Is the Simultaneous Acquisition of Two Languages in Early Childhood Equal to Acquiring Each of the Two Languages Individually?

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A major theoretical question is whether children who are exposed to two languages simultaneously in early childhood accomplish the task by strictly separating the two languages and acquiring each of them like monolingual children do or whether the grammatical systems of the two languages are acquired in relation to each other. The present study is longitudinal and involves three Australian children, who are growing up with German and English simultaneously. The analysis of the data reveals systematic variations from developmental patterns of monolingual German and English children during the middle stages of early language development. From the point of view of the Competition Model, these variations are a result of partially overlapping structures in German and English, which severely increase the complexity of the acquisition task when the middle of the sentence first becomes processible for the children. Thus, cross-linguistic structures can be seen as a normal outcome of the language acquisition process under simultaneous input conditions. It is suggested that the totally separate development of German and English under simultaneous input conditions is an extreme case on the continuum of developmental variation and related to more rapid language development in general. The degree of structural interaction in the developing language systems is seen as related to the structural closeness of the languages as well as the interaction between cognitive conditions of a particular child and features of the input situation.

Introduction

The second half of this century has seen a turn-around in attitudes towards bilingualism from condemning it as harmful to the mind and the soul of the child (Jespersen 1922; Schmidt-Rohr 1933; Weisgerber 1966) to acknowledging intellectual and educational benefits (Peal and Lambert 1962; Bain and Yu 1980; Katchan 1985). The question now is: how is the simultaneous acquisition of two languages (2L1) during the process of primary language acquisition realised? The issue is complicated by the fact that we are not even too sure yet of the mental operations involved in acquiring one first language (L1) and are still debating various theoretical alternatives (Pinker 1984; Clark 1987; Bates and MacWhinney 1989; Radford 1990; Clahsen 1991).

A first general hypothesis regarding the simultaneous development of two languages in early childhood was proposed by Taeschner (1983) and based on her own two German-Italian bilingual children. These children's mixed structures during their third year of life led Taeschner

to propose the "three-stage hypothesis" suggesting that bilingual children progress from not being able to differentiate between their two languages to differentiating them on the lexical but not the structural level to fully differentiating them on both the lexical and the structural level. The "three-stage hypothesis" has since come under criticism (Genesee 1989; Meisel 1989; De Houwer 1990; Schlyter 1990; Döpke 1993). The major drift of the criticism was that young children are quite able to differentiate between the two languages in their environment in spite of some mixing.

As a reaction to the "three-stage-hypothesis" and congruent with its critics, De Houwer (1994) proposed the "separate development hypothesis" for simultaneous bilingualism (2L1). She argued that simultanoeusly bilingual children develop the grammatical structures in each of their two languages based on the language specific input. She based this hypothesis on empirical evidence from her own study of an English-Dutch bilingual child between the ages of 2;7 and 3;4 (DeHouwer 1990, this volume).

A stronger version of the "separate development hypothesis" can be attributed to Meisel and his colleagues (1990, 1994). This group is involved in a longitudinal study of seven French-German bilingual children, whose development was followed from before the children entered the two-word stage. They are suggesting that children growing up with two languages simultaneously acquire each of their two languages like monolingual children. This is congruent with theoretical assumptions of the Unique Entry Principle (Pinker 1984) and Lexical Learning (Rizzi 1989, Clahsen and Penke 1992) according to which the syntactic structures in the respective languages should become available to bilingual children without cross-linguistic errors because of the association of particular lexical items with their language-specific structures.

However, numerous anecdotal reports from parents of bilingual children as well as accounts published by linguists (Leopold 1939-49; Redlinger & Park 1980; Saunders, 1988) confirm that cross-linguistic structures are a normal feature of bilingual children's speech productions. In my own longitudinal data from German-English bilingual children, cross-linguistic structures also abound.

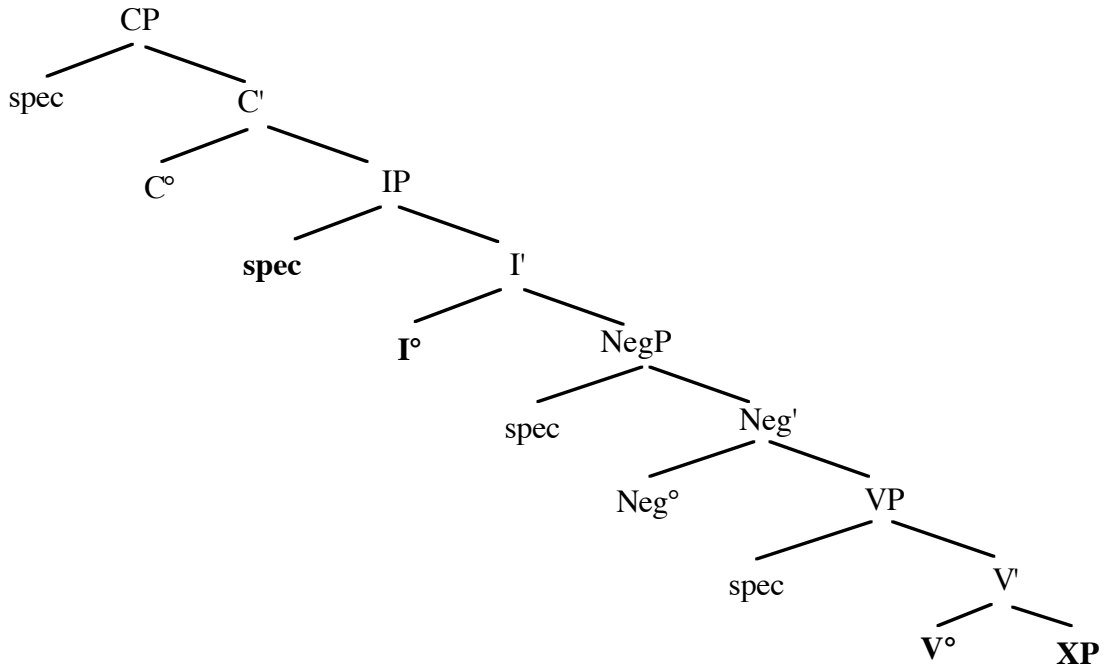
In this paper I will attempt some psycholinguistic explanations for the cross-linguistic structures I have found in my data. After a contrastive sketch of the syntactic structures of German and English, I will review the structural development of my bilingual informants as analysed so far (Döpke 1992, 1993, 1995a,b, in preparation) and compare it with reports on the structural development of German and English monolingual children. In the Discussion section I will attempt a theoretical conceptualisation of the children's cross-linguistic structures which is congruent with theoretical assumptions regarding primary language acquisition as made by the Principle of Contrast (Clark 1987) and the Competition Model (Bates & MacWhinney 1989). This interpretation will suggest that a degree of comparison and contrast of the two languages is operative during the simultaneous acquisition of two languages in early childhood. I will argue that the acquisition of two languages during the primary acquisition process is not principally different from the acquisition of only one language but that the increased processing complexity is responsible for the generation of child structures which are not found in monolingual acquisition.

Structural contrasts and similarities between German and English

The study of the simultaneous acquisition of German and English is made particularly interesting by the fact that, on the surface, these two languages have a number of syntactic structures in common, but the underlying structures are vastly different and result in different surface structures in more complex sentences (Chomsky 1982, 1986; Deprez & Pierce 1993; Haider 1993).

Within the Principle and Parameter framework, English can be described as having head-initial verb phrases (cf. Figure 1, ex.d) and head-initial but weak tense and agreement functions (IP). Therefore main verbs are not raised to I^o, but remain in their original position in the verb phrase, and in the absence of modals or auxiliaries in I^o, inflection affixes are discharged onto the verb (cf. Figure 1, ex.a). Prove for that comes from sentences with adverbs in preverbal position (cf. Figure 1, ex.b). The negation, however, blocks affix lowering. In the absence of modals or auxiliaries, do-support is necessary for tense and agreement to be realised in negated sentences (cf. Figure 1, ex.c). In sentences with complex verb structures (cf. Figure 1, ex.d),

both finite and non-finite verb components precede the verb complements (XP). In the case of topicalisation, the specCP position is filled (cf. Figure 1,ex.e), and the finite verb is in third or even fourth position. Only copulas are raised to I° (cf. Figure 1, ex.f), and since verb fronting is only possible for raised verbs (cf. Figure 1, ex.g), main verbs are never found in C°. The only exception are stereotypical expressions (Figure 1, ex.h). In subordinate clauses, the conjunction takes up the C° position, which does not affect the word order in the rest of the clause in any way (cf. Figure 1, ex.i).

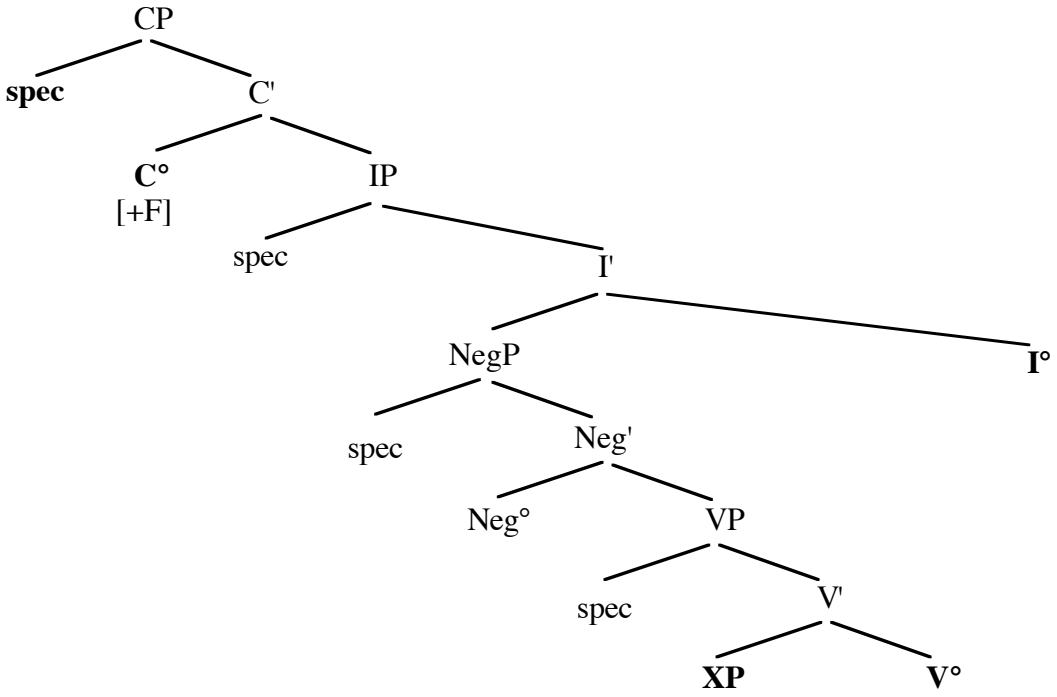


a.			the dog	(-s)			bites	the cat
b.			my dog	(-s)		often	bites	the cat
c.			my dog	does	not		bite	the cat
d.			my dog	has	(not)	(often)	bitten	the cat
e.	yesterday		the dog	(past)			bit	the cat
f.			my dog	is	not			big
g.	where	is	my dog					
h.	there	comes	the cat					
i.		that	the dog	has	not	often	bitten	the cat

Figure 1: English sentence structure

In German, verb phrases are head-final (cf. Figure 2, ex.d) and the inflection parameter (IP) is head-final as well. In order to receive tense and agreement marking, verbs are first raised to I°

and then to C°, because C° attracts finite verbs if it is empty. Topicalisation is obligatory in German. In unmarked cases the subject is topicalised and raised to the specCP position. Thus SVO is achieved through double raising of the verb as well as raising of the subject from specIP



a.	der Hund	beißt				dieKatze		
b.	mein Hund	beißt			oft	dieKatze		
c.	der Hund	beißt		nicht		dieKatze		
d.	der Hund	hat		nicht	oft	dieKatze	gebissen	
e.	heute	hat	der Hund	nicht		dieKatze	gebissen	
f.	mein Hund	ist				groß		
g.	wo	ist	mein Hund					
h.	da	kommt	dieKatze					
i.		daß	der Hund	nicht	oft	dieKatze	gebissen	hat

Figure 2: German sentence structure

to specCP (cf. Figure 2, ex.a). Prove for verb raising comes from sentences with adverbs or negation in postverbal position (cf. Figure 2, ex.b,c). In sentences with complex verbs, the finite and non-finite verb components are separated by the verb complements (cf. Figure 2, ex.d). In the case of marked topicalisation, the subject remains in the specIP position and the constituent to be topicalised is raised into specCP. Consequently the finite verb component always remains in second position in main clauses (cf. Figure 2, ex.e). Thus main verbs, copula, auxiliaries and

modals all behave in the same way with respect to verb raising, and examples f. to h. in Figure 2 are possible with all types of verbs and not restricted with respect to the type of constituent which can be topicalised in specCP either. If, however, the C^o is filled with a conjunction, as is the case in subordinate clauses, the finite verb is only raised once and remains in the head-final I^o position, which produces the verb-last structures in such clauses. Thus subordinate conjunctions and verb-second are mutually exclusive, and main clause word order is believed to be structurally impossible in subordinate clauses.

This short description of German and English has shown that sentences like those in examples a, f, g and h have identical surface structures in German and English. In examples b and c, the relative position of verbs and negation or adverbs differentiates between the languages. In the d. example, German and English differ with respect to the word order in the verb phrase, and in the e. example with respect to the position of the finite verb component. The i. example represent most directly the differences in underlying structures in German and English.

Method

Subjects

The present study is based on longitudinal data from three bilingual German-English children: two boys, JH and CW, and one girl, NS. All three children are first-born The families live in Australia and have adopted the 'one parent–one language' approach. The children have been spoken to in German by their mothers, and in English by their fathers and nearly everyone else in their environment, from birth on. The language of communication between the parents is English in each family. The mothers are tertiary educated native speakers of German and have made a strong commitment to speaking German with their children at all times. The mothers did not mix German and English on either the lexical or the structural level.

All three children were fully able to understand utterances addressed to them in both languages and to express themselves spontaneously in both languages before recording commenced. This plus the daily exposure to both languages was considered appropriate independent evidence that the children were simultaneous bilinguals. The children's ability to express themselves spontaneously in both languages continued to develop throughout the

recording period and beyond, and to date, all children are able to communicate in both languages at a level appropriate for their age.

There was no interruption in the children's exposure to German except during the few days when NS's and JH's mothers were in hospital for the birth of their second children, but all three children experienced temporary interruptions of their English during visits to Germany with their mothers. However, as we will see later, the independent development of the children's English is not the issue, but the development of their German. Hence the temporary interruptions in their exposure to English have no theoretical implications regarding the children's status as simultaneous bilinguals.

Procedure

The children were recorded once a month from 2;0, CW and JH, and 2;2, NS, respectively. Data collection took place in the children's homes. Each month the children were tape recorded with audio and video equipment in free play or other spontaneous interaction for two sessions of 45 minutes to one hour, one session each with their German-speaking mother and an English-speaking caregiver. The English recordings were done with the father of CW, predominantly the grandmother of JH, and various babysitters of NS. The length of the period for which the children were included in the study was dictated by availability.

The recordings were transcribed by a research assistant and checked for accuracy by myself. Discrepancies were resolved in discussions.

The data

The analysis is based on the children's spontaneous utterances, that is utterances which were not modelled within the immediate vicinity of the child's utterance. So far close analyses have been done concerning the positioning of non-finite and finite verbs in matrix clauses (Döpke 1995a, 1995b), verb morphology (Döpke 1995b), word order in subordinate clauses (Döpke 1992) and the development of negation (Jacobsen 1993; Döpke, in preparation)

Both age and utterance length were noted in order to be able to compare the children's grammatical development. Utterance length (MLU) was calculated in words rather than

morphemes (cf. Brown 1973; Clahsen, Penke & Parodi 1993/94) because of the differences in morpheme complexity in German and English and the difficulties with deciding when a morpheme has actually been acquired. For the same reason contractions were counted as two words. It was felt that it is too difficult to determine whether a contraction represented one or two words. By the same token, a series of adjacent words, like verbs followed by negations in German, can be entered into the sentence as a complex rather than as individual elements. Similarly, newly created child sentences seemed, at times, to be composed of two or three chunks which were taken like that from different contexts. But this, too, cannot be verified from the 45-minute extracts of the child's life and was therefore counted word by word. Compounds, on the other hand, were counted as one word unless they were true child creations. This rendered words like *Schwimmbecken* or *swimming pool* to be counted as one word, but *mummy duck* and *baby duck* as two words each.

Code for child and stage	Age	Number of recordings	MLU
CW I	2;0–2;3	4	1.24–1.54
CW II	2;4–2;6	3	1.92–2.31
CW III	2;7–2;11	5	3.00–3.24[a]
CW IV	3;0–4;0	9	3.78–4.74
CW V	4;8–5;0	2	5.33–5.61
NS II	2;2–2;4	3	1.82–2.40
NS III	2;5–3;0	6	2.86–3.36
NS IV	3;2	1	4.28
NS V	3;3	1	4.77
JH II	2;0–2;2	3	2.18–2.83[a]
JH III	2;3–2;9	7	3.06–3.76[a]
JH IV	2;11–3;4	6	4.46–4.87[b]
JH V	3;5	1	5.14

[a] One of the intermediate recordings would theoretically have belonged to the *next higher* stage.

[b] One of the intermediate recordings still belonged to the previous lower stage.

Table 1: Overview of the German data

Code for child and stage	Age	Number of recordings	MLU
CW I	2;0–2;2	3	1.20–1.66

CW II	2;3–2;6	4	1.79–2.72
CW III	2;7–2;8	2	3.12–3.55
CW IV	2;9–3;5	9	3.79–4.28
CW V	3;6–3;7	2	5.60–5.66
CW VI	4;0	1	6.26
NS II	2;2–2;3	2	1.86–2.47
NS III	2;4–2;7	4	2.80–3.57
NS IV	2;8–3;2	6	3.75–4.56[a]
JH III	2;0–2;2	3	2.99–3.60
JH IV	2;3–2;9	7	3.96–4.74[a]
JH V	3;4-3;5	2	5.67+4.64[b]

[a] One of the intermediate recordings would theoretically have belonged to the next higher stage.
[b] One of the intermediate recordings still belonged to the previous lower stage.

Table 2 Overview of the English data

Tables 1 and 2 provide overviews of the children's ages and corresponding utterance length in German and English. The stages are defined by MLU averages based on Clahsen (1986; Clahsen, Penke & Parodi 1993/94)

Results

In this section the structure of the children's utterances is described phase by phase and compared to monolingual development as reported in the literature (Mills 1985; Fletcher 1985; de Villiers & de Villiers 1985; Clahsen 1986, 1991; Radford 1990; Clahsen & Penke 1992; Clahsen, Penke & Parodi 1993/94) The psycholinguistic scenario for the generation of cross-linguistic structures will be discussed after the overview of the developmental structures.

In Phases I and II (Table 3) the development of 2L1 was very similar to the development of L1 for both languages. Most noticeably the bilingual children were differentiating appropriately between head-final structures in the German verb phrase (XP_V) and head-initial structures in the English verb phrase (V_XP).

In German, the bilingual children also produced some utterances with finite verbs in final position. While this is not a feature of adult-German matrix clauses, such structures have been taken as an indication that the theoretical assumption of the inflection parameter being head-final

and verb-second structures being a result of double raising of the verb is in fact correct (Meisel & Müller 1992). Thus initially, these bilingual children appear to have assumed the correct head-final position for both the verb and the inflection.

L1-German	2L1-German	2L1-English	L1-English
• preference for (S)_XP_V	• preference for (S)_**XP_V**	• preference for (S)_**V_XP**	• predominantly (S)_V_XP
• finite verbs predominantly in pre-complement position but some *finite* verbs in final position	• finite verbs predominantly in pre-complement position but some *finite* verbs in final position	• some XP_V	• hardly any XP_V
• preverbal negation = NEG_XP_V	• pre-verbal negation, with *preference* for **NEG_XP_V**	• preverbal negation = **NEG_V_XP**	• preverbal negation = NEG_V_XP

Table 3: Phase I and II

In English monolingual development, verb-last structures are hardly ever found. The very few examples that have been reported in the literature could convincingly be interpreted as topicalisation structures (Radford 1990:79f). In the bilingual children's English, verb-last structures were also rare, but frequent enough to have been encountered in the data from all three informants during monthly 45-minute recording sessions. An interpretation of these structures as topicalisation structures is impossible (Döpke 1995b).

In Phase III (Table 4), considerable variation between L1 and 2L1 started to emerge in the children's German. While monolingual German speaking children clearly differentiate between non-finite verbs in sentence-final position and finite verbs in non-final position (Clahsen & Penke 1992; Clahsen, Penke & Parodi 1993/94), the bilingual children moved verbs from the sentence final position to the mid-sentence position irrespective of finiteness ($S\_V_{nonfin}\_XP$ and V_{nonfin}_NEG). In particular the movement of non-finite verbs past the negation is never

done by monolingual German speaking children. Weissenborn (1990) argued that -en affixes on the verb cannot necessarily be taken as non-finiteness markers, but simply be due to incorrect agreement choices. However, that verb movement was truly independent of finiteness in the cases of these bilingual children is convincingly indicated by complex verb constructions involving head-initial verb phrases (S_aux/mod_V_{nonfin}_XP) and pre-verbal negations with verbs preceding the complements (NEG_V_{nonfin}_XP).

L1-German	2L1-German	2L1-English	L1-English
• S_V_{fin}_XP	• S_V_{fin}_XP *and* S_**V_{nonfin}**_XP	• S_V_{nonfin}_XP	• S_V_{nonfin}_XP
• S_aux/mod_XP_V	• S_aux/mod_**V_XP** *more than* S_aux/mod_XP_V	• S_aux/mod_V_XP *and rarely* (S_aux/mod_**XP_V**)[a]	• S_aux/mod_V_XP
• pre-verbal negation always NEG_XP_V	• pre-verbal negation NEG_XP_V_{nonfin} *and* NEG_**V_{nonfin}_XP**	• pre-verbal negation *always* NEG_V_XP	• pre-verbal negation *always* NEG_V_XP
• cop/mod/aux_NEG	• cop/mod/aux_NEG	• cop/mod/aux_NEG	• cop/mod/aux_NEG
• V_{fin}_NEG	• V_{fin}_NEG *and* **V_{nonfin}**_NEG	• (**V_NEG**)	
• agreement system acquired rapidly	• acquisition of agreement system protracted	• occasional use of 3rd ps.sg -s	• 3rd ps.sg. -s
	• non-finite **-n** widely overgeneralised	• (some German affixes)	

[a] Brackets indicate that a structure was only used in isolated instances, but nevertheless by all three children.

Table 4: Phase III

The bilingual children's English hardly differed from that of monolingual English speaking children. Typical German structures like head-final verb phrases (S_aux/mod_XP_V_{nonfin}) and post-verbal negation (V_NEG) were only occasionally found.

While all of the five German agreement affixes on the verb appeared within three to five months, most of them were not used correctly or consistently for a year or longer. Instead -en affixes were overgeneralised extensively. The slow development of the agreement system contrasts with its rapid acquisition by monolingual German speaking children (Mills 1985; Clahsen 1986). The -en affix appeared to have had the additional function of marking verbs as German, which was indicated by English verbs in the German context at times marked with -en. As the agreement system developed, occasionally person markers were also used on English verbs in the German context, in particular 1st ps.sg -e.

In English, none of the bilingual children used 3rd ps.sg -s consistently during the period of recording. Interestingly, there was some overgeneralisation of German agreement affixes to English. It thus appears that the acquisition of subject-verb agreement was protracted in both languages.

The characteristic achievement of monolingual German speaking children during Phase IV (Table 5) is the attainment of 2nd ps.sg -st inflection (Clahsen 1986). As soon as this form is used productively, it is also used consistently (Clahsen & Penke 1992; Clahsen, Penke & Parodi 1993/94). Correlating with the use of 2nd ps.sg -st, the rest of the agreement system falls into place (Clahsen & Penke 1992; Clahsen, Penke & Parodi 1993/94). This, in turn, supposedly triggers the verb-fronting rule in German (X_V_{fin}_S) (Clahsen & Penke 1992; Clahsen, Penke & Parodi 1993/94) because of the underlying structural relationship between C^o and finiteness [+F].

The bilingual children started to use 2nd ps.sg -st more frequently and definitely productively during Phase IV, but not consistently so. The only person agreement which was applied correctly and consistently as of Phase IV was 1st ps.sg. -Ø or -e. Most interestingly, all three children frequently double marked person agreement in complex verb constructions if the main verb was in head-initial position in the verb phrase (S_aux/mod_V_{fin}_XP).

In spite of the agreement system not being attained yet, all three children used the verb fronting rule for German (XP_V_{fin}_S) productively. Consequently non-finite verbs were fronted alongside finite verbs (XP_V_{nonfin}_S). But the children also topicalised in the English way (XP_S_V). Thus subject-verb inversion was acquired as an option during Phase IV, not as a structural necessity as in monolingual German development.

L1-German	2L1-German	2L1-English	L1-English
• 2nd ps.sg -st productive and consistent => agreement system falls into place	• 2nd ps.sg productive but not consistent; **no trigger effect** • 1st ps.sg -Ø or -e consistently correct • S_aux/mod_XP_V *less than* S_aux/mod_**V_{nonfin}_XP** *and* S_aux/mod_**V_{fin} _XP** • V_{fin}_NEG/ADV *and* **V_{nonfin}**_NEG/ADV	• 3rd ps.sg -s used on a range of verbs	• 3rd ps.sg -s consistently
• AUX_S	• AUX_S	• AUX_S	• AUX_S
• XP_V_{fin}_S	• XP_V_{fin}_S *and* XP_**V_{nonfin}**_S	• stereotypical verb fronting • (**XP_V_{fin}_S** *and* **XP_V_{nonfin}_S**)	• stereotypical verb fronting only
	• **XP_S_V**	• XP_S_V	• XP_S_V

[a] Brackets indicate that a structure was only used in isolated instances, but nevertheless by all three children.

Table 5: Phase IV

In English, the bilingual children began to use 3rd ps.sg affixes productively, but not yet consistently. Stereotypical verb fronting was the most frequent, but not the only type of verb

fronting. All children occasionally produced ($XP\_V_{fin}\_S$) utterances with obligatory post-verbal arguments being topicalised, a structure which seems to have been motivated through the exposure to German since it is not found in the English of monolingual children.

During Phase V (Table 6), the bilingual children finally settled for the correct word order in sentences with complex verbs in German. They also mastered most of the agreement system and the verb fronting rule. The remaining difference to monolingual German speaking children was with respect to subordinate clauses. In Phase V, monolingual German speaking children consistently fill the conjunction slot in subordinate clauses and immediately produce the appropriate word order for subordinate clauses which leaves the finite verb in its underlying clause final position ($conj_{sub}\_S\_XP\_V_{fin}$) (Mills 1985; Clahsen 1986).

L1-German	2L1-German	2L1-English	L1-English
	• S_aux/modal_OV		
	• attainment of agreement system		
• $conj_{sub}\_S\_XP\_V_{fin}$	• $conj_{sub}\_S\_$**V_{fin}_XP** *and* $conj_{sub}\_S\_$**aux/mod_XP_V_{nonfin}**	• $conj_{sub}\_S\_V\_XP$	• $conj_{sub}\_S\_V\_XP$

Table 6: Phase V

Once again the German output of the bilingual children did not conform with the theoretical assumptions of the Principle and Parameter Theory in the way monolingual development of German does. Bilingual children, too, fill the conjunction slot consistently in Phase V, but they strongly favour main clause word order after subordinating conjunctions ($conj_{sub}\_S\_V_{fin}\_XP$ and $conj_{sub}\_S\_aux/mod\_XP\_V_{nonfin}$). This structure is maintained for an extended period. It suggests that any assumption regarding a head-final IP, which the bilingual children may have held during Phase II, was thoroughly discarded during Phases III and IV. While main clause word order in subordinate clauses has recently been attested in individual cases of monolingual German speaking children (Gawlitzek-Maiwald, Tracy and Fritzenschaft 1992) and some of the

bilingual children in the Meisel study (Müller 1994), for the German-English bilingual informants this seems to be a regular feature of their acquisition of German.

In the final phase of structural development (Table 7), the correct word order for subordinate clauses is eventually attained. From now on the two languages sound appropriately "native" on the syntactic level. Cross-linguistic structures still occasionally appear, as they also do in bilingual adults, but they are rare and less a matter of grammatical knowledge than of momentary performance.

L1-German	2L1-German	2L1-English	L1-English
	• $conj_{sub}$_S_XP_V_{fin} *and* $conj_{sub}$_S_XP_ V_{nonfin}_V_{fin}		

Table 7: Phase VI

Discussion

In spite of the cross-linguistic structures in both language environments, one cannot say that the children had only one system of structures for German and English. German and English verb phrases were indeed structurally differentiated since both head-initial and head-final verb phrases were used in German, but head-final verb phrases in English remained the exception. The same is valid for negation structures: In German the children produced pre-verbal as well as post-verbal negation, but in English post-verbal negations were rare. Moreover, the children appeared to be sensitive to German using -en affixes and used them as a means of marking their lexical choices as German. This suggests that they were actively concerned about using separate structures for German and English.

This means that the data in this study does not support the "three-stage-hypothesis". The "separate development hypothesis" is supported in its weaker form, that is, the children never appeared to assume that German and English are identical in structure. Nevertheless, the bilingual development presents itself as significantly different to monolingual development, at

least in German. Thus the stronger version of the "separate development hypothesis" is not supported. This needs to be accounted for.

I am not going to take issue with Principle and Parameter theory and its adequacy for the description of the mature grammar. Rather I want to contemplate the process of data aggregation which precedes the setting of the parameters to their language-specific values. This process is often referred to, but not much explored. I believe that the processes of language acquisition described by the Competition Model (Bates and MacWhinney 1989) and the Principle of Contrast (Clark 1987) can make a contribution to explaining what happens during the bilingual children's data aggregation stage.

In Phases I and II, the development in German 2L1 proceeded in very similar ways to German L1. The children's processing abilities were limited, and they predominantly parsed the end of sentences (Slobin 1973). Thus they recognised XP_V structures in German and V_XP structures in English. This created a binary contrast between the two languages.

English V_XP ——————— German XP_V

Figure 3: Structural contrast during Phase I and II

In Phase III, differences between German L1 and German 2L1 started to appear. With increasing processing abilities both bilingual and monolingual children become aware of elements preceding the verb phrase, in particular of subjects. For monolingual German speaking children, verbs in final position now compete with verbs in second position, and the phenomena distinguishing between them are the verb endings: -en in final position and a range of finiteness markers in second position. This creates a binary contrast between finite and nonfinite verbs and leads monolingual German speaking children to use nonfinite verbs in final position and finite verbs in second position. Plural referents are very uncommon at this age and the -en affix as an agreement marker for 1st and 3rd person plural is therefore not important yet.

V_{fin} _XP ——————— XP_V_{nonfin}

Figure 4: Finite and nonfinite verbs in monolingual development of German during Phase III

Bilingual children of the German–English combination find the task of differentiating between finite and nonfinite verbs in German more complex than do monolingual German speaking children. The now perceivable contrast between nonfinite–final verbs and finite–second verbs breaks up the original contrast between final verbs in German and non-final verbs in English. Due to competing cues from English, finite and nonfinite verbs in German do not present themselves as a simple dichotomy since non-final verbs in German also have to be contrasted with non-final verbs in English.

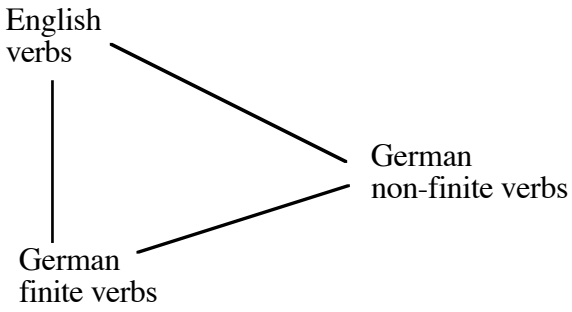


Figure 5: The triangular relationship of finite and nonfinite verbs for German and English bilingual children during Phases III and IV

The difference between German and English verbs is tied up with their structural status. Thus the triangular relationship can only be resolved via the successful differentiation between German and English verbs in the pre-complement position. During Phases III and IV the children are obviously not yet able to do that and temporarily conclude that English verbs are always nonfinal and German verbs can be final or nonfinal.

What is left as a distinguishing phenomenon between German and English are the -en endings on German verbs, which are widely overused at this stage. Finiteness markers in German only slowly take on the function of differentiating between German and English verbs since the first grammatical person to develop, 1st ps.sg, has a -Ø allomorph, which once again threatens the clear differentiation between German verbs and English verbs.

Thus the triangular relationship sketched in Figure 5 is a good example of high cue cost: although the cues are frequent, they are not reliable; verbs in pre-complement position are found in German as well as in English, and German verbs as well as English verbs may have -Ø affix. The structural challenge is thus more demanding in the bilingual acquisition of German and English than in German monolingual development. The high cue costs surrounding verb placement in non-final position has the predictable effect of delaying the acquisition of the finite–nonfinite distinction of verbs in German 2L1, which happens so smoothly and rapidly during the monolingual development of German.

The cue competition between English verbs and German verbs in non-final position is resolved once the children's processing abilities enable them to pay sufficient attention to mid-sentence differences in German and English. This allows them to parse the relative order of verbs, negation and adverbs in the two languages and effectively reduces the complexity of the triangular relationship between German and English verbs in non-final position and German verbs in final position to a new binary contrast between German and English in mid-sentence position.

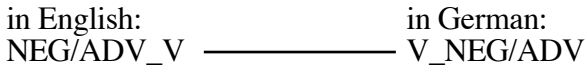


Figure 6: Mid-sentence contrast between German and English during Phases III and IV

That the competition between English verbs and German verbs in non-final position is indeed resolved through the NEG/ADV_V vs. V_NEG/ADV contrast and initially not due to the understanding of finiteness is evident from the bilingual children's use of non-finite verbs in V_NEG structures, a feature of bilingual language acquisition which is non-existent in the monolingual development of German. The issue of finiteness in German is not being resolved during Phase IV, which is indicated by the on-going use of head-initial verb phrases in German (S_aux/mod_V_{nonfin}_XP) as well as the frequent marking of head-initial verbs with person agreement (S_aux/mod_V_{fin}_XP).

During the period of mid-sentence differentiation between V_NEG/ADV in German NEG/ADV_V in English in Phases III and IV, the possibility for auxiliary fronting and verb

fronting becomes available in Phase IV. Again, verb fronting appears originally to be due to word order contrasts in German and English rather than the contrast between finiteness and non-finiteness in German as the bilingual children fronted verbs irrespectively of their finiteness status. The children's attention to AUX_S and V_S structures in German and only AUX_S in English strengthens the V_NEG/ADV vs NEG/ADV_V contrast in Phase IV.

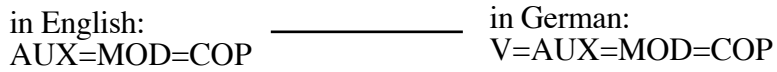


Figure 7: Mid-sentence contrast between German and English due to verb fronting during Phases IV

The children were now able to realise the extent of the structural difference with respect to mid-sentence verbs in German and English: In English auxiliaries, modals and copulas can precede negation and subject; in German verbs can precede negation and subject well.

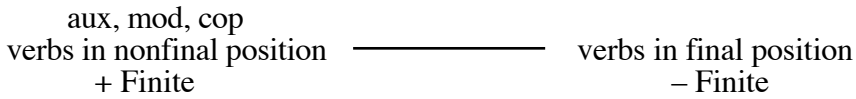


Figure 8: Binary contrast between final and non-final verbs in German during Phase IV

Due to the realisation that German verbs behave like auxiliaries, modals and copulas, the bilingual children were now able to contrast German verbs in final position with German verbs, auxiliaries and copulas in second position and pay attention to finiteness as the differentiating feature.

By Phase V, non-final verbs in German and English were successfully disassociated. They were usually marked as finite in German with the appropriate person affix, and S_aux/mod_V_XP structures were the exception in German. Thus, German and English could now differentiated by the AUX_VP complexes in both languages.

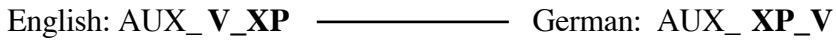


Figure 9: Binary contrast between German and English during Phase V

The attainment of correct word order in German matrix clauses with complex verb forms (S_aux/mod_XP_V) seemed to be an important achievement for the bilingual children as they maintained this word order throughout Phase V. This was in spite of the fact that subordinate clauses became more frequent during Phase V, the C^o position was consistently filled with a conjunction and the finite verb should theoretically have moved back to its underlying head-final position. The reason for the $conj_{sub}$_S_aux/mod_XP_V_{nonfin} structure to persist for an extended period in some children (CW maintained this structure for about three years until he was nearly 8;0, NS was still using it at 5;3; no data from JH) might be due to the S_aux/mod_XP_V_{nonfin} structure reconciling the children's original assumption that German and English are differentiated by XP_V and V_XP.

The appropriate structures are eventually attained in their full complexity during Phase VI:

English: [CP [C^o][IP [**I^o**][NegP [Neg^o][VP [**V^o**][**XP**]]]]]

German: [CP [C^o/**+Fin**][IP [NegP [Neg^o][VP[**XP**]**V^o**]**I^o**]]]]]

Conclusions

The comparison of data from monolingual German and English speaking children with data from children acquiring German and English simultaneously during the process of primary language acquisition clearly disfavours the "three stage" hypothesis as the bilingual children did not show evidence of generating sentences from one common grammar in both languages at any time. To the contrary, right from the earliest stages of word combinations they seem to have intended to differentiate between the two languages.

Nevertheless, cross-linguistic structures were a regular occurrence in German during Phases III and IV. In English cross-linguistic structures were rare but not entirely absent. Thus the "separate development" hypothesis is only supported in its weaker form.

The evidence from the German-English bilingual children in this study points towards the two languages in the 2L1 situation being processed in comparison with and contrast to one another. The English input enhances the 'verb–before–object' cue for German and generates cue conflict as to where the nonfinal verb is structurally located: V^o or C^o. This seems to slow the acquisition process down relative to the children's utterance length. The cue conflict between

German and English is eventually resolved through the contrast of lexical adjacencies in the middle field of the sentence.

The swiftness with which cross-linguistic cue conflicts are resolved might well depend on a child's memory capacity. To the degree with which bilingual children operate from stored concrete examples when generating new sentences they might in fact give the impression of developing both languages totally separately from one another. However, those children who have to rely on whatever syntactic regularities they have identified when generating new sentences will provide the researcher with more direct evidence of the cognitive processes which lead to the acquisition of language-specific grammatical structures. It is therefore important that we do not just select apparently fast or efficient language learners as informants.

The study of simultaneous bilingualism (2L1) has the potential of enhancing our understanding of the cognitive principles involved in primary language acquisition by introducing an additional factor: two languages instead of one. The present study supports the theoretical conceptualisations regarding primary language acquisition made by the Competition Model and the Principle of Contrast in showing that cross-linguistic cue competition affects the path of syntactic development. Just as "different types of languages pose different types of acquisition problems" (Slobin 1985:4) the simultaneous acquisition of two languages during primary language acquisition creates particular acquisition challenges of its own.

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