

The Bilingual Child

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Chapter 3

The Handbook of Bilingualism

In the series

Blackwell Handbooks in Linguistics

Edited by Tej K. Bhatia and William C. Ritchie

The Bilingual Child

This chapter deals with the development of child bilingualism, more specifically with children growing up with two or more languages from birth or soon afterwards. This focus on developmental aspects of early bilingualism constitutes, in more than one way, a rather special research topic. Not only that the number of research studies dedicated to this subject has increased dramatically over the past two decades, it also attracts considerable attention among a wider audience, and research studying the bilingual child may therefore count on a stronger public resonance than is normally the case for linguistic or psycholinguistic publications. The reason why this fact, in principle gratifying, is mentioned here is that the discussion frequently reflects a strong emotional involvement of all participants, sometimes tainted by ideological biases, resulting in campaigns *pro* or *contra* child bilingualism. This situation not only influences the public debate; reflections can also be found in research reports where comparable findings may lead to contradictory assessments of the children's bilingualism. It is quite possible that in many cases these reactions can be traced back to a well-intentioned desire to protect the defenseless child from potentially harmful influences. In combination with the belief that monolingualism represents the natural or normal case of language development, this attitude may lead to the assumption that deviating from this norm implies risks which had better be avoided. The most frequently articulated concern is that the child exposed to more than one language during early developmental phases might be confused linguistically, cognitively, emotionally, and possibly even morally. Confronted with concerns and prejudices of this sort, parents, educators and law makers find themselves in a situation of serious doubts about the feasibility of bilingual education. In cases where raising children bilingually is not a social necessity but one of several options, e.g. family bilingualism in a predominantly monolingual environment (immigrants, bilingual cou-

ples, etc.), they may therefore opt for what appears to be the more prudent choice, namely monolingualism.

Research on child bilingualism must not simply ignore this situation, no matter whether researchers believe that such worries are well-founded or not. In fact, enthusiastic support of bilingual education can equally be motivated by ideological biases. Research therefore needs to take seriously the fears by those directly concerned and try to establish to what extent alleged risks and advantages of early bilingualism are justified. In this sense, research on linguistic development in a multilingual setting is indeed of immediate practical relevance. At the same time, it deals with matters of deep philosophical and epistemological concern if it can indeed be shown that the human language faculty has an endowment for multilingualism. Assuming that this can be confirmed, the view of child bilingualism as a potential source of possible disturbances must be abandoned. Instead, monolingualism can be regarded as resulting from an impoverished environment where an opportunity to exhaust the potential of the language faculty is not fully developed.

Systematic investigations of child bilingualism began approximately one hundred years ago with the careful study by Ronjat (1913), culminating, during the early history of this type of research, in the monumental work by Leopold (1939-1949). Many of the earlier studies were carried out by laymen, frequently reporting on observations with their own children, e.g. missionaries whose children grew up in an environment where they acquired the local language in addition to the language which the parents spoke at home, or linguists or psychologists normally not specializing in language development, but whose children grew up bilingually because the parents worked in a foreign country or because their spouses came from a different language background. Although these studies represent a rich source of observations, their analyses of bilingual language development are not always reliable. Moreover, some of these works are strongly influenced by

the aforementioned prejudices. This is one reason why research results obtained subsequently frequently arrive at rather different conclusions. In fact, the first surge of publications on language acquisition by psychologists and linguists investigating bilingual children happened during the 1960's and brought along a professionalization and a further increase of research activities as of the 1980's, contributing to the establishment of bilingual studies as an autonomous discipline with its own textbooks and journals. It is this research of the past 25 years which the following discussion will focus on.

Contrasting bilingualism with monolingualism

The problem area which has attracted by far the largest number of studies over the past years relates to the question of whether bi- or multilingual children fare as well, in each of their languages, as do the respective monolinguals. Quite obviously, this reflects a perspective strongly biased by monolingualism in that it implicitly assumes that monolingual acquisition is the norm. Indirectly, at least, such an approach conveys that multilingualism deviates from what may be regarded as normal. From there, it is not a big step to judging multilingualism as some kind of freak condition. But in view of what has been said in the introductory remarks, it is precisely because of possible misrepresentations of this sort that a monolingual perspective must temporarily be adopted. If, then, it can be demonstrated that the simultaneous acquisition of bilingualism is indeed an instance of "normal" first language development (see the following section), two objectives are accomplished. On the one hand, claims concerning alleged problems of bilingual children are refuted, thus also eliminating causes of parental and educator worry about a possible confusion on the part of the children. At the same time, such a result has important implications for theories of language and of grammar which then need to be conceptualized in a way allowing for an explanation of this capacity for multilingualism.

To avoid misunderstandings, in contrasting bilingual with monolingual first language acquisition, the goal is not to promote an idealized concept of the bilingual person as an individual whose linguistic knowledge consists of two perfectly equal parts and who is able to behave in every respect and in each situation precisely like the respective monolinguals. Grosjean (1989) insists that “the bilingual is not two monolinguals in one person”. He argues correctly that bilinguals rarely use their languages equally frequently in every domain of their social environment. Rather, they use each of them for different purposes, in different contexts, and in communicating with different partners. Consequently, their abilities and skills in using each of these languages reflect their preferences and needs in the multifaceted social contexts in which they interact with others. And since demands and purposes of interactions vary, bilinguals are able to shift on a continuum which ranges from a more monolingual to a truly bilingual mode; in other words, their knowledge of each of their languages is activated more or less strongly (Grosjean, 1999). Such a holistic view of bilingualism takes into account the fact that a person who uses two languages regularly, is not necessarily equally at ease in each of them in all communicative contexts and does not even have to be able to use them equally well. On the other hand, by choosing between their languages and by switching between them, bilinguals have available additional communicative means which monolingual speakers lack. Comparisons between the language use of monolinguals and of bilinguals must take these considerations into account. One specific speech sample can, in fact, hardly do justice either to one or the other.

This is not to say that contrasting bilingualism with monolingualism could not lead to important insights, but the point is not to demonstrate that bilinguals behave in every respect and in each situation like monolinguals. Rather, comparisons of this sort are likely to yield significant results only if the underlying knowledge of the two types of speakers are targeted. More precisely, it is the investigation of the less variable aspects of grammatical knowledge which should prove to be most promising. Although the competence of individual speakers will necessarily exhibit a cer-

tain amount of variation as compared to that of other individuals, monolinguals as well as multilinguals, a core part of their grammars ought to be invariant across individuals if the generation of structures shared by the speech community and underlying comprehension and production of utterances is to be possible. From a psycholinguistic perspective, one can describe the object of comparison as the mental representation of grammatical knowledge; with respect to children, the focus will be on invariant properties of the development of this knowledge. One example concerns invariant developmental sequences of grammatical structures which have been established for monolingual development in many languages, following the example of Brown (1973). If bilingual children exhibit the same developmental sequences as the respective monolinguals acquiring the same languages, this may be interpreted as strong evidence in support of the claim that the two types of acquisition are not qualitatively different. This leaves open the question of whether there exist quantitative differences of various sorts, e.g. the average rate at which individuals proceed through these sequences, the relative frequency of use of particular constructions, and so forth.

The preceding remarks on the comparison between monolinguals and bilinguals apply in much the same way to possible contrasts opposing the two languages of the bilingual. The question of whether a bilingual person can achieve what has been referred to as “balanced bilingualism” has led to controversy, and it has, indeed, been argued repeatedly that such balanced bilingualism might not be possible. However, the notion clearly refers to language proficiency and to performance in both languages. Understood in this way, it is indeed not implausible in view of what has been mentioned, above, concerning the domain-specific distribution of languages in the communicative environment of multilinguals, preferred choice, ease of access, etc. Mainly because most bilinguals do not use both languages equally frequently in all domains, they tend not to be “balanced” in their proficiency for each of the languages. But “dominance” of one language, defined as the one in which a person is more proficient, can shift repeatedly, not only during child-

hood but over the entire life span, depending on a person's communicative needs. Neither balance nor dominance, understood in this fashion, are of particular interest in the present context, however, since this chapter is mainly concerned with the type of grammatical knowledge available to a bilingual child. And with respect to the child's competence, it can and will be argued that it is not only possible but, indeed, normal for bilingual children to develop grammatical knowledge, in each of their languages, not qualitatively different from that of the respective monolingual children.

Simultaneous acquisition of bilingualism as first language development

The most important insight gained from studies on child bilingualism over the past 25 years is perhaps that simultaneous acquisition of two or more languages can indeed be qualified as an instance of multiple first language acquisition. In phrasing it in this way, the claim is that the development of each of the bilingual's languages proceeds in the same way and leads to the same kind of grammatical competence as in the respective monolingual children. In order to corroborate this claim, it is necessary to demonstrate that bilingual development is not qualitatively different from what is known about monolingual acquisition. As mentioned in the preceding section, "qualitative" similarities and differences refer to the invariant aspects of grammatical development. Accordingly, the main concerns which emanate from the literature on bilingual children as well as from the worries articulated by parents and educators, relate to the children's ability to differentiate the linguistic systems, the possibility of significant delays in the rate of acquisition, and possible deviations from developmental paths observed in monolingual acquisition. In this section, rate of acquisition will be briefly discussed; the focus, however, will be on the issue of grammatical differentiation; the latter point will then be taken up in the following section.

The question of whether bilingual acquisition tends to happen at a significantly slower rate, when compared to monolinguals is not a crucial one in the present context, since if this was in-

deed the case, it would really represent a quantitative rather than a qualitative property of development. It should, nevertheless, be addressed here briefly because a quantitative differences of this sort could, in fact, become a qualitative one if linguistic development were delayed beyond the range of what can be considered normal in non-pathological cases. A potential risk of this type can, however, clearly be discarded. Although some researchers report that bilinguals tend to begin to speak late, i.e. after age 2;0 (= two years, zero months), the observed delays are well within the range of what counts as a normal rate of language development for monolingual children. As for the more principled question of whether bilingual acquisition does indeed progress at a slower rate than monolingual acquisition, a conclusive answer cannot be given. This is mainly due to the fact that a reliable yardstick against which to measure the pace of linguistic development is difficult to find. Among the criteria used in child language research are the mean length of utterances (MLU) at a given age, the emergence of specific structures at a given age or, more reliably, simultaneously with a certain MLU value, and the number of words produced at a given age. Irrespective of which of these criteria is applied, one finds a considerable amount of variation across individuals, among monolinguals as well as bilinguals. Looking, for example, at the emergence of a grammatical phenomenon like subject-verb agreement, one finds variation in age of up to nine months. Similarly, up to 20 % of monolingual children have been qualified as late talkers, based on the criterion number of words (= less than 50) produced at age 2;0. These as well as similar findings thus lead to the conclusion that, although there may be an overall tendency for a slower acquisitional rate in bilingual acquisition, there is no indication that bilinguals fall outside the norms established for monolingual acquisition.

A more serious concern about potential qualitative differences between bilingual and monolingual acquisition relates to the problem of differentiation of grammatical systems. If it should be the case that bilinguals initially develop a single mental system for the two or more languages they acquire, such a *fusion* of grammatical systems might be difficult to disentangle. Moreover, it

could have long lasting effects on later phases if the learner then follows a developmental path different from the one characteristic of monolingual acquisition. The topic of differentiation of language systems has therefore been the crucial issue of research on bilingual acquisition.

The crucial fact which has led numerous authors to speculate that bilinguals might encounter difficulties, at least initially, in separating the lexicons and the grammatical systems of the languages which they are learning is that their language use normally exhibits a certain amount of mixing; i.e. bilinguals tend to mix languages within a conversation, a turn, or an utterance. From a monolingual perspective, this appears to indicate an inability to keep the languages apart. However, as early as the 1970's, researchers agreed that children growing up with more than one language eventually succeed in separating their languages, without much effort or specific pedagogical support. The possibility of an early developmental phase characterized by a fusion of lexical and grammatical systems has, nevertheless, been regarded as a potentially serious problem, especially by parents and educators fearing that such a phase of undifferentiated linguistic knowledge might continue to last through age periods during which it could prejudice the intellectual development of the child or that it might lead to deficiencies in subparts of the competence of one or both languages. The essential question to be answered, thus, is whether language mixing by children represents a particular kind of language use in multilingual settings or whether it reflects properties of the underlying linguistic competence, i.e. the children's ability to comprehend and produce well-formed sentences, and to judge their grammaticality (or rather: their acceptability) in much the same way as do monolinguals.

A tentative first answer to this question can be found by looking at the language use of adult bilinguals. As is well known, language mixing is a common feature of communication among bilinguals, and it is frequently the result of code-switching, a form of language use determined by a complex network of sociolinguistic variables and constrained by grammatical properties of the

utterances (see chapter 6, Structural constraints on code-switching). In fact, it has even been suggested that code-switching is used more frequently by those who are most at ease and competent in both languages (Poplack, 1980). One may therefore plausibly assume that children also code-switch, in other words, that their mixes are at least in part a testimony to their ability to use their linguistic knowledge in much the same way as adults do in multilingual interactions. However, in order to be able to do so, they need to acquire both the grammatical knowledge and the social skills required for adult-like code-switching. It follows that if children mix languages at a point of development when they have not yet acquired this kind of knowledge and these skills, their early mixes might not yet be instances of code-switching. What, then, do we know about the acquisition of code-switching?

A review of the literature on early code-switching (Köppe & Meisel, 1995) shows that bilingual children acquire the necessary knowledge very early. Already by age 2;0, they choose the language according to the addressee, and soon afterwards they begin to adapt to other sociolinguistic requirements. Structural constraints impose restrictions on where a switch can happen intra-sententially. Consequently, their role in children's language use can only be studied once multi-word utterances are used productively. The fact that, during the first half of the third year, these children violate such grammatical constraints only rarely, suggests that they have access to separate grammatical systems at this point of development, for these structural constraints rely on properties of both grammars. Importantly, constraints on code-switching do not constitute a separate acquisitional task. Rather, this kind of implicit knowledge appears to become accessible automatically once the respective grammatical knowledge is available. As for the latter, functional categories (e.g. INFL, COMP, etc.) seem to play a crucial role. In sum, language mixing around or soon after age 2;0 can be explained, for the most part, as code-switching.

Note that these and similar findings demonstrate, contrary to what some authors had suspected, that it is not generally the case that frequency of mixing decreases with increasing competence. In fact, not all children mix frequently during early phases, and others tend to increase the frequency of code-switching over time. Nevertheless, what remains to be discussed are the earliest instances of mixing, prior to the phase of grammatical development which enables bilingual children to code-switch. Their structural properties are difficult to assess since they consist almost exclusively of single word mixes. The function of these mixes are not transparent either, since they consist, for the most part, of lexical items which are undoubtedly known in both languages (e.g. the equivalents of *yes*, *no*, *this*, *that*, etc.); consequently, they are not likely to fill gaps in lexical knowledge. At any rate, although these early mixes are probably not instances of code-switching, as we understand them from adult bilingual language use, they also cannot be interpreted as evidence in support of the claim of early grammatical fusion, since they do not involve combinations of structural properties of the two languages, and they occur during an age span when the children's behavior with respect to language choice indicates that they do separate their languages. This observation is supported by the fact that awareness of bilingualism begins to develop during the second half of the children's second year of life, possibly as early as 1;7, certainly around age 2;0, as is shown by the first metalinguistic utterances referring to their bilingualism.

To conclude, one can say that the earliest mixes of some bilingual children may not yet represent instances of code-switching, but they do not support the fusion hypothesis either. Moreover, adult-like code-switching emerges early during the third year, and the kind of knowledge underlying this type of language use supports indeed the hypothesis of early grammatical differentiation. The fact, then, that young bilinguals mix languages is, more than anything else, a sign of increasing sensitivity to the linguistic behavior of their environment. It certainly does not conflict with the assumption of language separation.

The hypothesis of early grammatical differentiation, frequently also referred to as the “dual system hypothesis”, is not only based on careful observations of children’s linguistic behavior in bilingual settings but, importantly, also on analyses of early morphosyntactic development. The most elaborate version of the previously defended single system hypothesis has been proposed by Volterra & Taeschner (1978). The basic idea is that bilingual acquisition is characterized by an initial period during which children develop only one system before they succeed in differentiating the lexical and grammatical systems of their languages.

The three-stage model of bilingual language development (Volterra & Taeschner, 1978)

- I. The child has only one lexical system comprising words from both languages.
- II. Distinct lexical systems develop, but children still rely on one syntax for both languages.
- III. Distinct grammatical systems develop, resulting in differentiation of two linguistic systems.

This scenario, however, turned out not to capture the typical developmental pattern of bilingual children; see Genesee (1989), Meisel (1989), De Houwer (1990). More sophisticated analyses of the emergence of lexical knowledge and of grammatical structures underlying child utterances in various longitudinal corpora revealed that the early separation of systems is not the exception but the rule in the simultaneous acquisition of various languages. Already during the holophrastic phase when children typically use one-word utterances, one finds unambiguous evidence indicating that two distinct lexicons are acquired by these children, thus contradicting the claim of an initial stage with only one lexical system; see, for example Quay (1995).

In order to decide on the point when grammatical systems are differentiated, one obviously has to rely on data from developmental phases during which multi-word utterances and productively used inflectional morphology emerge in the speech of the children. Moreover, one needs to focus on grammatical phenomena which are functionally equivalent but formally different in the target

languages investigated. With respect to inflectional morphology, this is normally not difficult to achieve, and there seems to be general consensus that bilingual children combine grammatical morphemes of one language with lexical morphemes of the same languages as soon as they are able to use grammatical morphology productively. In other words, they do not randomly attach inflectional morphemes from both languages to lexical material from each of the languages they are acquiring. Note that this seems to be acknowledged by the three-stage model, too, since stage II only refers to syntax. It is here that the above mentioned formal distinctions between the target systems becomes relevant. If, for example, the placement of adjectives with respect to nouns is studied in the simultaneous acquisition of a Romance and a Germanic language, one needs to take into account the fact that Romance adjectives can appear in pre-nominal as well as in post-nominal position, even though pre-nominal placement is restricted to certain adjectives or to specific contexts in the adult language. How, then, can one interpret the finding that some French-German children temporarily use only pre-nominal adjective placement in both languages? In view of the fact that adult French allows for this word order with the adjectives appearing in these data and German also requires pre-nominal position of adjectives, anyhow, this is not sufficient evidence in favor of the single system hypothesis.

The kind of evidence needed in order to decide between these competing hypotheses is provided by the so-called verb-second (V2) effect, characteristic of Germanic languages (except for English), and it clearly speaks in favor of the dual system hypothesis. In V2 languages, the finite verb is placed in the second structural position of the sentence, i.e. if some constituent other than the subject is placed in initial position, the subject follows the finite verb. Given that young children frequently use constructions beginning with a deictic expression like “there” or with some other type of adverbial, examples of this sort are likely to appear in the recordings of young children. A number of studies investigated this phenomenon in different corpora where German is acquired simultaneously with a non-V2 language like French, Italian, Portuguese, or

English. The results unambiguously show that in such constructions children place the finite verb in second position when using German main clauses and in third position in the respective other languages. Moreover, during the earliest period of multi-word utterances, one already finds that, in German as an OV language (placing non-finite verbs in final position of main clauses and both, finite as well as non-finite, verbs in final position of subordinate clauses), bilingual children use clause-final position of verbs, but not in VO languages like French and Portuguese. In addition, it has been shown that word order patterns which are specific to these Romance languages and which are commonly attested in monolingual corpora, are never used in German, e.g. VOS order appears in French utterances of French-German bilinguals, but not in their use of German, neither during this early period nor later. What matters here, and what is essential for the single system *versus* dual system controversy, is the finding that the differences in word order patterns used in the two languages of bilingual children begin to appear as soon as they start using multi-word utterances, usually around age 1;10 when their MLU attains a value of approximately 1.75. In other words, the average utterance, at this point of development, contains less than two words. For obvious reasons, it is not possible to establish an earlier moment in linguistic development at which any reasonable generalizations could be made concerning the acquisition of syntax. One may thus conclude that the differentiation of grammatical systems happens very early and apparently with ease. Analyses of the acquisition of other grammatical phenomena confirm this conclusion, e.g. negative constructions in Basque-Spanish and in German-French children or the omission of subjects in cases where only one of the languages is a null subject-language (Italian-German, Portuguese-German). In each of these cases, bilingual children behave like their monolingual counterparts in each of their languages.

In summary then, the available evidence favors very strongly the dual system hypothesis. Morphosyntactic systems can be shown to be differentiated by children acquiring two languages simultaneously as soon as the earliest pieces of empirical evidence for a productive use of syntax

and morphology become available. Note that most of the studies dealing with these questions are based on data from the production of spontaneous speech. It is very likely that more extensive research on language comprehension will be able to show that differentiation of grammatical systems occurs even earlier than towards the end of the second year. Moreover, although more research is still needed, analyses of phonological development in bilinguals suggest that differentiation of phonological systems happens with similar ease and that it precedes chronologically the separation of syntactic systems. In fact, it is not implausible to assume that language differentiation is initiated and enhanced by phonological bootstrapping into two distinct systems.

Autonomous or interdependent development

Recall that it has been claimed that the simultaneous acquisition of two or more languages can be qualified as first language development in more than one language. This claim is based on the assumption that the course of development in each of the languages of bilingual children does not differ qualitatively from the acquisition of the respective languages by monolinguals. So far, in view of what has been discussed in the previous section, one can conclude that this claim has been corroborated - neither the rate of acquisition nor the kind of language mixing observed in bilingual language use constitute serious evidence against it. Most importantly, there is broad consensus on the issue of early grammatical differentiation, and this is a necessary prerequisite for qualifying bilingual acquisition as first language development.

The fact, however, that the initial phases of bilingual development are qualitatively not distinct from what is observed in monolingual first language acquisition, is not sufficient to conclude that the course of development is essentially the same in monolingual and multilingual acquisition. If it can be shown that during later developmental phases bilingual acquisition is characterized by cross-linguistic influence, it cannot be excluded, *a priori*, that such interactions will

result in qualitative differences, as compared to monolinguals. Importantly, possible influence of this sort is not restricted to transfer or interference, as discussed in research on L2 acquisition. Rather, as Paradis & Genesee (1996) have pointed out, grammatical interdependence in acquisition might lead to acceleration or delay of development as well as to transfer. This, however, could indeed result in qualitative differences, as compared to monolingual development after all. Take the example of developmental sequences again, introduced above as characterizing qualitative similarities and differences between various types of acquisition. If certain grammatical devices are acquired earlier in some languages than in others, the availability of such grammatical means in one language might trigger in bilingual children the acquisition of corresponding ones in the other language. In other words, interdependent developments need not have negative effects, as is sometimes conveyed by notions like transfer or interference; rather, both acceleration and delay are imaginable as well. Most importantly, however, both might cause alterations in developmental sequences. Since, by definition, such sequences specify strictly ordered and irreversible successions of phases, each defined by the emergence of grammatical phenomena previously not used productively by the child, earlier as well as later emergence of one of the defining phenomena, resulting from the influence of the respective other language of a bilingual person, could have the effect of reordering a sequence and thus of qualitative change in bilingual as opposed to monolingual first language acquisition.

In view of these potentially important consequences, interdependence constitutes one of the major topics of current research on bilingual acquisition. Interestingly, some of the results obtained so far confirm that the three types of cross-linguistic development do occur, but qualitative alterations of the sort mentioned have not been found to date. In fact, rather than attesting to differences in the development of grammatical knowledge, these research results suggest that cross-linguistic influence causes it to be used more or less frequently during a given developmental phase. Another possibility is what has been referred to as a “temporary pooling of resources”, as

suggested by the Bilingual Bootstrapping Hypothesis proposed by Gawlitzek-Maiwald & Tracy (1996). The idea here is that if each language develops at a different pace, the more advanced system will boost the development of the less advanced. Thus, although the two grammars are seen as developing independently, the child is said to occasionally use sentences consisting of grammatical constructions imported into the use of the language which lags behind in development. This hypothesis remains controversial. Note, however, that independently of whether one agrees with this concept of bilingual bootstrapping, it refers to a phenomenon which surfaces only in specific contexts. This reveals the importance of defining those factors which favor cross-linguistic influence. One crucial variable appears to be the fact that the two languages do not develop at the same pace. Other relevant factors suggested in the literature are consistency of parental input, language dominance, and structural properties of the languages involved. What transpires quite clearly from this discussion is that none of these factors can explain the observed types of language use in a satisfactory fashion; see also the comments on dominance, above. A major problem for all these approaches is that only some of the children who can be characterized by one or more of these factors actually do show signs which might support the idea of interdependence. This suggests that they capture, at best, necessary but not sufficient requirements for cross-linguistic interaction to happen, and also that, in all likelihood, additional factors favoring interdependence still remain undiscovered.

Some of the most promising results in this debate have been obtained by focusing on structural properties of the two languages which are claimed to exhibit signs of interdependent developments. The basic idea behind these investigations is that there exist structural domains which are particularly prone to cross-linguistic influence. Several authors have explored the possibility, for example, that structural areas in which the two languages overlap are the ones where interdependence is most likely to be observed. Moreover, it has been argued that it is structural ambiguity in one of the bilingual's languages what makes such areas vulnerable for cross-linguistic interac-

tion. The term “ambiguity”, as it is used here, refers to constructions which, analyzed by means of developing grammars, appear to allow for more than one grammatical interpretation. If, then, the other language overlaps in surface constructions with the one exhibiting ambiguity and the unambiguous one provides strong positive evidence in favor of one of these options, bilingual learners are predicted to carry over the unambiguous solution to the other language. Müller & Hulk (2001) who develop this approach, interpret this as a case of unidirectional influence, independent of dominance and other more general properties attributed to one of the languages. They view this as a kind of “indirect” influence of one language on the other, as opposed to transfer which represents direct influence. As an illustration, they discuss the omission of objects in child language. In Germanic languages like German and Dutch, target deviant omission of objects is not uncommon among monolingual children; in Romance languages like French and Italian, on the other hand, this happens much less frequently. A possible explanation refers to the fact that the Germanic languages allow for topic drop in adult language use, i.e. elements placed in initial position can be omitted if they are identified by the context; in Romance languages, this phenomenon is restricted to a small set of verbs. This may lead children, during early phases of acquisition, to employ a pragmatic strategy by which empty elements are licensed via discourse. The use of this strategy fades out as syntactic knowledge develops which ultimately excludes this option. In the Germanic languages this happens later than in Romance because topic drop in adult language use offers apparent support for discourse licensing of empty categories. Bilingual learners are said to transfer this phenomenon from the language offering unambiguous input into the one with apparently ambiguous constructions. Hypotheses like this one, about direct and indirect cross-linguistic influence in bilingual children, offer sophisticated accounts of interdependent developments. Müller & Hulk (2001) propose, in fact, a generalization which, if correct, promises to lead to a deeper understanding of the mechanisms underlying these observations. They suggest that ambiguity of overlapping constructions alone will not suffice for the triggering of cross-linguistic interaction. Rather, only very specific structural domains are vulnerable, in

this sense, namely the interface levels where, according to grammatical theory, syntax interacts with other cognitive systems. In syntactic terms, the most likely candidate is the so-called C-domain, i.e. the structural level of the CP.

In conclusion, one can say that the issue as to how cross-linguistic influence might determine the course of acquisition in the two languages of bilingual children remains open to explanation. Three possibilities are suggested in this debate, namely transfer, delay and acceleration of the pace of development. In addition, such influences may also affect the frequency of use of specific structures. Importantly, the evidence currently available suggests that bilingual first language acquisition is not characterized by interdependent development of a type which would alter developmental sequences. Consequently, even if cross-linguistic interaction is confirmed as a phenomenon habitually found in the acquisition of bilingualism, it appears to refer to quantitative rather than qualitative properties of this type of language development. In other words, it does not constitute evidence against the claim that the simultaneous acquisition of two languages should be qualified as first language development in each of the languages acquired.

Successive acquisition of bilingualism: Maturation and age

It has been argued above that one of the major findings of the research on child bilingualism is that the simultaneous acquisition of two or more languages can be characterized as an instance of first language development in each of the child's languages. This by now largely uncontroversial statement is mainly based on the study of bilingual development in children who are exposed to both languages since birth. The question, however, as to whether the same is also true for children acquiring their two or more languages successively is more controversial. The problem addressed here relates to the role of age and maturation in language development. The crucial issue on which this controversy hinges is whether the human language faculty or, more precisely, the

“language making capacity” is available indefinitely or whether it becomes accessible as a result of neuronal maturation and remains accessible only during a limited age period. If the latter view is correct, it follows that, if the onset of acquisition of another language occurs after such a *critical period*, the prediction is that there will be qualitative differences in the course of acquisition as well as in the grammatical knowledge ultimately attained, as compared to simultaneously acquired languages or monolingual first language acquisition. Importantly, the existence of a critical period for language development has significant implications not only for the acquisition of bilingualism but also for situations in which children do not have full access to the appropriate linguistic environment from birth onwards. The most dramatic cases are undoubtedly those where monolingual development is significantly delayed or interrupted e.g. children growing up in isolation. But this issue also becomes relevant, for instance, when children are deprived, in part or totally, of normal exposure to language, e.g. deaf children who are not exposed to sign language. Although important questions still remain unanswered, the evidence gathered so far suggests strongly that the human language making capacity is, indeed, subject to maturational changes resulting in a critical period for language development. It is therefore necessary to explore the consequences of the critical period hypothesis (CPH) for the acquisition of bilingualism.

In its classical version developed by Lenneberg (1967), the critical period hypothesis claimed that native competence cannot be attained by mere exposure if the onset of acquisition happens after a certain age. Although it had to be modified in some respects, e.g. the claimed causal relationship between lateralization and the critical period is wrong, this hypothesis has proven to be correct; see Hytlenstam and Abrahamsson (in press) for a summary of the state-of-the art on this issue. An important modification of the original hypothesis concerns the age period, i.e. what may count as “a certain age”, as mentioned above. This is still a particularly controversial issue, but it is obvious that the initial suggestion of a critical period ending approximately during pu-

berty has to be abandoned. Note that the CPH does not specify a point of development at which the optimal age for language acquisition ends. Rather, it is generally understood as referring to an extended period, characterized by an abrupt onset, followed by a period which can be qualified as the optimal age (peak), and subsequently by a period of gradual offset. The issue is further complicated by the fact that the various components of grammar are affected by these changes during different age spans, e.g. phonological knowledge appears to become inaccessible before syntactic knowledge – in fact, subcomponents of phonology seem to fade out at different points of development. Allowing for a certain amount of individual variation, one can tentatively suggest that the peak begins shortly before the age of two years, and the gradual decline sets in before the age of five; the critical period then ends during an age span ranging approximately from age seven through ten years.

More linguistic and neuropsychological research is needed in order to verify whether the age periods given here are indeed correct. But independently of whether the proposed age limits need to be modified or not, it can be deduced from the critical period hypothesis that one should distinguish between three types of bilingual acquisition: 1) simultaneous acquisition of bilingualism (2L1), if the child begins to acquire two or more languages during the first three or four years of life; 2) child second language (L2) acquisition, if the onset of acquisition of the second or further language happens between ages five and ten; 3) adult L2 acquisition, after the age of ten. Note that this classification of three acquisitional types hypothesizes qualitative differences with respect to the course of acquisition and the ultimate attainment by the three types of bilinguals. Whether this is indeed the case needs to be decided in the light of empirical research investigating linguistic and neuropsychological aspects of bilingualism acquired during different age ranges. Let us briefly look at what is reported from this type of research, in order to be able to assess the well-foundedness of these claims.

In the section on simultaneous acquisition of bilingualism above, it has been argued that this type of acquisition represents a case of multiple first language development; however, these children had been exposed to more than one language from birth. According to the typology of bilingualism based on the critical period hypothesis, successive acquisition of bilingualism during early childhood, i.e. when a child is exposed to one or more additional languages within the critical period, should be qualified in the same way. In other words, multiple first language competence should be attainable if the child is exposed to more than one language before the beginning of the offset phase of the critical period. Some authors, however, have claimed, in contradiction to this prediction, that successive acquisition of bilingualism will necessarily result in substantial competence differences, as compared to those cases in which children are exposed to their languages from birth. Our discussion of this controversy can be brief since the available empirical evidence is so scarce that it is impossible to draw serious conclusions. The little we know about this issue is sufficient to allow us to speculate that exposure to two or more languages during the optimal age for language development is a necessary but not sufficient condition for acquiring a native (L1) competence. This speculation is motivated by the fact that some studies report that severely limited intake during the first two years of life, e.g. due to temporary hearing impairment, may result in certain deficiencies of grammatical knowledge which, during later childhood years, can still be detected in tests although they are not apparent in ordinary language use. If it can indeed be corroborated that seriously reduced access to the input offered in the child's linguistic environment can have negative consequences for grammatical development, the question should be asked whether this might also happen in the acquisition of the second or third language in situations of successively acquired languages in early childhood. In fact, a similar problem could arise when one of the bilingual's languages is much "weaker" than the other one(s). It is well known that bilingual children sometimes use one of their languages more reluctantly or that they avoid using it altogether during several months although they interact normally in response to that language. Limited production need not, of course, indicate a lack of knowledge, but the pos-

sibility cannot be excluded that this is the case. Some authors have even suggested that a “weak” language in 2L1 acquisition might be acquired like an L2. Unfortunately, this issue is far from being settled, but, based on the limited evidence available, it is indeed imaginable that the development of grammatical knowledge might not lead to full native competence if, during the optimal age period, certain triggering data are not accessible at the critical moment, either because of delayed onset of acquisition or as a result of limited intake. For the time being, these speculative remarks must suffice; more research is needed on these issues.

Similar considerations apply in characterizing the second type of bilingualism, child second language acquisition, i.e. when the onset of the acquisition of another language falls within a period when the optimal age is past, but the learner still remains in the offset phase of the critical period. The onset for the acquisition of bilingualism thus falls within the range from five through ten years of age. The decision of whether child L2 acquisition must indeed be viewed as a distinct type of bilingual acquisition hinges on the question of whether it shares crucial properties with bilingual L1 development or rather with adult L2 acquisition. According to the critical period hypothesis outlined above, one should expect to find substantial differences between it and bilingual L1 development, but also some properties in which they resemble one another and differ crucially from adult L2. In order to be able to address this problem in a meaningful fashion, it is necessary to briefly comment on the latter, although this chapter is dedicated to the bilingual child.

Following the critical period hypothesis, the addition of one language or more after the optimal age, as in adult second language acquisition, implies that the human language making faculty is no longer available to the learner, at least not in the same way as during early childhood. This does not mean, of course, that language acquisition is not possible, any more. Rather, it suggests that learners have to resort to other cognitive capacities in order to develop a knowledge system about that language. Moreover, given that, in case of successive acquisition of bilingualism, the

language making capacity of an individual has already been activated at least once, subsequent language acquisition might, in principle, draw on this previously acquired knowledge and could thus proceed like in those instances which happen during the critical age period. Assuming this perspective, one can predict that L2 learners' knowledge about the target grammar constitutes a hybrid system, partly made up of an L1 type competence and partly consisting of generalizations about surface properties of L2 utterances directly observable in the primary linguistic data.

In the literature on second language acquisition, one finds, in fact, a fairly broad consensus on that adult L2 acquisition differs in a number of ways from (monolingual) L1 development. The two types of acquisition differ in, among other things, the following properties: 1) The initial state and very early phases are clearly different, presumably because, in L2 acquisition, previously acquired linguistic knowledge can be activated, possibly as a result of transfer of grammatical knowledge, and certainly in terms of language processing mechanisms (parser, formulator) which are shaped by previous linguistic experience. 2) In both types of language acquisition one finds strictly ordered acquisitional sequences. These are not, however, identical in L1 and L2 acquisition. 3) As opposed to the relative uniformity of L1 developmental patterns, the course of L2 acquisition is characterized by a considerable amount of variability across learner types as well as across individual learners. 4) Leaving pathological cases aside, in monolingual as well as in bilingual first language development, all children attain complete competence in the target grammar. In L2 acquisition, it is only exceptionally the case that learners reach a level of L2 knowledge allowing them to behave linguistically in such a way as not to be distinguishable from native speakers.

Whereas many L2 researchers will probably not object to the points listed here, there is no consensus as to the explanations of such differences in terms of the underlying knowledge available to learners. The main point of disagreement concerns the question of whether L2 learners con-

tinue to have access to the language making capacity of the child, as mentioned above. Much of this discussion over the past years has been couched in the framework of the theory of Universal Grammar (UG), assuming that UG accounts for the innate “knowledge” of L1 learners at the initial state of L1 development, i.e. the core of grammatical principles attributed to the language making capacity. If this extensive debate on the accessibility of UG in L2 acquisition has not led to consensual solutions, it is partly due to the fact that there is little agreement on what counts as empirical evidence in favor or against UG accessibility. Still, some progress has been made in this debate, in that “all or nothing” claims tend to be abandoned in favor of more sophisticated approaches inquiring which aspects of grammar are most likely to become inaccessible. Note that UG is conceived as comprising invariant principles which apply uniformly to all grammars of human languages, whenever the phenomena to which the principles apply, exist in the grammar of a given language, as opposed to parameterized principles which are underspecified by UG, in the sense that they offer two (or possibly more) options, e.g. whether the subject of a sentence may be omitted or whether it must be phonetically realized. Thus, grammatical acquisition requires fixation of parameterized principles to one of the parametric options (setting the parameter to one of its values). In addition, the appropriate invariant principles need to be instantiated in the developing grammar and language specific properties of the target grammar need to be learned inductively. Arguably, it is the parameterized principles of UG which represent the type of grammatical knowledge which is subject to maturational change since they define those aspects of grammar which are situated at the interface level where genetically transmitted information interacts with knowledge based on experience. It has been argued, on the other hand, that invariant principles remain available permanently; according to this view, they are triggered infallibly if a structure of the target grammar falls into the scope of their applicability. Language specific properties, finally, must be learned by experience, independently of the innate linguistic knowledge specified by UG principles, and this is obviously possible during the critical period as well as afterwards.

Based on these ideas, one can sketch a scenario for L2 acquisition which allows one to formulate a number of empirically testable hypotheses about underlying similarities and differences between successive development of bilingualism and L2 acquisition. UG accessibility during the critical period for language acquisition implies that parameterized principles continue to be accessible and parameter values not instantiated in the previously acquired grammar can still be set on the value required by the target system. In L2 acquisition past the optimal age period, invariant principles of UG may still be expected to guide the acquisitional process, since these principles are not subject to maturational change. With respect to the acquisition of language specific features, not constrained by UG, no significant differences between L1 and L2 are predicted to show up in the course of acquisition, either. Qualitative difference between the two types of language acquisition should become apparent, however, when it comes to the instantiation of parameterized principles in the developing grammars. Since this kind of information is claimed to become inaccessible, parameter values not activated during L1 acquisition cannot be retrieved, anymore. This applies to parameters not instantiated at all in the previously acquired language as well as to parametric options not activated in the L1 grammar. Only the value to which a parameter has been set in the L1 is still available in L2 acquisition and might be transferred to the L2 system, but it cannot be “reset”, in case L1 and L2 differ with respect to the appropriate parameter value. Note that this does not mean that the phenomenon in question cannot be acquired anymore. Rather, it follows that L2 learners need to learn the respective target properties in the usual sense of the term, i.e. inductively and by trial and error, whereas, in L1 development, knowledge is available prior to experience and must be triggered by exposure to the data. Thus, given that, according to this scenario, L2 knowledge is in part constrained by UG principles and in part the result of learning of surface properties of the target language, it may indeed be characterized as a hybrid system, as suggested above.

In sum, following this approach, the essential difference between L1 and L2 acquisition is that parameterized grammatical knowledge is acquired, in part, by triggering the setting of parameters to specific values in L1, whereas in L2 only learning of the corresponding surface phenomena is possible. Interestingly, these two acquisitional mechanisms are empirically distinguishable. One of the differentiating properties is that the L1 development of grammatical structures is guided by task-specific principles provided by UG. This not only accounts for the fact that there exist developmental sequences, but also that they are uniform across learners and that they lead to full grammatical competence. Moreover, parameters refer to abstract grammatical features, each motivating the presence of a number of apparently unrelated surface phenomena; the setting to a specific value therefore leads to the chronologically simultaneous emergence of a cluster of constructions in the language use of the child. L2 learners, on the other hand, acquire these structures individually, if at all. These and a number of further empirically detectable characteristics make it possible to distinguish the different types of acquisition.

Let us, then, return to child L2 acquisition. It has been suggested, above, that, following the critical period hypothesis, one should expect to find substantial differences, as compared to monolingual as well as bilingual L1 development, since the onset of acquisition happens after the optimal age. In the light of what has been said about the role of triggering the setting of grammatical parameters for language acquisition, one can now ask whether the kind of empirical evidence alluded to before makes child L2 acquisition look more like L1 or like L2. Again, the available results from research studying children during the crucial age range between 5 and 10 years are not conclusive, especially since some of the crucial pieces of empirical evidence mentioned above can only be obtained in longitudinal studies. Moreover, very few studies contrast child L2 with bilingual L1 acquisition; but is this sort of contrast which is most telling, for in comparisons of L2 with monolingual acquisition, observed differences could be due to the presence of another language. By comparing simultaneous with successive acquisition of bilingualism, i.e. 2L1 with

L2, this difference is minimized, and it becomes plausible that such differences are caused by factors related to the age of the learners. With this *caveat* in mind, one can nevertheless formulate a preliminary hypothesis. The available evidence suggests, in fact, fairly strongly that child L2 acquisition shares most properties with adult L2 acquisition. This is true for the widely acknowledged differences between L1 and L2 acquisition, mentioned earlier, i.e. concerning the initial state and early phases of acquisition, the kinds of acquisitional sequences found in longitudinal studies, the variability in the course of acquisition across L2 learners, and, less clearly, the incomplete ultimate attainment of grammatical competence. The strong resemblance between child and adult L2 is also confirmed by the lack of properties indicating parameter setting rather than ordinary learning, e.g. structures related to a specific setting of a parameter do not appear during one and the same acquisitional phase but are learned individually with varying success.

The tentative conclusion which may thus be suggested here claims that successive acquisition of bilingualism results in qualitative differences, as compared to monolingual as well as bilingual first language development, if the onset of acquisition falls into an age period after the optimal age for language learning. As for successive acquisition of bilingualism in childhood, exposure to another language during later childhood, i.e. approximately between age 5 and 10, can indeed be considered as child L2, resembling more adult L2 than bilingual L1 development. If, however, bilingual acquisition begins during early childhood, e.g. before the age of 5, it seems to be essentially identical to simultaneous acquisition of two first languages since birth.

It should be emphasized, again, that part of the findings reported here must be considered as preliminary, particularly the ones referring to successive acquisition of bilingualism during childhood. It is therefore important to note that some of these results gained by analyses of bilingual language use seem to be corroborated by evidence from neurophysiological and neuropsychological studies. The basic idea is that processing of grammatical structures activates certain task-

specific processes in the brain and that L1 processing relies on a dedicated left-hemispheric cerebral network, if language acquisition happens during the optimal age. In L2 acquisition, on the other hand, different and/or additional processes are triggered, and processing of this information involves different and/or additional areas of the brain, left and right-hemispheric, and highly variable across individuals. The question then is what happens in the case of simultaneous and of successive child bilingualism. Results of studies using haemodynamic (measuring blood flow) as well as electrophysiological (measuring neuronal activity) methods confirm the importance of age of acquisition for the functional specialization of language in the brain. Functional neuronal imaging experiments. e.g. functional magnetic resonance imaging (fMRI) suggest a common anatomical substrate and common pattern of activation for both languages acquired during early infancy; late bilinguals, on the other hand, exhibit spatial separation of the languages in the brain. Interestingly, it has been suggested that an increasing activation of the right hemisphere can be observed if the onset of acquisition of a language happens of the after age four. In sum, although much more research is needed, especially with bilinguals who acquired their languages simultaneously since birth or successively during early childhood, evidence compiled by behavioral as well as by neurophysiological investigations emphasize the role of maturation and age for the successive acquisition of bilingualism. Only if the second language is acquired during early infancy, is it likely to result in a native-like competence, much like in the simultaneous acquisition of bilingualism since birth.

Summary and conclusions

The bilingual child has been attracted the attention of a rapidly increasing number of research studies, especially over the last 25 years. One important result of these investigations is that they have established, beyond reasonable doubt, that children acquiring two or more languages from birth are able to differentiate the grammatical systems of their languages from very early on and without apparent effort. The subsequent course of acquisition proceeds through the same developmental phases as those observed in the respective monolingual children. The overall rate of acquisition in each of these languages is also comparable to that of monolinguals, i.e. it falls within the range of what is generally regarded as normal. One can thus conclude that bilingual acquisition is not different qualitatively from monolingual first language development and leads to the same kind of grammatical competence. This does not mean, however, that the bilingual child is “two monolinguals in one person”. Rather, bilinguals acquire abilities and skills in using each of their languages which reflect specific needs and preferences; this includes the capability of switching between languages in a systematic fashion, constrained by social requirements as well as by grammatical restrictions.

But although bilingual development has been shown not to be qualitatively distinct from monolingual acquisition, the question of whether bilingual acquisition is typically characterized by cross-linguistic influences or whether it proceeds in an autonomous fashion in each of the languages being acquired, is still open for discussion. A preliminary summary of this debate indicates that possible interdependent developments may result in an acceleration or delay in the acquisition of specific constructions, or in an increase or decrease of the frequency of use of particular structures. This does not, however, seem to result in qualitative changes of either the course or the ultimate success of grammatical acquisition. In fact, even among researchers who emphasize the importance of cross-linguistic interactions, there appears to be a general consensus that the effects are, at best, temporary and do not affect the nature of the ultimately attained competence.

What has been said so far, refers to the simultaneous acquisition of bilingualism from birth. With respect to the successive acquisition of bilingualism, the picture is much less clear. There is good evidence speaking in favor of the critical period hypothesis according to which the acquisition of a further language beyond the optimal age range will lead to substantial differences in the course of acquisition as well as in the grammatical knowledge ultimately attained. This hypothesis is, however, not generally accepted with respect to adult second language acquisition, and it is even more controversial when it comes to contrasting child L2 acquisition with monolingual or bilingual first language development. The preliminary conclusion which has been drawn in this chapter states that due to brain maturation, significant changes happen around the age of five; consequently, both child as well as adult second language acquisition differ in important respects from those cases where the onset of acquisition occurs during the earlier age ranges. Admittedly, however, much more research is needed on this issue. As for successive acquisition of bilingualism during the first three or four years of life, we know even less. It appears that onset of acquisition during the optimal age is a necessary but not sufficient condition for the development of a native L1 competence. But due to the limitations of our current knowledge, this is a rather speculative conclusion.

The research summarized in this chapter has, nevertheless, attained a number of important goals, notwithstanding the gaps of knowledge about some important issues. Most importantly, it has demonstrated that the simultaneous acquisition of two or more languages from birth qualifies as an instance of multiple first language acquisition in that the bilingual child attains the same type of grammatical knowledge as the respective monolinguals. Native competence seems attainable in successive acquisition of bilingualism, too, if it happens during early childhood, although this issue still requires more thorough investigation. These research results have significant implications beyond the immediate concern of gaining a better understanding of language acquisition in

the bilingual child. On the one hand, concerns about possible problems of bilingual children have been shown to be unwarranted, thus eliminating reasons for concerns by parents and educators. On the other hand, these results have implications for linguistic theories which need to account for this capacity for multilingualism. Clearly, the human language faculty has an endowment for multilingualism.

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See also 4 SECOND LANGUAGE ACQUISITION AND BILINGUALISM

See also 6 STRUCTURAL CONSTRAINTS ON CODE-SWITCHING