The Development of Verb Morphology and the Placement of Finite Verbs in Young Bilingual German-English-Speaking Children 1

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ABSTRACT

The present study examines the possibilities of separate development versus cognitive permeability of the languages of young bilingual children. The analysis reveals differences between these bilingual children and monolingual children with respect to the triggering effect of the second person singular and the interconnection between finiteness and verb placement in German, and places the children at the slow end for the completion of the acquisition of subject–verb agreement in both languages. I argue that this resulted from the competition of similar forms across languages and the children's attempts to enforce overt contrasts between the languages beyond what the target languages offered. It indicates that verb morphology and finiteness are not immune to cross-language effects. The suggestion is made that the degree of visibility of these processes might be related to the complexity of the structural overlap between the languages.

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1. INTRODUCTION

Young children's ability to differentiate between two or more languages from the earliest stages of language acquisition has been a prominent issue over the last two decades. Based on examples displaying obvious evidence of cross-linguistic influences, a number of researchers have argued that bilingual children originally assume one lexicon and one grammatical system for both languages and only gradually separate between the two languages during their third year of life (Volterra & Taeschner (1978), Redlinger & Park (1980), Taeschner (1983), Vihman (1985)). This position has been challenged on grounds of unsystematic empirical evidence (Genesee (1989), de Houwer (1990), Meisel (1989; 1994a)). Available counterevidence shows that children as young as two years of age are able to differentiate between the languages in their environment at lexical, structural and pragmatic levels (Lanza (1992), Döpke (1993), Pearson, Fernandez & Oller (1995), Quay (1995), Paradis & Genesee (1996, 1997)). Nevertheless, there is also evidence for cognitive permeability between the languages of simultaneously bilingual children. This may not necessarily express itself in mixing in a straightforward way, but in changes to the acquisition path of one language or the other (Tracy (1995), Hulk & van der Linden (1996), Döpke (1998), Paradis (published)).

It is possible that findings regarding the strict separation between the languages by simultaneously bilingual children were a feature of the language combination investigated, the language module studied, or individual characteristics of the children involved[1]. In particular, the development of verb morphology and finiteness constraints has shown to be resistant to cross-language influences in a number of language combinations (Meisel (1994), Paradis and Genesee (1996, 1997), de Houwer (1997), Mishina (1998)). However, word order has proven to be affected significantly in German–English bilingual children (Döpke (1998, 1999)). For this reason, the development of verb morphology and finiteness constraints in four German-English bilingual children was followed in order to investigate further (a) whether language separation is affected differently depending on language combination, (b) whether it is a particular feature of verb morphology and finiteness to be immune to cross-language effects, or (c) whether language separation is a phenomenon of individual variation. The analysis will show that, at least in the combination German–English, verb

morphology is not exempt from cross-language effects. It will be argued that the degree of visibility of such effects depends on the complexity of the cross-language overlap of the languages involved as well as on individual differences in what children pay attention to in the structures of the target languages.

In order to show that the question of cognitive organisation of the two languages in young bilingual children is far from settled, I will, first, review the evidence for the independent development between languages during simultaneous bilingualism and then look at some approaches to dealing with cross-linguistic influences. I will argue that the structural ambiguities arising from the combination of German and English are particularly suited for investigating this issue further. Following this, I give a short presentation of the crucial contrasts and resulting ambiguities between German and English with respect to verb morphology and finiteness constraints and review how monolingual children of either language acquire these structural features. These will lead to the hypotheses for the present study. They are formulated with reference to independent development of the two languages as the null-hypothesis. The results of the analysis of the bilingual children's development will be presented (a) in relation to the development of monolingual children of either language, and (b) as a comparison between the development of the two languages in the bilingual children. In order to conceptualise the variations between bilingual and monolingual children, I will attempt a cognitive functional interpretation along the lines of the Competition Model (Bates & MacWhinney (1989)). The discussion will conclude with some suggestions for possible reasons for the divergent results associated with different language combinations.

2. LANGUAGE SEPARATION AND CROSSLINGUISTIC STRUCTURES

2.1 Independent development

While the suggestion of a fused language system for young bilingual children was readily embraced originally, it has been strongly opposed since the late-eighties. Through the quantification of children's mixed utterances and the control of the discourse context in which they appeared, the notion of a fused system has been thoroughly disproved in more recent studies. Meisel, who was one of the first proponents of the independent development hypothesis, speculated that bilingual

children would concentrate even more on target forms than monolingual children because of their need to differentiate between the two languages they are learning (Meisel (1990, 18)). In a series of articles, Meisel and his colleagues (Meisel ed. (1990, 1994)) described language-specific features in the development of bilingual French-German preschoolers. Unfortunately, in spite of the importance attached to quantifications, these were often not made explicit in their studies, and cross-linguistic effects remained unmentioned or unexplored (Koehn (1994, 47), Müller (1994, 263).

Paradis and Genesee (1996) also argued for the independent development hypothesis. They identified three ways in which finiteness could potentially interact in the development of French-English bilingual children: transfer from French to English, acceleration of English, or delay of French. They found none of these effects. They concluded that the development of bilingual children does not differ from that of monolingual children. However, their criterion for establishing the existence of cross-linguistic effects as quantitatively measurable systematicity effectively excluded numerically minor instances from being considered at all. Paradis & Genesee (1997) found that finiteness developed faster in French than in English. They took this to support the hypothesis that the development of finiteness features is dependent on the representation of these features in the language to be learned. The faster development of French over English is also interesting in so far as English was the quantitatively stronger language in their subjects' environment. This points to the importance of cognitive forces over environmental forces.

These findings were corroborated by Mishina (1998), who applied Paradis & Genesee's (1996) criteria of transfer, acceleration and delay to the development of verb morphology in English-Japanese bilingual children. De Houwer (1997) followed a Dutch-English bilingual child's development of expressing past events with present perfect in Dutch or past tense in English and found no transfer either.

These studies suggest that the independent development of two languages under simultaneously bilingual conditions is certainly a possibility. The question I will pursue, however, is whether this is a determining characteristic of bilingual development.

2.2 Dealing with cross-linguistic evidence

While the evidence for independent development of a bilingual child's two languages is certainly impressive and in many ways helpful in dispelling prejudices against this type of language acquisition, we know from other studies as well as parents' anecdotal reports that cross-linguistic effects are certainly visible. One approach to dealing with cross-linguistic effects is to consider them a feature of unbalanced development. Schlyter (1993) took cross-linguistic structures to indicate that the French-Swedish-speaking children in her study were not 'really bilingual' but early second language learners. Meisel (1996) treated language mixing as examples of code-switching. Lanza (1997) found that lexical switches were bi-directional, but morphology was only switched from Norwegian to English. She took this as confirmation that Norwegian was the child's stronger language. Code-switching and unbalanced development have been said to presume two language systems rather than one fused system (see Meisel (1989) for the argument in favour of this position).

Tracy (1995) and Gawlitzek-Maiwald & Tracy (1996) stressed the interrelation of language-specific development and cross-linguistic effects. They identified two sources for cross-linguistic influences: cross-language bootstrapping of structures which develop faster in one language than in the other, and "slips of the tongue". Both were likened to behaviours which naturally occur in monolingual speakers. Tracy (1995, 204) warned against prematurely discarding examples of low frequency since such measures are often subjective. The treatment of exceptional examples may correlate with how well they fit with the preferred theory. As "slips of the tongue" have shown, exceptional examples can afford insights into the cognitive forces involved in language production (Tracy (1995, 42)).

Hulk and van der Linden (1996), Döpke (1998), Müller (in press) and Paradis (published), have all localised cross-linguistic influences at points of structural ambiguities, arguing that these create sites of potential permeability between the languages. Structural ambiguities might lead to the extension of a potentially intra-linguistic structure in ways uncommon for monolingual children. Döpke (1998) argued that the overextension of intra-linguistically available surface phenomena comes from cross-linguistic cue competition, which changes the saliency of intra-linguistic cues. In

Döpke (1992), contrast between the languages was identified as the driving force behind a German-English-speaking child following an unusual acquisition path for subordinate clauses in German. Both similarities and contrasts between the languages may affect the path of acquisition in indirect ways. The latter studies have in common that they explore the variation between monolingual and bilingual language acquisition for insights into the cognitive processing of the input.

2.3 The issue of language combination

The independent development of two languages might be related to the level of cross-linguistic complexity or the lack thereof in the language combinations studied. The present study will explore this question on verb morphology and finiteness data from German–English bilingual children. The language combination German-English is an interesting one in this respect because the German system is not only complex itself but there is also a degree of phonological overlap of morphemes between German and English with respect to the verb. At the same time, the syntactic structures related to finiteness are vastly different in the two languages, but these differences are not always visible on the surface of sentences. The complexity of differences and similarities between German and English might yield additional insights regarding the status of cross-linguistic influences in the development of finiteness under simultaneously bilingual conditions.

The aim of this study is to investigate the development of verb morphology and finiteness as indicative of independent development or, alternatively, cognitive permeability of the two languages in bilingual children. This will be done by comparing the development of bilingual German-English children with that of monolingual children of either language and exploring the motivations for uncommon variations. In the discussion of the results I will draw on the Competition Model developed by Bates & MacWhinney (1989) in order to explain the added dimension of variation during the acquisition process as due to cross-linguistic cue competition.

In preparation for the empirical part of this study, I will give a short description of the structural features of German and English with respect to verb morphology and finiteness and present relevant findings from monolingual German– or English–speaking children. Following that I will formulate my hypotheses in congruence with the claims made by proponents of the independent

development hypothesis, namely that German and English are not affected in their development by the other language and that cross-linguistic influences which appear regardless are due to language dominance.

3. THE STRUCTURAL CONTRAST BETWEEN GERMAN AND ENGLISH

In this section provides a short overview of the finiteness systems in German and English. This entails a description of the verb paradigms and the position of finite verbs in the two languages. The focus is very much on the differences between the systems and on potential ambiguities. The scope of the structural description is limited to those areas which are relevant to child language.

3.1 Subject-verb agreement

English is an inflectionally poor language. Subject-verb agreement is explicitly realised only on lexical verbs in 3rd person singular (3SG) in form of an *-s* affix and on auxiliaries (*has* and *does*). The copula and auxiliary based on *be* have distinct forms for 1SG and 3SG (*am* and *is*) only. Modal verbs have no person affixes at all. German, on the other hand, has an extensive verb paradigm, which is realised on lexical verbs, auxiliaries and modal verbs. The verb paradigms for these three verb types are displayed in Table 1[2].

TABLE 1

Verb Paradigm in German

	main verbs	eg. 'play'	modals	eg. 'can'	auxiliaries	eg. 'have'
1st ps.sg	-e/-Ø	*spiel-**e**, spiel*	-Ø	*kann*	-e/-Ø	*hab, hab-**e***
2nd ps.sg	-st	*spiel-**st***	-st	*kann-**st***	-st	*ha-**st***
3rd ps.sg	-t	*spiel-**t***	-Ø	*kann*	-t	*ha-**t***
1st ps.pl	-en	*spiel-**en***	-en	*könn-**en***	-en	*hab-**en***
2nd ps.pl	-t	*spiel-**t***	-t	*könn-**t***	-t	*hab-**t***
3rd ps.pl	-en	*spiel-**en***	-en	*könn-**en***	-en	*hab-**en***

For the six subject persons, German provides five verb inflections: -e, -Ø, -t, -st, -(e)n. However, most of the forms are multi-functional. The -n affix does not only mark 1PL and 3PL but also the infinitive (*spielen* 'to play'), and -n and -e endings are extensively used on nouns and adjectives. The -Ø ending serves more than one function within the verb paradigm since it agrees with 1SG on all types of verbs but on modals additionally with 3SG. The main verb *wissen* 'to know', which is a high frequency verb for young children, constitutes an exception in that it is realised with -Ø ending, *weiß*, in 3SG. The stem of the high frequency modal verb *möchte* 'want' is also unusual in that it ends on -e. Even adults seem to be unaware of this and produce the back-formation *ich möcht* or *er möcht*. This might suggest to the child that -e marking is possible on modals. Difficulties with 3SG can stem not only from the lack of -t affixes on modal verbs and *weiß*, but also from 2PL, for which -t is used as well. Thus, only the -st affix for 2SG has a clear form-function relationship in the German verb paradigm.

While English marks past tense through affixes or stem changes, these forms do not carry subject-verb agreement features. In colloquial German, reference to past events is expressed through present perfect, which is formed by combining present tense auxiliaries with past participles.

3.2 Placement of the finite verb in matrix clauses

3.2.1 German

German and English also differ with respect to the positioning of verbs. The position of the German non-finite verb is at the end of the verb phrase following all the verb complements. When the finiteness features are accommodated by auxiliaries or modal verbs, the lexical verb remains in its base position. In the absence of auxiliaries or modal verbs, finiteness features are attached to the lexical verb. As a consequence of that, the lexical verb has to move into the auxiliary position. Thus, S_AUX_O_V , as in (1), changes to S_V_O, as in (2).[3]

(1) Hilda muß**-Ø** den Rasen mäh**-en**
Hilda must+3SG the lawn mow+INF
'Hilda has to mow the lawn'

(2) Hilda mäh**-t** den Rasen
Hilda mow+3SG the lawn
'Hilda mows the lawn'

Similar to other verb raising languages like French, the fronted verb precedes the verb phrase. This is evident from the verb moving past the negation, as in (3) or modal particle, as in (4).

(3) Hilda mäh**-t** nicht den Rasen
Hilda mow+3SG not the lawn
'Hilda doesn't mow the lawn'

(4) Hilda mäh**-t** oft den Rasen
Hilda mow+3SG often the lawn'
'Hilda often mows the lawn'

In contrast to French but similar to Swedish and other V2 languages, the German finite verb always appears in second position in matrix clauses. This is evident from sentences in which constituents other than the subject of the sentence are topicalised, as in (5), and in questions, as in (6). In these situations, the order of subjects and verbs is reversed.

(5) Morgen mäh**-t** Hilda nicht den Rasen.
tomorrow mow+3SG Hilda not the lawn
'Tomorrow Hilda won't mow the lawn'

(6) Welchen Rasen mäh**-t** Hilda morgen?
which lawn mow+3SG Hilda tomorrow
'Which lawn will Hilda mow tomorrow?'

The same opposition between non-finite verbs in post-complement position and finite verbs in pre-complement position can be seen in imperatives, as in (7) and (8). In singular, the finite imperative ends in -Ø and therefore resembles some of the indicative verb forms discussed above. The plural ends in -t. However, similar to 2PL, young children might hear but hardly ever use this form.

(7) Mäh-**Ø** nicht die Blumen, Hilda!
mow+IMP not the flowers Hilda
'Don't mow the flowers, Hilda!'

(8) Nicht die Blumen mäh-**en**, Hilda!
not the flowers mow-INF Hilda
'Don't mow the flowers, Hilda!'

3.2.2 English

English maintains the SVO word order through all levels of syntactic complexity. In the absence of auxiliaries or modal verbs, subject-verb agreement or past tense affixes attach to the main verb, but the verb does not move away from its base position at the beginning of the VP. This is apparent from the main verb always following the negation or modal particle, as in (9) and (10), and main verbs not preceding the subject in questions, as in (11). In the absence of otherwise motivated auxiliaries or modal verbs, the auxiliary *do* is inserted to allow the formation of negated sentences or questions.[4]

(9) Johnny does not want cake for dessert.
(10) Johnny always want-**s** cake for dessert.
(11) Does Johnny want cake for dessert?

Topicalisation is achieved by attaching the element which is to be topicalised to the left of the subject. In this case, the auxiliary verb is no longer in second, but in third position, as in (12).

(12) Tomorrow morning Johnny will want cake .

3.3 Contrasts and ambiguities

With respect to verb morphology and verb placement, there are two major differences between German and English: (a) the frequency with which morphological markers are added to lexical verbs, and (b) the relationship between finiteness and movement of lexical verbs in German and the lack thereof in English. As a consequence, finiteness is much more pervasive in German than in

English. However, as we have seen, verb affixes which denote subject-verb agreement are not uni-functional in German, which offsets the facilitative effect of their pervasiveness to a degree.

While the underlying structures of German and English are fundamentally different, verb movement in German frequently results in SVO. This creates a structural overlap between the two languages on the surface of sentences, which may suggest structural equivalence to the learner.

There are also a number of ambiguities with respect to phonological similarities. Both German and English use bare stem forms of the verbs. In English these verbs are non-finite, but in German they are finite and agree with 1SG and in some cases 3SG. The voiceless variant of the English past tense affix -ed is phonologically similar to the German 3SG affix -t and the past participle suffix as in *ge-spiel-t* 'PREFIX-play-SUFFIX'. Phonological reduction of the 2SG form -st to -s would make it similar to the -s affix on 3SG English verbs although monolingual German-speaking children seem to prefer to reduce -st to -t.

To sum this up, English and German are, at the same time, similar and different. Syntactically, similarities arise in simple main clauses; phonologically, there are potential similarities in the forms of verb modification. Both types of similarities are superficial.

4. THE DEVELOPMENT OF SUBJECT-VERB AGREEMENT IN MONOLINGUAL CHILDREN

4.1 German

4.1.1 Subject-verb agreement.

In the development of monolingual German-speaking children, the full inventory of verb inflection becomes available within three to six months of their second birthday (Clahsen (1986, 1991)). They typically master the full subject-verb agreement paradigm when their utterances average around four words in length. Most children seem to achieve this by three years of age. (Clahsen (1986b); Clahsen & Penke (1992); Clahsen, Eisenbeiß & Penke (1996)).

Of the agreement affixes, the -t affix appears first. It has been suggested that initially -t does not necessarily denote 3SG as in the adult language, but low transitivity (Clahsen (1986a), Clahsen & Penke (1992)) or default marking for null-subjects (Meisel (1994b)). The last inflectional affix to appear is -st for 2SG. Shortly after its first appearance, -st is used regularly, and from then on, all verb endings are correctly matched with their corresponding subjects (Clahsen (1991), Clahsen & Penke (1992)). Thus, -st has been argued to function as a trigger for correct subject-verb agreement (Clahsen & Penke (1992)). More recently, Clahsen, Eisenbeiß & Penke (1996) have shown that consistent agreement marking for 1SG (-Ø or -e) precedes that of 2SG (-st). This effectively refutes the earlier claim that -st functions as a trigger for the correctness of the verb paradigm as a whole.

Overall, when agreement affixes are used on lexical verbs, they usually agree with the subject. Incorrect agreement assignments are rare. This is particularly the case for 3SG -t and 2SG -st. (Clahsen & Penke (1992); Rice, Noll & Grimm (1997)). With respect to 1SG, the variation between -e and -Ø and the overlap of 1SG -Ø on lexical verbs with 3SG -Ø on modal verbs makes its assignment less conclusive for the child and lowers its degree of correctness during the developmental stage. This is further complicated by the possibility that -Ø ending could be a sign of affix omission and thus be non-finite rather than agreement marking (Rice, Noll & Grimm (1997)).

Children with specific language impairment (SLI) present a variation of the developmental patterns of monolingual German-speaking children. They prefer non-finite -en over finite forms for much longer than normally developing children. When SLI children do use finite forms on lexical verbs, these rarely show agreement errors as well (Clahsen (1991); Rice, Noll & Grimm (1997)).

4.1.2 Verb position and finiteness

Closely related to the morphological marking of the verb is its syntactic position. Clahsen (1986, 1991) argued that the achievement of subject-verb agreement motivates consistent movement of the verb from its clause-final base position to the second position. Meisel (1990) and Weissenborn (1990) found the contrast between finite and non-finite verbs rather than correct agreement to cause

TABLE 2

Non-finite -n verbs in non-final position[i]

author(s)		non-finite -n in non-final position	proportion of all verbs in non-final position		proportion of all non-finite -n verbs	
Clahsen & Penke (1992) and Clahsen, Penke & Parodi (1993-94) Simone data	1;8–2;0:	9	(277)	.03	(33)	.27
	2;0–2;2:	11	(2290)	.005	(137)	.08
Poeppel & Wexler (1993)	Andreas 2;1:	6	(203)	.03	(43)	.14
Rohrbacher & Vainikka (1995)	Katrin 1;5:	2	(34)	.06	(20)	.10
	Nicole 1;8:	6	(37)	.16	(68)	.09
Köhler & Bruyere (1995-96)	only V2:	67	(611)	.11	(164)	.41
Nico: 2;2–2;7	V2+V1:	203	(947)	.21	(300)	.68

Figures in brackets indicate totals in cell.

verb movement. All three of them agree with Poeppel & Wexler (1993) and others after them (Rohrbacher & Vainikka (1995); Köhler & Bruyere (1995-96)) that finiteness and verbs in second position are developmentally related. Two types of evidence can be used to substantiate this: (a) the low frequency with which verbs in second position are non-finite rather than finite, and (b) the low frequency with which non-finite -n verbs appear in non-final rather than final position. Table 2 (previous page) shows the quantifications on which the claims for the interconnection of verb movement and finiteness are based. The calculations for (a) are in the third column and for (b) in the fourth column.

While all the authors summarised in Table 2 make strong claims regarding the inevitability of finite verbs in V2 and non-finite verbs in clause-final position, the evidence supports the first part of this

[i] The calculations presented in Table 2 are not necessarily the same as in the originals since the authors differed as to what they included in the base on which the percentages were based. In particular, I left out ambiguous structures in my re-calculations. I find that important as the inflation of the base against which we make our calculations can reduce any phenomenon to insignificance.

claim, namely that the V2 position is reserved for finite verbs, much more strongly than the second part, namely that non-finite -n verbs should only appear in final position. In other words, while V2 houses predominantly finite verbs, non-finite verbs are not as clearly in final position as the theory predicts, as we can see in particular from the early Simone data in Clahsen at al. (1992, 1993-94) and the Nico data in Köhler & Bruyere (1995-96).

Among other scholars, the close structural relationship between finiteness and verb position in young children's grammars does not receive undivided support either. Only two of the four subjects studied by Tracy (1987, 84) clearly associated the final position with non-finite verbs. Children studied by Fritzenschaft, Gawlitzek-Maiwald & Tracy (1990) and Schaner-Wolles (1994) frequently placed verbs marked for agreement in final position as well. Children with specific language impairment show the same principal bias for finite verbs in V2 and non-finite verbs in V-final as language-normal children, but are more likely to leave finite verbs in final position than their controls (Clahsen (1991); Rice, Noll & Grimm (1997)). Unfortunately, none of these authors present comparable quantifications. Nevertheless, we get the impression that if variability in verb placement exists, then it is mostly the finite verb which remains in the clause-final position.

We can conclude that in spite of some uncertainties regarding the degree of obligatoriness attached to the "finiteness equals V2" requirement, agreement exists that monolingual German-speaking children correctly identify the verb-second position as the ultimate landing site for finite verbs in matrix clauses. Non-finite verbs rarely appear in V2. Moreover, it has been claimed that monolingual children never move more than one verbal element to the left of verb complements (cf. Schaner-Wolles 1994; Penner 1994), although Rice, Noll & Grimm (1997, 285) appear to have found a few such cases.

4.2 English

4.2.1 Subject-verb agreement

In the development of monolingual English-speaking children, 3SG -s appears relatively late (Brown (1973), Radford (1992)). When -s is used, it is virtually always correct (Harris & Wexler (1996)). Consistent use of the -s affix takes a long time to develop. Lahey, Chesnick, Menyuk &

Adams (1992) found that group means only reached permanent levels of .80 or above when MLU had grown to 4.50+. According to predictions made by Chapman (in Miller (1981, 26)) children reach this utterance length between the ages of 3;4 and 4;4, although Lahey et al's subjects were only 2;11 at the time. Other finiteness features such as regular past -ed and auxiliaries were also acquired late. The latter two had not reached Lahey et al.'s (1992) threshold of 80% at 2;11, at which time the group's mean length of utterance was 4.81 morphemes.

The period of bare verb stems has been conceptualised as the "optional infinitive stage" (Wexler (1994); Rice, Wexler & Cleave (1995)). The length of this stage appears to be related to processibility factors. It is longer in children with language acquisition difficulties, such as SLI children (Rice & Wexler (1996)) than in language-normal children. Across languages, the extent of the optional infinitive stage appears to be related to the relative obliqueness of the finiteness features in the particular language (Phillips (1995)).

4.2.2 Verb position and finiteness

In the literature on monolingual English-speaking children, the position of lexical verbs is largely a non-issue. Generally, monolingual English children do not invert subjects and main verbs, except in formulaic constructions like *here comes* and *here goes*. I am only aware of a handful of reported examples of *go* and *goes* preceding the subject in questions (Erreich, Valian & Winziemer (1980, 163), Radford (1992, 40)) and two examples of what looks like true verb-second position in declarative main clauses, one involving the copula *was* ("in the water was it cold"), the other one involving the modal *can't* ("that can't you play with") (both discussed in Radford (1992, 56)). The raising of lexical verbs past the negation or modal particle is said to be non-existent even during the development stages (Deprez & Pierce (1993)).

Harris & Wexler (1996) reported double finite constructions with finiteness represented through an auxiliary as well as marked on the lexical verb at a level of nearly 10% and finiteness marked on lexical verbs following the negation at a level of 7.8%. However, the authors minimise these as performance errors and conclude that verb inflection is not random but immediately guided by structural knowledge of functional projection and checking theory.

4.3 Developmental differences

Due to the more pervasive nature of finiteness in German, the development of obligatory subject-verb agreement seems to proceed more quickly in German monolingual children than in English monolingual children (Phillips (1995)). Lindner & Johnston (1992) found this to be the case even for language impaired children. Thus, greater functionality seems to aid the acquisition of the morphological system even under increased processing difficulties.

5. HYPOTHESES

The hypotheses for this study are formulated as null-hypotheses. They reflect previous findings with respect to bilingual children's development of verb morphology and finiteness, namely that bilingual children develop each of their two languages like monolingual children and, therefore, independently of one another. Thus, we should expect that

1. developmental structures will reflect the time schedule and the frequencies of these phenomena in monolingual language acquisition;
2. in both languages, incorrect agreement assignments will be rare;
3. the children will acquire the structures of the target language in the same order as monolingual children of either of the two languages they are learning, which means that

a) in German, verb movement to the left will immediately equal verb raising to V2 and this will be developmentally related to finiteness marking on the verb, becoming fully operative around an MLU of four words per utterance;

b) in English, lexical verbs will remain in their base position, which may be V3, and consistent use of 3rd person singular -s will precede that of auxiliaries;

4. finiteness in German will develop faster than finiteness in English;
5. when transfer occurs, switches of structural elements like verb morphology will be unidirectional from the children's stronger to their weaker language.

6. METHOD

6.1 Subjects

The present study is based on longitudinal data from four bilingual German-English-speaking children: two boys, JH and CW, and two girls, NS and AS. The first three children were first-born, and AS was the younger sister of NS. The families lived in an English-speaking country and had adopted the 'one parent–one language' approach. 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. All four children were fully able to understand and produce spontaneous utterances in both languages before recording commenced. Their exposure to German commenced right after birth and was uninterrupted, except for brief periods around the time of birth of younger siblings. All children had short interruptions to their exposure to English during visits to Germany.

6.2 Procedure

Data were collected monthly in the children's homes: JH and CW from 2;0, NS from 2;2 and AS from 2;7. 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. The length of the period for which the children were included in the study was dictated by availability. The last recording of CW occurred after a gap of nearly a year and was basically a follow-up. The recordings were transcribed by research assistants and checked for accuracy by myself. Discrepancies were resolved in discussions.

6.3 MLU calculations

Both age and utterance length were noted in order to be able to show that the children's grammatical development was progressing and to address the question of possible delays in aspects of their language acquisition. In spite of the difficulties associated with it, mean length of utterance (MLU) has consistently been found to be the most stable measure of comparison between children (Hickey (1991)). The widespread use of MLU in first language acquisition studies warrants its use.

The procedure for computing MLU differed from that proposed by Brown (1973) in a number of ways. Firstly, MLU computations were based on the first 100 utterances of a transcript. Rather than excluding the first page from the count, recording only commenced once the interaction was well under way and seemed natural and spontaneous. Secondly, words were counted rather than morphemes because of the differences in morpheme complexity in German and English and the difficulties involved in deciding when a morpheme had been acquired (cf. Hickey (1991), Clahsen, Penke & Parodi (1993/94)). For circularity reasons, it seemed inappropriate to include morphemes into the developmental measure to which the progress in morpheme development was to be related. Thirdly, only at least partially spontaneous utterances and only those words which potentially contributed to the syntax of the utterance were counted. Thus, false starts, hesitations, interjections and vocatives were not considered. Conjoined matrix clauses were treated as independent units, but subordinate clauses were computed together with the matrix clause. Once spontaneous one-word utterances were uncommon and a feature of questions-answer discourse rather than an indication of the child's linguistic ability, single word responses to closed questions were no longer included in the count. Fourthly, in a series of identical self-repetitions, only the first occurrence was considered for MLU calculations. However, if the same utterance appeared again later, it was included again. Discretion was used for very frequent utterances. They were excluded from further counting after the first few occurrences. Contractions were counted as two words because often it is not possible to decide whether a contraction was entered into the sentence as a remembered complex or constructed from its individual elements. Equally difficult is the identification of formulae in child speech. What looks like a newly created utterance might have been composed of two or three chunks of adjacent lexical items which were taken verbatim from different contexts. Since neither of this can be verified from monthly 45-minute extracts of a child's life, each potential word in see-

TABLE 3

Overview of the German data

Code for child and Phase	Age	Number of recordings	Number of utterances with lexical verbs or auxiliaires		MLU-Words
			person known	person unknown and imperatives	
CW I	2;0–2;3	4	37	26	1.24–1.54
CW II	2;4–2;6	3	91	38	1.92–2.31
CW III	2;7–2;11	5	335	125	3.00–3.24[a]
CW IV	3;0–4;0	9	730	138	3.78–4.74
CW V	4;8–5;0	2	165	11	5.33–5.61
NS II	2;2–2;4	3	69	42	1.82–2.40
NS III	2;5–3;0	8	507	156	2.86–3.36
NS IV	3;1–3;5	5	416	64	4.28–3.88[a]
NS V	3;6–3;9	4	378	19	5.05–5.84[b]
JH II	2;0–2;2	3	141	21	2.18–2.83[a]
JH III	2;3–2;7	5	339	28	3.06–3.74
JH IV	2;8–3;4	9	1040	49	3.76–4.73[b]
JH V	3;5	1	118	4	5.14
AS II	2;7	1	26	4	2.21
AS III	2;10–3;2	5	316	116	3.36–3.29
AS IV	3;3–3;9	6	371	47	3.84–4.50
AS V	3;11–4;1	3	176	5	4.93–4.89[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 stage.

mingly spontaneous utterances was counted. Compounds, on the other hand, were counted as oneword unless there was evidence that the child could manipulate its components. This meant that words like *Schwimmbecken* or *swimming pool* were counted as one word, but *mummy duck* and *baby duck* as two words each. Overall, this amounted to the calculation of T-units in the sense of

TABLE 4

Overview of the English data

Code for child and Phase	Age	Number of recordings	Number of utterances with lexical verbs or auxiliaries	MLU-Words
CW I	2;0–2;2	3	32	1.20–1.66
CW II	2;3–2;6	4	120	1.79–2.72
CW III	2;7–2;8	2	114	3.12–3.55
CW IV	2;9–3;5	9	637	3.79–4.28
CW V	3;6–3;7	2	338	5.60–5.66
CW VI	4;0	1	53	6.26
NS II	2;2–2;3	2	82	1.86–2.47
NS III	2;4–2;7	4	376	2.80–3.57
NS IV	2;8–3;2	7	646	3.75–4.56[a]
NS V	3;3–3;9	7	679	5.05–5.90
JH III	2;0–2;2	3	234	2.99–3.60
JH IV	2;3–2;11	8	504	3.96–4.74
JH V	3;0-3;5	6	510	5.67+4.64
AS II	2;7+2;10	2	58	2.57+2.53
AS III	2;11–3;2	4	89	3.30–3.38[b]
AS IV	3;3–3;9	6	422	3.92–4.69[a]
AS V	3;11–4;1	3	177	5.30–5.43[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 stage.

Chapman (in Miller (1981, 25)) rather than utterances in the sense of Brown (1973). For the early development, computing utterance length in this way was more conservative than is common. But since this is in keeping with the requirements for such computations at more advanced stages of

development, it avoided having to change the way MLUs were computed half way through the recording period.

In naturalistic data, the frequencies of various grammatical phenomena tend to vary greatly between recordings. This causes difficulties with the calculation of percentages for low occurrences. Individual recordings were therefore bundled into phases. Phases 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+. (cf. Tables 3 and 4)

6.4 The data

The analysis is based on spontaneous two- and multi-word utterances. The focus was on utterances with lexical verbs, but, as we will see, for some of the sub-analyses the inclusion of utterances with auxiliaries or modal verbs was appropriate. Copulas can be largely rote learned, and utterances with copulas are structurally identical in German and English. They were therefore not considered unless they featured complex verb constructions with auxiliaries or modals. Self-repetitions were included in the analysis whenever the children appeared to intend better understanding. Often self-repetitions displayed a degree of modification, but a lack of modification can be taken as an indication that the child has already done her best. In quantitative analyses the inclusion of self-repetitions is important in order to gain an accurate reflection of the child's preferred structure as opposed to the range of possible structures. Utterances containing lexical items from both languages were counted as belonging to the language environment in which they occurred, ie. if they were addressed to a person with whom the child usually spoke German, they were counted as German, otherwise as English. Such utterances were in the minority, and their structure was not systematically different from utterances with lexical items from the target language alone.

Utterances containing lexical verbs or auxiliaries total 6148 in German and 5071 in English. The disparity in size of the German and English corpora is due to utterances with person unknown and imperatives being included in some of the analyses of the children's German, the reasons for which

will be explained were it occurs, but only utterances with person known being included in the analyses of their English. Tables 3 and 4 above provided overviews of the data.

6.5 General language ability

The issue of balanced abilities in two languages is a vexed one. Complete balance between a bilingual's two languages is an ideal which is difficult to achieve. Rather than "balance" one should look at age-appropriate progression of a child's development in both languages. Tables 3 and 4 showed that this was the case for the children in the present study. The children produced comparable numbers of spontaneous utterances in both languages, and the complexity of their utterances gradually increased in both languages. The grammatical structures they used during their period of most intense language development are the object of this investigation.

I am well aware of the difficulties associated with calculating MLUs, judging a child's development on the basis of MLU counts and, on top of that, comparing MLUs across languages. However, in the absence of anything more reliable and mindful of the wide range of normality in first language acquisition I believe that Tables 3 and 4 roughly show the following: (a) in spite of MLU-words being a more conservative count than MLU-morphemes, the children's development of English was not outside the age-range predicted by Chapman (in Miller (1981, 26)) for monolingual English-speaking children. Even the German MLU averages fell within these predictions, although in a few places one child or another was within ±1 SD; (b) when comparing the children's development of German and English we see that utterance length grew somewhat faster in English than in German for CW, JH and NS, but progressed very evenly for AS. To a degree this indicates dominance in English, which should not surprise us given that the children's exposure to German came almost exclusively from interacting with their mothers. However, it might also be related to German being phonologically and grammatically more complex than English.

Another possibility is to compare the age at which the bilingual children enter each MLU defined stage with the expectations expressed in the respective profile analyses for English (Crystal, Fletcher & Garman (1976)) and German (Clahsen's (1986b)). Again this can only be done very tentatively since the former is lacking quantifications and the latter is based on very few children.

Cautiously, this comparison suggests that the children in the present study either just fall within the predictions or are slowed down in their development by up to 5 months, except for the entry into Phase V in German, which is delayed by 10 and 12 months for AS and CW, respectively.

In combining the two comparisons I believe we have evidence that the rate of progress of the bilingual children in this study is comparable with that of monolingual children although the children seem to progress at the slow end of the continuum, especially in German. For the most part, the development of English appears to be faster than the development of German. However, this should not disqualify these children from being categorised as "bilingual". That simutaneously bilingual children of the 'one parent–one language' type develop the language of the country somewhat faster than the minority language is likely to be the norm rather than the exception.

7. RESULTS

7.1 Development in German

It was hypothesised that the bilingual children's development of German would follow the same route as that of monolingual German-speaking children. This should mean that finite verbs are already evident in Phase II and come to correctly denote subject-verb agreement in Phase IV. Verbs in non-final position should have left their base position inside the verb phrase and moved to the V2 position. In this raised position, verbs should obligatorily carry finiteness markers. These two interrelated grammatical functions should become fully operative in Phase IV. In what follows, these possibilities are being tested.

7.1.1 Subject-verb agreement.

The issues of developmental schedule and correctness of subject–verb agreement expressed in Hylotheses 1 and 2 will be addressed first. The bilingual children's performance on subject-verb agreement was calculated for each of the three singular persons (-e, -Ø, -st, -t) and the first and third person plural (-n). As in other studies, 2PL was virtually absent, except for one case by JH and two such cases by AS. The calculations are based on verb inflection in obligatory contexts. They include all simplex lexical verbs. For 2SG contexts, auxiliaries and modal verbs were included in

the count, (a) because -st performs the same function for all three types of verbs, and (b) because 2SG contexts were relatively infrequent and the boost in numbers was, therefore, useful. Table 5 presents the results by phases.

TABLE 5

The development of subject-verb agreement in German

		Phase II		Phase III		Phase IV		Phase V	
	-Ø	5	.45	15	.42	200	**.90**	36	**.98**
	-e	4		4		31		4	
JH	-t	29	.56	113	**.90**	232	**.91**	33	.85
	-st	0	.00	5	.17	70	.34	6	.43
	-n	4	.67	15	.56	54	.65	4	.50
	-Ø	3	.26	19	.37	46	.42	17	.53
	-e	5		3		25		3	
CW	-t	7	.20	35	.39	21	.30	4	.57
	-st	1	.25	3	.07	32	.20	37	.84
	-n	1	.33	16	.85	44	.75	21	.72
	-Ø	2	.07	82	.54	74	.85	45	**.97**
	-e	0		14		19		12	
NS	-t	8	.47	49	.46	45	.73	75	**.94**
	-st	2	.40	19	.38	24	.39	45	.71
	-n	3	1.	37	.70	50	.74	68	.88
	-Ø	4	.50	35	.48	50	.78	19	.89
	-e	0		4		24		14	
AS	-t	3	.33	31	.61	53	.80	24	**.92**
	-st	0	.00	17	.33	23	.47	13	.33
	-n	1	1.	13	.68	25	.64	12	.86

Table 5 shows that three to four of the five verb forms were available to the bilingual children in Phase II already, with the remainder becoming evident in Phase III. In this respect the data in the present study resemble those of investigations of monolingual children (Clahsen (1986a,b)). However, contrary to studies of monolingual German-speaking children, subject-verb agreement was not a typical feature of Phase IV in the bilingual children's German. In fact, even in Phase V we cannot consider this feature acquired, although we clearly note progression. Hypothesis 1 is therefore not supported. Contrary to Clahsen's earlier claims (Clahsen & Penke (1992)) but in line with his later position (Clahsen, Eisenbeiß & Penke (1996)), acquisition of subject-verb agreement appeared to slowly gain in reliability for 1SG and 3SG before 2SG -st became a regular feature. Progression with agreement marking was also evident through the children's productive use of verb affixes. 1SG -e was used hypercorrectly on German verbs as well as on English verbs in the German environment long before the affix was used consistently in obligatory contexts.

(13) a. will-**e**[5] auch Glas Wasser
want-1SG too glass water
'(I) want (a) glass of water too'
(JH-G2;6 / Stage III)

b. ich schnitt-**e**
I cut-1SG
'I am cutting'
(NS-G2;6 / Stage III)

c. ich weiß-**e** nicht
I know-1SG not
'I don't know'
(CW-G3;2 / Stage IV)

d. ich schläf-**e** next zu du
I sleep-1SG next to you
'I am sleeping next to you'
(AS-G3;3 / Stage IV)

Creativity was also evident with 2SG and 3SG marking. Examples (14a) and (14b) show the tension between wanting to mark subject person morphologically but not fully understanding where this should happen. In (14b) in particular, the child expressed very explicitly his growing awareness that the affix is related to the subject of the sentence. In its immediate environment CW also produced *du lad-en-ss* and *du lad-ss* both with very sharp realisations of the -s. (14c) and (14d) feature English verbs in the children's German marked with the German 3SG -t.

(14) a. wo-**st** du hingeh-**t** w- dein grandpa
where-2SG you to-go-3SG with your grandpa
'where are you going to with your grandpa'
(NS-G2;8 / III)

b. du-**s** lad sie ein
you-reduced 2SG/German invite them over
'you invite them'
(CW-G3;7 / IV)

c. er DROP-**t** der Blätter
he drop-3SG the leaves
'he drops the leaves'
(JH-G2;6 / III)

d. das TICKLE-**t**
that tickle-3SG
'that tickles'
(AS-G4;0 / V)[6]

Examples like those in (13) and (14) were infrequent. Since quantitatively they do not make a point, one could easily disregard them as "performance errors". But the deliberate manner in which such forms were expressed suggests that they were not the accidental outcome of a hastily compiled thought. Instead they provide glimpses of the cognitive forces at work at the time. What examples (13) and (14) show, in particular (a) and (b), is that the children were aware of the relationship between varying morphology, subjects and verbs long before they got it right. Thus, the lack of

TABLE 6

Non-agreement in German

		Phase II		Phase III		Phase IV		Phase V	
	-st			0/5	**.00**	2/72	.03	0/6	**.00**
	-t	1/30	.03	9/121	.07	30/348	.09	2/34	.06
JH	-e	0/4	**.00**	2/6	.33	0/31	**.00**	1/5	.20
	-Ø	6/11	.55	10/25	.40	40/240	.17	4/40	.10
	Total	7/45	.16	21/157	.13	72/691	.10	7/85	.08
	-n	25/29	.86	21/36	.58	42/96	.44	4/8	.50
	-st	1/2	.50	0/3	**.00**	1/33	.03	0/37	**.00**
	-t	1/42	.02	1/36	.03	1/20	.05	0/4	**.00**
CW	-e	4/9	.44	5/8	.63	6/31	.19	0/3	**.00**
	-Ø	7/10	.70	5/24	.21	16/62	.26	0/17	**.00**
	Total	13/63	.21	11/71	.16	24/146	.16	0/61	**.00**
	-n	27/28	.96	109/125	.87	87/131	.66	13/34	.38
	-st	1/3	.33	0/19	**.00**	1/25	.04	0/45	**.00**
	-t	2/10	.20	12/61	.20	9/51	.18	3/79	.04
NS	-e			1/15	.07	0/19	**.00**	1/13	.08
	-Ø	1/3	.33	11/89	.12	8/80	.10	7/47	.15
	Total	4/16	.25	24/184	.13	18/175	.10	11/184	.06
	-n	33/36	.92	129/166	.78	48/98	.49	12/80	.15
	-st			1/18	.06	0/23	**.00**	0/13	**.00**
	-t	0/3	**.00**	15/46	.33	11/64	.17	1/25	.04
AS	-e	1/1	1.	1/5	.20	2/26	.08	2/16	.13
	-Ø	2/6	.33	7/42	.17	5/55	.09	1/20	.05
	Total	3/10	.30	24/111	.22	18/168	.11	4/74	.05
	-n	4/5	.80	68/81	.84	22/47	.53	2/14	.14

correctness with respect to subject-verb agreement could not have been due to the children simply not noticing or not processing the functional variation.

Table 6 shows how often a verb affix did not mark agreement with the subject. For that, the non-agreement occurrences of each affix were calculated against all of its occurrences, ie. agreement plus non-agreement instances of the particular verb affix. Table 6 indicates the following: (a) non-agreement marking was quite common, especially for -t and -Ø; (b) -n was used differently to any of the other affixes in that non-agreement of -n was stronger than agreement of -n in raw figures and in percentages as well as stronger than non-agreement of any of the other affixes and all of them combined. This is congruent with -n not only marking 1PL and 3PL but also non-finiteness. Of particular importance is the difference between non-agreement -n and non-agreement -Ø, the latter of which has been considered an alternative non-finite marker or default form. Table 6 below suggests that it was the verb affix -n but not -Ø which functioned as default form for these children. Only JH seems to have behaved differently to the others in Phases IV and V. I will attempt an explanation below.

In sum, the bilingual children in this study had the same apparatus of forms available to them at the same age and developmental stage as monolingual German-speaking children, but progression towards mastery appeared to be slower. This was evident from the slow rate of the development of subject-verb agreement as well as the frequencies with which verbs were marked incorrectly. Hypotheses 1 and 2, which made predictions regarding the time frame of development and the correctness of agreement marking, are therefore not supported for the children's German.

7.1.2 The position of finite verbs

In adult German, finite verbs obligatorily move to V2 in matrix clauses. Even among very young monolingual German-speaking children there is a strong correlation between non-finiteness and the verb being in sentence-final position as opposed to finite verbs in V2 position. This has led to the claim that finiteness and verb movement to V2 are structurally and developmentally related. The purpose of this section is to investigate this possibility for the bilingual data (Hypothesis 3a).

Only utterances with simplex verbs and enough arguments to unambiguously discern their position were included in the data presented in the next two tables. Consequently, utterances which only consisted of subjects and verbs were left out. It is possible to consider bare complement-plus-verb (XV) structures ambiguous with respect to the position of the verb as well, since they could have derived from movement of the verb to V2 and topicalisation of the complement. I side with Clahsen, Penke & Parodi (1993/94, 409, fn 4) that in the absence of frequent XVS structures as independent evidence for this type of topicalisation, it is unlikely that XV *is* due to topicalisation. Furthermore, verbs in XV constellations were usually non-finite, which is also evidence against XV being due to verb movement plus topicalisation. Thus, I counted them as verb-final. Also included in the count were utterances for which I was not able to identify the person referred to. If anything, bare XV structures and utterances with unidentified person references should have biased the results against verb movement to V2. As we will see below, this was preferable to possibly biasing the data towards V2. Lastly, I included imperatives because they display the same alternation between fronted finite and non-fronted non-finite verbs as do verbs in matrix clauses in German.

The question to be asked with respect to the placement of verbs is: when the children used finite verbs, into which sentence position were they most likely to put them? Table 7 presents the raw figures and frequencies with which finite verbs appeared in their target position of V2, in the developmentally not impossible final position or in the unpredicted V3 position. In other studies, V3 and V2 have sometimes been counted together as nonfinal (eg. Clahsen & Penke (1992)) because of the infrequency of V3 in monolingual German data and the lack of theoretical interest in verbs in that position. I have decided to present them separately because V3 is a possible verb position in English but not in German and therefore of independent interest in this study. The frequency data was calculated by dividing the number of verbs in each of the three positions against the total of the unambiguously positioned finite verbs in the same phase.

Table 7 shows that in spite of the data selection possibly being biased towards non-movement of verbs there was a clear link between finiteness and verb placement in that verbs marked with forms other than -n were overwhelmingly in V2. Since verbs marked with -Ø were considered finite, Table 7 supports the conclusion drawn from Table 6 that -Ø is not an alternative default marker to -

n, but indeed finite. The pattern displayed in Table 7 is congruent with the development of monolingual German-speaking children. When we compare Tables 7 and 5 we see that finite verbs were more likely to be in V2 than to be correct in terms of agreeing with the subject. This supports

TABLE 7

Placement of finite verbs

Phase	Position	JH		CW		NS		AS	
	V2	25	.81	35	.81	20	.83	6	.86
II	V3	2	.06	4	.09	1	.04	0	X
	V-final	4	.13	4	.09	3	.13	1	.14
	V2	121	.93	83	.89	180	.91	73	.83
III	V3	1	.008	6	.06	11	.06	10	.11
	V-final	8	.06	4	.04	6	.03	5	.06
	V2	542	.93	119	.94	157	.91	113	.84
IV	V3	38	.07	6	.05	12	.07	18	.13
	V-final	0	X	2	.01	3	.02	3	.02
	V2	76	.97	35	.90	146	.92	52	.88
V	V3	2	.03	1	.03	11	.07	6	.10
	V-final	0	X	3	.08	1	.006	1	.02

the argument that it was finiteness which caused the verbs to move rather than correct subject-verb agreement (Weissenborn (1990)). Finite verbs in the other two positions were rare, but nevertheless possible at fairly similar rates. Thus, the results in Table 7 partially support Hypothesis 3a.

7.1.3 The position of non-finite verbs

The next two question to be asked concern the placement of non-finite -n verbs, ie. verbs marked with -n in contexts other than 1PL or 3PL. First, we want to know: how many of the verbs in each of the three positions were non-finite -n verbs. We expect the proportions to be high in verb-final position and low in V2. There are no expectations for V3 as the research on monolingual children

does not address this possibility. The answer to the first question can be found in the left part of Table 8. The frequency in each phase-plus-position cell in the left part of Table 8 was calculated by dividing the number of non-finite -n verbs in each cell by the sum of non-finite -n plus finite verbs for that cell.

The second question is: if a child chose to mark a verb with non-finite -n, how likely was she to place the verb in the expected verb-final position, or the unpredicted V2 or V3 positions. The right side of Table 8 addresses this question. The frequencies in the cells on the right side of Table 8 were calculated by dividing the number of non-finite -n verbs in each phase-plus-position cell by the total of non-finite -n verbs in the same phase. The data in Table 8 allow comparison with the studies on verb placement and verb inflection in monolingual German-speaking children presented in Table 2 above.

With respect to the first question, Table 8 indicates the following: if we look at each of the position cells separately, the verb-final position was most likely to be filled with a non-finite -n verb (except for JH in Phase III). This meets with our predictions and further supports the conclusion reached on the basis of affix overuse that non-finite -n verbs are qualitatively different to -Ø verbs, which are rarely verb-final. Contrary to our predictions, however, we also find non-finite -n verbs substantially represented in the V2 position. This trend was highest in Phase II and declining towards Phase V.

The children differed with respect to the proportion of non-finite -n verbs in V2 and the rate of retreat from it. At one end we find JH, who showed least evidence of this unpredicted behaviour and who retreated from it fastest. At the other end we have CW with the strongest representation of non-finite -n verbs in V2 and the slowest rate of retreat from this non-target structure. If we compare this to the data presented in the third column of Table 2, we find that in Phase II JH's proportion of non-finite -n verbs in V2 was comparable to the highest figure reported for a monolingual German-speaking child. The other three bilingual children reached much higher frequencies of this phenomenon throughout Phases II and III, and CW still so in Phase IV. Thus, with respect to the likelihood of V2 being reserved for finite verbs, we find these bilingual children

TABLE 8

Placement of non-finite -n verbs

Phase	Child	proportion of all verbs in same position						proportion of all -n default verbs			
		V2		V3		V-final		n	V2	V3	V-final
	JH	7/32	.22	0/2	.00	14/18	.78	21	.33	.00	.67
II	CW	18/53	.51	0/4	.00	46/50	.92	64	.28	.00	.72
	NS	16/36	.44	0/1	.00	26/29	.90	42	.38	.00	.62
	AS	4/10	.40	X	.00	0/1	.00	4	1.	.00	.00
	JH	16/137	.12	3/4	.75	9/17	.53	28	.57	.11	.32
III	CW	77/160	.48	11/17	.65	37/41	.90	125	.62	.09	.30
	NS	102/282	.36	18/29	.62	36/42	.86	156	.65	.12	.23
	AS	36/109	.33	4/14	.29	76/81	.94	116	.31	.03	.66
	JH	33/575	.06	7/45	.16	7/7	1.	47	.70	.15	.15
IV	CW	104/223	.47	22/28	.79	12/14	.86	138	.75	.16	.09
	NS	33/190	.17	10/22	.45	24/27	.89	67	.49	.15	.36
	AS	10/123	.08	7/25	.28	30/33	.91	47	.21	.15	.64
	JH	2/78	.03	1/3	.33	1/1	1.	4	.50	.25	.25
V	CW	5/40	.13	3/4	.75	3/6	.50	11	.46	.27	.27
	NS	4/150	.03	3/14	.21	12/13	.92	19	.21	.16	.63
	AS	1/53	.02	0/6	.00	4/5	.80	5	.20	.00	.80

to be different from monolingual German-speaking children. Had I combined V2 and V3, this difference would have been even greater since the V3 position was more likely to house non-finite -n verbs than the V2 position.

With respect to the second question, Table 8 shows that the predicted preference for placing non-finite -n verbs in verb-final position was limited to Phase II. JH, CW and NS all preferred the V2 position in Phases III and IV, and JH and CW still so in Phase V. AS differed from the other

children in that she always favoured the verb-final position for non-finite -n verbs, that is, if we disregard Phase II as having too few instances. When comparing this with the data from monolingual German-speaking children in the fourth column of Table 2 we find that the bilingual children behaved regularly like only exceptional children under monolingual conditions would do.

Weissenborn (1990) argued that it is necessary to differentiate SVX from V_NEG or V_PRT because only in these configurations are the verbs unequivocally in V2. He found that, indeed, non-finite -n *never* occurred in 'true' V2. I checked for this possibility in my data, but added XVS to the 'true' V2 structures. Table 9 shows a drastic reduction of non-finite -n if we only consider verbs in 'true' V2 position. However, as far as the bilingual data is concerned we cannot say that it never occurred. For three of the children, non-finite -n verbs in 'true' V2 reached proportions of above 10% in Phase III. CW, who overused non-finite -n verbs most, came to nearly 30% in Phase IV. This is parallel to non-finite -n verbs being most frequent in the general V2 position in Phase III for NS and AS, and still so in Phase IV for CW. The only child who hardly ever placed non-finite -n verbs in 'true' V2, namely JH, generally made use of non-finite -n verbs much less than the other children. Below I will show that JH, instead, made use of finiteness in unpredicted positions most.

TABLE 9

Verbs in X_V_S or V_NEG/PRT position

	JH				CW				NS				AS			
Phase	finite		default -n		finite		default -n		finite		default -n		finite		default -n	
II	2	1.	0	.00	5	.56	4	.44	2	.67	1	.33	1	1.	0	.00
III	31	.97	1	.03	25	.83	5	.17	54	.87	8	.13	12	.86	2	.14
IV	113	.97	3	.03	22	.71	9	.29	60	.94	4	.06	27	.96	1	.04
V	14	.93	1	.07	29	.94	2	.06	49	1.	0	.00	6	.86	1	.14

In sum, the placement of finite and non-finite verbs in matrix clauses by these bilingual children does not unequivocally support Hypothesis 3a. Only finite verbs behaved as predicted. Non-finite -n verbs did not. Both verb types tended to move to V2 in Phases III and IV, although finite verbs

did so at a much higher rate than non-finite verbs. There was no categorical exclusion for non-finite -n verbs even in 'true' V2 position.

7.1.4 Finiteness on verbs in unpredicted positions

In Table 8 we saw that verbs in the unpredicted V3 position were not frequent in the bilingual data, but they were not uncommon either. Under the V3 position I had subsumed everything with more than one constituent preceding the verb, including topicalised constituents to the left of the subject, and negation or modal particles between the subject and the verb (for a separate analysis of the latter see Döpke (1999)). On the whole, verbs in V3 were more likely to be finite than verbs in final position but less so than verbs in V2. In other words, while the bilingual children's German data lacked the obligatoriness of finiteness in V2, the children were positively unsure about the finiteness status of verbs in V3.

This uncertainty is further accentuated by the phenomenon illustrated in the following example. There we have complex verb structures with finiteness marked once on the auxiliary or modal verb and a second time on the main verb.

(15) a. ich hab-**Ø** dieser festhalt-**e** Ball
I have-1SG this on-hold-1SG ball
'I have held on to this ball'
(JH-G2;11 / IV)

b. was **is** das mach-**t**
what is-3SG that do-3SG
'what does that do'
(NS-G2;9 / III)

c. ich kann-**Ø** DIVE-**e** unter
I can-1SG dive-1SG under
'I can dive under'
(CW-G3;7 / IV)

d. du mus-**st** das Knoten mach-**t** hier
you must-2SG the knot make-3SG here
'you must make the knot here'
(AS-G3;6 / III)

Double finite constructions as in (15) are unattested in monolingual German-speaking children, but each of the bilingual children used them. Table 10 shows this phenomenon to be strongest in Phases III and IV, although individual children's frequencies varied greatly. Interestingly, even the child with the highest overgeneralisation of non-finite -n verbs, namely CW, produced double finites. JH, whose development of subject-verb agreement and movement of finite verbs to V2 appeared to progress fastest, also presented the highest raw numbers and highest proportions of double finite structures. This calls his seemingly target-like behaviour observed in Tables 8 and 9 into question.

TABLE 10

Double finite verbs in complex verb constructions

Stage	JH		NS		CW		AS	
II	3/17	.18	0/5	.00	0/8	.00	0/11	.00
III	16/40	.40	16/57	.28	3/40	.08	6/98	.06
IV	84/191	.44	11/76	.15	19/158	.12	3/107	.03
V	2/14	.14	4/68	.06	0/74	.00	0/56	.00

read # / # as: # of double finite divided by # of total complex verb constructions in singular present tense

In sum, verb positions predominantly reflected the structural requirements of German. Nevertheless, alternative placements were also evident. The quantities cannot be disregarded. In particular, nonfinite -n verbs in V2, finite and nonfinite verbs in V3 and double finite structures suggest that the children did not instantly connect verb inflection and verb position. Overall, Hypothesis 3a, which predicted that bilingual children would make these connections as instantly as monolingual children do, was therefore not supported.

7.2 Development in English

According to our hypotheses, the bilingual children's development of subject verb-agreement and finiteness in English should display the same pattern as in monolingual English-speaking children. Thus 3SG -s should be used consistently from Phase V, and agreement errors should be rare. The consistent use of auxiliaries and past tense forms should not be expected before Phase V either, but clear predictions do not exist. The V2 effect should be absent in English.

7.2.1 Subject-verb agreement and finiteness

Table 11 shows the children's development of subject-verb agreement on lexical verbs, regular past tense and the use of auxiliaries with participial verbs. All calculations reflect the use in obligatory contexts. Null subjects were included when the referent could be identified unequivocally. The auxiliary rows are not differentiated according to whether the form agreed with the subject but rather indicate the obligatoriness of finiteness. The total finiteness score for each child constitutes the sum of the -s, -ed and aux rows plus irregular past tense forms and modal verbs.

Table 11 shows that for three of the four children the expression of finiteness through the use of auxiliaries preceded the use of -s and -ed. It approached or even reached Lahey's et al. (1992) 80% threshold for JH, NS and AS at Phase III already and for CW at Phase IV, but did not increase much beyond that even in Phase V. CW was the only child for whom finiteness reached Brown's (1973) more stringent 90% criterion of acquisition. Subject-verb agreement as indicated through the use of -s came nowhere near Brown's (1973) 90% threshold nor did it reach Lahey's et al (1992) reduced threshold of 80% during the period of recording, although significant progress can be noted from Phase IV to V for CW and NS. JH and AS produced very low levels of subject-verb agreement even during Phase V. This should be of more concern in the case of AS than JH since AS was between five and eleven months older than the other children when she reached Phase V at 3;11, whereas JH was the youngest when he did so at 3;0. Regular past tense developed similarly slowly, and only NS reached acquisition levels in Phase V. In sum, we can say that the children's awareness of finiteness was first expressed through their use of lexical forms. The development of verb affixation varied with individual children either favouring -s or -ed.

TABLE 11

Agreement and finiteness in English

		Phase II		Phase III		Phase IV		Phase V	
JH	-s			5/20	.25	19/46	.41	21/43	.49
	-ed			7/13	.54	7/17	.41	13/21	.62
	aux			28/36	.78	125/145	.86	183/223	.82
	all finite			45/70	.64	181/233	.78	274/337	.81
CW	-s	10/20	.50	2/7	.29	23/55	.42	18/23	.78
	-ed	0/5	.00	3/8	.38	19/31	.61	8/17	.47
	aux	6/13	.46	14/31	.45	220/272	.81	155/160	.97
	all finite	18/42	.43	20/47	.43	288/379	.76	297/222	.89
NS	-s	0/10	.00	2/26	.08	7/32	.22	61/83	.74
	-ed	1/3	.33	4/20	.20	3/24	.13	12/13	.92
	aux	12/19	.63	86/109	.79	233/265	.88	248/285	.87
	all finite	16/31	.52	105/169	.62	258/333	.78	337/412	.82
AS	-s	0/7	.00	3/8	.38	55/92	.60	8/25	.32
	-ed	0/1	.00	5/8	.63	8/21	.38	16/22	.72
	aux	11/32	.34	46/53	.87	117/150	.78	74/85	.87
	all finite	12/43	.28	46/62	.74	191/267	.72	117/134	.87

In comparing the bilingual data with monolingual English-speaking children, we find that in Phase V NS and CW were approaching levels of subject-verb agreement on 3SG verbs which were similar to those of the children in the Lahey at el. (1992) study at MLU 4.50+ and age 2;11. Given that I counted MLU in words rather than morphemes and that Phase V begins at 4.75 words per utterance, the bilingual children's utterances at Phase V were somewhat longer than those of the

children in the Lahey study. This is also congruent with three of my subjects being several months older than the comparison group. Comparing Lahey's findings regarding the use of morphemes in relation to utterance length with Chapman's (in Miller (1981, 26)) predictions regarding the age at which children are likely to have reached certain utterance lengths, one could cautiously say that the attainment of subject-verb agreement by NS and CW happened within the expectations we have of English-speaking children, albeit at the slow end of the continuum. JH and AS, on the other hand, came nowhere near the levels of subject-verb agreement we would expect. The difference to monolingual English-speaking children is less assured for JH, who was the youngest of the bilingual children when he entered Phase V, than for AS, who was several months older than NS and CW.

To sum this up, the comparison between the bilingual children in the present study and Lahey's et al. (1992) monolingual group indicates that JH's grammatical attainment was markedly slow in relation to utterance length, and AS lagged behind in grammatical attainment as well as utterance length. For the other two children these two factors were more closely aligned with each other, but still happened several months later than predicted. A look at Chapman's (in Miller (1981)) time line for MLU development, however, suggests that Lahey's subject were particularly fast in their development and that the bilingual children in the present study were not outside the range of what can be considered normal development, although they are clearly at the slow end of the continuum.

Table 12 addresses the issue of correctness of agreement markings. Here we see that the use of 3SG -s and auxiliaries was certainly not random as agreement errors were rare. The levels of these errors compare favourably with the monolingual English-speaking children studied by Harris & Wexler (1996) and thus meet our expectations. From Table 12 (below) we can conclude that the bilingual children in this study displayed the same sensitivity to the functions of agreement marking as monolingual English-speaking children.

We can conclude that the data on subject-verb agreement and agreement errors support Hypotheses 1 and 2. The bilingual children's English developed within the time frame found for monolingual children and agreement errors were rare. However, it was the use of auxiliaries rather than 3SG -s

TABLE 12

Non-agreement on lexical verbs and auxiliaries in English

		Phase II		Phase III		Phase IV		Phase V	
	-s			0/5	.00	1/20	.05	1/22	.05
	'm / am			0/2	.00	0/4	.00	0/11	.00
JH	's / is			0/3	.00	0/17	.00	0/16	.00
	are			X		0/1	.00	0/2	.00
	has / does			X		0/1	.00	0/1	.00
	Total			0/10	.00	1/43	.02	1/52	.02
	-s	0/10	.00	0/2	.00	0/24	.00	1/19	.05
	'm / am	0/1	.00	0/1	.00	0/18	.00	0/5	.00
CW	's / is	0/1	.00	0/2	.00	0/31	.00	0/6	.00
	are	X		X		0/9	.00	0/4	.00
	has / does	X		0/1	.00	1/4	.25	1/4	.25
	Total	0/12	.00	0/6	.00	1/86	.01	2/38	.05
	-s	1/1	1.0	1/2	.50	0/7	.00	3/64	.05
	'm / am	0/4	.00	0/12	.00	0/11	.00	0/23	.00
NS	's / is	0/1	.00	0/5	.00	0/14	.00	0/40	.00
	are	X		0/2	.00	0/2	.00	X	
	has / does	X		0/2	.00	0/5	.00	0/6	.00
	Total	1/6	.12	1/23	.04	0/39	.00	3/133	.02
	-s	X		2/5	.40	3/58	.05	0/8	.00
	'm / am	0/1	.00	0/3	.00	0/9	.00	0/10	.00
AS	's / is	0/4	.00	0/5	.00	0/18	.00	0/4	.00
	are	X		X		0/2	.00	0/7	.00
	has / does	X		X		0/5	.00	0/4	.00
	Total	0/5	.00	2/13	.15	3/92	.03	0/33	.00

which led the finiteness development. This part of Hypothesis 3b is therefore not supported. It is possible, though, that this aspect of the Lahey et al. (1992) findings cannot be generalised.

7.2.2 Verb position

Parallel to our analysis of the German data, we need to investigate the position of lexical verbs in the children's English. For this, all verbs in SVO and V3 positions as well as verbs moved to potential V2 positions were counted and the proportion of their appearance in each of the phases was calculated. The question is of interest because of the residual V2 effect with the verbs *come* and *go* and the possible effect of German V2 on the development of the bilingual children's English. The results are displayed in Table 13.

TABLE 13

Positions of lexical verbs in English

		Phase II		Phase III		Phase IV		Phase V	
	SVO			170	.97	304	.89	225	.83
JH	V3			5	.03	33	.10	36	.13
	moved V			0	.00	5	.02	9	.03
	SVO	94	.94	77	.91	349	.89	180	.89
CW	V3	1	.01	5	.06	39	.10	22	.11
	moved V	5	.05	4	.03	4	.01	3	.00
	SVO	59	.97	240	.91	327	.90	353	.87
NS	V3	0	.00	16	.06	30	.08	48	.12
	moved V	2	.03	7	.03	7	.02	5	.01
	SVO	36	.82	42	.89	236	.81	87	.83
AS	V3	2	.04	2	.04	39	.14	16	.15
	moved V	6	.14	3	.06	15	.05	2	.02

Table 13 shows that the overwhelming majority of structures were SVO. Naturally, the more complex V3 structure was much less frequent. Moved verbs were least common. As such, this also

concords with our expectations. However, only few of the moved verbs represent the residual V2 structure allowable in English. A substantial proportion were verbs preceding the negation or adverb or verbs other than *go* or *come* preceding the subject (JH: 5/13; CW: 10/16; NS: 18/21; AS: 22/26). Thus the bilingual children were more likely to move verbs in a non-target manner than in the way allowable in English. I will return to these non-target structures below.

We can conclude that the bilingual children's English compares favourable to monolingual English-speaking children. However, the development appeared to be relatively slow and word order errors were more frequent than in monolingual children. Thus, Hypotheses 1 and 2 can be considered supported for the English of these bilingual children, but Hypothesis 3b cannot.

7.3 Cross-linguistic comparisons

Having looked at each language individually and having seen that there was some degree of variation from what is typically found in monolingual language acquisition, we need to consider the relationship between the two languages during this period of development. How comparable are the languages in their rate of development, and if they diverge, which direction does the divergence take. This is particularly interesting in the light of finiteness features being acquired earlier by monolingual German-speaking children than by monolingual English-speaking children, but English being the stronger of the two languages for these bilingual children. The cross-language comparison will help us conceptualise the intra-linguistic variations we have found so far.

7.3.1 The parallelity of the development

The expectation expressed in Hypothesis 4 was that finiteness in German would precede finiteness in English because of this pattern in monolingual children. To check this, I will first compare agreement marking on lexical verbs in 3SG in the two languages. Since the children employed the available subject person contexts to unequal degrees and subject-verb agreement for the various persons developed at different rates in German, but English only marks 3SG, it seemed best to only compare 3SG contexts in the two languages. Table 14 presents the raw numbers and proportions with which 3SG -t in German and 3SG -s in English correctly denoted subject-verb agreement on lexical verbs in obligatory contexts. The comparisons are based on the German phase ranges.

TABLE 14

Comparative calculations of 3rd person singular markings based on German phases

	JH				CW				NS				AS			
	German		English		German		English		German		English		German		English	
	-t		**-s**		**-t**		**-s**		**-t**		**-s**		**-t**		**-s**	
G-I					4	.20	0	.00								
G-II	29	.56	5	.25	7	.37	10	.50	8	.47	2	.20	3	.30	0	.00
G-III	112	.81	5	.19	35	.36	13	.42	49	.43	7	.14	31	.61	3	.38
G-IV	218	.86	32	.56	19	.22	31	.57	42	.67	16	.52	53	.73	55	.60
G-V	32	.84	1	.25	4	.57	X		76	.96	45	.80	24	.92	8	.32

Table 14 shows that for three of the four children hypothesis 4 is indeed supported in that German verbs in 3SG contexts were more reliably marked with -t than English verbs under the same conditions were marked with -s. The exception to this was CW, the child who we have seen above vastly overgeneralised non-finite -n on lexical verbs in German.

We have seen above that progress with finiteness did not develop evenly in all areas. Therefore, as a second step, a comprehensive finiteness measure was employed. It reflects the particular ways in which finiteness is expressed in German and English by young children and is therefore not totally identical in the two languages. For German, it consists of finite verbs in 1SG, 2SG and 3SG plus all auxiliaries and modals and is calculated against all sentences with verbs, auxiliaries or modals in singular person contexts. For English, 3SG verbs marked with -s, plus utterances in all person contexts containing verbs with regular or irregular past tense marking, but not *got*, auxiliaries or modal verbs were calculated against all utterances with lexical verbs ending in -s or -Ø in 3SG contexts, plus utterances in all person contexts with auxiliaries and modal verbs, with reference to past irrespective of their affixes, except for *got*, or with bare -ing participles. In other words, all apparent finiteness features were calculated against all sentences in which finiteness feature should have appeared. The comparisons are once again based on the German phase ranges. The results are displayed in Table 15.

TABLE 15

Comparative calculations of finiteness markings based on German phases

	JH				CW				NS				AS			
	German		English		German		English		German		English		German		English	
G-I					14	.40	8	.40								
G-II	70	.77	45	.64	35	.49	12	.43	23	.37	27	.59	15	.75	7	.18
G-III	212	.87	102	.72	118	.49	67	.52	286	.67	320	.73	198	.73	51	.76
G-IV	881	.95	332	.83	470	.74	452	.84	287	.88	161	.77	290	.93	191	.72
G-V	113	.96	21	.81	132	.93	6	1.	288	.95	208	.83	154	.98	117	.87

Table 15 shows that JH's, NS's and AS's German sentences were more often finite than their English sentences, in raw figures as well as proportionally. However, the proportions are more important as there are simply more contexts for overt finiteness marking in German than in English. CW behaved differently to the other three children. The percentage of finiteness marking is higher in his English than in his German from Phase III onwards, although the available English data during G-V is too scant for a meaningful conclusion. The discrepancy of 10% between the German and English during G-IV is by far the highest. It is due to the significant change in finiteness marking in his German taking place between 3;1 and 3;2 rather than after the phase boundary of 2;11. This is paralleled by a jump of MLU from 3.78 and 3.75 at 3;0 and 3;1 to 4.43 at 3;2. If I recalculated Phases G-III and G-IV with the boundary between 3;1 and 3;2, the discrepancy between his German and his English during G-IV would resemble the other phases. G-III would come to a finiteness ratio of 48.5% (179/369) in German and 53.2% (91/171) in English, and G-IV would come to a finiteness ratio of 81.2% (409/504) in German and 86.6% (427/493) in English, which reduces the difference between German and English in G-IV from 10% to 5%.[7] Nevertheless, the finiteness ratio remains roughly 5% higher in English than in German. Hypothesis 4 is therefore only supported for three children, but not the fourth. An explanation for this will be explored in the discussion.

7.3.2 Cross-language transfer

The cross-language transfer in which we are interested in this study concerns the use of verbs or verb morphology from German to English or from English to German. These effects are presented in Table 16. Since the focus is on the development of finiteness, only simplex verbs in present tense contexts were considered.[8] They were calculated against all simplex verbs in the same context.

TABLE 16

Cross-language verb usage

	JH				CW				NS				AS			
	German		English		German		English		German		English		German		English	
I					5	.15	0	.00								
II	30	.29			7	.11	4	.04	9	.15	4	.17	6	.29	2	.04
III	59	.24	6	.03	27	.12	0	.00	27	.10	10	.04	13	.07	3	.06
IV	24	.04	1	.003	35	.10	1	.003	5	.02	2	.006	24	.20	15	.05
V	0	.00	0	.00	1	.02	0	.00	0	.00	0	.00	4	.05	0	.00

Table 16 shows that cross-language transfer occurred predominantly from English to German. It peaked at nearly 30% in JH-II and AS-II, but was over 10% for all children at some stage. Cross-language influences from German to English were much rarer and barely reached levels of 5%. This is in line with the children's pattern of language preference. In both languages, the frequencies of cross-language effects decreased with time.

The motivation for transfer was mainly lexical. However, this raises issues of verb morphology, in particular whether the transferred verb was imported with its morphology from the source language or was morphologically integrated into the host language. The expectation expressed in hypothesis 5 was that morphology should only be transferred from the stronger to the weaker language, that is in the case of these children from English to German. This is explored in Table 17.

TABLE 17

The morphological status of cross-language verbs

		JH		CW		NS		AS	
in German	-Ø on EV	93	.82	46	.66	25	.61	22	.47
	-n on EV	7	.07	4	.06	12	.29	6	.13
	-e on EV	2	.02	6	.09			3	.06
	-t on EV	4	.04					2	.04
	-st on EV			1	.01	1	.02	1	.02
	-s on GV	1	.01	7	.10	2	.05	1	.02
	-ing on GV							3	.06
	-ing on EV	2	.02	6	.09	1	.02	8	.17
	-s on EV	4	.04					1	.02
in English	-Ø on GV	1	.17	1	.20	4	.25	9	.45
	-n on GV	3	.50	2	.40	2	.13	2	.10
	-t on GV	1	.17			3	.19	2	.10
	-st on GV					1	.06		
	-e on EV					4	.25	2	.10
	-n on EV			2	.40	2	.13		
	-st on EV	1	.17						
	-t on EV							2	.10
	-s on GV							2	.10
	-ing on GV							1	.05

By far the majority of English verbs in German contexts were bare stem forms. This might be a sign of English verbs being used in the German context with their morphological properties. Support for this argument could come from -s or -ing also appearing on English verbs in German contexts. What speaks against this are the more frequent cases of -n, -e, -t and -st affixes on English verbs in German contexts. Thus, bare stems of English verbs could alternatively have resulted from the fact that -Ø is possible in both languages and a frequent finiteness marker in these children's German.

There are four types of evidence in favour of this interpretation in the children's German. In examples (16), (17) and (18) the imported English verbs are placed in typical German positions at the end of the clause, before the negation and before the subject, respectively. In example (19), the verb is integrated by means of a prefix.

(16) nein nicht diesen cake WANT
no not this cake WANT
'no (I) don't want this cake'
(AS-G 3;6 / IV)

(17) I LIKE nicht Wasser
I LIKE not water
'I don't like water'
(CW-G2;9 / III)

(18) dann MAKE ich das
then MAKE I that
'then I make that'
(JH-G-2;0 / II)

(19) Mann Mann an-TOUCH[9] it
man man PREFIX-TOUCH it
'the man is touching it'
(JH-G2;1 / II)

The fact that we find English verbs in German syntactic positions, in particular in V2 as in (17) and (18), suggests that their morphological status might not have been extraneous to German in the eyes of the children. As for (19), we might want to compare this to English verbs being integrated into the German participial structure. Participles in German feature prefixes and suffixes. Interestingly, we find that on each of the four occasions that a child prefixed an English verb with *ge-* for the German participle this verb also featured the appropriate suffix (*ge-grow-t* (AS-E3;11), *ge-buy-en* (CW-G3;7)). Thus, the -Ø marker on *an-touch* might not be incongruent with the German system in the eyes of the child.

German verbs in English contexts were most likely to feature -Ø or -n. We have seen above that -n was the most widely overused verb affix in German. Its cross-language use is likely to be related to that. The -Ø could once again stem from the morphological overlap between German and English. The fact that the potentially frequent -ing affix was only once attached to a German verb by AS at 2;7, at a time when she obviously experimented with -ing in both languages, suggests that -Ø affixes on German verbs in English contexts were not necessarily a sign of morphological integration. The -n together with -t and -st, which also featured on German verbs in English contexts, give an indication of the strength of German verb morphology for these children and also favour overlap as an explanation for -Ø verbs over morphological integration. What is most interesting, however, are the German affixes on English verbs in English contexts. Since German was the children's weaker language, these were not predicted. Overall, Hypothesis 5 is not supported.

There are a range of possible motivations for the cross-language use of the verb affixes -e, -st, -t and -s. They need to be seen in the context of affix overuse in general, ie. overuse within each language as well as across languages. In Table 18 the total of affix overuse in both languages is broken down into person contexts and language of the verb used. It integrates information on non-agreement or double finite marking contained in Tables 6, 10, 12 and 17 as well as information not included there like the person-correct overuse of -e on verbs which do not take -e in German as well

as eleven cases of double finites involving English verbs in English contexts. The figures in bold indicate person agreement among overuse.

TABLE 18

Over-use of verb affixes

		1SG		2SG		3SG		1PL		3PL	
	N	GV	EV	GV	EV	GV	EV	GV	EV	GV	EV
-t	145	31		44		**16**	**12**	11		31	
-e	85	**34**[ii]	**21**[iii]	15		11	1	1		2	
-s	39	1	9	8[iv]	3	**2**	**10**				6
-st	13	2	2	**2**[v]	**1**	5	1				

The most overused affix was -t. Clahsen (1986a, 1991) suggested that the overuse of -t is motivated by young children first associating non-transitivity with it. On splitting the 145 instances of unconventional use of -t into those that were overtly transitive, those that were intransitive and those that were truncated in that the direct object was omitted I found around 50% of them to be transitive, evenly spread across JH, NS and AS, around 40% to be intransitive, and the rest to be truncated. Only the four instances from CW did not fall into this pattern with 3:1 being intransitive. Clahsen's hypothesis is thus not supported. Meisel (1994b) reckoned that overuse of -t was due to number error rather than person error. Since there were the same or more instances of overused -t in 1SG and 2SG than in 3PL, number error is unlikely to explain overuse of -t in my data. However, within 3PL contexts it could have been a contributing factor, especially since 3PL contexts were much less frequent than 1SG contexts. Overuse of -t being highest in 2SG contexts points to cluster reduction of -st to -t as a possible factor especially if we take into consideration the relatively lower frequency of 2SG contexts as compared to 1SG contexts. Such a cluster reduction is congruent with

ii 19 of these represent non-target simplex forms of the modal *will-e* 'want', the copula *bin-e* 'am', the exceptional verb *weiß-e* 'know', and first person back formations of other person forms resulting in *schläf-e* 'sleep', *schnitt-e* 'cut' and *fund-e* 'find'. The rest are the result of double finite marking.

iii One was an imperative: *smell-e that* (AS-E3;2). But since -e marking on imperatives is also correct in the German system, it was included here.

iv 2 of them were doubtful as to whether they should be considered 2nd or 3rd person as the name of the interactant, "Mami", occupied the subject psoition.

v Except for 1SG, intra-language person agreement represent double finites.

what we know about monolingual development of German. Unfortunately that still leaves the 42 instance (29%) of overused -t in first person contexts unexplained. I will return to that in the discussion.

Overuse of -e is interesting, not only because they constituted the second largest group of overused person affixes, but also because in the majority of instances they agreed with the subject (65% as opposed to 19% of -t agreement, 31% of -s agreement and 23% of -st agreement). 19 of the 34 German agreement instances in Table 18 represent non-target simplex forms of the modal *will-e* 'want', the copula *bin-e* 'am', the exceptional verb *weiß-e* 'know', and first person back formations of other person forms resulting in *schläf-e* 'sleep', *schnitt-e* 'cut' and *fund-e* 'find'. The rest were the result of double finite marking. There was only one such semi-target form for -t[10] although it would have been structurally just as possible. This supports the argument made in 7.1.1 that 1SG agreement was leading the development.

Insights into how cross-language verb morphology might have come about can be gained from the children's use of -e on English verbs. All four children used the verb *want* instead of *möchte* in their German at times. Still in Phase II, JH and CW added -e to *want* in 1SG contexts a few times. For NS and AS no person marked forms of *want* appeared on the tapes in German contexts, but in English contexts instead. These cases were transcribed with great care in order to ensure that they were indeed instances of *want+e* and not instances of *want to*.

(14) a. I WANT-**e** gucken Loch
I want+1SG look hole
'I want to look (into the) hole'
(JH-G2;1 / II)

b. WANT-**e** da
want+1SG there
'(I) want (that) there
(CW-G2;5 / II)

c. I want-**e** me's foot here
I want+1SG my foot here
(NS-E2;3 / III)

d. more want-**e** more
more want+1SG more
(AS-E2;7 / II)

Interestingly, *want to* plus nominal complements was also evident, but only in 1SG contexts. This suggests that the children perceived similarities between the German rendition of 'want' *möchte* and *want to* in English, which later spilled over to other verbs like *put-e, catch-e, dive-e* (CW-G), *hit-e* and *hide-e* (JH-G), *turn-e, wash-e,* (NS-E) and *like-e, push-e, put-e* (AS-G). That -e was more likely to be used on English verbs than the other German person affixes is congruent with the strength of the -e affix as a person marker in the children's German.

The English affix -s was overused predominantly in English contexts on either 1SG (*I goes in here* (NS-E2;5)) or in double finite constructions (*where does das goes* (JH-E2;3)). Interestingly, all but one English double finite construction agreed with the subject.[11] In German, -s affixes were most likely to appear in 2SG contexts. Only two -s affixes appeared in 3SG in German. The six cases of overuse of -s on 3PL English verbs could have been due to number errors, but the ten cases of -s in 1SG (26%) defy explanation.

Overuse of -s needs to be seen in relation to overuse of -st. While rare, if overuse of -st did occur, it was most likely to appear in 3SG in German. This is obviously the opposite of cluster reduction. There were four double finites marked with -st in German, two of which in 2SG. The other two cases were *ich muß du findst* 'I must you find+2SG' (JH-G3;3) and *der ist beißt du* 'he is bite+2SG you' (NS-G3;6) where the motivation might have come from the object *du* 'you' instead of the subject.

In summary, cross-language morphology was rare, but it did exist. Contrary to prediction it was not unidirectional from the stronger to the weaker language, nor was it totally unmotivated. Viewed in

relation to intra-language overuse of verb affixes, a picture of great complexity emerges, and it seems that an element of confusion cannot be excluded.

8. DISCUSSION

8.1 Strict separation of the two languages?

The hypotheses we have examined here reflected the findings of recent years regarding the separation of the two languages and the development of each language in its own right during the simultaneous acquisition of two first languages. The German–English bilingual data supported these findings in that the vast majority of utterances produced by the children were target-specific either in the adult way or in ways typical of the development of monolingual children of each language. However, the strictness of separation underlying the hypotheses was not supported.

With respect to rate of development, the bilingual children seemed to be slower than expected in German and at the slow end of the projected range in English (Hypothesis 1). But given the wide range of variation in monolingual development and the tentativeness with which developmental predictions can be made for monolingual children, it would be premature to conclude that bilingual development proceeds more slowly than monolingual development. Such differences can only manifest themselves in large group studies. All developmental structures typical of monolingual development were also found in the bilingual data. However, in the children's German, the frequencies of finite final verbs tended to be reduced and non-finite non-final verbs tended to be increased (Hypothesis 1). Person marking was often incorrect in German, but rarely in English (Hypothesis 2).

The interconnection between finiteness and verb movement was less clear than in monolingual German data (Hypothesis 3a). While finite verbs were associated with their predicted position, non-finite verbs were not excluded from the V2 position in the bilinguals' German. Isolated instances of variation have also been found in a few monolingual children, but it is important to note that this variation was present in each of the four bilingual children studied here and therefore needs to be considered more frequent than in monolingual children (Hypothesis 1). Furthermore, we found

finite and non-finite verbs in V3. These are not discussed much with respect to monolingual data since they are too infrequent for people to believe that they warrant independent consideration. Instead, they are usually subsumed under the counts of non-final verbs. The double finite constructions which these children produced seem to be nonexistent in monolingual German data. Finite verbs in V3 and double finites raise doubts as to whether finiteness is connected to V2 or simply to the verb being non-final.

The overextensions of residual V2 in the children's English mirrored the development in German, in that rarely occurring variations in monolingual English were increased in the bilinguals' English. Subject–verb inversion and structures which are unattested in monolingual English, like post-verbal negation, became a possibility (Hypothesis 3b). The expression of finiteness appeared to proceed through auxiliaries and modals before lexical verbs, but as mentioned above, I am not sure that previous findings in this area can be considered representative.

In spite of the children being somewhat dominant in English, for three of the four children the development of finiteness advanced more quickly in German (Hypothesis 4). Cross-language effects were minor, but not unilateral from the stronger to the weaker language. In fact, while lexical transfer was more common from English to German, English verbs were more likely to be morphologically integrated into German and verb morphology was more likely to be transferred from German to English than the other way round (Hypothesis 5). The fact that the structurally stronger language, German, did affect the structurally weaker but developmentally stronger English supports the claim that both languages developed in their own right. Obviously, cross-language effects were not just environmentally, but psycho-linguistically motivated.

To summarise, the results show that the German–English bilingual children were not only able to differentiate between their two languages pragmatically, in that they chose the language according to the interlocutor, but also structurally. The overwhelming majority of utterances which were structured in accordance with the requirements of the target language indicates that the children processed the input structures in language-specific ways. Nevertheless, cross-linguistic effects were also apparent even though they were relatively minor. Such effects were reflected in the occasional

direct transfer of verbs and verb morphology. More importantly though, increased frequencies of developmental structures which are unusual for monolingual children but not irreconcilable with the input pointed towards indirect effects. In the next section, the mechanisms which might have brought about the indirect effects are explored.

8.2 Cue competition

We have seen that the bilingual children predominantly behaved like monolingual children in terms of access to target structures and developmental structures. The variation from monolingual acquisition was smaller in some areas than others, but persistent across bilingual subjects. The increase in developmental structures, which we found in these bilingual children's language, appears to be related, concurrently, to similarities between German and English and the children's need to establish contrasts between the languages. As such, they bear signs of cross-language cue competition. In order to conceptualise this process of comparing and contrasting the input in the two languages, I will draw on the Competition Model for language acquisition, which was proposed by Bates & MacWhinney (1989).

The Competition Model purports that 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 slower. Thus, it is the tension between similarities and contrasts which drives language acquisition. Within the context of multiple language acquisition, a basic contention of the Competition Model is that forms which bear similarities in two or more languages compete across languages (MacWhinney, 1997). How can the Competition Model explain the variation between monolingual and bilingual children?

Very early on, that is before recording commenced, the bilingual children in the present study had established a basic pragmatic contrast between the languages in that they used predominantly German lexical items with their mothers and other German speakers and English lexical items with their fathers and other English speakers. When they first put words together, ie. in Phase II, this contrast also expressed itself structurally: in utterances which contained verbs and verb complements, the verb usually followed the complement in German (XP_V) but preceded the complement in English (V_XP) (Döpke (1998)). This contrast was further realised morphologically: verbs in the German final position predominantly ended in -n, and English verbs ended in -Ø.

There are further contrasts to be made within German between final verbs ending in -n and verbs in V2 carrying person agreement markers. Like monolingual German children, the bilingual children increasingly realised this contrast in their output as they moved from Phase II to Phase III and beyond. However, they also frequently maintained the -n affix on verbs which were moved to the pre-complement position. In addition, there seemed to be a greater amount of agreement errors on verbs marked for finiteness than is commonly found in monolingual German–speaking children.

The increase in agreement errors and the persistence of non-finite -n on pre-complement verbs in the children's German can be explained through cross-language cue competition. As the children's language grew from two-word utterances to three-word utterances, the S_V_XP structure gained strength over the XP_V structure in German. The similarities between German and English strengthened the pre-complement structure in German to the point that verbs and verb complements exchanged positions, and V3 structures, as in S_NEG_V_XP or XP_S_V_XP, and S_AUX_V_XP became possible. In other words, the children produced V_XP structures in German before they were aware of its V2 constraint (Döpke (1998)). This threatened the contrast between German and English.

The contrast between German and English was further threatened by the finiteness morphology itself. Typically for young children, first person singular was a frequently used person context. As we have seen, the target form of verbs in first person singular can be -e or -Ø, but -Ø tends to be

more frequent in the local varieties which the mothers of these children spoke. Thus, with respect to verbs in pre-complement position, overuse of -Ø in the children's German could have been made possible intra-linguistically through the means available in German as well as cross-linguistically through bare stem forms of verbs in both languages. However, this does not explain non-finite -n nor person errors or person-correct overuse of -st, -t and -e, all of which represent contrasts between the languages. In Table 19, I have compared erroneously used contrastive verb morphology on simplex German verbs with erroneously used -Ø, which potentially expresses similarity.[12]

TABLE 19

Contrast versus similarity on pre-complement simplex verbs

		Phase II		Phase III		Phase IV		PhaseV	
JH	contrast: -n,-t,-e,-st	26	.81	33	.77	75	.65	7	.64
	similarity: -Ø	6	.19	10	.23	40	.35	4	.36
CW	contrast: -n,-t,-e,-st	33	.83	115	.96	99	.86	13	1.
	similarity = -Ø	7	.17	5	.04	16	.14	0	.00
NS	contrast: -n,-t,-e,-st	36	.97	147	.93	58	.88	16	.70
	similarity = -Ø	1	.03	11	.07	8	.12	7	.30
AS	contrast: -n,-t,-e,-st	5	.71	72	.91	41	.89	5	.83
	similarity = -Ø	2	.29	7	.09	5	.11	1	.17

Table 19 shows that non-target morphology on pre-complement simplex verbs was more likely a feature of contrast than a feature of similarity. If cross-linguistic influences were a matter of direct transfer of features from the dominant language, English, to the weaker language, German, we should have found extensive overuse of -Ø instead of the other affixes. Alternatively, if similarities between the languages were the driving force behind bilingual language acquisition, then the pervasiveness of -Ø in the children's input should have increased the cue strength of -Ø in German indirectly and, therefore, also resulted in a predominance of overused -Ø forms. However, it

appears that it was the cue contrast between the languages which was most important in these children's acquisition of two languages.

The children's focus on contrast explains why the majority of the output complied with target norms and was free of interference. However, it was the interplay of noticing similarities and struggling to maintain differences between the languages which generated the unpredicted contrastive forms and lastly maintained the separation between the languages in spite of structural similarities. Once the children understood the structural difference between pre-complement verbs in German and English, ie. the raised position of German verbs and the base position of English verbs, word order could once again be the main differentiating factor between German and English, and overuse of contrastive morphology was no longer necessary. We have seen that this was indeed the case in Phase V, concurrently with a drastic increase in correctness of word order in German (Döpke (1998, 1999)). Contrast between languages as the motivating force behind the re-evaluation of intra-linguistically available cues is another instantiation of indirect influences which one language can have on the acquisition path of another when two languages are acquired simultaneously.

The explanation of interplay between contrast and similarities as the driving force behind the simultaneous acquisition of German and English can tie up a number of loose ends from the results section. Firstly, the overuse of -t in first person contexts which defied the similarity explanation attempted in 7.3.2 is now less puzzling. The affix -t has been shown to be a highly accessible and often overused finiteness marker for German monolingual children as well. For the bilingual children, accessibility and contrastive potential might well have combined in motivating its overuse. Secondly, the occasional but inconsistent morphological integration of English verbs when used in German contexts mirrors the tension between similarities and contrasts expressed in the creative use of verb morphology on German verbs. It seems that the children had interpreted the structure of imported English verbs in a way that did not cause syntactic conflicts in German since English verbs in V2 were also a possibility. This suggests that the children might have interpreted bare stem English verbs as parallel to German -Ø verbs and therefore as fitting into the German verb system. In other words, English verbs were similar enough not to need morphological integration in order to fit into the German structure. The addition of other verb endings had the

function of contrast with English not only integration into German. Thirdly, indirect influences created by cross-language similarities can explain why the overuse of verb raising in English went well beyond this type of variation found in monolingual English–speaking children. It was the contrast winning over the similarities which kept them minimal.

In sum, structural overlap between the languages created grey areas which lacked differentiation and motivated cross-language cue competition. The children struggled to maintain the pragmatic differentiation they had achieved prior to moving into syntax. This struggle expressed itself most spectacularly in the use of finiteness markers on pre-complement verbs inside the VP in German (ie. V3). On the whole, the struggle for separation of the languages was more evident in their German than in their English for two reasons: (1) German is the structurally more varied language, and (2) English cues for pre-complement verbs and -Ø verb ending are more reliable than their German counterparts due to the lack of variation in that respect in English. English cues further gained strength through sheer frequency in the children's predominantly English environment.

The fact that indirect influences were stronger than direct transfer provides additional evidence that the children were not operating on the basis of a fused system. However, this also shows that the two systems were not hermetically sealed from each other but cognitively permeable. This permeability becomes evident in areas of structural overlap where only a mature analysis can maintain the differences.

The problem with the combination of German and English is that the languages are so close that there are no clear areas of total absence of structural overlap. One would need this contrast between similarities which can cause crosslinguistic influences and total divergence in order to fully test the hypothesis that it is perceived similarities which motivate crosslinguistically influenced structures and that in areas of no similarities such divergences from monolingual acquisition paths are absent.

8.3 Relation to previous studies

At this stage, we have studies on a range of language combinations with varied results. Paradis & Genesee (1996, 1997), Mishina (1998) and Meisel (1994b) reported no cross-linguistic influences

in the areas of verb morphology for the combinations of French–English, Japanese–English and French–German, respectively. On the other hand, Hulk (1996) and Döpke (1998) found very noticeable differences between bilingual and monolingual children in word order of French–Dutch and German–English bilingual children, respectively, and Paradis (1998) identified differences in the rhythmic patterns of French–English–speaking children when compared to monolingual English children. That raised the question whether morphology behaved differently from other language modules. The present study does not support this possibility.

If we think of language combinations in terms of degrees of complexity, then the lack of structural similarities places the combination Japanese–English at one end and German–English at the other end of the continuum. French–German and French–English are somewhere in between. German and French differ with respect to the order of verbs and complements in the verb phrase, but both languages move finite verbs to the left of the negation. English and French share the order of verbs and complements in the verb phrase, but differ with respect to the syntactic consequences of finiteness in that English does not move main verbs, but marks finiteness on lexical verbs in their base position. For both language combinations, the similarities are not superficial but can strengthen each other cross-linguistically. The differences serve to maintain the separation between the languages.

German and English differ on both accounts: the word order in the verb phrase and the syntactic consequences of finiteness. This makes the similarities of German and English with respect to SVO word order entirely superficial. The cross-linguistically increased saliency of the 'verb-precedes-complement' cue effectively misdirects the child. Morphology is used as a means for re-establishing the separation between the languages. However, the obliqueness of the German verb paradigm and the additional similarities between German and English verb affixes do not instantly ease the crosslinguistic complexity. As a result, crosslinguistic effects are also evident in the development of verb morphology.

The conceptualisation of interplay between similarities and contrasts can account for the diverse outcomes of all four language combinations. Inherent structural contrasts serve the separation of the

languages and explain the lack of cross-linguistic influences in Japanese–English bilingual children. Substantial structural similarities are enhanced through cross-linguistic cue competition in the combinations of French–German and French–English. Therefore, the cross-linguistic cue competition remains invisible. It is only through the misdirection caused by the superficial similarities of German and English that the cross-linguistic cue competition becomes apparent.

The comparison of German–English bilingual children in an English–speaking country with those in a German–speaking country shows that in spite of differences in dominance patterns qualitative similarities with respect to cross-linguistic structures remain. Like mine, Tracy's subjects integrated English verbs into the German system morphologically and structurally, overused -n affixes, and raised verbs in English. The similarities of these findings suggest that dominance simply changes the extent to which cross-linguistic influences surface, but they are not the cause for their existence.

We have seen that the children in the present study exploited the range of structural possibilities with a considerable degree of individual variation. Structures which only rarely appeared in the data of one child were reasonably systematic in another and vice versa. The comparison across several subjects helped to discern the cognitive motivation underlying untypical structures irrespective of how frequently they were produced by an individual child. It is possible that differences across studies are to some degree also due to individual variation between children, in particular where only one or two children were involved. The qualitative similarity of untypical structures in all the children of the present study argues against us discarding individual examples which do not fit the bigger picture too quickly.

9. CONCLUSIONS

Original suggestions that simultaneous bilingualism would lead to a fused language system during the early stages of development were probably as premature as the assumption that the two languages of a bilingual child develop in ways totally unaffected by each other was extreme. Simply focussing on cross-linguistic examples was just as problematic as totally negating them. The findings of the present study that cross-linguistic influences are present but not exceedingly

frequent point in that direction. On one hand, they support the hypothesis that the two languages develop separately, each on the basis of language–specific input; on the other hand, they suggest principal cognitive permeability between the language systems, but mitigated by frequency of input and need to contrast the languages. The particular forms and places of cross-linguistic influences allow us insights into the nature of the cognitive permeability. Negating them as insignificant is denying ourselves access to the more occult operations of the language learning mind.

Because of the increase in cognitive complexity which the simultaneous input in two languages may pose for one or both of the languages, this type of data can be seen as a naturally occurring experiment. In this "experiment", the bilinguals are the experimental group and the monolinguals are the control group. In this way, bilingual acquisition data has the potential to sharpen our understanding of the processes involved in first language acquisition in general. More data on more language combinations and a more lateral approach to the total range of phenomena is likely to intensify the picture of children actively working out the linguistic systems they are presented with.

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NOTES

[1] Köppe (1994:15): "Recordings with those children listed in the upper half of Table 1 had to be discontinued because they did not seem to develop the kind of balanced bilingualism required for our analysis." The excluded children constituted 38% of the sample (ie. 5 out of 13 children).

[2] For reasons discussed below, the copula was not included in the analysis and is therefore not considered in this section either.

[3] Figure 1 provides a visual representations of the following description of the German sentence structure:

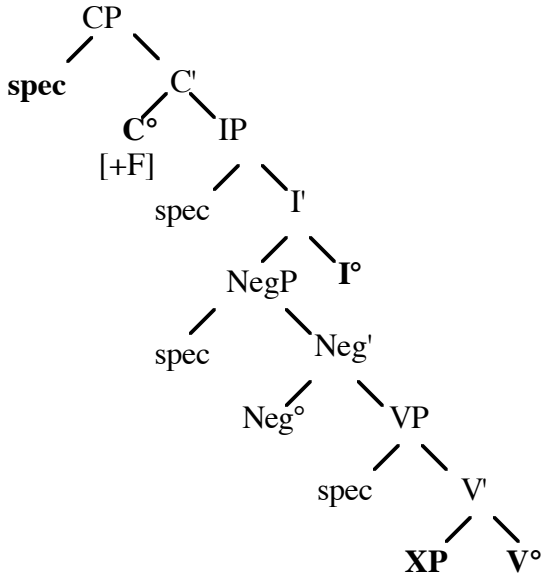

FIGURE 1 German sentence structure

[4] Figure 2 provides a visual representations of the following description of the English sentence structure:

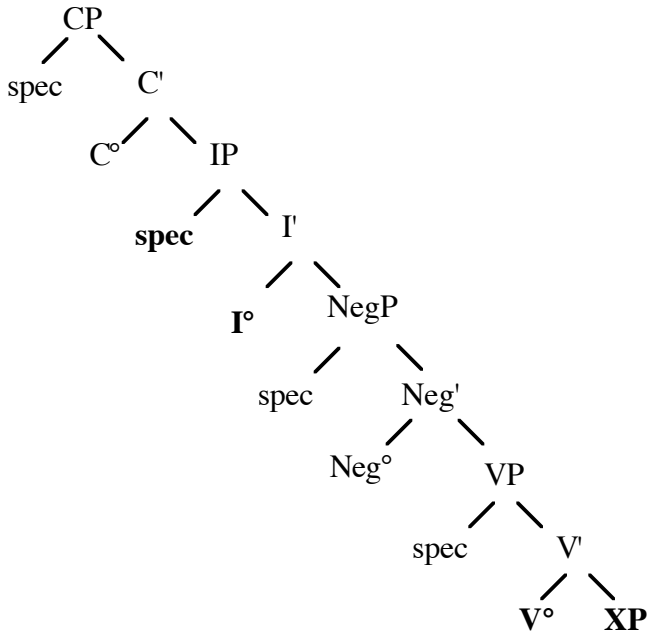

FIGURE 2 English sentence structure

[5] The German verbs in example complex 13 should have been *will*, a modal verb and thus outside the count, *schneide*, *weiß* and *schlafe*. The form *schnitte* was created from the participle *geschnitten*, which was used by NS's mother immediately preceding the child's utterance, and *schläfe* was formed on the basis of *schläfst* also just uttered by the mother. Back-formations of this type also appeared in the corpora of the other children. *weiße* was occasionally used by all children and has also been reported for monolingual German–speaking children. Overgeneralisation of -e further happened with *bin-e* 'am+1SG' (CW-G3;0; AS-G3;3) and incorrectly so with *mög-e* 'like-1SG' in 3rd person context by CW-G3;7. The latter two were once again outside the count.

[6] AS also produced *er throw-t dein weg* 'he throw-s yours away', and *bin bin-t kleine Stall der kleine Löwe* 'am am-s little cage the little lion' with "lion" being the subject of the sentence, both at 2;11.

[7] An interesting side finding of this is that the division into phases is indeed meaningful, although the actual cut-off point is arbitrary and the effect might not exactly set in at 3.75 for every child, but certainly somewhere around 4.00 MLU. Recalculations of the CW data in Table 5 above also produced increased differences between phases III and IV for -e/-Ø (.32 vs. .50), -t (.32 vs. .46) and -st (.07 vs. .22) markings. But this did not change the fact that these affixes were not a regular feature at Phase IV.

[8] Cross-language verbs and cross-language verb morphology also appeared with complex verbs. In both language contexts they could end in -Ø or -n when inside the VP. But other endings, like -t and -e, were also evident. This is in line with the double finite marking discussed above. Verbs inside the VP bring along additional word order issues (Döpke (1998)). For reasons of space, this is left out here.

[9] The appropriate German verb would have been *an-fassen*. Prefix modification of an English verb in the German context could also result in the appropriate separation of prefix and verb as in

put mich a Hose an
put me pants on
'put pants on me'
(CW-G2;9/III)

[10] At the age of 2;11 AS produced *bin bin-t kleine Stall der kleine Löwe* 'am am+3SG (in the) little sty the little lion' parallel to using *ich bin-e* 'I am+1SG' in German and frequently *bin* or *been* instead of *am* in English.

[11] In all there were 13 double finite constructions in English (JH:3, CW:1, NS:8, AS:1): 9 of them featured -s on English lexical verbs in 3SG contexts, 1 had -t on an English lexical verb in 3SG, 2 were instances of -Ø on a German lexical verb in 1SG; the only one not agreeing with the subject context was -s on an English lexical verb in 1SG.

[12] The relative distribution of contrastive versus similar verb morphology also holds for pre-complement verbs inside the VP. For reasons of space and because this data is not yet available for AS, I have left it out here.