

Second Language Acquisition in Early Childhood*

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1. Simultaneous versus successive bilingualism

There is a broad consensus in the research literature on the acquisition of bilingualism that the *simultaneous* acquisition of two (or more) languages can be qualified as an instance of bilingual first language (2L1) development; see de Houwer (1995) for a summarizing discussion of this issue. 2L1 children differentiate from early on the linguistic systems of the languages to which they are exposed (Meisel 1989), they proceed through the same developmental phases as the respective monolinguals, and they are able to attain native competence in each of their languages; see Meisel (2001, 2004) for state-of-the-art summaries of the relevant research. It therefore seems to be justified to assert that the human Language Making Capacity (LMC) constitutes an endowment for multilingualism.

If, however, two or more languages are acquired *successively*, a very different picture emerges from the literature reporting on investigations of this type of language acquisition. Although it is not possible to summarize in a few words the long and ongoing debate on similarities and differences between first (L1) and second (L2) acquisition, successive

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acquisition of bilingualism clearly entails substantial differences, as compared to monolingual as well as bilingual first language development, if the onset of acquisition happens at age 10 or later, i. e. in what is commonly referred to as adult second language acquisition (aL2); see Hawkins (2001) or White (2003) for comprehensive summaries of L2 research. That such differences exist is, in fact, not a matter of controversy. Let me mention only some of the most significant ones: i) the initial states of the developmental processes differ in important ways (possibly due to transfer from the L1 to the L2), ii) invariant developmental sequences are attested in L2, as well, but they are not the same as the ones through which the respective monolinguals proceed, and iii) L2 learners exhibit a much larger range of variation, across individuals and within learners over time, than (2)L1 children, with respect to the rate of acquisition as well as in the use of constructions conforming to the target norms, and also in terms of the level of grammatical competence which they ultimately attain. In fact, it is doubtful whether L2 learners are at all capable of reaching native competence – the overwhelming majority of aL2 learners certainly does not.

There can thus be no doubt that age of onset of acquisition (AOA) does make a significant difference, distinguishing successive language acquisition from both monolingual and bilingual L1 development. Does this mean, then, that the LMC is not fully accessible any more? Opposing answers are given in reply to this question. The issue here is whether these observable differences are fundamental ones, i. e. whether they reflect different kinds of grammatical knowledge. In what follows, I will assume that (2)L1 and aL2 differ indeed in fundamental ways. This is argued to result from maturational changes to which the LMC is subject. Assuming this to be correct, two issues arise immediately, concerning a) the age range during which such changes happen, and b) the problem of identifying the grammatical properties affected by them. In other words, the discussion will focus on successive language acquisition in early childhood, with the goal of determining the approximate age range as of which AOA is likely to lead to similarities between the learner's language and aL2, while distinguishing both from (2)L1, thus justifying the classification of these children as child L2 (cL2) learners. Moreover, I will attempt to identify some of the grammatical properties affected by early maturational changes, thus characterizing early L2 acquisition.

The present paper is structured as follows. In section 2, I will try to explain the decision to opt for the Fundamental Difference Hypothesis (FDH). Arguing in some detail in support of this hypothesis would be a task clearly beyond the scope of this paper. But I can attempt to show briefly that assumptions and claims made by the FDH are consistent with recent neurocognitive findings on bilingual acquisition as well as

with linguistic descriptions of cL2 acquisition. Following the view that maturational changes of the LMC result in a number of sensitive phases, I will argue that some of the optimal phases during which grammatical properties are easily and successfully developed by mere exposure to the primary linguistic data begin to fade out as early as around age 4;0. I will further hypothesize that these effects are not only caused by a decreasing accessibility of parameterized principles of Universal Grammar (UG); rather, language-specific learning mechanisms also seem to be affected by such changes. None of these considerations, however, allow us to formulate principled predictions as to which grammatical properties are affected at this early age.

In section 3, I will therefore review very briefly some recent findings on child L2 acquisition and report on the results of a study analyzing the acquisition of French by German children, focusing on the grammar of verbal constructions and, in some more detail, on the acquisition of grammatical gender. My conclusion is that, contrary to previously published claims, inflectional morphology represents one of the areas in which cL2 resemble aL2 learners and differ from (2)L1 children.

2. Fundamental differences between first and second language acquisition

The fact that L2 acquisition differs from (2)L1 development in a number of substantive ways is, as mentioned above, not controversial among most L2 researchers. Yet although the set of features distinguishing the two types of acquisition includes some of the defining properties of first language development (see Guasti 2002), most importantly the uniformity of acquisition across individuals and the fact that, except for pathological cases, it is always successful, the theoretical interpretation of these facts has been a matter of much controversy. For some authors, the Language Acquisition Device (LAD) remains fully accessible to L2 learners, and the observed differences in comparison to L1 should be explained in terms of secondary factors influencing the course of acquisition. The Fundamental Difference Hypothesis, as developed by Bley-Vroman (1990, to appear) and others, on the other hand, suggests that the LAD does not remain fully accessible indefinitely. Rather, as will become apparent below, it can be argued that UG as the centerpiece of the LMC, becomes partially inaccessible as a result of neurological maturation. Given that the above mentioned defining properties of L1 development, e.g. success, uniformity and rate of development, are commonly explained as resulting from the fact that principles of UG constrain the developmental process, partial unavailability of these principles indeed seems to be a plausible account for the L1-L2 differences. Moreover, by referring to maturational changes as causal factors for

changes in the LMC, a relationship is established between linguistic and neurocognitive developments which can, in principle, be tested empirically.

In this section, I will first summarize some findings relating to the issue of maturation, focusing on the age question, before addressing the question of which linguistic properties distinguish L1 and L2, adopting an updated version of the FDH. The following remarks on the FDH are intended to spell out some of its consequences for a possible explanation of child L2 acquisition.

2.1. Maturation changes

Since the approach which I am following here postulates that changes in the LMC in the course of childhood development make it impossible for the L2 learner to acquire a complete native grammatical competence of the target language, it is necessary to address briefly the question of what causes the changes to happen which eventually result in fundamental differences between (2)L1 and L2. We also need to determine the age ranges concerned, since this issue is obviously the crucial one when it comes to formulating hypotheses on whether cL2 will be closer to aL2 or to L1. Note, incidentally, that if one was to reject the idea of fundamental differences in the linguistic knowledge of L2 as compared to L1 speakers, the task of explaining the L1-L2 differences becomes even more pressing. It is therefore rather surprising that advocates of the Full Access to UG Hypothesis seem to have to say very little if anything on this issue; see White (2003) for a state-of-the-art discussion.

As alluded to above, the theory of L2 acquisition which I advocate identifies maturational changes in the neural system as the major causal factor for differences in linguistic knowledge observed in successive as compared to simultaneous language acquisition. I am thus adopting a modified version of the Critical Period Hypothesis (CPH); see Meisel 2007, 2008b. With respect to the current debate on child L2 acquisition, the two most important modifications of the original version of the CPH, as suggested by Lenneberg (1967) and others, concern the age at which maturation possibly affects the LMC and the concept of a critical period itself.

As for the latter, it has recently been suggested that one should expect to find several sensitive periods; see Locke (1997), among others. This is in line with the observation that it is clearly not ‘language’ which is affected by maturational changes, but certain domains of grammar; as for the question of which properties of grammar are concerned, see section 2.2, below. Past research suggests, indeed, that the various subcomponents of grammar – phonology, morphology, and syntax – do not

follow the same developmental agenda; cf. Eubank & Gregg (1999). In fact, one should expect to find asynchronous developments, related to specific grammatical phenomena, even within these subcomponents. Consequently, critical period effects are better understood as clusters of sensitive phases during which the LMC is optimally prepared to integrate new information into developing grammars. Note that these sensitive periods are thus defined linguistically, i. e. in terms of the grammatical phenomenon which is best acquired during a given period and which, later on, will be acquired less successfully.

Unfortunately, however, to my knowledge little or nothing is known enabling us to link specific grammatical phenomena to well-defined neural changes. For the time being, it is therefore not possible to outline a developmental schedule based on neuro-physiological evidence, indicating which aspects of grammar will be affected by such changes at what point of development. Theories of grammar or of language processing do not fare much better. Although they do offer principled reasons for why specific properties of grammar are subject to maturational changes, see section 2.2, they are not of much help when it comes to drawing up a developmental schedule. I therefore believe that we need to adopt a combination of research strategies in order to gain deeper insights into the relationship between brain maturation and grammatical development. Crucially, language acquisition research will have to proceed inductively, trying to pin down as of which age of onset successive acquisition of languages will result in qualitatively different linguistic behaviour, and, most importantly, which aspects of linguistic knowledge are affected at which points of development. Linguistic and psycholinguistic theorizing can guide this search, pointing out the prime suspects likely to cause problems in L2 acquisition. Neurological research, on the other hand, seems to be better equipped to put the spotlight on certain age ranges during which major changes are likely to happen.

Since the major goal of this paper is to contribute to a characterization of early cL2 acquisition, I need to dwell a little more on the latter issue, i. e. the rather controversial age question. Let me first recall that maturational changes do not trigger abrupt effects. Rather, it is generally assumed that after a short *onset*, sensitive phases are characterized by an *optimal period* during which acquisition happens easily, triggered by mere exposure to the primary linguistic data, followed by a gradual *offset* during which the optimal period fades out. It is for this reason – not to mention further complicating factors such as individual variation – that we may hope to be able to identify only approximate age ranges, not precise ages. In discussing age effects, I am referring to this transition period when the optimal period begins to fade out.

It is long known that the frequently quoted age period at around 10–12 years, deduced from Lenneberg's (1967) original suggestions, does not qualify as a single critical period and not even as the most crucial age at which sensitive periods cluster. Long (1990) already concluded in his state-of-the-art discussion that major changes happen at around age 6–7. Some pieces of evidence suggest, in fact, that even at an earlier age of onset, native grammatical competence may not be attainable any more. Johnson & Newport (1989) were indeed among the first to point out that critical age limits may lie before age 7, possibly between ages 4–6. A more recent state-of-the-art survey presenting a careful discussion of the age question is offered by Hyltenstam & Abrahamsson (2003). Without going into more detail here, I conclude from these and similar studies that, although maturational changes affecting language development may happen at virtually every point of development, children proceed through periods during which sensitive phases for different grammatical phenomena cluster, thereby characterizing particularly crucial periods. Critical periods, thus defined, occur at around age 6–7, and probably also around age 4, i. e. during the last months of the fourth year and perhaps shortly afterwards.

In suggesting these age ranges, I rely primarily on neurological findings, in particular on studies using various neuroimaging techniques. They start from the idea that changes in the functional organization of the brain over time should result in different *activation patterns* as well as in a different *spatial organization* of the brain in language processing if the onset of exposure to a language does not fall within the optimal period. Supporting evidence for this assumption has indeed become available over the past years through studies using electrophysiological (electroencephalography, EEG) as well as various haemodynamic methods (e.g. functional magnetic resonance imaging, fMRI). Modified activation patterns are primarily expected to be found in areas of the brain which are typically involved in language processing, most importantly Broca's area and Wernicke's area; see Friederici (2002).

A number of EEG studies demonstrated, indeed, that the spatial distribution of activation patterns in the left hemisphere changes at later ages of onset of acquisition, i. e. specialization in the left hemisphere is reduced, and the right hemisphere is increasingly activated; cf. Weber-Fox & Neville (1996, 1999), among others. Electroencephalography is a non-invasive method by which electrical variations induced by neural activity are recorded at the surface of the scalp. From these recorded variations event-related brain potentials (ERPs) are derived. The critical age ranges detected by Weber-Fox & Neville lie around 4 years and again around 7 years, i. e. if AOA happens at age 4 or later, this effect of more diffuse spatial distribution and increasing right hemispheric processing

becomes increasingly stronger. Importantly, such differences between L1 and L2 learners are only detectable if subjects are exposed to syntactically deviant sentences, whereas exposure to semantically ill-formed ones does not produce this type of effect. Weber-Fox & Neville (1999) concluded that “later learners utilize altered neural systems and processing of English syntax” (Weber-Fox & Neville 1999: 35). A functional dissociation within the neural basis of auditory sentence processing has, in fact, also been observed in a number of ERP studies; see Friederici (2002). Hahne & Friederici (2001), for example, report that L1 and L2 learners differ primarily in their processing of syntax.

Similar results have been obtained by studies using haemodynamic methods. They find differences with respect to spatial differentiation as well as intensity of brain activation between native speakers and L2 learners, and this refers again to morpho-syntactic, not to semantic or pragmatic processing. In functional magnetic resonance imaging, variations of cerebral activity are recorded as tomograms, i.e. slices through the brain measuring the regional cerebral blood flow (rCBF). This, in turn, is interpreted as reflecting regional brain activation. Dehaene et al. (1997), for example, find that processing of L2 relies on larger and spatially more diffuse networks than of L1, and they conclude that “[...] first language acquisition relies on a dedicated left-hemispheric cerebral network, while late second language acquisition is not necessarily associated with a reproducible biological substrate.” (Dehaene et al. 1997: 3809). The authors report on more brain activation in the temporal lobe and in the right hemisphere and generally more individual variation in L2-learners when compared to native speakers. Wartenburger et al. (2003) also elicited brain responses to syntactically and semantically well-formed and ill-formed sentences. They too find that brain activities depend on age of onset of acquisition (critical age around 6 years), but only in grammatical processing, not in processing semantic information. They controlled the proficiency of participants, and, interestingly enough, proficiency does not play a role in syntactic processing, whereas stronger effects of proficiency are detected in processing semantically deviant sentences. These authors conclude that AOA influences syntactic processing, whereas proficiency influences semantic processing.

In sum, neuroimaging studies speak in favour of the claim of functional differentiation, with syntax being dissociated from semantics and pragmatics. They furthermore support strongly the hypothesis that age of onset of acquisition is a major cause for the observed differences between L1 and L2 learners. They also confirm the claim according to which important changes happen around age 6–7, and some ERP results further show that crucial changes occur at around age 4. I interpret these findings as supporting the idea of multiple sensitive periods, some

of which seem to cluster during specific age ranges, especially at around age 6–7 and probably also at around age 4; cf. Meisel (1994). These neuropsychological findings thus strengthen the claim that substantive differences in the linguistic knowledge of children acquiring two or more languages successively, as compared to (2)L1 children, are likely to emerge as of AOA 4. Investigations of child L2 acquisition should thus focus on the age range from 4–8, approximately. As for the question of which grammatical phenomena are likely to be affected by maturational changes, we need to consult insights provided by linguistic and psycholinguistic research.

2.2. Linguistic effects of maturational changes

This brings me back to the Fundamental Difference Hypothesis. In section 1, above, I sketched out a research agenda based on the claim that observed differences between (2)L1 and aL2 learners reflect differences in the underlying grammatical knowledge, caused by neural maturation. In the preceding section, I summarized some research findings which not only support the latter idea but which also suggest earlier age ranges than those commonly assumed, during which major changes are likely to happen. Following these insights, my conclusion is that successive language acquisition can justly be referred to as child L2 acquisition if AOA happens around age 4. It is thus expected to share some features with adult L2 acquisition and to differ, in this respect, from (2)L1. I will therefore tentatively refer to learners who are first exposed to another language between ages 4 and 8 as child L2 learners. What is still lacking, however, is a principled account for the linguistic aspects of our problem, enabling us to formulate hypotheses about which properties of grammar may be affected by maturational changes, thereby substantiating the claim that L2 acquisition is characterized by at least partial inaccessibility of the LMC.

The idea that the language faculty which guides L1 development is not (fully) available anymore to (adult) L2 learners is, indeed, essential to the Fundamental Difference Hypothesis, as proposed by Bley-Vroman (1990). It reflects the debate on the role of Universal Grammar in L2 acquisition in the 1980's, when several researchers already objected to the assumption that L2 learners can make use of UG in essentially the same way as the L1 learning child; see, Clahsen & Muysken (1986). In his seminal paper, Bley-Vroman (1990) spelled out in considerable detail what he first termed the FDH. Quite obviously, some aspects of the original proposal had to be modified, based on two decades of empirical research, and certain arguments need to be reconsidered in the light of more recent theorizing; see also Bley-Vroman (to appear). But the main

thrust of this approach to L2 acquisition, I contend, is well taken and can contribute to an understanding of child L2 acquisition. In what follows, I limit my remarks to those points where I deviate from the original FDH and which are relevant for cL2.

According to the FDH, as I understand it, fundamental differences between L1 and L2 result from the fact that the “domain-specific acquisition system does not have the role in addressing the logical problem of foreign language learning that it has in child language learning.” (Bley-Vroman 1990: 4). Importantly, this does not entail that L2 acquisition becomes totally or partially impossible. Rather, the claim is that L2 knowledge is of a different kind, as compared to an L1 competence, because L2 learners need to resort to other cognitive resources (not domain-specific, but general problem-solving faculties) in order to compensate the ones which have become inaccessible. Note that the issue at stake here is not, as apparently assumed by some opponents of the FDH, whether it is possible for (some) L2 learners to acquire near-native proficiency; it rather concerns the nature of the underlying linguistic knowledge and the role of UG in the process of its acquisition. Bley-Vroman (1990) argues at some length that the ten differences between the two types of acquisition which he lists can plausibly be argued to follow from this fundamental difference, and the same seems to be true when it comes to account for the observable differences mentioned in section 1, or the set of distinguishing properties presented by Meisel (1991). To phrase it unambiguously, the hypothesized fundamental differences refer to the acquired knowledge about formal properties of the target language as well as to the process by which this knowledge is acquired. This does not, of course, exclude the possibility that a small minority of highly proficient L2 learners are able to perform in near-native fashion.

One important point on which the early version of the FDH needs to be revised, following more recent research results, concerns the critical age range which Bley-Vroman (1990: 9) sets at an even later age than Lenneberg (1967). Since I discussed this question in the preceding section, I will not reopen the case, here. Let me emphasize, however, that neuropsychological as well as linguistic (see 3, below) evidence strongly supports the claim that fundamental differences are likely to emerge already in early childhood and that the FDH can therefore be assumed to apply to cL2 as well as to aL2 acquisition. This is not to say that the two are identical in all or at least most respects. But in order to be able to identify the properties in which both differ from L1 and those in which they differ from each other, it is necessary to first address the question of which parts of grammar are affected at all by maturational changes.

According to the 1990 version of the FDH, aL2 learners do not have access any more to the innate domain-specific acquisition system. The functions of this LAD must be performed by other sources of knowledge, and L2 learners are assumed to rely on their native language knowledge as well as on general problem-solving systems. Interestingly, Bley-Vroman (1990: 14) does not equate the LMC with Universal Grammar, but distinguishes between UG and domain-specific learning procedures which enable a child to develop the grammar of the target language when exposed to the primary linguistic data (PLD); I will return to the latter below, in this section. Since both are said to become inaccessible, the aL2 learner is hypothesized to extract a “surrogate” (Bley-Vroman 1990: 16) for UG from his L1 grammar.

Subsequent research, however, leads me to favour a modified version of the Fundamental Difference Hypothesis according to which not all but only a subset of UG principles become inaccessible. Note that such an option is not excluded by the 1990 proposal; in fact, it is explicitly considered as a weaker version of the FDH. The plausibility of this alternative crucially depends on whether it is possible to define in a non-ad hoc fashion which parts of UG will be affected by maturation. One option meeting this requirement refers to the common distinction between invariant and parameterized UG principles; cf. Meisel (1995) for a discussion of the implications of parameter theory for language acquisition. Since parameters provide the learner with options offered by UG, and the choice between these options requires analysis of the PLD, setting parameters to one of the given values is a process which requires interaction between innate (i. e. available previous to experience) knowledge and knowledge gained by experience. In this respect it shares common characteristics with other phenomena subject to critical period effects; they are typically found at interface levels where genetically transmitted and acquired knowledge interact.

Towell & Hawkins (1994) and Smith & Tsimpli (1995) proposed, in fact, that only parameterized principles are concerned when fundamental differences between L1 and L2 acquisition emerge; a similar view is held by Eubank & Gregg (1999) and is considered as an alternative possibility by Bley-Vroman (1990: 20). Most interestingly, Smith & Tsimpli (1995) report on research evidence from which they conclude that only parameterized principles are subject to maturation. This is of particular importance, for it establishes the kind of relationship between linguistic and neural maturation assumed here. To be more precise, since parameters are defined as referring to functional categories, Smith & Tsimpli (1995) hypothesize features of functional categories, and only these features, to be subject to critical period effects. More specifically, it is argued that uninterpretable features become inaccessible in L2 acquisition;

see Tsimpli (2004). Crucially, it follows from these assumptions that L2 learners cannot ‘reset’ parameters. This proposal suggests, in fact, that where parameter settings differ between an L1 and a target L2, inaccessibility of uninterpretable features is compensated for by the assignment of interpretable features. In other words, although parameters of UG cannot be accessed directly, anymore, L2 grammars are nevertheless said to be constrained by UG. This is also the assumption of Towell & Hawkins (1994) who argue that parameterized principles merely become “progressively resistant to resetting” (Towell & Hawkins 1994: 126), rather than inaccessible.

Although these approaches describe possible scenarios for L2 acquisition, I want to maintain that in *some* cases, L2 learners will resort to non-UG conform solutions, as suggested by Clahsen & Musyken (1986), among others. In other words, since L2 learners do not have direct access to options provided by parameterized UG principles, cf. Meisel (2000), they cannot fix the value of a parameter not instantiated in L1, and they cannot ‘reset’ those parameter values in which the two grammars differ. Instead, as already mentioned, they have to make use of other cognitive resources in order to compensate for those not available anymore. Referring to interpretable features may not, however, suffice, in this case. Instead, they will have to rely on inductive learning where triggering of implicit knowledge has become impossible. In doing so, learners may rely on only fragments of structures, on shallow structures, or simply on linear ordering principles like adjacency, initial or last position in a sequence, etc; see Meisel (1997). As a point of illustration, consider the case of ‘subject-verb inversion’, commonly explained as an instance of verb raising to a functional head above TP. L2 learners seem to focus on linear order, instead, and in doing so, one option is to move the wrong element, i.e. the subject rather than the verb. The following is an example from the recordings with an Italian learner of German, Franco, age 31, who, at the time of recording, lived in Germany 10 years, never attending German language classes.

- (1) *Da hat sieben Kinder diese Frau*
 there has seven children this woman
 ‘So, this woman has seven children’

Note that the subject is not placed immediately after the finite verb but in final position, after the verb complement, resulting in a construction which deviates from target as well as from the L1 word order. Since most of the constructions of this type in the recordings with Franco lack verb complements, it does not become apparent that he seems to move the subject to the right, rather than raising the verb to clause second

position (V2), as required in German. If an analysis along these lines is correct, it follows that L2 learners incorporate operations into their L2 system which are not structure-dependent, i. e. a type which is not attested in native competences. This L2 knowledge thus contains these elements alongside with others constrained by non-parameterized principles of UG as well as with grammatical knowledge derived from the L1 grammar. Consequently, L2 knowledge conforms only in part to principles of UG. This is why L2 knowledge of the target language can be characterized as a *hybrid system*, drawing on domain-specific grammatical knowledge as well as tapping other cognitive resources.

In sum, I have argued that linguistic properties distinguishing L1 and L2 acquisition should be expected to emerge primarily in areas of grammar reflecting parametric choices. Following Smith & Tsimpli's (1995) proposal and subsequent work by Tsimpli & Mastropavlou (2007), this refers exclusively to uninterpretable features of functional categories, like, for example, the feature attracting the finite verb; this is located in different functional heads in V2 as opposed to non-V2 languages. In first language acquisition, exposure to the PLD triggers parameter setting, crucially in conjunction with the surface morpho-phonological paradigms which instantiate functional heads. L2 learners may thus be expected to exhibit specific problems with the acquisition of inflectional morphology associated with parameterized syntactic options dependent on the feature composition of functional categories.

I have furthermore argued that the FDH applies to child as well as to adult L2 acquisition, and this refers to children first exposed to the subsequently learned language at AOA around 4. Yet our current knowledge does not enable us to formulate specific predictions as to which grammatical phenomena are likely to be affected by maturational changes at such an early age. If I was to venture a speculative hypothesis, I would suggest that those properties which are acquired very early in (2)L1 development may already be well entrenched at the time of onset of cL2 acquisition and can therefore be expected to cause problems if the L2 target differs from the L1 setting. It is well known, for example, that the parameters responsible for the V2 effect are set very early, probably around or even before age 2;0 (years; months). This need not necessarily mean that they will also be the first ones to become inaccessible, but this seems to be a plausible possibility. Note that work on attrition suggests that, subsequent to parameter setting, the newly acquired grammatical knowledge requires a period of stabilization in order to remain available permanently; see Flores (2008). It may not be implausible to assume that, contrary to Clahsen & Muysken (1996), alternative parameter values continue to remain accessible during this period. This would also help to explain the fact that bilingual children acquiring two

languages simultaneously develop two first languages, not differing in their grammatical knowledge from the respective monolinguals.

Let me finally address one more issue concerning possible linguistic effects of maturational changes in the human Language Making Capacity. Although the debate on similarities and differences between L1 and L2 acquisition, at least among L2 researchers adopting a generative framework, has focused almost entirely on the role of UG in L2 acquisition, it should be obvious that the LMC comprises more than just UG which, as a property theory, may well be a central part of this capacity, but it cannot be *the* acquisition device; see Carroll (2001) who argues forcefully against such a view. In fact, White (1989) who maintains that UG remains accessible, suggests that learning mechanisms might not, referring to the subset principle. Remember also that Bley-Vroman (1990: 14) distinguishes two components of the LAD, UG and a set of domain-specific learning procedures. To illustrate this point, he refers to the ones suggested by Pinker (1984). The *operating principles* proposed by Slobin (1985) can arguably also be understood as discovery principles, serving a similar purpose. Clearly, these two classes of procedures are rather different in nature, and it will be difficult to come up with a coherent notion covering the various types of acquisition mechanisms. What matters for the present purpose, however, is that the LMC comprises not only *representational knowledge* (UG principles) guiding language development, but also *discovery* and *processing* mechanisms which are domain-specific, referring to abstract grammatical entities and structural properties of sentences, i. e. grammatical categories and relations.

In order to strengthen this point, let me refer to the impressive and steadily increasing number of research results obtained over the past 15 years or more which provides strong evidence in support of the idea that children, already during the first year of their lives and arguably even since prenatal exposure to language, focus on just those properties of linguistic utterances which are crucial for the discovery of formal properties of language in general and of the respective target languages, more specifically; see Guasti (2002, chapter 2) for an insightful summary of some of this research. It is important not to confound the fact that infants are sensitive to properties (phonetic, prosodic, etc.) of grammatical units (words, clauses, phrases) with the assumption that they have developed mental representations of such grammatical entities. This is why I refer to the principles enabling children to develop grammatical knowledge as discovery principles, distinguishing them from principles of UG which define properties of grammatical units. Both types of principles, however, can be argued to be part of the human LMC.

My tentative hypothesis then is that processing and discovery mechanisms are also affected by maturational changes. Whether, in this case, the

same causes are at work as with respect to representational knowledge, is a matter of speculation. A perhaps plausible guess is that in the case of these principles we may not have to do with decreasing accessibility of a module, but with the consequences of the fact that other cognitive modules have been developed which are now competing with the domain-specific one. This is reminiscent of a hypothesis originally proposed by Felix (1984). Success in L2 acquisition would thus depend to some degree at least on a person's ability to inhibit the competing non-domain-specific cognitive resources.

3. Child second language acquisition

Having summarized some evidence supporting the hypothesis that successive acquisition of languages will exhibit qualitative differences, as compared to monolingual as well as bilingual first language development, if children are first exposed to the second language at around age 4;0, I am finally in a position to address the question of which aspects of linguistic knowledge are likely to be affected by maturational changes at such an early age. In the preceding section, I argued that parameterized principles of UG should be expected to be subject to maturational changes. I also speculated that, although perhaps not dependent on the same processes of neural maturation, certain learning mechanisms, too, can plausibly be expected to change in the course of development. Yet none of these considerations allow us to formulate principled hypotheses about which linguistic phenomena, out of the set of those predicted to be subject to change, will be affected during early periods of cL2 acquisition. As stated in section 2.1, we have to proceed inductively in order to uncover the developmental schedule of early child L2 acquisition.

3.1. Child L2 acquisition as an under-researched topic

In view of the prolific research activities over the past 40 years or so, i. e. ever since L2 research focused on the learner and the acquisition process, it is truly surprising how little attention has been paid to child learners, first exposed to the L2 before age 10. Even if it was widely assumed that the LAD guiding L1 development continued to be accessible up to the age of 10 or longer, the fact that successive acquisition of languages differs from (2)L1 development was common knowledge too. Interestingly enough, cL2 acquisition had been actively investigated in the 1970's; see Lakshmanan (1994: 19f.) for a brief summary of this research, concluding that the child L2 learner was largely ignored since. This has changed only quite recently, as is evidenced by the detailed

treatment of some aspects of cL2 syntax by Unsworth (2005). Her summary of current knowledge about cL2 acquisition, most importantly with respect to similarities and differences as compared to aL2 learners on the one side and L1 development on the other, led her to the conclusion that cL2 resembles aL2 in some respects (L1 transfer, presence of functional categories), whereas findings on developmental sequences are inconclusive. This, of course, is problematic for our endeavour to determine the developmental schedule of early L2 acquisition.

The fact that we are dealing with contradictory results based, moreover, on only a limited number of studies highlights the need for more research in this area. Importantly, these studies should meet certain requirements not met by many of the previous ones. As is correctly pointed out by Schwartz (2004), we can only hope to characterize cL2 adequately, distinguishing it from (2)L1 and aL2, if the issue of the developmental course is dealt with separately from the question of whether L2 learners can ultimately reach native competence. She further suggests in her Domain by Age Model that we should not expect to be able to arrive at coherent results if we attempt to make statements about all domains of grammar at once; instead, inflectional morphology and syntax should be investigated separately.

In the present paper, I am not concerned with the issue of ultimate attainment, and in focusing on the course of development I will indeed consider the acquisition of morphology and syntax separately. Note, however, that the discussion in the preceding section led me to predict that inflectional morphology instantiating uninterpretable features of functional heads should represent a major problem for L2 learners. Quite obviously, this will have serious repercussions for the acquisition of parameterized syntactic options, given that setting parameters to specific values depends on the feature specification of functional heads. For aL2, this expectation is met. It has been observed repeatedly that aL2 is characterized by a dissociation of morphology and syntax (see, for example, Meisel 1991), e.g. non-finite verb forms can be raised into finite positions, a phenomenon not attested in L1 speech. This is a crucial difference between L1 and L2 acquisition, irrespective of whether one interprets it as an instance of missing surface inflections or as indicating incomplete knowledge of syntax; cf. Haznedar & Schwartz (1997). There is indeed widespread consensus that “inflectional morphology in the verbal domain poses major acquisition problems for adult L2 acquirers” (Parodi et al. 2004: 670). Whether this also applies to cL2 learners, however, is an open question.

Schwartz (2004: 121), in fact, gives a negative answer to this question, stating that child L2 acquisition is like adult L2 acquisition (and both are distinct from child L1 acquisition) in the domain of syntax, but that

child L2 acquisition is like L1 acquisition (and distinct from adult L2 acquisition) in the domain of inflectional morphology. From the perspective on cL2 acquisition developed in the preceding section, this claim comes as a surprise, certainly with respect to the alleged ease of acquisition of inflectional morphology. It is, nevertheless, an interesting hypothesis, because it allows us to make predictions about the developmental schedule guiding cL2 acquisition. In the remainder of this paper, I will therefore focus on this syntax-morphology distinction in my search for empirical evidence revealing the underlying logic of early cL2 acquisition.

Before doing so, I would like to add one further observation. As mentioned above, previous studies of cL2 acquisition arrived at contradictory conclusions when comparing cL2 with L1 development and with aL2 acquisition. I believe that this is due, in part at least, to the fact that different criteria were applied for what counts as similarity or difference across types of acquisition. Recall that the FDH refers to underlying knowledge systems which, if indeed different, can cause L2 learners to resort to principles and mechanisms which are not activated in L1 development. In our search for similarities and differences between the three types of acquisition under consideration, we therefore need to look for constructions shared by two acquisition types, e.g. cL2 and aL2, but not (2)L1. The rationale behind this procedure is that the shared construction type might reveal shared acquisition mechanisms. Counting error frequencies, on the other hand, is unlikely to provide insights of this sort. Quite obviously, the constructions under discussion can eventually be replaced by the ones required by the target norm. Every surface property of the target system is potentially learnable. The fact, then, that the incriminated ones eventually disappear in the speech of L2 learners does not necessarily mean that the native grammar is now in place – the *Ersatz* system may have become more efficient in producing the required surface forms.

3.2. Syntax or morphology as problem areas in child L2 acquisition

Let us now turn to the question of whether early cL2 acquisition of syntax indeed resembles that of aL2 learners, whereas the L2 learning child behaves more like (2)L1 children in the acquisition of inflectional morphology, as argued by Schwartz (2004). Note that there is ample evidence that aL2 indeed differs significantly from (2)L1 in the kind of syntactic knowledge acquired and that older children do not differ from their adult counterparts in this respect; cf. Pienemann (1981) who analyzed the acquisition of German by three Italian children, AOA 8. The question is whether this is also the case if AOA happens before age 6.

Linguistic evidence supporting the claim that changes occur at an earlier age is indeed available, and due to the reawakened interest in cL2 acquisition, the number of findings of this sort is steadily increasing, confirming the predictions based on neuropsychological findings. Interestingly, most of these studies find that syntactic phenomena like VO/OV, V2 placement and subject-verb inversion do not represent major acquisition problems, if AOA happens between ages 3 and 5. Evidence of this type is provided by, among others, Blom (2006) in an experimental study of cL2 acquisition of Dutch (AOA 4), Rothweiler (2006) analyzing the course of development of three Turkish children acquiring German (AOA 2;10 – 4;5), Thoma & Tracy (2006) studying four learners (L1 Arabic, Russian and Turkish, AOA 3;0 – 3;7) of German, as well as Haznedar (2003) investigating the acquisition of English by a Turkish boy (AOA 4;3), and Hulk & Cornips (2006) studying children raised in immigrant families in the Netherlands, considered to be L2 learners because they were not exposed to Dutch in the home. Note that the latter two studies find a dissociation of syntax and morphology in that these learners used target syntactic constructions, e.g. verb placement in Dutch or English subordinate clauses, during a phase when they still had not mastered the morphological system. Rothweiler and her associates, however, explicitly state that a dissociation of this type is not found in the Turkish learners of German in their corpus; see Rothweiler (2006) or Kroffke et al. (2007). The latter, for example, find no differences between syntax and inflectional morphology in their study of two Turkish children (AOA 3 and 6) acquiring German. The acquisition of both subject-verb agreement and verb placement resembles aL2 acquisition in the older child, whereas in the younger one both develop much like in L1 children. Kroffke & Rothweiler (2006) obtained identical results for five children at AOA 3 and two at AOA 6.

Similar results are obtained in a recent study by Sopata (2008), analyzing the acquisition process of three Polish boys learning German after their families moved to Germany, AOA 3;8 – 4;7. In the domain of inflectional morphology, they exhibit considerable inter-individual variation; but although two of them acquired verbal inflections fast and with low error rates, whereas the third one behaved much like aL2 learners, the type of errors made qualifies them all as cL2 learners. This is evidenced most clearly by the fact that they exhibit a striking dissociation in the development of verb morphology and related verb placement regularities. For all three children, German OV order is not the preferred pattern, probably transferring VO order from Polish. Moreover they initially place finite verbs frequently in a target-deviant *V3 position, while at the same time moving non-finite verbs to the V2 position, an unambiguous feature of L2 acquisition.

These research results constitute an important body of evidence confirming the claim that crucial changes in the LMC occur well before age 6. With respect to the question of whether the optimal period for syntactic development fades out earlier than that for inflectional morphology, the currently available findings do not present a coherent picture. We can retain, however, that syntax and morphology are reported either to undergo changes simultaneously, or inflectional morphology is affected earlier, cL2 learners thus resembling aL2 in this domain. In other words, contrary to what Schwartz (2004) expected, none of the studies mentioned here supports the claim that syntactic development in early cL2 learners resembles aL2 acquisition. But this is not to say that this possibility can be rejected definitively; further investigations are needed in order to be able to decide on this issue.

With respect to inflectional morphology, on the other hand, the picture is getting much sharper, showing that some areas in this domain are undoubtedly subject to fundamental changes during very early developmental phases. This is, in fact, the claim which I already made in Meisel (2008a), analyzing the acquisition of French by German children. The main piece of evidence of this analysis was that some of the children who were first exposed to French between age 3;3 and 4;0 analyzed subject clitics (SCL) as maximal projections rather than as verbal clitics, following a pattern familiar from aL2 learners of French (cf. Granfeldt & Schlyter 2004), combining SCL with non-finite verb forms, a pattern which distinguishes them from (2)L1 learners. This finding is confirmed and further substantiated by the study of Granfeldt et al. (2007) who compared Swedish cL2 and 2L1 children with French monolinguals. They find that the cL2 learners (AOA 3;5 – 6;7) resembled adult learners of French not only in combining SCL with non-finite verbs, but also in their use of tense forms and of gender agreement, and in placing object clitics (OCL) post-verbally.

3.3. Early child L2 French: Some empirical findings

It is not a coincidence that these phenomena are also investigated in a study currently under way at the University of Hamburg which Meisel (2008a) reported on. Since we are obliged to proceed inductively in attempting to determine the areas of grammar characterizing cL2 acquisition, the ones which are known to represent problem areas for adult L2 learners are an obvious first choice.

Our corpus consists of recordings of children attending the *Lycée Français de Hambourg*. They come from either French or German speaking families, and they enter the *Ecole Maternelle* (preschool) at around age 3 where they normally spend six hours per day. The medium

of instruction is French, except for 5 weekly lessons intended to foster their knowledge of German. Once they advance to the primary school (*cours élémentaire*) at age 6 years, both languages become objects of teaching, with 9 hours (12 lessons) of French instruction per week for German children, and 3:45 hours (5 lessons) of German weekly for children from French families who, for the most part, acquired the two languages simultaneously from birth. Note that the second language is thus acquired naturalistically, even if this happens in an institutional setting. The present paper only reports on the linguistic development of German L1 children acquiring French.

In this longitudinal study, recordings were conducted approximately every 3 to 5 months over a period of about two years. The children were interviewed individually by French native speakers, each recording lasting for 20 to 30 minutes. The interviews consisted of structured interactions during which the children were asked questions referring to themselves, their siblings and parents; they were also presented with picture cards representing activities and objects in order to incite them to talk. Initially, we recorded 35 children first exposed to French between ages 2;8 and 4. Table 1 lists the 22 children who we were able to record over an extended period of time. They are grouped according to time of exposure to French: Group A: < 1 year, Group B: 1–2 years, Group C: 2–3 years. Within each group, they are ordered according to age of onset of acquisition.

In Meisel (2008a), based mainly on an analysis of finiteness in the first recording of 10 of the children of our corpus, I concluded that six of them should be regarded as L2 learners: *Willi*, *Klaus*, *Lara*, *Ludwig*, *Jeremie* and *Peer*. This classification was primarily based on the fact that these children used aL2 type constructions which are typically not found in (2)L1, e.g. the above mentioned combination of SCL with non-finite verb forms. Note, thus, that not all the children whose speech was analyzed exhibited aL2 features. Since the ones first exposed to French at or before age 3;6 resembled (2)L1 children – with the exception of *Willi* – and the ones with AOA 3;7 or older were classified as cL2 learners – again with one exception, *Lars* –, I tentatively suggested that AOA is indeed the major factor causing changes. But individual differences undoubtedly play a role here, as well. I leave it to further research to decide whether other variables can explain what currently appears to be free variation.

Returning now to the role of syntax and inflectional morphology as characterizing properties of early cL2 acquisition, Meisel (2008a) did not find aL2-like syntactic constructions in the data of the 10 children analyzed. This was confirmed by Bonnesen (2007) in a detailed analysis of French interrogatives. He contrasted acquisition of interrogative con-

Table 1: *The corpus*

Child (Group)	AO	ME Rec 1	ME Rec 2	ME Rec 3	ME Rec 4	ME Rec 5
Cristina ¹ (A)	2:08	4 Mon	11 Mon	16 Mon	21 Mon	23 Mon
Wolf (A)	3:01	5 Mon	10 Mon	15 Mon	(20 Mon) ²	22 Mon
Marika (A)	3:06	5 Mon	10 Mon	(15 Mon)	(20 Mon)	(22 Mon)
Yann (A)	3:07	3 Mon	10 Mon	15 Mon	left school	
Julia (A)	3:07	3 Mon	10 Mon	16 Mon	(20 Mon)	22 Mon
Maja (B)	2:10	16 Mon	21 Mon	26 Mon	31 Mon	(33 Mon)
Sara (B)	2:11	16 Mon	26 Mon	31 Mon	33 Mon	
Jana (B)	3:01	17 Mon	22 Mon	27 Mon	32 Mon	34 Mon
Alf (B)	3:02	16 Mon	21 Mon	26 Mon	31 Mon	(33 Mon)
Martin (B)	3:02	15 Mon	18 Mon	26 Mon	31 Mon	(33 Mon)
Willi (B)	3:03	16 Mon	19 Mon	26 Mon	31 Mon	33 Mon
Magda (B)	3:03	15 Mon	18 Mon	26 Mon	31 Mon	
Lars (B)	3:07	16 Mon	21 Mon	27 Mon		
Ludwig (B)	3:07	16 Mon	21 Mon	27 Mon	(31 Mon)	
Amelia (B)	3:08	16 Mon	21 Mon	26 Mon	(31 Mon)	
Marion (B)	4:00	16 Mon	19 Mon	26 Mon	(31 Mon)	
Nicole (C)	3:06	28 Mon	32 Mon	38 Mon	43 Mon	
Luisa (C)	3:07	28 Mon	32 Mon	38 Mon		
Klaus (C)	3:07	28 Mon	32 Mon	38 Mon		
Vicky (C)	3:07	28 Mon	31 Mon	38 Mon	(43 Mon)	
Jeremie (C)	3:08	27 Mon	31 Mon	38 Mon	43 Mon	
Peer (C)	3:08	28 Mon	32 Mon	38 Mon	(43 Mon)	

structions by adult and child German L2 learners of French with monolingual and bilingual L1 learners. The cL2 learners behaved much like L1 children. Most importantly, they did not make those errors which are not attested in L1 corpora but which occur in aL2 speech. Like L1 speakers, they do not use clitic inversion, and they do not use full DP's without a clitic copy in subject position. Only in one respect do they resemble aL2 learners, namely in their use of *est-ce que* constructions which are encountered almost as frequently as in aL2 speech. This may reflect a strategy by which subject-verb inversion is avoided; it certainly does not justify the classification of these children as cL2 learners; see also Bonnesen & Chilla (to appear).

Bonnesen (2008) returned to the acquisition of finiteness, focusing on negative constructions. Since target word order in French negated clauses requires finite verbs to move across the negative element *pas*, inflectional morphology and verb placement are again closely related. This analysis of a larger group (17) of children studied over an extended

1. All children are referred to by pseudonyms.

2. Parentheses indicate that recordings have not yet been transcribed.

period of time corroborated the finding (Meisel 2008a) that some (5 out of the 17) of the children behave like aL2 learners in acquiring finiteness. As for verb placement regularities, however, this is not so obvious. Bonnesen does find some examples of constructions where the negator *pas* incorrectly precedes the finite verb. But these uses are infrequent and occur before the children acquire finiteness; they possibly reflect a strategy by which the negative element is placed in a position adjacent to the negated constituent; see Meisel (1997). Although this is a behaviour typically found with aL2 speakers of French, I doubt whether it can be qualified as *syntactic* violation of the target norm since these uses are restricted to what appears to be a rote-learned form.

Riedel (2008) also deals with the issue of finiteness, focusing, however, on the occurrence of root infinitives (RI), i. e. main clauses violating the adult norm in that the verb appears in a non-finite form, cf. Rizzi (1994). Constructions of this type are attested in the speech of L1 children of many languages. They are argued to indicate a grammatical deficit by some researchers, whereas others interpret them as reflecting morphological or processing problems. Importantly, their occurrence is restricted to certain grammatical contexts, e.g. they typically do not appear in negated clauses, nor are they used in *wh*-questions or in embedded clauses. Although similar constructions are also encountered in the speech of L2 learners, they are not subject to the same type of grammatical constraints, in this case, and they have therefore been claimed to reflect a mapping problem between syntax and morphology; see Haznedar & Schwartz (1997). What matters for the present purpose is that L1 and L2 differ with respect to the structural distribution of such infinitival constructions. The use of root infinitives can therefore serve as a criterion distinguishing between the two types of acquisition. Riedel's (2008) analysis of 18 children of our corpus arrives at the conclusion that they overwhelmingly behave like aL2 learners, thus corroborating the claim that cL2 learners at AOA between 3 and 4 differ significantly from (2)L1 children in their acquisition of verb morphology. This result is in line with the finding by Haznedar (2003).

3.4. Trying to disentangle syntax and morphology:

Acquisition of gender markings

The picture which emerges from the summary of empirical studies shows that successive language acquisition indeed leads to substantially different results, in comparison to L1 development, if AOA occurs at around age 4. Moreover, inflectional morphology is definitely affected by these changes. With respect to syntax, however, the picture is still blurred. It should, therefore, be useful to have a closer look at the acquisition of

grammatical gender, before concluding this discussion. Gender is not only a notoriously difficult problem for L2 learners, it also requires morphological as well as syntactic knowledge and may therefore help us to disentangle the role of these two areas of grammar in cL2 acquisition.

The fact that gender represents a particularly difficult challenge for aL2 learners is well documented and has been the object of numerous studies; see Andersen (1984) or Carroll (1999), among others. For cL2, on the other hand, conflicting results have been reported. This is probably due to the fact that many studies do not distinguish between gender assignment and concord, an issue to which I will return immediately. Moreover, different ages of onset have been examined. The fact is, however, that even very young cL2 learners encounter major problems with gender and may fail to acquire anything remotely resembling the target system, as concluded by Pfaff (1992), studying Turkish L1 children acquiring German in early childhood (AOA around 2;0). Möhring (2001) studying German children acquiring French also noted problems with gender assignment as of AOA 3;7, approximately; and Hulk & Cornips (2006) found quantitative and qualitative differences in gender markings, as compared to L1, in children acquiring Dutch who, at that point of development, did not exhibit problems with the acquisition of verb placement in subordinate clauses.

What is particularly interesting about the acquisition of gender is that it requires morphological as well as syntactic knowledge. Whereas gender *assignment* contributes essentially to the morphology of nominal elements in the languages under discussion here, gender *concord* (or agreement) is a syntactic operation. Hawkins & Franceschina (2004) analyze grammatical gender as “a morphological reflex of the ‘checking’ of uninterpretable gender features during the construction of derivations by the syntactic-computational component.” (Hawkins & Franceschina 2004: 175 f.) According to these authors, nouns contain a [\pm fem] feature, and determiners the uninterpretable [u gender] feature. Importantly, gender features are made available by UG as a parameterized option which need not be activated at all, as in English.

Irrespective of the technical details of this analysis, we can retain that the *acquisition* of gender markings involves *three tasks*: First of all, there is the parameterized option of specifying categories for gender features. In L1 development, this happens early, typically before age 2;0. Secondly, learners need to determine the gender of every lexical item, assigning them to one of the classes existing in the target system. Depending on how these classes are marked in the respective languages, this is a more or less difficult task for learners. In languages like French (masculine and feminine) and German (neuter, masculine and feminine), this happens to be a rather complex process since gender is neither fully

motivated by semantics, nor is it unambiguously marked on nouns, determiners, etc. For complex nouns, suffixes frequently indicate reliably the correct gender. But with simple nouns, learners have to rely on phonological, morphological and semantic cues. They allow them to assign the correct gender to a variable degree of probability; the most important cue for gender assignment in L1 French is the final sound of a given word; cf. Tucker et al. (1977). In instances when these properties provide conflicting evidence, formal cues tend to override functional ones; cf. Karmiloff-Smith (1979). As a third step, gender concord needs to be established. In (2)L1, this seems to be achieved at around age 3:0, for language like French and German. Note that children may assign the wrong gender to a given noun, but demonstrate mastery of concord if all determiners and modifiers systematically carry the ‘wrong’ markings. If, for example, *maison* ‘house’ is assigned *masculine gender, successful acquisition of concord will result in combinations like *le maison*, *un maison*, *petit maison*, etc.

In trying to determine whether cL2 learners resemble L1 or aL2 learners more, all three acquisition tasks offer potential criteria for distinguishing acquisition types. If their L1 lacks grammatical gender, this being a parameterized option, learners may be expected to encounter more difficulties in acquiring gender marking in the L2 than those whose L1 resembles the L2 in this respect; see Hawkins & Franceschina (2004). Since I will only be concerned with the language pair German-French, I cannot test the validity of this claim. As for gender assignment, what is of particular interest is that (2)L1 children focus on formal properties of nouns and on distributional properties (e.g. Art+N combinations). In doing so, they do not rely on principles of UG but on discovery mechanisms, reminiscent of the learning and discovery mechanisms alluded to above. These are domain specific in that they refer to abstract linguistic entities (morphemes, words, etc.) and to formal properties of such units. In aL2 acquisition, on the other hand, learners seem to rely primarily on functional properties (semantic, contextual, etc). They are thus distracted by overemphasizing functional to the detriment of formal cues; see Carroll (1999). With respect to the acquisition of gender concord, finally, we predict that L2 learners cannot activate this syntactic process if the L1 lacks the [*ugender*] feature on D, because the parameter can only be fixed at an earlier span, during the appropriate optimal period.

In what follows, I propose to look at the learners again whose acquisition of finiteness was analyzed by Meisel (2008a). Table 2 lists the gender marked items for all 10 of them³, based on an analysis of the first record-

3. Lara is not listed in Table 1 because she could not be included in the longitudinal study.

Table 2: Gender markings

Group B	exposure 16 months				
Martin	le	un	une	ma	– *une papier, *une canard
<i>Willi</i>	le		une		– one form each for def. & indef. Art.
Lars		un	une		– *un pomme
<i>Lara</i>	le	la	une	mon	– *une soleil, mon Schwester, mon maison
<i>Ludwig</i>				mon	– insufficient data
Group C	exposure 27–29 months				
Florian	le	la	un	une	– no gender errors
Nicole	le	la			– no gender errors
<i>Klaus</i>	le	la	une		– *le souris, *le madame, *le carotte, *une frère
<i>Jeremie</i>	le	la	un	son	– *le maman, *le voiture *le souris/la souris il fait ... la fenêtre *il est cassé *un carotte, *un pomme, *un/la maison,
<i>Peer</i>			un	une	

ing. Recall that French marks gender overtly on singular forms of articles, on adjectives, numbers and pronouns. If, however, a determiner is followed by a noun with an initial vowel, the function word will be either elided (e.g. *l'idée* 'the idea (f)' instead of **la idée*) or – in the case of possessives – a form ending in a consonant must be chosen (e.g. *mon idée* 'my idea' instead of **ma idée*). Within both groups, children are ordered by increasing AOA. The names in *italics* indicate those learners who were classified as cL2 learners by Meisel (2008a). Some typical examples are given on the right hand side of the table.

Note that all children frequently omit articles. A low frequency of errors does thus not mean that they use the correct target forms. Considering the three learning tasks, it appears that the first one, to discover that French uses noun classification according to [\pm gender], does not represent a major problem, since all children (with the exception of *Ludwig* who produces so few gender marked forms that one cannot really decide on this issue, in his case) do use different gender forms. This could be interpreted as evidence that their grammars allow for this distinction. A closer look at the data, however, raises some doubts as to whether this is indeed the case. Looking at group B, we find that all 5 children make gender errors. None of them uses the full set of masculine and feminine forms for both definite and indefinite articles. Only *Martin* appears to be on his way towards the target system. For *Lars* and *Lara*, this could also be true, if one wants to argue that 16 months of exposure are not sufficient. *Willi* and *Ludwig*, however, have undoubtedly not yet acquired

the gender system of French. In fact, only *Florian* and perhaps *Nicole*, among those with 27–29 months of exposure, seem to have been successful.

The main reason, however, for why at least five (*Willi, Ludwig – Klaus, Jeremie, Peer*), possibly seven (including *Lars* and *Lara*) learners are classified as L2 learners is not the frequency of errors but the kind of errors they make. The incorrect gender markings systematically violate the generalizations referring to formal properties of nouns, as proposed by Tucker et al. (1977) for French; these learners thus do not seem to have these discovery principles available. One of the rare cases conforming to these regularities is when *pomme* ‘apple’ is attributed masc. gender; 92% of French simple nouns ending in *-m* are indeed masculine. More seriously, it is not at all obvious which kind of system – if any – these children might possibly be following here. Semantic criteria clearly do not play a decisive role either, as is evidenced by such uses like *mon Schwester* ‘my-masc sister’, *le madame* ‘the+masc lady’, *une frère* ‘a-fem brother’, *le maman* ‘the+masc mommy’. Transfer, finally, cannot serve as an explanation, either. A survey of the gender markings by 17 of the children in our corpus reveals that transfer can maximally account for 24% of the incorrect markings. It thus seems that gender assignment is the result of lexical learning, item by item, rather than by attributing nouns to gender classes. This makes these children look like cL2 learners, resembling aL2.

Unfortunately, it is difficult and frequently impossible to decide on the basis of spontaneous productions whether learner errors are errors of gender assignment or of concord. Note that in some cases the same noun appears with feminine and masculine articles in the speech of the same child, e.g. *lella souris* ‘the mouse’, *unlla maison* ‘a/the house’, and when it is resumed by a pronoun, gender conflict is again possible as in *la souris il fait ...* ‘the mouse+fem, he does ...’, *la fenêtre il est cassé* ‘the window+fem, he is broken’. In other cases, one finds overgeneralizations of one form, e.g. *le* and *une* (*Willi*). Overgeneralizations constitute evidence again for lexical learning and against the application of the syntactic operation of concord. In fact, nothing suggests that they have activated the [*ugender*] feature on D. Following Hawkins & Franceschina (2004), this should only be impossible if their L1 lacks the [*ugender*] feature on D. It therefore comes as a surprise that German learners of French struggle considerably with this task, given that German is a gender marking language. Quite obviously, both gender assignment and concord represent major acquisition problems, even for learners who should be able to rely on their L1 grammatical knowledge.

4. Conclusions and open questions

The foregoing discussion has shown, I believe, that child second language acquisition is indeed a type of acquisition in its own right. The main goal of this paper has been to demonstrate that cL2 acquisition shares some crucial features with adult L2 acquisition. By implication this means that it also shares properties with first language development. The grammatical domains in which cL2 resembles aL2 and in which they both differ from (2)L1 include at least parts of inflectional morphology. The extent to which the computational system is also subject to changes in the human language making capacity is a matter of more controversy and requires further investigations. But the currently available evidence suggests that specific aspects of syntax are also affected by such changes, already during early phases of development. As for the question of which linguistic properties are concerned, empirical studies corroborate the hypothesis that parameterized principles should be prime candidates. More surprisingly, perhaps, discovery and learning principles too seem to become inaccessible in the course of linguistic development. L1 learners focus on formal cues, whereas L2 learners tend to rely more strongly on functional cues: meaning, context, discourse, etc. This is another issue which needs to be investigated more thoroughly.

In my view, these findings corroborate the Fundamental Difference Hypothesis, suggesting that the observed differences between monolingual on bilingual L1 development, on the one hand, and child and adult L2 acquisition, on the other, reflect different types of linguistic knowledge and consequently also different developmental processes. The FDH has thus been extended to cover much younger age ranges than initially suggested. In dealing with the age issue, linguistic research has profited substantially from results obtained by the neurosciences. I am convinced that further insights, especially with respect to the still largely unexplored developmental schedule, will be greatly enhanced by interdisciplinary cooperation of this sort. It would be premature and indeed naïve if one was to claim that a causal relationship between the observed changes in the functional organization of the brain and specific types of linguistic behaviour were established beyond any doubt. But the developmental synchrony between neurological and linguistic changes is suggestive and deserves further explorations. This applies, above all, to the age ranges discussed here, at around 6–7 and around 4. Note that AOA of the children of our French corpus ranges from 2;8 through 4;0. But all but one (Will, AOA 3;3), all of the children who were classified as cL2 learners based on their acquisition of finiteness and gender marking, were first exposed to French at age 3;7 or later. Whether this age range

is indeed significant as a possible dividing line between cL2 and 2L1 learners, will have to be determined in further studies based on larger groups of subjects, but it may be more than a coincidence.

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