All Children Start out as Multilinguals[1]

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1. Introduction

Is there a pre-grammatical stage in language development, and if so, how is it reflected in the language mixing of bilingual children? In our contribution we argue against the notion of a pre-grammatical stage for speech production − except in the trivial sense that for some time children may only produce single words. Once words combine, and once formulaic expressions reach the point of segmentation, basic structural formats, such as the distinction between head and non-head, enforce themselves (cf. Tracy 2002).

Of course, whether one argues for or against pre-grammar largely depends on what we mean by "grammar", and what it is held responsible for. From the perspective taken here, grammar covers all computational aspects of I-language and the interfaces between various levels of representation, including semantic and pragmatic knowledge.[2] From our point of view, the crucial question is not "Are children's grammars pragmatically rather than grammatically organized?" but, rather, "How do children discover and link evidence from different analytic levels? How much of each level is simultaneously involved?", and "How many conflicting representations (or grammars) are simultaneously under consideration?"

In what follows we will first address some general issues (section 1) and then, section 2, explain why we do not believe that it is necessary or even possible to distinguish pre-grammatical from "truly" grammatical developmental stages, supporting our view with evidence from monolingual children. In section 3 we briefly outline the hypothesis that even monolinguals start from multiple roots (i.e. maintain different grammars). We then (section 4) proceed to consider language mixing in young bilingual children, focusing first on some methodological and conceptual problems before discussing developmental changes in mixing behavior. In section 5 we briefly mention the types of conflict that could lead the learner to give up mixing patterns. Finally, our conclusion affirms once more what we (as well as learners) stand to gain by overcoming reductionist perspectives and by accepting the coexistence of and tension between, different levels of linguistic representation as a crucial triggering condition for change.

2. Conceptual clarification

Even though we claim that some UG-informed grammatical analyses on part of the learner manifest themselves in early word combinations, this does not mean any of the following, which we therefore reject from the start.

(a) Learners never err on their way to their target grammars.
Quite the contrary appears to be true. There is (necessitated, for instance, by initial missegmentation) considerable syntactic and morphological restructuring and reanalysis, leading to the (re-)construction of derivational relationships and the convergence of precursor patterns (cf. Tracy 1991, 2002). Note, by

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[2] As we know from adult grammar, utterances only squarely reflect abstract sentential designs made available by I-language. There is no reason to expect that the relationship between competence and performance is any more direct for young children. One difference between adults and children is that the latter have fewer choices available to them and may therefore face less competition.

the way, that with non-finite two-word utterances, the damage done by erring on head directionality is minimal since it should be easy to correct.

Children's and adults' constructions and grammars differ along several dimensions, among them degree of specification and spell-out, but not in the most crucial design features that eventually lead to the construction of recursive trees. Also, the way in which formal and functional aspects (i.e. different representational levels) are mapped onto each other in children's utterances may initially deviate from the target (cf. the German wh-questions or independent main clauses with verb-end word order mentioned below). We know, too, that lexical items may initially be misclassified (e.g. children use prepositions as complementizers) and that patterns (like dative shift) are overgeneralized. In many of these cases the question of what eventually triggers correction is a serious challenge to learnability theories (cf. Pinker 1989, Randall 1990, Tracy 2002, Verrips 1994).

(b) Learners start with ONE grammar.

Recent research has shown that bilingual children are capable of developing two independent systems from early on (Gawlitzek-Maiwald 1997, 2003, Gawlitzek-Maiwald & Tracy 1996, Gut 2000, Meisel 1989, Müller 1998, Müller & Hulk 2001, Paradis & Genesee 1997, Tracy 1995, 1996, 2000a). Why shouldn't the monolingual, who is also confronted with variation in the input and who cannot know, a priori, whether s/he is about to acquire different languages? As far as decisions on which of two adjacent elements harbors the syntactic head are concerned, it might even be a particularly smart strategy on part of the learner to carry along both options, i.e. to 'sit on the fence', so to speak, until the symmetry can be broken in favor of one analysis as the canonical order and the others discarded or assigned a different status as a derived structure. Our (most elementary) awareness of structural ambiguity may well start as early as that, i.e. with the clever decision to hold on to competing analyses as the products of different grammars or representations.

(c) Grammar is responsible for all utterance patterns.

We know from humans and non-humans alike that communication does not need grammar, and our claim that there is no pre-grammatical stage does not entail that there are no utterance patterns outside a learner's current grammars. Bits and pieces of other languages and our own can easily be stored by rote. The extent of idiomaticity and frozenness in adult systems provides evidence for the permanent coexistence of subsystems and individual patterns which resist analysis along the beaten path. It is actually quite surprising that the overwhelming majority of children's early constructions are not just systematic but typically home in on the most crucial and salient structural features of the target.

(d) All learners follow the same developmental trajectory.

Children differ in the extent to which they focus on particular aspects of the input and representational levels – modularity and level autonomy lead us to expect this. Gradual assembly of different "building blocks" as well as reliance on different problem-solving strategies create (superficially) different developmental paths (d'Avis & Gretsch 1994, Fritzenschaft et al. 1990, Gawlitzek-Maiwald 1997, 2000; Gawlitzek-Maiwald et al. 1992, Kaltenbacher 1990, Peters 1977, the papers in Tracy & Lattey 1994, Tracy 1991, 1995, 2002). What this also means is that there must be effective controls, guaranteeing relatively (though by no means completely) similar steady states.

In the same vein, we also encounter systematic inter-individual differences in bilingual children's eagerness to mix their languages. There are children who mix quite liberally, but there are also those who, even though they could 'do' with a little borrowing to fill gaps, mix very little, and those who only choose to speak one of their input languages, even though they appear to comprehend everything said to them in the other as well (cf. Tracy & Gawlitzek 2000). These as yet little-understood individual differences underscore the extent to which mixing and language choice is under the control of the individual monitor, even in early childhood.

3. There is a lot of grammar in pre-grammar

Whatever else young children's earliest word combinations may show, they *also* reveal syntactic patterns which can already be linked to the more abstract principles of organization that constrain target grammars. That is, given the necessary theoretical clout and an appropriate level of abstraction (e.g. some variant of X-bar theory) many of children's and adults' constructions are not just weakly but even strongly equivalent. While child and adult grammars differ in detail, they honor the same basic design

features. This manifests itself very early, i.e. at a time when no more than 10% of children's utterances consist of more than one word, when combinations are restricted to two words at a time, and when we find (at least for German) no other lexical categories (or their precursors) than nouns, verbal particles, deictic, additive and negative particles, with main verbs in the infinitival or stem form emerging a little later (cf. Penner, Schulz & Wymann 1999, Penner, Tracy & Wymann 1999, Penner, Tracy & Weissenborn 2000, Tracy 1991).

The conceptual challenge of how these early patterns should be analyzed and which descriptive level has priority has long been recognized. When researchers first took a thorough look at children's earliest word combinations, all the issues under discussion now were basically right there. Braine's (1963) attempt at capturing distributional regularities in "Pivot grammars" led to concerns about continuity (explicitly discussed in McNeill 1970; cf. also Lebeaux 1988). Bowerman's work (1973) on thematic relations can be considered an important precursor of current bootstrapping and grammaticalization approaches (cf. also Brown 1973). Gruber (1967) already took a pragmatic approach and traced topic and comment in children's discourse. Peters, as early as 1977 (also 1983), drew attention to differences in children's orientation towards prosodic vs. segmental cues. In a way, even though new hypotheses have entered the scene, we find ourselves in the same position, i.e. we still face the issue of continuity and the question of how the overall picture (i.e. with ALL levels which exist in adult grammar) fits together.

It appears that many researchers opt for placing semantics (thematic roles, supposedly derivable from sensorimotor concepts; cf. Macnamara 1973, Sinclair-de Zwart 1973) or pragmatics (Bates 1979, van Kampen 2001) first because they believe that the concomitant notions are somewhat less abstract than syntax. However, pragmatic competence, which includes speakers' conceptualizations of information structure, i.e. discourse-new vs. discourse-old, hearer-new vs. hearer-old information, most certainly involves abstract representations. The same goes for semantics, for instance the event/argument structures developing in the child's lexicon.

Another reason for claiming that continuity offers a more fruitful perspective derives from comprehension/perception studies. Preferential head-turn experiments have shown pre-production sensitivity to closed-class elements like articles (Höhle & Weissenborn 2000) at ages long before anything comparable can be traced in production. Should we not conclude that the learner works with different grammars (one for perception, one for production), rather than claiming that grammatical organization is not available?

Besides these arguments (theoretical economy, fit with perception and comprehension studies), there is the argument of distributional reliability and systematic cross-level interaction found in spontaneous production data.

In order to ascertain the status of children's early word combinations, careful consideration of single-word utterances seems imperative. As already pointed out by Bloom (1973), it is possible to discern different kinds of relationships among sequences of single-word utterances, among them those that she termed "successive", i.e. those where the child appears to have a specific goal in mind at the outset.

(1) Julia 1;8
     J. carrying monkey, runs towards bed
     daREIN/ ... ÄFFchen/
     there-in … little-monkey
(2) eating joghurt
     JOko/ ... Essen/
     joghurt …eat

The former does not follow "given-new" order: The plan of what should happen to the monkey is mentioned first, the monkey's mention follows, even though the child already holds it tightly. In both cases, the only "formal" feature uniting the conceptual units which are part of a single event is the parallel prosodic contour (cf. Tracy 1991: 120). Of the two, only (2) corresponds to the order found in first productive word combinations involving verbal particles and (shortly after) verbs.

The following table summarizes data from one of the four children recorded on a weekly basis in Tracy (1991) and shows transition into combinatorial speech. For the purpose of our discussion, we selected four data sets. Patterns were considered "productive" provided that there were more than five occurrences involving (partially) different elements and use in different contexts. They already reflect canonical patterns of the target.

V2-mimicry alludes to restricted productivity or complete invariance of patterns which, in addition, are often tied to specific behavioral routines like placing puzzle pieces and commenting on success or failure, as in [GE:tiç], based on *geht nicht* (works not, 'it doesn't work') (V2 = verb in second position, VE- verb in final position).[3]

Table 1: Julia's word combinations

Age	Total utt.	MLU morph.	% utt. longer than one morpheme	Productive (canonical) patterns	Others

1;8	448	1.11	10%	2-word utterances:
				N + Particle, e.g.
				brille ab
				   glasses off 8
				X *auch / auch* X
				   X too
				da X
				   there X
					zu/\ .. ohr/ 2
					   close … ear
					unintegrated, with pause

1;10	640	1.37	20.3%	2-word utterances: X + V / Particle 31 N + N	Particle + N 1 (s.below)
2;0	400	2.01	53%	3-word utterances: X + (Y) + V / Particle 32	V2-mimicry, semi-productive frames: *[dazə] ball* >10 there's-the ball
2;2	430	2.4	44.5%	Productive finite V2 65 articles, pronouns	Finite VE 4 AUX placeholders

In the very few cases where the order between verbal particles and their accompanying argument differs, there is either a pause, creating two phonological phrases, or the overall stress pattern shifts, compare the canonical cases in (3)-(4) with the exception of (5), which occurred at age 1;10:

(3) Julia 1;10
   J. pulls her doll's stroller into her bed
   and then climbs into the stroller herself
   wagen daREIN/
   stroller there-in
(4) before climbing into stroller
   julia daREIN /
   julia there-in
(5) *daREIN wagen*   (with particularly "emphatic" stress on *rein*]
   there-in stroller

Because word order is so consistent, we analyze (5) as adjunction either to a topic position on the left (cf. 6) or a landing site for extraposed elements on the right (cf. 7).

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[3] Utterances such as [dazə] ball ('there-s-the ball') only mimic V2 on a superficial level, i.e. there is no agreement, as we can see in combination of deictic [dazə] with plural nouns.

(6) [darein$_i$ [$_{VP}$ wagen t$_i$]]

(7) [[$_{VP}$ t$_i$ darein] wagen$_i$]

This corresponds to what we find in other children. The following is an overview of two-word utterances with verbal particles produced by the monolingual child Benny at age 1;11.

Table 2: Verbal particles in Benny

X Particle			Particle X
so aus	thus out	2	
auto rein	car in	2	
die darein	this-one there-in		not documented
*WILL nei *	want in		
da (vor)bei/	there over		

Penner, Tracy & Wymann (1999) and Penner, Tracy & Weissenborn (2000) traced the pioneering role of the additive German particle *auch* ('also', 'too', 'as well'), suggesting that already before the emergence of functional categories and finite clauses, and even before the appearance of sentence-internal *nicht* ('not'), the additive particle *auch* projects its own clausal root, taking VP as complement; its specifier position offers a landing site for focused constituents. Cf. the following example.

(8) Julia 1;11
    J. places toys in box.
        EINräum
        in-put, 'clean up'
    Adult   Einräumen willst du sie wieder?
        'You want to put them into the box again?'
    J. places goat in box
        ziege AUCH/ ... tracy AUCH einräum/
        goat also ... Tracy also clean up
    Adult   Ich soll auch?
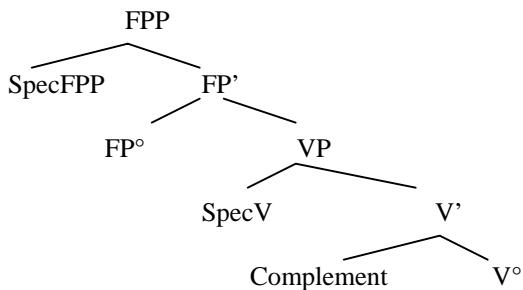   I shall too, 'Me too?'
    J .   *ja*
        'yes'
  Adult does as requested.

This means that pragmatic knowledge, prosody and rudimentary awareness of definiteness effects interact with whatever else the child knows about the focus particle at the time. The syntax already reveals a perfect design, consisting of head (the particle), complement (VP) and a specifier, cf. (9): (t = trace, FP = Focus Particle, FPP = Focus Particle Phrase, e = empty element).

(9)

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                    FPP
                   /    \
            SpecFPP       FP'
                        /     \
                     FP°        VP
                              /     \
                          SpecV      V'
                                    /   \
                            Complement    V°


     Ziege_i    AUCH    e       t_i            e
     Tracy_j    AUCH    t_j     e              einräum
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Penner, Tracy & Wymann (1999) argue that this early structural format is a precursor to later V2, with AUCH-2 effects due to the fact that the F°-head precedes its complement and that it makes only one specifier position available. Structures such as *ziege auch...Tracy auch einräum* (goat also... Tracy also clean up, 'The goat also belongs in there', 'Tracy should also help clean up') come about through movement of either the object or the subject out of VP into SpecFPP.

Learners of English, who are confronted with formally and distributionally quite different equivalents of *auch,* namely *also, too, as well*, have no access to equally reliable cues. This absence may be one more reason for the observation that young English-speaking children generally appear to need more time to reconstruct the structural levels above VP than learners of German (Gawlitzek-Maiwald 1997, 2000, 2003, Gawlitzek-Maiwald & Tracy 1996, Tracy 1995, 2002; cf. also the cross-linguistic comparison of monolinguals in Phillips 1995).

What makes constructions with particles like *auch* (and *nicht*) particularly interesting beyond this very early phase is that they subsequently defy verb-second effects, even though children may already produce perfectly well-formed V2-clauses at the time, but NOT if they contain *auch* or *nicht* (cf. Penner et al. 1999, 2000).

(10) Florian 2;8
 (a) F. pushes a toy ship under a bridge, it gets stuck.
  NICHT runterpasst
  not under-fits, '(It) doesn't fit'
 (b) pushing a ship which fits
  schiff AUCH passen
  ship also fit, 'This ship also fits'
 (c) pushing others
  dies AUCH passt
  this-one also fits
 (d) *... dies NICHT passt*
  this-one not fits

This makes one wonder whether verbs and particle *auch* might not be in temporary competition (i.e. complementary distribution) for the same position in root clauses, a conflict which will eventually be resolved through the construction of additional layers of structure (cf. Tracy 2002).[4]

Cf. also the following raising examples from another child, all produced within one turn. While the verb remains in final position, various constituents raise across the particle. Obviously, more positions are required in order to accommodate all of the elements which appear to leave the VP simultaneously.

(11) Stephanie 1;10
 (a) S. to her father:
  DA brücke neu machen
  there bridge new make
 (b) *PApa machen\ ... ein BRÜcke machen*
  Daddy make ... a bridge make
 (c) *JETZT wieder neu papa machen*
  now again new daddy make
 (d) *BRÜcke wieder neu machen*
  bridge again new make
 (e) *DAS papa wieder neu machen*
  that daddy again new make

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[4] Deviant structures involving *auch* (also) had also been noted by Döpke (1998) in her German and English speaking bilingual children and were, in lack of monolingual data, attributed to interference. However, the monolingual examples above show that this deviance need not be attributed to a child's bilingualism.

There are children who carry this iterative topicalization even further. What makes the following unusual is the adherence to this adjunction pattern in periods when verbs are clearly finite. Lack of V2 and the proliferation of arguments lead to quite striking patterns[5] (cf. Tracy 1989 for a discussion of doubling and overgeneration). All these were produced without internal pauses. Co-reference is indicated by subscripts.

(12) Florian 2;7
(a) *DIE$_i$ florian brücke$_i$ macht*
this F. bridge build, 'F. built this bridge'
(b) *DIES$_i$ die kugelbahn$_i$ lo nicht aufbaut*
this the marble-track F. not up-built, 'F. didn't built this marble track'
(c) *SO ein$_i$ flo hat es$_i$*
such one F. has it, 'F. has such a thing'
(d) *DIE$_i$ flo hat sowas$_i$ [diese diesen]$_i$*
this F. has such-a-thing this this, 'F. has such a thing'
Florian 2;8
(e) *RUTSCHbahn$_i$ flo dies$_i$ aufbaun*
slide F. this up-build, 'F. will build this slide'
(f) *[DIEse drei]$_i$ kommen autos$_i$*
these three come cars, 'These three cars come'

What we see, then, is that even after the appearance of functional categories, the pragmatics-syntax-interface still needs a lot of reconfiguration.

4. Grammars may grow from multiple roots

The parsimonious view of development proposed here provides us with a unified solution for diverse aspects of children's competence that are often seen as irreconcilable: children's rule-governed constructions on the one hand and those which appear only partially productive on the other, i.e. "special projections" involving specific lexical items or partially analyzed formulaic expressions. But as we have seen, even among the clearly productive patterns, there may be inconsistencies (head first vs. head last conflicts) that need to be resolved in the long run.

With respect to bilingual acquisition Meisel (2001:40) points out "[…] if children set a parameter in one language before they set the corresponding parameter in the other language, this should not count as an instance of *resetting*." Now, if this option of dealing with more than one parameter setting at a time is indeed open to the bilingual, why not allow the (supposed) monolingual child to entertain more than one option at a time, i.e. why not allow the child who eventually will end up monolingual (or at least as monolingual as one can get) to create multiple clausal roots? These sub-systems could be very small, a single head and its projection would satisfy UG completely.

Intra-individual inconsistencies, insignificant though they may be in terms of number, have puzzled researchers for a long time. Researchers have looked for answers in terms of slips of the tongue, optionality (Wexler 1998), truncation (Rizzi 1994), or coexistence of competing representations (cf. Gawlitzek-Maiwald et al. 1992, Tracy 2002). The hypothesis that learners rely on different grammatical subsystems is also supported by on-line fluctuations like the following self-repairs (from Tracy 2000b). Capitals indicate stressed items.

(13) Julia 2;4
(a) *[dazə] BAUernhof\\ ... da ... da IS das bauernhof*
[there-s-the] farm … there there is the farm

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[5] What makes these structures particularly strange is the "split-NP"-look, i.e. movement out of NPs. An alternative assumption, favored here, is left adjunction of positions for argument copies.

<ol type="a" start="2">
(b) *[dazə] schava ... da IS-i vogelscheuch*
[there-s-the] scarecrow … there IS-the scarecrow
(c) *n-DAS für farbe/ ... DAS ist für farbe/*
n-that for color … that is for color 'What color is that?'

In (13a)-(13c) a precursor is replaced by a more current alternative, even though the new version may, as in the case of (13c) above (modeled on the adult *Was is'n (= ist denn) das für Farbe*? What is-PARTICLE that for color? 'What color is that?'), result in yet another temporary 'special projection' format based on the copula. This special projection will in turn be replaced by the appropriate target question.

What we also find are main-clause asymmetries, such as when declaratives are V2 and non-declaratives VE (cf. 14 and Tracy 1994 for a quantitative overview). In these cases children create a systematic form-function link which does not exist in the target. Typically, there is a shortlived phase during which both patterns exist side by side. While the child's system clearly differs from the adult's (in terms of the interface), the pattern as such is impeccable.

(14) Valle 2;0
- (a) Valle is leading toy figure named Peter.
  - Valle   *wo   der peter hinsitzt/*
             where the peter down-sits, 'Where's Peter sitting down?'
  - Adult   Ruhig da,   wo   du ihn hinsetzen wolltest.
             Just   there where you him down-sit   wanted.
             'How about right where you wanted to put him'
- (b) Mother   Ich fahr geschwind   in   die Stadt, gell? Kauf'n paar
           Sachen ein.
           I   ride   quickly   into the town   ok? Buy-a   few   things.
           'I'm going to take a quick trip into town, ok? I'm going to buy a few things'
  - Valle   *was die mama   einkauft*
             what   the   mummy   buys\ 'What's mummy going to buy?'
  - Mother   Also, ich such'n   Geschenk für die Oma.
             Well I   look-for-a present   for   the   grandma
             'Well, I'm going to look for a gift for grandma'

The opposite tack is taken by another child, Benny, whose wh-questions show up in different word orders without functional specialization. Some of these, especially finite questions without subjects as in (15h), are quite deviant.

(15) Benny 2;6
- (a) *was is des/*
  what is this?
- (b) *wo des da hinkomm/*
  where this-one goes?
- (c) *was du machen/*
  what you make [-finite]?, 'What are you doing?'

Benny 2;11
- (d) *was machst du/*
  what make[+finite] you? 'What are you doing?'
- (e) *warum der auch ein keks esst/*
  why he also a cookie eats? 'Why does he also eat a cookie?'
- (f) *was muss ich haben/*
  what must I have?

(g) *was ich kann machen/*
    what I can make?
(h) *warum weiter geht nicht/*
    why further goes not? 'Why doesn't it go any further?'

Benny also produced a whole spectrum of patterns in subordinate clauses, some of which are also deviant.

(16) Benny 3;0
    (a) *will die meerjungfrau haben dass du hast net die meerjungfrau*
        want the mermaid have so you have not the mermaid
        'I want the mermaid so that you can't have it'
    (b) *er paßt auf dass keiner schummelt*
        he pays attention that nobody cheats
    Benny 3;1
    (c) *wenn hab ich auch mal burtstag habt*
        when have I also once birthday had, 'When I had my last birthday'
    Benny 3;2
    (d) *weil du hast das gesagt*
        because you have that said, 'Because you said it'
    (e) *weil die kaputt is*
        because this broken is, 'because it's broken'

It seems that Benny's grammars allow more projection levels above VP than adult German. For subordinate clauses, there appears to be no competition between verb and complementizer for the same position. Therefore we find both complementizers and main-clause verb positions within the same subordinate clause (cf. 16a, c, d). Likewise, in main clauses, wh-phrases do not compete with other constituents for the *Vorfeld*-position, cf. (15g) and (15h). All this occurs in addition to the option of cutting out the IP level completely, producing bare VPs (cf. 15c), target-like questions (cf. 15a, d, f), and main clause questions which resemble embedded questions (cf. 15b, e).

Given current research on bilingual code-switching in adults, we see no problem with the assumption that learners can draw on very different systems, "switching" back and forth at great speed. We also know that it is futile to inquire after the functional basis for each single point of transition. Indeed, one reason why adult bilinguals are so good at choosing from repertoires of coexisting options may be that they have had lots of practice in it from early on, due to the choices even within one of their languages.

5. Grammatical change and language mixing

Even though we have argued against the existence of a pre-grammatical stage, we also believe that mixing patterns change as a consequence of development. Initially, the shorter the utterance, the more difficult it is to decide what type of contact phenomenon one is dealing with. Is it really possible to distinguish alternation from insertion (into a matrix frame) in two-word utterances? And on the basis of which grammatical and contextual criteria can the base or matrix language be identified in the first place? (cf. Tracy 2000a).[6]

Besides this conceptual and methological point, there is an even more crucial problem to consider. As the evidence from a wide variety of languages in contact accumulates, researchers have become less

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[6] Thus, faced with an utterance like *auch on table*, one could arrive at either (a) or (b), depending on the context:
    (a)   mixing of a German additive particle into an English format if the child's interlocutor addressed the child in English;
    (b)   mixing of an English PP into a German format if the child's interlocutor addressed the child in German.
Any decision in favor of (a) increases one's count of both inserted particle and of single-word mixes, (b) leads to an increase for the insertion of adverbial PPs and of phrases.

optimistic as far as the identification of universal grammatical constraints of code-switching is concerned (cf. Clyne 2003, Gardner-Chloros 1995, Lattey & Tracy i.pr., Muysken 2000). It has also been observed that there are other types of cross-linguistic interaction such as blends, neutralizations, congruent lexicalization, crossover phenomena, all of which depend on typological and other similarities between languages. It may not be particularly fruitful to search for universal code-switching constraints in young children when these very constraints are called into question for adults (but see Genesee 2003; MacSwann 1999). Of course, all this does not mean that there is no systematicity out there to be discovered or that the grammars involved at any given point in time play no role. Quite the contrary appears to be the case, as we will show.

If initially only pragmatic (or semantic) principles mattered, should not the organization of utterances in both languages of a bilingual be much more similar, i.e. ignore adult formal contrasts? As far as we can tell today, this is not the case. Where the languages acquired are sufficiently different for us to tell, crucial contrasts emerge from early on, such as constrasting order of head and complement in German and English VPs (*saw ball* vs. *Ball sehen).*

As we have argued before, mixing patterns reflect the grammatical organization of different developmental phases (Gawlitzek-Maiwald & Tracy 1996, 2000). This becomes particularly obvious in cases of asynchronic developments, where one system develops at a faster pace than the other, even though both may be well within the age norms for monolinguals.[7]

In the case of Hannah, whose mixing we dealt with in Gawlitzek-Maiwald & Tracy (1996), the total number of utterances exhibiting signs of interaction amounted to less than 200 utterances in a corpus of 2742, i.e. to about 7%. For a period of several months, until the moment at which the English IP became fully productive at the age of 2;9, mixing was up to about 16%, and dropped afterwards to under 4% . It is interesting to consider what happened during that time.

The most striking qualitative feature of the language mixing in Hannah up to the age of 2;9 is the extent to which it reflects the developmental stage of both grammars: Hannah's German already has productive IPs with various modals and auxiliaries, while her English still laggs behind (showing no auxiliaries, agreement, tense), even though there is no lack of English input. The following mixed examples show that Hannah's utterances are a faithful reflection of this developmental gap.

(17)   Hannah 2;4
         kiwis, oh ..du hast [VP gebuy(d) them]?
                 ...   you have ...
(18)   Hannah 2;6
         kannst du [VP move a bit your feet away]
         can you ...
(19)   *soll ich [VP hit it?]*
         shall I ...
(20)   Hannah 2;7
         sie haben [VP gone away]
         they have ...
(21)   *kann alleine [VP open it]*
         can alone ...
(22)   Hannah 2;8
         mama kannst [VP du do it up]
         mommy can you …

Hannah's sentences show the full potential of the left sentence periphery of German main clauses (i.e. V2-effects associated with IP and CP), whereas her English can only contribute whatever is available inside VPs. This discrepancy can be explained by the greater complexity (due to lack of salience, extent of ambiguity, poverty of agreement markers) of the English IP. This asynchronic development shows

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[7] The observation that Hannah seemed to be ahead of her monolingual English peers in the discovery of the English IP-related features led us to suggest our hypothesis of "bilingual bootstrapping" (Gawlitzek-Maiwald 2003, Gawlitzek-Maiwald & Tracy 1996).

particularly convincingly that maturation is not sufficient to account for the emergence of the functional categories of tense/agreement. However, purely semantic or pragmatic explanations do not appear to fare any better. Again, a whole spectrum of formal and functional features needs to be taken into account to explain how functional levels are eventually acquired and why German should be faster than English with respect to IP phenomena.

Once the English IP has caught up, both options coexist, as shown in (23) and (24), and eventually we also find the complementary version (25), with an English modal and a German infinitival main verb.

(23)   Hannah 2;10
         you've not gotten up
(24)   *Marco hat gegotten annoyed*
         M. has ...
(25)   *he should warten for us*
.   ... wait ...

This kind of intra-sentential mixing becomes marginal towards the end of the child's third year, i.e. the emergence of the English inflectional and auxiliary systems correlates in non-trivial ways with a marked decrease in clause-internal mixing. After that, mixing approaches adult tendencies: most items borrowed are single nouns, mixing appears to be eased by surface structural parallels, compare the following documented switch points (indicated by #).

(26)   *ich habe   # this*
         I have ...
(27)   *I   have   # keins mehr*
           ...   none left
(28)   *ich   # cover...*
         I ...
(29)   *the other # heißt ...*
                 ... is-called ...

What is most remarkable is that from early on language mixing pools resources without redundancy and in a very precise manner. As a pertinent illustration take the following set of examples, all from the same episode in which Hannah is trying to recruit her mother's help in securing her doll in her buggy.

(30)   Hannah 2;3
   (a)   *die dollie ənstrappen*
         the doll in-strap, 'Strap the doll in'
   (b)   *die dollie əntrap*
   (c)   *dəs einstrap in die puppe*
   (d)   *die einstrap in die dollie*
   (e)   *die mama helf mir [trap] it in*
   (f)   *mama (= voc) [tʰap] it in \ ... die dollie*

While Hannah appears to experience some uncertainty with respect to the lexical home of the main verb, she knows exactly what to do in order to satisfy both her German and her English grammar. Starting with German syntax and morphology in (30a), she first drops the infinitival *–en* in (30b). In (30c) and (30d) the English equivalent for the German prefix, *in*, appears; as of (30e) the ordering of main verb *strap* and its complement has completely switched to English. Only then is she satisfied with the result.

The following examples show the same kind of adaptability, this time at a later age.

(31)   Hannah 2;8
         soll ich die droppen? I've dropped him
         shall I this drop?
(32)   Hannah 2;9
         I've licked it\ aber jetzt kann man nicht mehr licken
                         … but now can one no more lick, 'Now one can't lick any more'
(33)   *die Svenj hat mich gechased and I chased her*
         The S. has me chased ..., 'S. chased me ....'

What all these examples illustrate is that language 'tags' can be suspended, i.e. lexical items can be dissociated from their original language-specific patterns and their selectional and subcategorizational idiosyncracies. Very young learners are capable of making all the adjustments needed in adapting lexical stems to the syntactic, morphological and phonological requirements of another language. The groping pattern in (30a)-(30f) above shows, moreover, that this is a precisely controlled process.

6. Constraints on mixing, after all

The previous section has shown that mixing decreases as structural gaps, caused by developmental asynchronies, get filled by language-internal developments (enhanced, possibly, by some cross-linguistic bootstrapping). There are, however, types of language mixing which drop out for very different reasons, cf. the following examples.

(34) Hannah 2;3-2;6
     (a) *mama hat das fix it*
          m. has that ..., 'M. has fixed it'
     (b) *ich habe die tortoise throw it away*
          I have the tortoise throw it away, 'I've thrown away the tortoise'
     (c) *du musst das nicht wipe my face*
          you must that not wipe my face, 'You mustn't wipe my face'

Cases like these, which appear to blend German and English VPs, are also mentioned by other researchers (Leopold 1939-1949, Redlinger & Park 1980). In our data from Hannah, these examples were restricted to a period of three months and then never heard again. We know why: Since UG restricts the position of the complement to either the right or the left of its head, patterns which allow both within the same construction are ruled out.

7. Conclusion

In this contribution we have argued that all learners - also monolinguals - early on and some permanently, develop "multiple codes". This may not be just a consequence of the linguistic varieties in the input but also a consequence of a learner's attempts to match and synchronize different levels of representation within optimally coherent systems.

Research in bilingualism has a particularly important contribution to make to the overall discussion of what types of knowledge may be accessible to young children. Evidence from children growing up with two first languages clearly demonstrates their early metalinguistic awareness of who speaks what language, even though they may not always consistently adhere to their environment's preferred choice. The learner's attention to sociolinguistic factors is reflected in self-corrections, sensitivity to differential parental tolerance (Lanza 1997), and in more or less compliant reactions to elicited translations ("What does mummy say?"). But knowledge of appropriateness and other pragmatic factors are only part of a more complex picture.

It seems that from the start, language mixing exhibits remarkable structural precision and, apart from the attempted compromise VPs discussed in section 6, relatively little redundancy. That precision must be based on early (rudimentary) awareness of categorial and structural equivalence, hence on fairly accurate grammatical representations. As grammars change, so does language mixing, but this may only be a trivial consequence of the child's growing linguistic sophistication.

In other words: As soon as we find utterances which consist of more than one element there is not only no reason to argue for a pre-grammatical stage but there is ample evidence for coexisting grammars and hence for syntactic as well as semantic and pragmatic knowledge in monolingual and bilingual children.

References

Bates, Elizabeth. (ed.) (1979). *The emergence of symbol: Cognition and communication in infancy*. New York: Academic Press.

Bloom, Lois. (1973). *One word at a time*. The Hague: Mouton.

Bowerman, Melissa. (1973). *Early syntactic development*. Cambridge: Cambridge University Press.

Braine, Martin D. S. (1963). "The ontogeny of English phrase structure: The first phase." *Language* 39:1-14.

Brown, Roger. (1973). *A first language*. Cambridge/Mass.: Harvard University Press.

Clyne, Michael. (2003). *Dynamics of Language Contact*. Cambridge: Cambridge University Press.

d'Avis, Franz-Joseph & Gretsch, Petra. (1994). "Variations on `Variation': On the Acquisition of Complementizers in German." In: Tracy, Rosemarie & Lattey, Elsa. (eds.) *How Tolerant is Universal Grammar? Essays on Language Learnability and Language Variation*. 59-109, Tübingen: Niemeyer.

Döpke, Susanne. (1998). "Competing language structures: The acquisition of verb placement by bilingual German-English children." *Journal of Child Language,* 25, 555-584.

Fritzenschaft, Agnes, Gawlitzek-Maiwald, Ira, Tracy, Rosemarie & Winkler, Susanne. (1990). „Wege zur komplexen Syntax." *Zeitschrift für Sprachwissenschaft 9*, 52-134.

Gardner-Chloros, Penelope. (1995). "Code-switching in community, regional and national repertoires.: the myth of the discreteness of linguistics systems." In: Milroy, Leslie & Muysken, Pieter. (eds.). *One speaker, two languages: Cross-disciplinary perspectives on code-switching*. 68-89. Cambridge: Cambridge University Press.

Gawlitzek-Maiwald, Ira. (1997*). Der monolinguale und bilinguale Erwerb von Infinitivkonstruktionen: Ein Vergleich von Deutsch und Englisch.* Tübingen: Niemeyer.

Gawlitzek-Maiwald, Ira. (2000). "I want a chimney builden: The Acquisition of Infinitival Constructions in Bilingual Children." in: Döpke, Susanne. (ed.) Crosslinguistic Structures in Simultaneous Bilingualism. 123-148. Amsterdam/Philadelphia: John Benjamins.

Gawlitzek-Maiwald, Ira. (2003). „Approaches to bilingual acquisition data." In: Müller, Natascha. (ed.). *(In)vulnerable Domains in Multilingualism*. 139-159. Amsterdam: John Benjamins.

Gawlitzek-Maiwald, Ira, Tracy, Rosemarie, & Fritzenschaft, Agnes. (1992). "Language Acquisition and Competing Linguistic Representations: The Child as Arbiter." In: Meisel, Jürgen M. (ed.) *The Acquisition of Verb Placement: Functional Categories and V2 Phenomena in Language Acquisition.* 139-179. Dordrecht: Kluwer.

Gawlitzek-Maiwald, Ira & Tracy, Rosemarie. (1996). "Bilingual Bootstrapping." *Linguistics 34-5*, 901-926.

Genesee, Fred. (2003). „Bilingual Acquisition: Exploring the Limits of the Language Faculty." Key Note Adress given at the ISB4 Conference, Tempe, 2003.

Gruber, Jeff S. (1967). „Topicalization in child language.". *Foundations of Language 3*, 37-65 .

Gut, Ulrike. (2000). *Bilingual Acquisition of Intonation*. Tübingen: Niemeyer.

Höhle, Barbara & Weissenborn, Jürgen. (2000). „The Origin of Syntactic Knowledge: Recognition of determiners in one year old German children." In: Howell, S.C., Fish, S.A. & Keith-Lucas, T. (eds.) *Proceedings of the 24th Annual Boston University Conference on Language Development*. 418-429. Sumerville: Cascadilla Press.

Kaltenbacher, Erika. (1990). *Strategien beim frühkindlichen Syntaxerwerb.* Tübingen: Narr.

Lanza, Elizabeth. (1997). *Language mixing in infant bilingualism. A sociolinguistic perspective*. Oxford: Clarendon Press.

Lattey, Elsa & Rosemarie Tracy (in press). "'Well, I tell you, das war'n Zeiten!' – ein deutsch-amerikanisches Sprachporträt." To appear in: Hinnenkamp, Volker & Meng, Katharina. (eds.) *Sprachgrenzen überspringen. Sprachliche Hybridität und polykulturelles Selbstverständnis*. Tübingen: Narr.

Lebeaux, David (1988). „Language Acquisition and the Form of the Grammar." Ph.D.Diss, University of Massachusetts.

Leopold, Werner. (1939-49). *Speech Development of a Bilingual Child: A Linguist's Record*. 4 vols. New York: AMS Press.

Macnamara, John. (1973). "The cognitive basis of language learning in infants." *Psychological Review* 79, 1-13.

MacSwann, Jeff. (1999). *A minimalist approach to intrasentential code switching*. New York & London: Garland Publishing.

McNeill, David. (1970). *The acquisition of language*. New York: Harper & Row.

Meisel, Jürgen M. (1989). "Early Differentiation of Languages in Bilingual Children." In: Hyltenstam, Kenneth & Obler, Lorraine. (eds.). *Bilingualism Across the Lifespan: Aspects of Acquisition, Maturity and Loss*. Cambridge: Cambridge University Press.

Meisel, Jürgen M. (2001). „The simultaneous acquisition of two first languages: early differentiation and subsequent development of grammars." In: Cenoz, Jasone & Genesee, Fred. (eds.). *Trends in Bilingual Acquisition*. 11-41. Amsterdam, John Benjamins.

Müller, Natascha. (1998). "Transfer in bilingual first language acquisition." *Bilingualism, Language and Cognition 1*(3), 151-171.

Müller, Natascha & Hulk, Aafke. (2001). "Crosslinguistic Influence in Bilingual Language Acquisition: Italian and French as Recipient Languages." *Bilingualism, Language and Cognition* 4-1, 1-21.

Muysken, Pieter. (2000). *Bilingual Speech. A Typology of Code-Mixing*. Cambridge: CUP.

Paradis, Johanne. & Genesee, Fred. (1997). "On Continuity and the emergence of functional categories in bilingual first-language acquisition." *Language Acquisition, 6(2),* 91-124.

Penner, Zvi, Schulz, Petra & Wymann, Karin. (1999). "Normal and Impaired Language Acquisition II. Studies in Lexical, Syntactic, and Phonological Development." Arbeitspapier 105. Universität Konstanz, Sonderforschungsbereich 471.

Penner, Zvi, Tracy, Rosemarie & Weissenborn, Jürgen. (2000). "Where Scrambling Begins: Triggering Object Scrambling in Early Language Acquisition." In: Hamann, Cornelia & Powers, Susan. (eds.) *The Berne Volume: Papers from the Workshop on L1-L2-Acquisition of Clause-Internal Rules, Scrambling, and Cliticization*. 127-164. Dordrecht: Kluwer.

Penner, Zvi, Tracy, Rosemarie & Wymann, Karin. (1999). „Die Rolle der Fokuspartikel AUCH im frühen kindlichen Lexikon." In: Meibauer, Jörg & Rothweiler, Monika. (eds.) *Das Lexikon im Spracherwerb*. 229-251. Tübingen: Francke.

Peters, Ann M. (1977). "Language learning strategies: does the whole equal the parts?*" Language, 53,* 560-73.

Peters, Ann M. (1983). *The Units of Language Acquisition*. Cambridge: Cambridge University Press.

Phillips, Colin. (1995). "Syntax at age two: Cross-linguistic differences." In: Schütze, Carsten, Ganger, J.B. & Broihier, K. (eds.). *Papers on language processing and acquisition.*. MIT: *MIT Working Papers in Linguistics* 26, 325-382.

Pinker, Steven. (1989). *Learnability and Cognition: The Acquisition of Argument Structure*. Cambridge/Mass.: MIT Press.

Randall, Janet. (1990). "Catapults and Pendulums: the Mechanics of Language Acquisition." *Linguistics* 28, 1381-1406.

Redlinger, Wendy & Park, Tschang-Zin. (1980). "Language Mixing in Young Bilinguals." *Journal of Child Language* 3, 449-455.

Rizzi, Luigi. (1994). "Early null subjects and root null subjects." In: Hoekstra, Teun & Schwartz, Bonnie. (eds.). *Language acquisition studies in generative grammar.* 151-177. Amsterdam: Benjamins.

Sinclair-de-Zwart, Hermina. (1973). "Language Acquisition and Cognitive Development." In: Moore, Timothy. E. (ed.) *Cognitive Development and the Acquisition of Language.* 9-21. New York: Academic Press.

Tracy, Rosemarie. (1989). „Projektionsprobleme." *Zeitschrift für Literaturwissenschaft und Linguistik,* 73, 75-113.

Tracy, Rosemarie. (1991). *Sprachliche Strukturentwicklung: Linguistische und kognitionspsychologische Aspekte einer Theorie des Erstspracherwerbs.* Tübingen: Narr.

Tracy, Rosemarie. (1994). "Raising questions: Formal and functional aspects of the acquisition of wh-questions in German." In: Tracy, Rosemarie & Lattey, Elsa. (eds.) *How Tolerant is Universal Grammar: Essays on Language Learnability and Language Variation.* 1-34. Tübingen: Niemeyer.

Tracy, Rosemarie. (1995). "Child languages in contact: The simultaneous acquisition of two languages (English/German) in early childhood." Habilitationsschrift University of Tübingen.

Tracy, Rosemarie. (1996). „Vom Ganzen und seinen Teilen: Überlegungen zum doppelten Erstspracherwerb." *Sprache und Kognition 15,*1/2, 70-92.

Tracy, Rosemarie. (2000a). "Language Mixing as a Challenge for Linguistics." In: Döpke, Susanne. (ed.). *Cross-linguistic structures in simultaneous bilingualism.* 11-36. Amsterdam: John Benjamins.

Tracy, Rosemarie. (2000b). "Sprache und Sprachentwicklung: Was wird erworben?" In: Grimm, Hannelore. (ed.) *Enzyklopädie der Psychologie. Band 3: Sprachentwicklung.* 3-39. Göttingen: Hogrefe.

Tracy, Rosemarie. (2002). "Growing (clausal) roots: all children start out (and may remain) multilingual." *Linguistics 40-4*, 653-686.

Tracy, Rosemarie & Gawlitzek-Maiwald, Ira. (2000). „Bilingualismus in der frühen Kindheit." In: Grimm, Hannelore. (ed.) *Enzyklopädie der Psychologie. Band 3: Sprachentwicklung.* 495-535. Göttingen: Hogrefe.

Tracy, Rosemarie & Lattey, Elsa (1994) (eds.). *How Tolerant is Universal Grammar? Essays on Language Learnability and Language Variation.* Tübingen: Niemeyer.

Van Kampen, Jacqueline. (2001). "Pragmatic bootstrapping for category assignment: from non-discourse towards discourse-oriented language." In: *Proceedings of ELA (Early Lexicon Acquisition), Lyon, December 5-8.* CD-ROM

Verrips, Maaike. (1994). "Learnability Meets Development: The Case of Pro-Drop." In: Tracy, Rosemarie & Lattey, Elsa. (eds.) *How Tolerant Is Universal Grammar? Essays in Language Learnabilty and Language Variation.* 111-124. Tübingen: Niemeyer.

Wexler, Ken. (1998). "Very early parameter setting and the unique checking constraint: A new explanation of the optional infinitive stage." *Lingua 106*, 23-79.

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