1/1
	+ Main Verb						

The table gives counts only for correct use of tense and person. Clear development can be seen across the 3 age points.

English data: nouns

Let us look first at the earliest data, from 1;3-1;6. Maija's English data does not contain any pronouns, hence there is no morphological evidence of case-marking in her

English at this stage. However, there is some evidence of plural marking in her data from 1;4 - 1;6. She uses the following forms: book/books, cat/cats, apple/apples contrastively in 100% obligatory contexts.

From 1;7, Maija's English enters the functional stage. At 1;7 she provides not only singular/plural contrasts, but also the I/we distinction and the possessive mummy/mummy's. By 1;11, further contrasts have emerged for case (they/them), gender (it/he) and number (that/those).

### 3.3.2. Latvian data: verbs

There are three types of verb conjugation in Latvian and tenses can be simple or complex. Note that 3<sup>rd</sup> person marking is the same for singular and plural in Latvian.

Within Latvian, Maija reveals a command of complex morphology right from the earliest stages. All her verbs are marked for both tense and person and she has learned to form the negative, which in Latvian is done by prefixing verbs with ne-. In addition to appropriate and contrastive use of 1st and 2nd person singular and 3rd person, Maija also makes use of the 2<sup>nd</sup> person singular imperative and the infinitive forms. At 1;6 she is not yet able to mark 1<sup>st</sup> or 2<sup>nd</sup> person plural.

The following verbs indicate the extent to which Maija's tense and agreement system has developed by age 1;6. Two examples are given: one regular verb and one irregular verb.

(9)	dziedāt (regular), 'sing'		
(a)	dziedu	(Present, 1st Sg)	1;4.6
(b)	nedziedu	(Present, 1st Sg, Neg)	1;6.12
(c)	dzied	(Present, 3rd Sg/Pl)	1;4.6/1;4.18
(10)	būt (irregular), 'be'		
(a)	esi	(Present, 2nd Sg)	1;4.18
(b)	ir	(Present, 3rd Sg/Pl)	1;5.17/1;6.1
(c)	nav	(Present, 3rd Sg/Pl, Neg)	1;2.30-1;6.29
(d)	bija	(Past, 3rd Sg/Pl)	1;4.6/1;5.17
(e)	būs	(Future, 3rd Sg/Pl)	1;4.6

Table 5 shows the development in the use of Tense and Person across the 3 age bands:

Table 5. Types/tokens for verbal contrasts in Maija's Latvian at 1;3, 1;7 and 1;11

<i>Infinitive</i>	1;3	0					
<i>Ages</i>	1;7	2/4					
	1;11	5/6					
<i>Tense (Mood, Aspect)</i>		Pres	+Neg	Pres	+Neg	Past	Future
	<i>Ages</i>	Reg		Irreg		Reg	
1 Sg	1;3						
	1;7	2/4	1/30			2/3	
	1;11	1/4	3/7			1/2	2/3
2 Sg	1;3						
	1;7						
	1;11	1/1					
1 Pl	1;3						
	1;7						1/1
	1;11						1/1
3 Sg/Pl	1;3			1/2	1/7		
	1;7	6/6		1/5	1/2	1/1	
	1;11	5/6	1/1	3/59	1/1	2/2	3/3

### 3.3.3. Latvian data: nouns

Latvian nouns are inflected for seven cases and all are marked for gender (masculine and feminine) and number. In contrast to her English data, Maija reveals a command of complex noun morphology in her early Latvian. All of her nouns are marked for case, gender and number and by age 1;6, she has made use of 6 out of 7 cases and shown singular and plural marking, as well as use of the diminutive (which is formed by adding the appropriate masculine or feminine suffixes to nouns; like all nouns, diminutive forms have seven cases and are marked for both gender and number).

The following is an example of a noun used contrastively by Maija with different case and number markings, between the ages 1;4-1;6:

- (11) kāja (feminine), 'leg'
- |     |                |                                    |         |
|-----|----------------|------------------------------------|---------|
| (a) | kāja           | (Nominative Sg,)                   | 1;4.6   |
| (b) | četras kājas   | ('four legs'; Nominative Plural)   | 1;6.1   |
| (c) | kājiņas        | (Nominative Plural Diminutive)     | 1;4.6   |
| (d) | kājām          | (Dative Plural)                    | 1; 5.17 |
| (e) | kurpītes kājās | ('shoes on feet'; Locative Plural) | 1;6.1   |

Summarising, for both verbs and nouns, we can therefore say that Maija's English data up to the age of 1;6 correspond to Radford's (1990) *categorical* stage of development, where productive use of some lexical inflections is starting to emerge. However, her Latvian case, tense and agreement inflections are already well established by age 1;6 and she has clearly entered the *functional* stage of language development. A clear lead-lag pattern has therefore

emerged in the acquisition of the two languages. From 1;7, Maija's English shows considerable development and also enters the functional stage.

#### 4. Conclusion

In summary, the above data provide evidence of developing FCs in German and Latvian from the earliest stages, but not in English. If a bilingual child can at the same time be at different stages of development in its acquisition of two language systems, what might be concluded about the status of Universal Grammar?

The Maturation Hypothesis, based on the concept of (biological) readiness, would predict that functional categories develop in parallel in the two languages, which is clearly not the case here. On the other hand, the Continuity Hypothesis forces us to conclude that where the German or Latvian input is rich enough to trigger FC development, the English input is not. This, however, does not explain why the same FC, having been triggered in one language of the bilingual child, does not emerge simultaneously in the other language. We suggest that the evidence we have presented may need to be interpreted within a framework that allows for a closer interaction between the primary linguistic data and the principles of Universal Grammar than has hitherto been allowed for.

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