Generation of and retraction from cross-linguistically motivated structures in bilingual first language acquisition*

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Abstract

The focus of this paper is on unusual developmental structures during the simultaneous acquisition of German and English in early childhood, which were evident parallel to a majority of target structures. The aim is to explain the cognitive motivation for unusual acquisition structures as well as the eventual retraction from them. I will show that they support the contentions of the Competition Model that language acquisition proceeds through orientation to surface structures and that cue competition across languages changes the weighting of cues within the language. The retreat from non-target structures was made possible through the children's attention to contrasts between the languages and the need to resolve structural incompatibilities within the language.

Introduction

What is the nature of cross-language influences?

Earlier studies of the simultaneous acquisition of two languages during primary language development hypothesised that young children initially have only one syntactic system for both their languages, which gradually separates itself out into the two target systems, supposedly during the child's third year of life (eg. Volterra and Taeschner, 1978; Redlinger and Park, 1980; Taeschner, 1983; Vihman, 1985). More recently, it has mainly been argued that bilingual children differentiate between their languages immediately and that the two languages develop totally independently of each other, congruent with their acquisition by monolingual children of the respective languages (eg. Paradis and Genesee, 1996, 1997; Meisel, ed. 1990, ed. 1994). Both of these positions present extremes since, to varying degrees, cross-language influences are evident in all bilingual corpora. Whether or not the focus is on them, as for the initial-one-system hypothesis, or on target structures, as for the immediate differentiation hypothesis, largely depends on the researcher's theoretical orientation: immediate target structures support UG assumptions about the hierarchical order of language being available *a priori*, whereas non-target structures, especially those that are influenced by another language, often cause

explanatory problems (cf. Tracy, in press). The issue of the nature of cross-language influences in simultaneous bilingualism is far from settled.

Cross-language complexity

Tracy (1995: 65) argued that the degree of variation between the two extremes of frequent cross-language evidence and totally separate development of two languages is related to particular language combinations. She suggested that the typological relatedness of languages creates a "contrast continuum", with highly related languages allowing more cross-language interaction than typologically distant languages.

To a degree, this has been born out by research already. The language combination German–English seems to generate more cross-linguistically influenced structures (Tracy, 1995; Gawlitzek-Maiwald, 1997; Döpke, 1998, 1999a, 1999b; Schelleter, in press) than French–English (Paradis and Genesee, 1996, 1997) or French–German (Meisel, ed. 1990, ed. 1994). Possible reasons for this can be sought in the complexities of the overlapping structures: French and English are both right-branching languages, but French moves finite verbs to a position left of the negation, whereas English does not. Thus, verb phrase structures overlap in French and English but the languages differ with respect to the movement effect which finiteness has on the verb. French and German resemble each other with respect to the movement of finite verbs to the left of the negation, but French verb phrases branch to the right whereas German verb phrases branch to the left. In both language combinations, the similarities can assist in the acquisition of structural features across languages and the differences support the separation of the languages.

The situation is much more complex for the language combination German–English. Theses two languages differ on both accounts, the branching in the verb phrase and the position of finite verbs in relation to the negation. Nevertheless, German and English also present overlapping structures, most notably and most pervasively SVO. However, the SVO overlap exists only on the surface of utterances and represents different hierarchical configurations in the two languages. The difference in hierarchical structure of SVO in German and English is only visible in structurally more complex utterances which involve finite and nonfinite verb elements in the same utterance, subject–verb inversion or negated simplex verbs. Thus, the

surface similarities between German and English may give the learner a false impression of structural equivalence during the early stages of language acquisition. In order to successfully differentiate between the languages, the learner needs to be aware of the oblique differences underlying the superficial similarities.

Very recent publications by Hulk (1997), Müller (1998) and Paradis (in press) on selected aspects of French–Dutch, French–German and French–English, respectively, suggest that it might be the degree of surface ambiguity of a particular structure which allows cross-language influences to take hold rather than language typology in its more abstract notion. Hulk (1997) found that her French–Dutch subject produced SOV structures in French. Hulk argued that these were due to the child seeing parallels between the SOV structure in Dutch and object pronouns being cliticised to the left of the verb in French. Müller (1998) reported the frequent use of main clause word order in subordinate clauses in the German of bilingual French–German and Italian–German children. She put this down to the children using a relief strategy for the complex alternation of verb positions in main and subordinate clauses in German which resembles the construction principles for subordinate clauses in French and Italian. Paradis (in press) observed with respect to the word truncation patterns by French–English bilingual children that the bilingual children truncated English words to end in word-final stress more frequently than monolingual English–speaking children do. The truncation patterns of French words were not affected when compared to monolingual French children. Paradis explained this as due to the greater ambiguity in the English stress patterns because both stress patterns are well represented in English, whereas French clearly leans towards word-final stress. In each of these cases the cross-language effect was indirect: a potentially possible structure in one of the languages was unduly strengthened because of parallels with the other language. There might be pockets of structural development in many more language combinations supporting the notion of openness between the two language systems in childhood bilingualism, even if on the whole the languages are well differentiated.

Surface similarities representing underlying hierarchical differences make it possible to test the claims of the Competition Model (MacWhinney, 1987; Bates and MacWhinney, 1989)

that language acquisition is driven by the processing of surface structures. The main assumptions of this acquisition model will be reviewed in the next section.

The Competition Model

The Competition Model (MacWhinney, 1987; Bates and MacWhinney, 1989) assumes that language is processed on the surface of utterances. Grammar is learned through establishing connections between meaning and form on the basis of structural cues and through the competition of cues for related functions. The successful resolution of such competition leads to robust structural schemata. Cues which are frequently available, reliable and perceptually salient win over cues of lesser strength. Thus, strong cues are assigned to their appropriate grammatical functions more quickly than weak cues. If there is competition between several cues for the same function or if the same cue represents several functions, the acquisition of a particular structural phenomenon will be delayed. It is this tension between similarities and contrasts which drives the acquisition of syntax.

Langacker (1987) elaborates on the concept of schemata in the acquisition of grammar. He argues that grammatical patterns are schematised over sets of expressions which are parallel in formation. Constructional schemata serve as templates for analogous expressions (Langacker, 1987: 68). Based on their frequency, patterns are more or less well entrenched (Langacker, 1987: 59). The more a given patterns is used, the more strongly entrenched it becomes and the more it becomes part of the 'grammar' of the language. Examples of constructional schemata which are alike in German and English would be the SVO pattern, noun phrases and prepositional phrases. Differences between German and English exist with respect to the VO pattern in the English verb phrase and the OV pattern in the German verb phrase, negation–verb in English and verb–negation in German, as well as the morphological status of verbs in their alternating positions.[1]

Within the context of multiple language acquisition, a basic contention of the Competition Model is that forms and schemata which bear similarities in two or more languages compete across languages (MacWhinney, 1997). At the same time, differences between the languages are instrumental in keeping the languages separate. Thus, true similarities between languages have the potential to strengthen the structural cues available in one language through parallel cues

available in the other language. In that way, they support the acquisition of structures across languages. Structural cues which are overtly different in the two languages and without any overlap should allow the development of each of the structures to proceed as in monolingual children. Complex overlapping structures, however, which appear to be similar but represent different underlying structures, can make the acquisition task of a particular language combination more complex because of conflicting cues. This could become evident in children's non-target utterances causing visible influences on the acquisition path when compared to monolingual children of the respective languages.

The issue of frequency

In all corpora of young children's speech, utterances which run counter to the structures modelled in the input are typically minor in numerical terms. As we will see, this is the case in my data as well. It begs the question as to whether it is justified to use empirical evidence which is numerically minor in order to make theoretical claims about language processing. I believe this to be the case for the following reasons:

Firstly, target structures are freely available in the input. Therefore, the production status of correctly formed target structures is unclear. It is quite possible that their appearance in young children's output is more a reflection of what the child is able to reproduce than of the child's grammatical understanding (Lieven and Pine, 1999). While researchers have tried to guard against the inclusion of non-spontaneous utterances in their analysis by not considering those which were modelled by an adult within the last three turns or within the same recording session, some 3-year-olds are able to re-use parts of utterances which they have heard as long ago as a week.[2] This is particularly the case for those rapidly progressing and clearly enunciating language learners towards whom we as researchers are drawn.

Secondly, many young children's utterances are generated around a very small number of familiar structural patterns with only one element at the time being substituted (Tomasello, 1999). Longer utterances seem to be generated through what "looks like putting chunks together" (Tomasello, 1999). Thus, only very little in the child's output may be truly creative.

Thirdly, a major difference between the many correct target utterances and the many fewer non-target structures is that we can be sure that the latter are the children's own creations. Often

they happen at the forefront of the children's structural abilities. This has been argued as the cause for the appearance of cross-language influences by Gawlitzek-Maiwald and Tracy (Gawlitzek-Maiwald and Tracy, 1996; Tracy, 1995; Gawlitzek-Maiwald, 1997).

If correctness is a matter of frequency in the input and conservative language use on the part of the child, we need to ask ourselves whether we are justified in disregarding those utterances which are most informative of the limits to which the child is able to push herself on grounds that they are not frequent enough.

Aims

The purpose of this paper is to make structures which appear to be motivated through cross-language influences the focus. I want to explore such structures in my pool of bilingual data for what they can tell us about the cognitive organisation of two languages during the primary acquisition process. My intention is to show that they were constructed on the basis of what the target language supports - on the surface - but that they turned out differently from what we commonly find in monolingual acquisition because cross-language cue competition changed the strength of intra-linguistically available cues. In order to do that, I will draw on the Competition Model developed by Bates and MacWhinney (1989) and MacWhinney's (1997) contention that structural cues can compete across languages.

The rest of the paper is organised in the following way: In the Method, section I will describe the empirical design followed by a short review of those structures in German and English which are relevant for this paper. In the Results section, I will proceed from target structures to unusual structures to direct evidence for cross-language cue competition. The last part of the Results section will explore the mechanism by which the children were eventually able to retreat from the erroneous structures. The Discussion will focus on the production process likely to underlie the unusual structures in terms of cue competition and consider how the bilingual data relates to monolingual data.

Method

Empirical design

The non-target structures to be analysed below are drawn from a longitudinal study of four children, roughly between 2 and 4 years of age[3], who were simultaneously exposed to German and English through the 'one parent–one language' principle, from birth on. The families lived in an English-speaking country, and in each family the mother spoke German with the child, and the father spoke English. The parents communicated in English. All mothers were tertiary educated native speakers of German and had made a strong commitment to only speaking German with their children. The mothers did not mix the languages on either the lexical or the structural level.[4] The two boys (CW and JH) and one of the girls (NS) were first-born; AS was the younger sister of NS.[5]

Data were collected monthly in the children's homes. The children were recorded on audio and video equipment in free play or other types of spontaneous interaction for two sessions of 45 minutes to one hour, one session each with their German-speaking mother and a familiar English speaker. The English recordings were done with the father of CW, predominantly the grandmother of JH, various babysitters of NS, and with my research assistant in the case of AS. All children were using both languages spontaneously throughout the recording period, but for the most part English, which was the language of the society at large, was the children's stronger language. Analytically, this expressed itself in cross-language influences in their German being more frequent than in their English (Döpke, 1998, 1999a). In terms of structural development, however, English was not necessarily ahead of German.

Mean length of utterance (MLU) was calculated in words[6], separately for German and English, as a measure of the children's progress within each language and as a means of comparison across the sample. Phases of development were defined by MLU averages based on Clahsen, Penke and Parodi (1993/1994) and extrapolated to the higher phases. The phase ranges are as follows: Phase I ≤ 1.74, Phase II 1.75 to 2.74, Phase III 2.75 to 3.74, Phase IV 3.75 to 4.74, Phase V 4.75+. Utterance lengths in German and English were never more than one phase apart.[7] Table 1 relates the MLU defined phases in German and English to the children's ages.

Table 1. Overview of MLU values in the children's German and English

Code for child and Phase	Age for German	Age for English
CW I	2;0–2;3	2;0–2;2
CW II	2;4–2;6	2;3–2;6
CW III	2;7–2;11	2;7–2;8
CW IV	3;0–4;0	2;9–3;5
CW V+	4;8+	3;6+
NS II	2;2–2;4	2;2–2;3
NS III	2;5–3;0	2;4–2;7
NS IV	3;1–3;5	2;8–3;2
NS V	3;6+	3;3+
JH II	2;0–2;2	
JH III	2;3–2;7	2;0–2;2
JH IV	2;8–3;4	2;3–2;11
JH V	3;5	3;0-3;5
AS II	2;7	2;7+2;10
AS III	2;10–3;2	2;11–3;2
AS IV	3;3–3;9	3;3–3;9
AS V	3;11–4;1	3;11–4;1

The disparity in MLU development in the two languages is partly an expression of the children hearing and using more English than German. However, we also need to keep in mind that MLU values are not easily compared across languages and that developmental progress in morphologically more marked and syntactically more complex languages like German might well express itself in an increase in syntactic operations, like movements, rather than an increase in words.

Since the evidence for cross-language cue competition is much richer in the children's German than in their English, and therefore more accessible to analysis, I will only consider the German data in this paper (but cf. Döpke, 1999a, 1999b, for a discussion of the effects of cue competition on the children's English).

Some structural challenges of acquiring German and English simultaneously

Short matrix clauses exhibit identically looking structures in German and English. Thus in both languages we find S_V_O, as in (1), and S_AUX_(NEG)_V, as in (2).

(1)		S	V_{fin}	O
	English:	*I*	*see-Ø*	*you*
	German:	*ich*	*seh-Ø*	*dich*

(2)		S	AUX	(NEG)	V_{nf}
	English:	*he*	*can-Ø*	*(not)*	*jump-Ø*
	German:	*er*	*kann-Ø*	*(nicht)*	*spring-en*

In addition, the bare stem form of the verb has structural implications in both languages. However, its function is different in the two languages: In English it can mean nonfiniteness, as in (2), but in German it denotes 1SG, as in (1), and sometimes 3SG, as in (2).[8] While there are a number of other pockets of similarities in more complex structures, this description will suffice for the types of structures investigated in this paper.

Non-shared structures are typical of longer and more complex sentences. The non-shared structures relevant to this paper involve finite and nonfinite verbs in the same utterance, as in (3), and the position of negation or modal particles in relation to simplex verbs, as in (4).

(3)	English:	*he*	*can-Ø*	*see*	*you*
		S	AUX	V_{nf}	XP
		S	AUX	XP	V_{nf}
	German:	*er*	*kann-Ø*	*dich*	*seh-en*

(4)	English:	*you*	*do-Ø*	*n't*	*look-Ø*
		S	AUX	NEG	V_{nf}
		S	V_{fin}	NEG	
	German:	*du*	*kuck-st*	*nicht*	

The movement of verbs past the negation or modal particle, as in (4), indicates that pre-complement simplex verbs are in different structural positions in German and English. In addition, all pre-complement verbs in German are obligatorily marked for finiteness. Except for the overlap of the verb stem form or -*Ø* affix, verb morphology is a further differentiating feature between German and English. Finite German verbs carry *-e*, *-st* or *-t* for 1SG, 2SG and 3SG, respectively, and *-n* for 1PL and 3PL. The *-n* affix appears in other structural positions as well. Most importantly for the discussion in this paper is its use as a nonfinite marker on verbs in the verb phrase. But it also appears as a case marker on adjectives and determiners and as a plural or case marker on nouns. Thus, verb morphology is relatively complex in German with a richness of forms and a multiplicity of functions.[9]

Results

The role of target structures

The vast majority of syntactic structures produced by the bilingual children were target structures in both languages.[10] These target structures were, in part, shared structures between German and English. Parallel to shared target structures, non-shared target structures became increasingly frequent as well (Döpke, 1998, 1999a, 1999b).

Interestingly, the structural differences between the languages were strongest in Phase II and Phase V. For Phase II that meant that the children frequently produced bare verb phrases with the nonfinite verbs in their correct pre-complement or post-complement positions in English and German, respectively. In Phase V, target utterances involved finite and nonfinite verb elements in the same sentence (Döpke, 1998), negation or modal particles (Döpke, 1999a), all in the positions appropriate for each language.

However, non-target structures were also very noticeable – even to the parents – probably because they stand out. Structures which appeared to be motivated through influences from the other language, in particular from English to German, were most frequent during Phases III and IV, ie. at the early stages of multiword utterances. Nevertheless, for no structure and at no time did the children produce equal distributions in both language environments. In other words, even when we find what looks like "cross-linguistic interference", there were always more language-

specific, ie. non-shared, German structures when the children spoke German than when they spoke English, and always more language-specific, ie. non-shared, English structures when the children spoke English. This meets Genesee's (1989) distributional requirement for showing that the children did not operate under the assumption that the two languages had only one syntactic system.

Evidence of German influences on the children's English was found in every area of structural development as well, albeit with much lesser frequencies than from English to German. Therefore, dominance can only explain the relative proportions of cross-language influences, but not *why* they arose. The cognitive motivation for the non-target structures will be explored in the following sections.

Unusual structures

In this section I will present four types of developmental structures found in the bilingual children's German which are highly unusual, if not non-existent, in monolingual data. They concern the alternation of word order in the verb phrase, the position of the negation or modal particle in relation to simplex verbs, nonfinite verbs in the V2 position and finite verbs in the verb phrase. The development of the first two structures was described in more detail in Döpke (1998) and Döpke (1999a), respectively. The two morphology issues are presented in Döpke (1999b).

AUX_XP_V/V_XP alternation

The German target structure for utterances with complex verbs involving finite and nonfinite verb elements is that in example (5). Such structures were commonly produced by the bilingual children as soon as they constructed utterances of that length. However, parallel to target structures I also found extensive evidence for non-target structures of the type in (6). Typically, both types of structures were produced by the same child in the same recording.

(5)	*ich*	*kann*	*Essen*	*machen*	(CW-G3;2)
	S	AUX	XP	V_{nf}	
	I	can	food	make	
	'I can make a meal'				

(6)* *ich* *möchte* *tragen* *dich* (CW-G3;2)

S AUX V_{nf} XP

I want carry you

'I want to carry you'

The relative frequencies with which target and non-target structures appeared in the data of the three first-born children are displayed numerically in Table 2 and graphically in Figure 1.[11] V_XP and XP_V verb phrase structures were separately calculated against all utterances with complex verbs. Residuals are those utterances where the verb occupies a middle position in the verb phrase. Table 2 shows that the first few structures of this type already appeared during Phase II. They were still very few and only (in the case NS) or predominantly (in the cases of CW and JH) target–like. They were paralleled by a preference for V-end structures in bare VPs (Döpke, 1998).

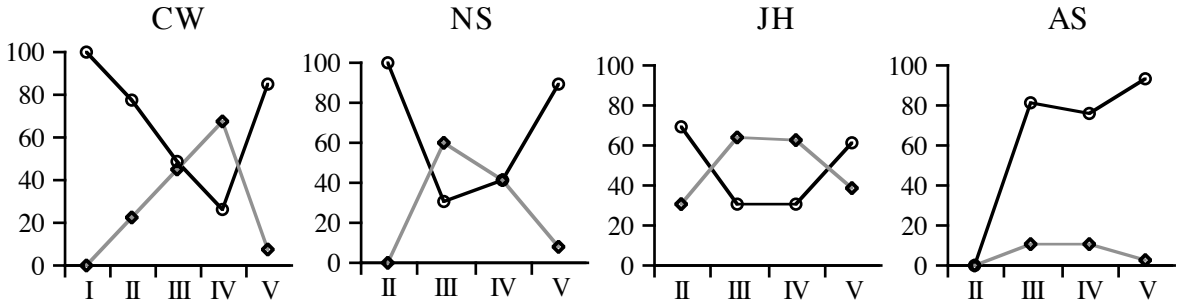
The changes occurred as the children moved into Phases III and IV and the utterances became longer in general and featured complex verbs more frequently. Now non-target complex verb structures equalled or outnumbered target structures, leading to the cross-over effect illustrated in Figure 1.

Table 2. Order of verbs and their complements in complex verb constructions in the children's German

		Phase II		Phase III		Phase IV		Phase V	
		n	%	n	%	n	%	n	%
CW	XP_V	7/9	77.8	25/52	48.1	42159	26.4	50/59	84.7
	V_XP	2/9	22.2	23/52	44.2	107/159	67.3	4/59	6.8
NS	XP_V	2/2	100	16/53	30.2	36/86	41.9	79/89	88.8
	V_XP	X		33/53	62.3	35/86	40.7	7/89	7.9
JH	XP_V	9/13	69.2	11/36	30.6	72/236	30.5	11/18	61.1
	V_XP	4/13	30.8	23/36	63.9	147/236	62.3	7/18	38.9
AS	XP_V	X		62/76	81.6	82/108	75.9	45/48	93.7
	V_XP	X		8/76	10.5	12/108	11.1	1/48	2.1

Residuals are verbs sandwiched between complements and raised infinitives.

Figure 1. Relative frequency of order of verbs and their complements in complex verb constructions in the children's German



Legend: -o- XP_V -◊- V_XP

The alternation between XP_V and V_XP, which was found in the verb phrase of the bilingual children's German, goes beyond the range of individual variation in monolingual German–speaking children (Penner 1994). On first sight, the non-target structures, as in (6), looked very much like German relexifications of the corresponding English structure and therefore like a straight forward case of interference from English to German. We will see later that in the light of other non-target structures this view needs to be revised.

Order of NEGorPRT in relation to simplex verbs

Parallel to word order problems in the verb phrase, there were also position problems with the negation or modal particle in relation to simplex verbs. Once again, target structures, as in (7), were evident at the same time as non-target structures of the type in (8).

(7)	*diese*	*schreien*	*nicht*		(NS-G2;6)
	S	V+3PL	NEG		
	these	scream	not		
	'they don't scream'				
(8)*	*Hund*	*nicht*	*kommt*	*rein*	(NS-G2;7)
	S	NEG	V+3SG	separable prefix	
	'dog	not	come	in'	
	'(the) dog doesn't come in'				

Since negated or otherwise modified sentences are typically not frequent in young children's speech, non-target structures involving negation or modal particles were not systematic in the way word order problems in the verb phrase were. However, they were evident in each of the four bilingual children and re-appeared over many months. The figures for this phenomenon are listed in Table 3.

Table 3. Order of NEG or PRT in relation to simplex verbs in the children's German

	CW		JH		NS		AS	
NEGorPRT_V_XP:	39/147	26.5%	17/170	10.0%	17/219	7.8%	9/142	6.3%

Target figures also include the typical German child structure of NEG/PRT_XP_V

For monolingual German–speaking children structures of the type in (8) are very unusual. The only report of such structures I am aware of was published by Schaner-Wolles (1995/96), who studied a monolingual German–speaking boy growing up in Austria. Her study shows that it is not impossible for young children to generate NEG_V_XP structures on the basis of German input alone. Nevertheless, this path of development is very uncommon.[12] In contrast, NEG_V_XP structures were evident in four out of four German–English bilingual children.

Nonfinite verbs in verb-second position

The third type of unusual structure in the bilingual children's German is the persistence of nonfinite *-n* marking on singular simplex verbs in verb-second position, as in examples (9) to (12). The German target system requires verbs in this position to be marked for finiteness.

(9)*	*du*	*hab-en*	*neu Windel*	(CW-G3;0)
	S	V_{nf}	XP	
	you	have+INF	new nappy	
	'you have a new nappy'			

(10)*	*ich*	*sitz-en*	*noch*	*hier*	(AS-G3;8)
	S	V_{nf}	PRT	XP	
	I	sit+INF	still	here	
	'I am still sitting here'				
(11)*	*das*	*arbeiten*	*ich*		(JH-G3;5)
	XP	V_{nf}	S		
	that	work+INF	I		
	'that I am working'				
(12)*	*sitzen*	*du*	*Mitte?*		(NS-G2;10)
	V_{nf}	S	XP		
	sit+INF	you	middle		
	'are you sitting in the middle?'				

In the literature on monolingual German–speaking children, strong claims have been made regarding the developmental connection between verb movement to the V2 position and finiteness, and the children's knowledge of the structural hierarchy associated with this distinction (Clahsen, 1986, 1991; Weissenborn, 1990; Poeppel and Wexler, 1993; Rohrbacher and Vainikka, 1995). Two types of evidence have been used to substantiate these claims: (a) the rarity with which verbs in second position are nonfinite rather than finite, and (b) the high frequency with which nonfinite *-n* verbs appear in final rather than non-final position. Instances like those in (10) to (12), which are regarded as 'true V2' because they precede the NEG/PRT position or the subject, have been said never to occur in monolingual children (Weissenborn, 1990).

Table 4 shows the extent to which the bilingual children attached the *-n* affix to lexical verbs in the general V2 position, as in (9). Because of the indeterminacy of plural contexts, in which verbs carry *-n* for finiteness, only the morphologically distinct singular contexts were considered. The percentages in Table 4 were arrived at by calculating all lexical verbs marked with *-n* in singular contexts and positioned in V2 against all lexical verbs in singular context in V2, separately for each child and each phase.[13]

Table 4. Singular simplex verbs marked with *-n* in general V2 position

	Phase II		Phase III		Phase IV		Phase V	
	n	%	n	%	n	%	n	%
JH	7/30	23.3	15/105	14.3	30/459	6.5	1/63	1.6
CW	14/44	31.8	72/130	55.4	95/192	49.5	3/9	33.3
NS	15/33	45.5	94/260	36.2	29/126	23.0	4/101	4.0
AS	4/9	44.4	34/95	35.8	9/95	9.5	0/46	0.0

Table 4 shows that the relative frequency of *-n* errors in the general V2 position of these bilingual children is much higher than reported in the literature on monolingual German–speaking children (Clahsen, 1986, 1991; Weissenborn, 1990; Poeppel and Wexler, 1993; Rohrbacher and Vainikka, 1995), who stipulate this phenomenon at between 3% and 16% during Phase II, possibly III in the case of Poeppel & Wexler (1993), and non-existent thereafter. In my data it is not only more frequent but also continues for much longer.

In the light of the V_XP structures in the verb phrase in Table 2 and Figure 1, it is possible that what looks like verbs in a general V2 position were, in fact, bare VP structures with head-initial verbs. It is therefore necessary to check how simplex verbs behaved in 'true V2' positions, as in examples (10) to (12). This is done in Table 5, where only V_S and V_NEG/PRT structures were considered. The erroneously *-n* marked verbs were calculated against all singular simplex verbs in 'true V2' position.

Table 5. Singular simplex verbs marked with *-n* in true V2 position

	Phase II		Phase III		Phase IV		Phase V	
	n	%	n	%	n	%	n	%
JH	0/2	0.0	1/32	3.1	3/116	2.6	1/15	6.7
CW	4/9	44.4	5/30	16.7	9/31	29.0	2/31	6.5
NS	1/3	33.3	8/62	12.9	4/64	6.3	0/49	0.0
AS	0/1	0.0	2/14	14.3	1/28	3.6	1/7	14.3

It is clear from Table 5 that the 'true V2' constraint drastically reduced the frequency with which simplex verbs were erroneously marked with *-n*. But they remained evident in all four children studied here. This makes it possible *in principle* that in V-*n*_XP structures, as in example (9), the verbs had also been moved into the position which should have been reserved for finite verbs and that V-*n*_XP structures were not simply bare VPs with head-initial verbs, even though the evidence from examples like (6) might suggest that.

In spite of the higher than expected frequencies of *-n* verbs in V2, the majority of simplex verbs in this position *were* finite. Thus, the structural prediction for the development of German in young children was born out for the bilingual children as well, although to a lesser degree than for monolingual German–speaking children.

I am now turning to the second contention of the positional finite–nonfinite distinction, namely that the structural position reserved for nonfinite verbs is the VP–final position. To test this in my data, I calculated the relative frequencies with which apparently nonfinite simplex verbs appeared in V2 or V-final. This time it was the total of nonfinite verbs which provided the base against which the calculations were made and included bare VPs with no clear person context. If anything, this should have biased the data towards the V-final position. The results are displayed in Table 6.

Table 6. Nonfinite simplex verbs in V2 or Vend position

		Phase II		Phase III		Phase IV		Phase V	
		n	%	n	%	n	%	n	%
JH	V2	7/21	33.3	16/28	57.1	33/47	70.2	2/4	50.0
	V-final	14/21	66.6	9/28	32.1	7/47	14.9	1/4	25.0
CW	V2	18/64	28.1	77/124	62.1	104/138	75.4	5/11	45.5
	V-final	46/64	7.9	37/124	29.8	12/138	8.9	3/11	27.3
NS	V2	16/42	38.1	102/156	65.4	33/67	49.3	4/19	21.1
	V-final	26/42	61.9	36/156	23.1	24/67	35.8	12/19	63.2
AS	V2	4/4	100	36/115	31.3	10/47	21.3	1/5	20.00
	V-final	0/4	0.0	76/115	66.1	30/47	63.8	4/5	80.00

Where V2 and V-final do not add up to 100%, residuals are verbs in V3.

Figure 2. Relative frequency of nonfinite simplex verbs in V2 or Vend position

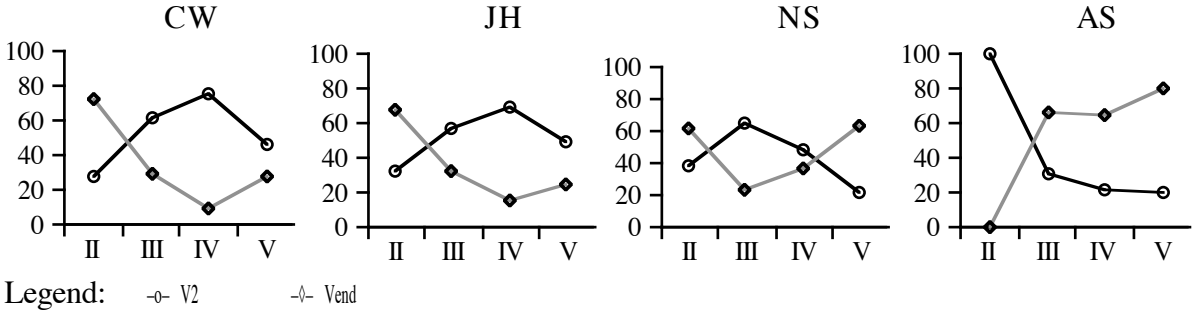


Table 6 shows that for the three first-born children, JH, CW and NS, the preference for *-n* verbs in VP-final position was limited to Phase II, although it possibly re-established itself for NS in Phase V. During Phases III and IV, there was no structural connection between *-n* marking and final position since these verbs were more likely to be found in the V2 position than in the Vend position. This cross-over effect is illustrated in Figure 2. In the case of the second-born child, AS, the association between nonfiniteness and Vend was more strongly maintained throughout the recording period, but still less so than in monolingual German–speaking children.

There is one last issue to be resolved here. It concerns the possibility that the *-n* form was equal in quality to the other finiteness markers in the eyes of the children and that the children did not associate verb forms with verb positions. In other words, the children might have considered *-n* forms to be yet another finiteness marker rather than a nonfinite marker with default status. If that was the case, then verbs marked for singular finiteness should have appeared in final position at a similar rate to their appearance in V2. Table 7 shows that this was clearly not the case. This confirms the default status of *-n* marked verbs.

Table 7. Finite simplex verbs in V2 or Vend position

		Phase II		Phase III		Phase IV		Phase V	
		n	%	n	%	n	%	n	%
JH	V2	25/29	86.2	121/130	93.1	542/580	93.5	76/78	97.4
	V-final	4/29	13.8	8/130	6.2	0/580	0.0	0/78	0.0
CW	V2	35/43	81.4	83/92	90.2	119/126	94.4	35/36	97.2
	V-final	4/43	9.3	3/92	3.3	1/126	3.9	0/36	0.0
NS	V2	20/24	83.3	180/195	92.3	157/171	91.8	146/159	91.8
	V-final	3/24	12.5	5/195	2.6	1/171	0.6	0	0.0
AS	V2	6/7	85.7	73/88	83.0	113/135	83.7	52/59	88.1
	V-final	1/7	14.3	5/88	5.7	3/135	2.2	1/59	1.7

Residuals are verbs in V3.

We can conclude from the various angles taken on the positions in which nonfinite verbs were found in the bilingual data in Tables 4 to 7 that finite verbs overwhelmingly appeared in the V2 position, but not that nonfinite verbs were excluded from V2. This suggest that default *-n* had a somewhat different status in the bilingual data than it appears to have in monolingual data. I will come back to that during the discussion of contrasts below.

Finite verbs within the verb phrase

The picture is further complicated by the fourth type of unusual structure found in the bilingual data. It involves the marking of lexical verbs for finiteness in complex verb constructions. These are verbs in pre-complement position inside the verb phrase, just like example (6) above. Thus these verbs are moved, but not raised, and they should certainly have been nonfinite because the finiteness markers were carried by the corresponding auxiliary or modal verb. Nevertheless, to surprisingly high proportions, such verbs carried finiteness markers. An example of such a construction is given in (13).

(13)*	*er*	*kann-Ø*	*nicht*	*komm-t*	*rein*	(JH-G2;10)
	S	AUX	NEG	Vfin	XP	
	he	can+3SG	not	come+3SG	in	
	'he cannot come in'					

Utterances as in (13) are structurally totally unpredicted. They have never been reported as a possible acquisition structure in monolingual German development. In contrast, this construction is evident in all four bilingual children, although the frequencies vary substantially from child to child. Table 8 provides an overview in absolute and relative terms for the three first born children.[14] It shows that, once again, in each child's corpus the unusual structures are most strongly represented in Phases III and IV.

Table 8. Finite lexical verbs in pre-complement VP position

	Phase II		Phase III		Phase IV		Phase V	
	n	%	n	%	n	%	n	%
JH	0/2	0.0	6/14	42.9	88/133	66.2	2/7	28.6
NS	X	X	10/32	31.3	11/35	31.4	2/7	28.6
CW	X	X	3/15	20.0	8/89	9.0	0/4	0.0
AS	X	X	1/7	14.3	1/10	10.0	X	X

Discrepancies to n of V_XP in Table 2 are due to only English verbs with German verb affixes being included.

Parallel to the appearance of finiteness features on simplex verbs, there were many agreement errors on pre-complement complex verbs. Most frequently, it was the *-Ø* affix which was extended to persons other than 1SG. This raises the possibility that *-Ø* was an alternative nonfinite marker. However, I do not believe this to have been the case for the following reason: To the same ratio as for simplex verbs, complex verbs marked with *-Ø* affixes were nearly always in pre-complement position and hardly ever in post-complement position. Moreover, there was no difference in positioning between verbs with *-Ø* affix and verbs with the other finiteness markers *-e*, *-st* and *-t*. In the VP end position, however, verbs nearly always carried *-n* as an affix. This suggests that the position–form distinction between *-n* verbs and other verbs, which these children made, applied as much to *-Ø* verbs as to verbs inflected with other person markers.

Evidence for cross-language cue competition

The unusual structures presented so far suggest that the bilingual children were aware that German allows V_XP as well as XP_V, and that they oriented towards the form–position

distinction typical of German. However, in contrast to monolingual children, the bilingual children overused V_XP to the point that it became a possible VP structure, and they overused default *-n* on simplex verbs in V2 position. This suggests that the bilingual children in the present study were unaware of the hierarchical differences surrounding verbs in the verb phrase and verbs raised to the position defined by finiteness.

As indicated at the beginning of this paper, I believe that the motivation for the unusual structures lies in cross-language cue competition on the surface of utterances. The following two sets of non-target structures provide some overt evidence for cross-language cue competition and suggest that the children's orientation to German target structures happened in relation to subparts of sentences. Together this presents the unusual structures in examples (6), (8) and (13) as well as the target structure in (7) in a different light

Evidence for on-line cue competition

Explicit evidence for the existence of cross-language cue competition at work comes from utterances in which obviously both the German and the English positions were filled in the same utterance. In example (14), the lexical verb in the verb phrase appears twice, once in the head-initial position typical for English and once in the head-final position typical for German. In example (15) it is the direct object which appears twice, once before the verb and once after the verb. In example (16), the negation appears in the English pre-verbal as well as in the German post-verbal position. Finally, in example (17) the direct object precedes the verb and the indirect object follows it.

(14)*	*du*	*kann*	*nicht*	***sitzen***	*vorn*	***sitzen***	(NS-G3;8)
	S	AUX	NEG	**V**	XP	**V**	
	you	can	not	**sit**	in front	**sit**	
	'you can't sit in front'						

(15)*	*will*	***den***	*ab-mache*	***den***	(AS-G3;3)
	AUX	**XP_1**	V	**XP_1**	
	want	**this**	off-take	**this**	
	'(I) want to take this off'				

(16)* *ich* ***nicht*** *weiß* ***nicht*** (CW-G3;0)

S **NEG** V **NEG**

I **not** know **not**

'I don't know'

(17)* *hat hat* ***kein Geld*** *gegeben* ***Elena*** (JH-G3;4)

AUX **NPdirO** V **NPindO**

has has **no money** given **Elena**

'(you) haven't given Elena any money'

Examples (14) to (17) are similar to monolingual German-speaking children filling both the underlying final position of the verb and the raised position reserved for finite verbs in the same utterance (Tracy, 1991:399, 267, 1994:17; Meisel and Müller, 1992:125-6; Roeper, 1996). In the generative literature on monolingual German–speaking children the concurrent filling of two structural positions in the same utterances has been used to argue for the reality of their structural connection. In my data, it is not the simultaneous filling of two positions made possible by German, but the simultaneous filling of the German and the English positions in the same utterance. This provides very explicit proof that the syntactic structures compete across languages.

Such utterances were by no means a regular feature of the children's language, with only a few occurrences of the types in (14) to (16) in each of the corpora. But then, the filling of more than one structural position in monolingual corpora only happens very occasionally as well. Since no one has ever given any indication about frequencies for the double representation of verbs in the monolingual literature, we can assume that they were only individual occurrences there as well.

The type in (17), however, appeared quite regularly in my data, with a few such occurrences in each recording during Phases III and IV. This is undoubtedly related to the possibility of adjoining complements to the right of the verb phrase for emphasis or focus. However, the extent of it in the children's utterances went far beyond what they heard from their mothers, both in frequency and in type of complement which was extrapolated. It gives the

general impression that verbs following complements were only acceptable to a limited distance between auxiliary and verb. If there were too many verb complements, the verb was sandwiched in the middle.

Evidence for chunking

It was examples like those in (18) and (19) which made me first realise that the children were not processing the hierarchical structure of sentences. Instead they seemed to attend to the subparts of sentences. As a whole sentence, the utterances in (18) and (19) are neither German nor English in structure, but the subparts reflect the German input.

(18)*	*ich kann*	*tragen nicht*	*das*	(NS-G2;6)
	S_AUX	V_NEG	XP	
	I can	carry not	that	
	'I can't carry that'			

(19)*	*diese kann*	*mach auch*	*eine Kopfstand*	(JH-G3;0)
	S_AUX	V_PRT	XP	
	this one can	do also	a headstand	
	'this one can do a headstand too'			

Looking back at the unusual use of finiteness in (8) and (13), this seems to have been the case there as well. It appears that the children employed the familiar structural combinations, which they used very much with target effects elsewhere, and combined them into longer utterances. Seen in that way, the utterances in (20) to (22) are not impervious to analysis.

(20)*	*und ich*	*Wiesel*	*finde dich*	(NW-G3;11)
	S	XP	V_XP	
	and I	weasel	find you	
	'and I find you some weasels'			

(21)* *YOU kann* *habe das Grüne* (CW-G3;7)

S_AUX V_XP

you can have that green

'you can have the green one'

(22)* *ich* *nicht* *weiß das* (AS-G3;1)

S NEG V_XP

I not know that

'I don't know that'

The examples in (18) to (22) suggest the possibility that the subparts, like S_AUX, V_XP and V_NEG, were constructed along language-specific lines, that is, they *are* German. They further suggest that when the children first put longer utterances together they were still unaware of the structural restrictions with which the subparts could co-occur. Given the children's overuse of the German *-n* affix demonstrated above, it is now quite possible to reject the assumption that utterances as in (6) were straight forward cases of interference from German to English.

My suggestion regarding chunking as a possible production mechanism is not that unusual when we consider that it has also been suggested to underlie, at least in part, the production process in L1 (Tomasello, 1999), as well as in L2 (Ellis, 1996) and in adult conversation (Ono & Thompson, 1996). Interesting in my data is the direct evidence for this phenomenon which can only be provided by non-target structures.

Retraction from faulty chains

If the erroneous structures produced by these bilingual children are actually supported by the input, then the next question of course is: How do the children retract from the faulty chains? I have evidence that this happens through contrasts between the languages.

Evidence for contrasts

The first type of evidence that the children perceived English and German in contrast is the pragmatic distinction according to the interlocutor, which the children had been adhering to

since before the structural development began. The second type of evidence comes from the distribution of target word order in the languages. This is the strongest type of indirect evidence of contrast at work, albeit inconspicuous for the most part since it simply reflects the developments of monolingual children in the respective languages. An explicit instantiation of this contrast in word order comes from an interaction between CF, one of the second-born children whose data is not fully analysed yet, and his father. CF uses his knowledge of the order of verbs and verb complements in English to analyse the compound noun "lawn mower":

(23) <CF and F talking about lawn mowers:>
F: what does a lawn mower do?
CF: it lawns the mow
but it doesn't lawn the flowers

The third type of evidence for contrast at work arises out of the children's use of verb morphology. The children appear to have used verb morphology as a means of instantiating the contrasts between the languages in the output. This was particularly noticeable when they marked borrowed English verbs with German verb affixes, as in (24) to (26). But also happened with German verbs, as in (27), which for exceptional reasons should not carry the contrastive German morpheme. The latter can also be found in monolingual children (Clahsen, 1991).

(24)* *und du* *kann* *PAT-**en*** *mich* (AS-G3;11)
and you can pat+nonfinite me
'you can pat me'

(25)* *ich* *PUT-**e*** *das* *oben* (CW-G3;1)
I put+1SG that up
'I put that up'

(26)* *er* *DROP-**t*** *der Blätter* (JH-G2;6)
he drop+3SG the leaves
'he drops the leaves'

(27)* *weiß-**e*** *nicht* (NS-G2;6)
know+1SG not
'(I) don't know'

The non-target use of verb morphology happened frequently enough to be available for quantitative analysis. It is of particular interest here because it represents the children's active choices more clearly than target verb forms can. In Table 9 agreement errors on German simplex verbs are listed. They are divided according to whether they represent the contrastive affixes *-n*, *-t*, *-e* or *-st*, or the verb affix *-Ø*, which represents similarity between the languages. The expectation was that the children's orientation towards similarities between German and English would be visible in high levels of agreement errors due to the overuse of the *-Ø* affix, whereas their orientation towards contrast between the languages would be evident in the overuse of contrastive morphology.

Table 9. Agreement errors as contrast versus similarity on pre-complement simplex verbs

		Phase II		Phase III		Phase IV		Phase V	
		n	%	n	%	n	%	n	%
JH	contrast: *-n,-t,-e,-st*	26/32	81.2	33/43	76.7	75/115	65.2	7/11	63.6
	similarity: *-Ø*	6/32	18.8	10/43	23.3	40/115	34.8	4/11	36.4
CW	contrast: *-n,-t,-e,-st*	33/40	82.5	115/120	95.8	99/115	86.1	13/13	100
	similarity: *-Ø*	7/40	17.5	5/120	4.2	16	13.9	0/13	.00
NS	contrast: *-n,-t,-e,-st*	36/37	97.3	147/158	93.0	58/66	87.9	16/23	69.6
	similarity: *-Ø*	1/37	2.7	11/158	7.0	8/66	12.1	7/23	30.4
AS	contrast: *-n,-t,-e,-st*	5/7	71.4	72/79	91.1	41/46	89.1	5/6	83.3
	similarity: *-Ø*	2/7	28.6	7/79	8.9	5/46	10.9	1/6	16.7

* only German verbs in German contexts.

Table 9 shows that for each child and each developmental phase agreement errors were far more likely to be due to contrastive verb morphology than overlapping verb morphology. This

suggests that structural contrasts between the languages were very important and attended to by the children.

Discussion

Summary of the results

The data presented here do not support the 'initial-one system' hypothesis, neither in terms of the frequency and distribution of non-target structures, nor with respect to the developmental course because evidence for language separation was strongest in Phases II and V. Thus it was not the initial stage of structural development but the middle stages which exhibited most of the cross-language interaction. This is congruent with German being most like English in the early finite utterances typical of Phase III. The structural differences between the languages seemed to have re-established themselves in Phase V, which is when for monolingual German–speaking children the structural complexity of the system finally falls into place (Clahsen, 1991).

With respect to non-target structures, we have seen that the bilingual children in the present study overused the V_XP configuration in their German during Phases III and IV. This is the time when young children's utterances first grow to include subjects, verb movement to the V2 position and finiteness markers (Clahsen, 1991). The overuse of the V_XP structure was evident in three ways: the excessive movement of nonfinite verbs to the V2 position, the occasional failure to move simplex verbs past the negation or modal particle, and the frequent switching of the head position of the verb inside the verb phrase. The latter two were reminiscent of structures in English. However, pre-complement verbs in the verb phrase also featured German finiteness markers and, at times, were followed by the negation or a modal particle. These structures are clearly reminiscent of verb movement in German. They could certainly not have been modelled on English structures in any direct way. Nevertheless, they are not structures typically found during monolingual acquisition of German.

Schlyter (1993) suggested that the weaker language in simultaneous bilingualism is acquired like a second language rather than a first language. However, three aspects of the data set these bilingual children distinctively apart from what we know about second language learners of German: (a) the initial V-final preference, (b) the German-looking verb movement

structures following other finite verb elements during Phases III and IV, and (c) the fact that, for example, finiteness actually developed faster in the children's German than it did in their English (Döpke, 1999b).[15] Moreover, cross-language influences were bi-directional in all areas of development. The difference between their 'stronger' and their 'weaker' language was only the frequency with which cross-language influences arose (Döpke, 1998, 1999a, 1999b).

The evidence from the German–English bilingual children studied here suggests that early multi-word utterances, ie. utterances produced during Phases III and IV, were generated from subparts like S_AUX, V_XP and V_NEG, as well as XP_V. These were then conjoined to longer utterances in a linear fashion. While the internal structure of the smaller chunks complied with target structures, the longer chains showed an absence of knowledge regarding the hierarchical relationship between the structures of the subparts. This explains both why originally there were mostly target structures and why we see most of the non-target structures in Phases III and IV.

The structural incompatibilities generated by the chunking of subparts of utterances were resolved through contrasts between the languages. Contrast at work became visible in the overuse of word order and verb affixes which represented differences between German and English. The overuse of language-specific word order and verb affixes showed that the bilingual children actively attended to the contrasts between the languages.

The Competition Model explanation

The process of overuse of V_XP and the retraction from it through contrastive word order and contrastive verb morphology can be conceptualised in terms of the Competition Model (Bates and MacWhinney, 1989) and the assumption that cue competition is effective across languages (MacWhinney, 1997).

The difference in verb–complement order in the verb phrase in German and English is reflected in that first word combinations of young monolingual English–speaking children are always V_XP and German monolingual children originally produce mostly XP_V utterances (Tracy, 1987). This is most probably due to the limitations with respect to the processing of input which restrict young children to the end of the sentences they hear (Slobin, 1973). Since many of the utterances addressed to young children involve modal verbs plus verb phrases,

young German children receive a rich diet of XP_V structures (cf. Kempen, Gillis and Wijnen, 1997, for Dutch). The preference for verb-final structures during the early stage of word combinations was also evident in the bilingual children's German. The difference between V_XP in English and XP_V in German supported the contrast between the two languages, a contrast which was very much present in other ways in their environment as well.

As the children's processing abilities expanded and they moved from Phase II to III in their production, they became increasingly aware of the possibility of V_XP in German. The similarities between German and English in this respect meant that the previous binary contrast between German and English now developed into a three-way contrast: the V_XP cue in English did not only compete with the XP_V cue in German, but V_XP and XP_V competed within German. The third angle is the similarity (or difference) between German V_XP and English V_XP. This three-way contrast is graphically represented in Figure 3.

[INSERT FIGURE 3 ABOUT HERE]

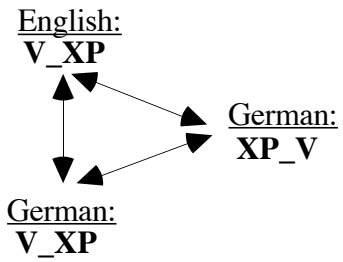
The similarities between V_XP in German and English increased the availability of the V_XP cue for the bilingual children as compared to monolingual German children. Thus, a strong V_XP template was formed in German. The strength of the German V_XP template outweighed the XP_V template to the point that the bilingual children erred on the side of V_XP while monolingual German–speaking children would rather err in the direction of XP_V (Tracy, 1987). It is evident from the extension of V_XP to the verb phrase configuration in German that the bilingual children did not realise the different structural implications of V_XP in German and English.

Nevertheless, the V_XP template in German developed along the lines of the German input: verbs were increasingly marked for finiteness, and negation or modal particles increasingly followed the pre-complement verb. From examples like (13), (18), (19) and (20) to (22) we can see that this happened before the children merged the S_AUX structure with the V_XP structure. Instead of generating longer utterances as one structural unit, the children seemed to have produced longer utterances by conjoining well established shorter templates.

In order to be able to merge S_AUX and V_XP, the children needed to understand the structural differences between V_XP in German and in English. For that they had to be able to

properly process longer utterances yet again. They needed to be able to fully hold in memory utterances which involved both finite and nonfinite verb elements. Thus, at the second level of three-way contrast between German and English, the English AUX_V_XP cue competed with the German V_NEG/PRT cue which in turn competed with AUX_XP_V in German. This is illustrated in Figure 4.

Figure 3. First level of three-way contrast between German and English



Now the differences between German and English in longer utterances rather than the similarities of subparts of utterances competed. The non-target utterances, which the children had conjoined from subparts of the target system, became incompatible with the longer input structures. This, finally, led to the appropriate structural hierarchies in each language and to the formation of new templates for longer utterances.

It is reasonable to assume that three-way contrasts are more difficult to master than binary contrasts (Clark, 1990), just as a multiplicity of functions is more difficult to acquire than clear form–function relationships in other areas of language acquisition (Slobin, 1973; Bates and MacWhinney, 1989). This explains the greater error rate, the increased range of non-target options and a possibly slower acquisition schedule in the acquisition of German under bilingual conditions.

Differences between bilingual and monolingual children

If, as I have argued, the bilingual children's acquisition path is not outside of what the structure of German might suggest and since we need to assume that primary language acquisition proceeds in the same way in monolingual and bilingual children because of the similarities in cognitive make-up of children of the same age, the following two questions arise: (1) Is the chunking of locally generated sub-structures also a feature of monolingual children's

language development, and (2) why do monolingual German-speaking children not produce the same type of non-target structures as the bilingual children do.

Let us assume that he answer to the first question is yes, and turn to the second question: The difference between monolingual and bilingual children with respect to the generation of non-target structures is likely to lie in the different strength of the two-word templates. For monolingual German-speaking children, XP_V is a very robust template and monolingual German-speaking children tend to err in the direction of XP_V. If monolingual German-speaking children chunk S_AUX with XP_V they arrive at totally inconspicuously looking target utterances. For the bilingual German–English speaking children, however, V_XP is stronger than XP_V because of the strength this cue gains from its similarity with English. Therefore, the bilingual children tend to err in the direction of V_XP. This leads to the erroneous combinations of S_AUX with V_XP, which can be found in the bilingual acquisition data, but which are absent in monolingual acquisition data.

If we are prepared to consider the possibility that longer utterances are initially based on the chunking of strong two-word templates then non-target utterances are not qualitatively different from target structures. Both can be the product of surface processing and chunking of smaller structural units at a point in the development where the young children have not yet gained the hierarchical knowledge of the language they are learning. The difference between the two is the visibility of the production process. Thus the answer to the first question can easily be yes.

The differences in the strength of syntactic templates can also explain differences among bilingual children. For a host of environmental and individual reasons, the strength of syntactic templates may vary among bilingual children. At one end of the continuum they may behave exactly like monolingual children with the cross-language cue competition remaining invisible. Thus, what some children do a lot, others do a little, but they all do it for the same reasons.

One such environmental variable is the birth order: the second-born children, of which AS is a representative in this paper, had effectively more exposure to German because there were already two German speakers in the house giving the children the chance to over-hear

conversations between their mothers and their older siblings. This can certainly contribute to the syntactic templates for German gaining strength and limit the non-target structures.

Similarities with claims of others

The claims I am making here regarding the initial lack of knowledge about the interconnectedness of linguistic structures and the adjoinment of chunks of structure are nothing new (Grimm, 1973; Clark, 1974; Wilson and Peters, 1988; Tracy, 1991; Tomasello, 1992; Peters, 1995; Diessel and Tomasello, 1999). Young children have repeatedly been shown to adjoin unanalysed chunks or partially analysed chunks in order to form longer utterances. Grimm (1973) called this the 'rule of addition'. Tracy (1995) talks about 'special projections' which precede their proper structural specification. Clahsen (1988) reports a developmental phase during which the negation is tied to the verb. Hoekstra and Jordens (1994) argue that structures are first adjoined and only later reanalysed as head–complement configurations.

What is interesting in my data is the extent of spontaneous production along language-specific lines in subparts of utterances, which goes far beyond what we commonly find in monolingual children. The subparts of utterances which were chunked together with other subparts in ways not allowed by the target system showed many language-specific features which the children already had control of. This suggests that local syntactic analysis happened before global syntactic analysis and that there was an interplay between structure generation within familiar templates and chunking.

My argument for cross-language cue competition as the reason for the differences between the bilingual data and comparable monolingual data was expressed in very similar terms by Tracy (1995: 482) when she stated that "there is sufficient evidence for on-line competition. There is monolingual competition (normal slips[16] of the tongue) and bilingual competition, resulting in language mixing." The resolution to the language separation problem was seen as one of contrast by Tracy (1995: 484) as well when she wrote that "the impossibility of analysing some candidate expression as an instantiation of the same abstract configuration should lead the learner to hypothesise", among other things, "that s/he is dealing with different languages." But while Tracy (1995: 487) still assumed "*a priori* knowledge of what type of configuration is possible in principle", the bilingual data presented in this paper strongly suggest that the

hierarchical relationships between the subparts of the utterances were not evident to the children *a priori*. Instead, the children appeared to have arrived at the hierarchical organisation gradually through resolving the structural incompatibilities which arose during the linear assembly of the subparts with the help of contrasts between the languages.

Conclusion

This paper has presented evidence for cross-language cue competition during the simultaneous acquisition of German and English. The effects of cross-language cue competition manifested themselves in changes to the balance between XP_V and V_XP in the children's German and resulted in a number of unusual acquisition structures. Contrasts in verb morphology eventually established the hierarchical organisation of the syntax and allowed the retraction from non-grammatical structures

The fact that the bilingual German–English speaking children so regularly exhibited structural variation which monolingual German–speaking children only show very occasionally suggests that English affected the way German was processed indirectly. The changed saliencies and greater structural complexities generated by the bilingual input situation made the production processes visible where they might be present but are less obvious under monolingual acquisition conditions.

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Notes

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[1] Langacker also includes in the list of structural schemata WH-questions, relative clauses, passives, and conditional combinations, none of which are relevant for the present paper.

[2] I was not really able to appreciate this until I became the mother of one such child. Because he is growing up bilingually, we were usually able to trace his most advanced sounding utterances back to their sources. Those could be as far as a week apart from him using the structure in his own speech and were at times so cleverly combined with other structures that the outsider would be hard pressed to suspect they were not original. The mother of one of my subjects made similar comments to me about some of her son's unusual constructions.

[3] The total data pool consists of six children between 2 and 5 years of age. The period of data collection from individual children was dependent on the families' availability and varied between 18 months and 3 years. For two of the children there are still major gaps in the analysis.

[4] These mothers did not overuse the VX structure in German nor did they make any of the other convergences reported for older German immigrant groups to Australia (Clyne 1982).

[5] The remaining two children are also second-born, and much of what is being said about AS in this paper is evident in their data as well.

[6] See Hickey (1981) for a discussion of the benefits of various ways of calculating MLUs.

[7] It is impossible to compare MLU across languages in any meaningful way. But MLU counts have been used for studies of monolingual children in both English and German. Thus it is useful as a measure of the bilingual children's progress in each of their two languages as well as for comparisons between the bilingual and monolingual data.

[8] On modal verbs and *weiß*, a derivative of the verb *wissen* 'know', the -Ø affix also denotes 3SG.

[9] There are only two examples of 2PL contexts in the data of the 4 children to be discussed here, each from a different child. They appeared relatively late in the set and were correctly inflected with -t. The lack of 2PL contexts is common in the speech of young children, in particular when they are first-born.

[10] I have got roughly 10,000 spontaneous German utterances for the 4 children reported on here. Apart from the word order in the verb phrase (cf Table 2), non-target structures amounted

to less than 10% of the relevant data for some analyses and less than 5% for others, with a fair amount of variation between children. Some of the more complex structures did not go beyond a few instances. Everything else were target structures.

[11] For AS, one of the second-born children, this analysis has not been completed yet. But it is already obvious that V_XP verb phrases are not as frequent in the AS corpus and that there will be no cross-over effect.

[12] I have been told that such structures are also discussed in Penner, Tracy and Weissenborn (in print) and Penner, Tracy and Wyman (1999), but I have not seen the publications yet.

[13] This included imperatives because they display the same form–position distinction as simplex verbs in matrix clauses in German.

[14] Since the data from AS has not been counted out with respect to V_XP and XP_V in the verb phrase, the finiteness frequencies for V_XP in the verb phrase are not available yet either. All I can say is that there are 2 V_{fin}_XP examples in Phase III and 3 in Phase IV, but only 1 XP_V_{fin} in Phase IV. For a further 3 finite verbs in the VP during Phase III the position cannot be determent because of the lack of verb complements. The same is true for the other 3 children, namely that there are many more finite lexical verbs following other finite verb elements but without verb complements (Döpke, 1999b). They have been left out of Table 7.

[15] The argument that the weaker language in simultaneous bilingual equals second language acquisition entails the assumption that L2 learners have lost the type of access to UG facilitation that is available to young children during L1 acquisition. If it is true that 2L1 is like L2, than this could not possibly mean that the 2-year-olds have lost access to UG simply by virtue of the concurrent exposure to another language. Rather it ought to mean that L2 learners are not as different from L1 learners as their output suggests. Another important difference between L2 learners and 2L1 learners is that L2 learners already have an established language system to which they can relate the second language they acquire. This is not the case for 2L1 learners. (see Genesee 1993 for a very similar argument)

[16] Tracy understands 'slips of the tongue' with their full psychological significance of providing "crucial evidence concerning the temporal patterning of speech production and the amount of competition at various stages of processing." (1995: 42)