First and second language development from a UG perspective

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1. Motivating UG: L1 acquisition

The central tenet of the generative approach (Chomsky 1959, 1965, 1975, 1981, 1986, 1999, 1995) is that humans are predetermined to acquire language; this biological endowment ensures that all (non-impaired) children acquire the language (or languages) to which they are exposed in their environment, and it distinguishes humans from all other species. The argument for such a *language acquisition device* is derived from the observation that the linguistic knowledge which children acquire goes far beyond the input to which they are exposed. Before considering what this predetermined knowledge involves, let us examine the argument for its existence in more detail.

Children's linguistic development progresses at an astonishing rate. At the age of 6-8 months already, when children are only just starting to crawl, their linguistic abilities are so sensitive that they are able to discriminate between the sounds of what will become their native language and between sounds in other languages (e.g. Werker and Tees 1984). At around age one year, they start to produce their first words and approximately six months later, they start to combine words with each other, adding grammatical elements such as articles, plural forms and prepositions, to form increasingly complex sentences such that at around age three and half, when they might be learning how to ride a tricycle, they start to produce complex sentences such as relative clauses.[1] What is more remarkable is that these stages are consistent across children and that they have been observed for various languages, including sign languages (see e.g. Lillo Martin 1999). The rapidity and uniformity of language acquisition across different learning conditions also suggests (though of course does not necessarily entail) that children must come equipped for the task with innate knowledge about language.

[1] For more on the milestones which L1 English children pass through see, for example, the pioneering work of Brown (1973) and De Villiers and De Villiers (1985).

Perhaps the most crucial argument for the existence of an innate *language faculty* comes from the observation that children go beyond the input they hear, that is, they come to know more than the totality of that to which they are exposed. How children progress beyond the input, a problem which has come to be known as the *logical problem of language acquisition* or the *poverty of the stimulus*, has to be addressed by any account of language acquisition. The generativist's solution to this problem is to posit that certain parts of linguistic knowledge are innate. It is claimed that the child cannot solely rely on the input because, not only does this vary from child to child, more importantly, it is also degenerate, finite and restricted in scope (Chomsky 1965). It is degenerate because it includes the incomplete/unfinished sentences which are characteristic of everyday speech. It also only contains a finite number of sentences, yet the knowledge which children acquire allows them to produce a potentially infinite number of sentences. Finally, the input is restricted in scope in that it only contains positive evidence, that is, evidence of what is possible in the language in question. Negative evidence, that is, information about what is ungrammatical in a particular language is not available and when it is (e.g. through correction by caretakers), it is not used (Marcus 1993, Brown and Hanlon 1970). Nevertheless, children come still to know which strings in their native language(s) are ungrammatical.

This innate knowledge or language faculty constitutes the initial state for the language learning child. It provides information about the range of possible languages, including a set of abstract universal principles common to all languages, and a set of parameters capturing the variation observed between different languages. Together, these are known as *Universal Grammar* (UG). UG is often likened to a pre-wired box with a set of switches (Chomsky 1988, analogy attributed to J. Higginbotham). The wiring specifies the possible options and the switch settings determine the available choices. Language acquisition thus involves – metaphorically speaking – flicking the appropriate switches on the basis of the input which the child hears.

The abstract universal principles of UG take the form of constraints. Constraints restrict the grammar in such a way that certain combinations, for example, of words or of sounds and meanings, are prohibited. These constraints hold for all languages and they may not be violated. The sentences in (1) and (2) illustrate a well-known constraint on form which prevents certain

phonological processes from applying after *wh*-movement has taken place. More specifically, these examples concern the optional contraction between *want* and *to* in English; as we shall see, this phonological process is only possible under certain syntactic conditions. Let us start by briefly considering the derivation of *wh*-questions. The question in (1)-a is formed by moving the *wh*-word, *what*, from its base position as the object of *eat*, to sentence-initial position, leaving behind what is called a *trace* in the process; this trace, considered to be psychologically real, marks the *wh*-word's original position, as illustrated in (1)-b, where *t* signifies trace. In (1)-c, *want* and *to* are contracted to *wanna*, whereas in the *wh*-question in (2), this is ungrammatical, as indicated by the asterisk in (2)-b. This rather subtle difference results from the fact that the questioned constituent in the infinitival clause is different in each of the two sentences: in (1), the questioned constituent is the object of *eat*, and in (2), the subject of *go*. More specifically, the trace left by the *wh*-word in (2)-b intervenes between *want* and *to*, as shown in (2)-c, and consequently, *wanna*-contraction is not possible. Native-speakers of English have implicit knowledge of this constraint, which manifests itself in other languages, too, albeit in different ways; knowledge of this constraint entails that (2)-b is ungrammatical (see Crain and Thornton 1998, Chapter 23 for more details).

(1) a.   What do you want to eat?

     b.   What$_i$ do you want to eat t$_i$?

     c.   What do you wanna eat?

(2) a.   Who do you want to go home?

     b.   *Who do you wanna go home?

     c.   Who$_i$ do you want t$_i$ to go home?

The sentence in (3) illustrates a constraint on meaning.

(3) Roy loves Angela$_i$, but Tracey$_j$ hates her$_{i/*j}$.

The pronoun *her* refers to a singular antecedent who is female. The sentence in (3) contains two such potential antecedents, namely Tracey and Angela. As the co-indexing indicates, however, there is only one antecedent which is grammatical, namely Angela. Tracey cannot function as the antecedent for *her* because – and this is the relevant constraint – anaphoric interpretations are prohibited in certain structural configurations. (To be specific, the relevant constraint here is Principle B of the Binding Theory (Chomsky 1981).)

Variation is instantiated in parameters linked to universal principles. For example, there is a principle which states that all phrasal constructions have 'heads'. A noun phrase (NP) thus has a noun as its head, and a verb phrase (VP) a verb, etc.. The position of this head relative to its complement is, however, subject to variation, and this is captured in a so-called Headedness Parameter, which has two options, head-initial and head-final. Languages such as English and French are head-initial, for example, whereas Japanese and Turkish are head-final. In recent versions of generative theory, the locus of variation has shifted to the lexicon, and more specifically, to functional categories.[2] For example, the functional category *Tense* is said to be weak in English and strong in French. This difference in 'feature strength' accounts for the word order variation with respect to negation illustrated in (4).

(4) a.   I do **not** eat peas very often

   b.   Je ne mange **pas** de petits pois très souvent

      I   eat   not of peas   very often

      'I do not eat peas very often.'

   c.   *Je ne **pas** mange de petits pois très souvent

In (4)-a, the main verb, *eat*, appears to the right of the negator, *not*, whereas in (4)-b, the main verb has 'raised' over the negator, *pas*, and appears to its left. This is because the tense feature in

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[2] Functional categories are contrasted with lexical categories (or contentives). Lexical categories have meaning or content, e.g. nouns, verbs, adjectives, whereas functional categories, such as tense, inflection, determiners, do not.

French is strong and therefore requires the verb to move to that projection; if it does not, ungrammaticality results, as illustrated in (4)-c.

One area of debate in L1 acquisition research has been whether functional categories and their respective projections, e.g. Tense Phrase (TP), Determiner Phrase (DP) and Complementiser Phrase (CP), are available in the earliest stages of linguistic development. Proponents of so-called *weak continuity* claim that functional projections emerge one by one: children initially start with a VP and they subsequently add a TP, followed by a CP (e.g. Clahsen, Eisenbeiss and Vainikka 1994, Vainikka 1993/1994). When children produce non-nominative subjects as in (5), it is claimed that this is because the position where nominative case is assigned, TP is not yet available. This is also why verbs in children's early utterances are often non-finite, as in (6).

(5)   My make a house   (Nina 2;0)

                                                            (Vainikka 1993/1994:273, ex. 276)

(6) a.   die helemaal kapot maken   (Dutch, Niek 3;2)

          that altogether broken make-INF

          'completely break that one'

                                                            (Wijnen 1997:1, ex. 1)

    b.   dormir là Michel   (French, P 2;2)

          sleep-INF there Michel

          'Michael sleep there'

                                                            (Deprez and Pierce 1994)

Proponents of strong continuity (or the Full Competence Hypothesis – Poeppel and Wexler 1993) argue that children *do* have access to all functional categories from the start, however (Weissenborn 1990, Boser, Lust, Santelmann and Whitman 1992, Hyams 1992). On this view, although not identical, child and adult grammars include the same grammatical objects and mechanisms, namely those made available by UG (see Guasti 2002 for introduction to relevant

issues). Within this approach, it has been argued that the development of syntax follows a pre-determined biological schedule (Borer and Wexler 1992); thus, children's use of non-finite verbs in matrix clauses (so-called *Root Infinitives*) is due to immature principles of UG rather than the lack of functional categories (Rizzi 1993/1994, Wexler 1998).

To sum up, according to the generative approach, the initial state of L1 acquisition consists of a set of universal constraints, Universal Grammar, which restricts the hypotheses children (subconsciously) formulate when constructing their grammars. The variation observed in natural language is captured in a pre-determined set of options from which children make a selection on the basis of the linguistic input to which they are exposed, be that from one or more languages. By around age five, all of the correct options will have been selected.[3]

2. UG in adult L2 acquisition

The central question driving generative non-native (L2) acquisition research is whether L2 acquisition is constrained in the same way as L1 acquisition, that is, whether L2 grammars obey the same set of universal constraints as native-speaker grammars. Following early work by Corder (1967) and Selinker (1972), the non-native acquirer's (L2er) grammar, or *interlanguage*, is viewed as a system in its own right, rather than in terms of the L1 or the target language (TL). The questions which generative L2 research seeks to address include: What are the properties of the L2er's interlanguage system? Are they properties which are characteristic of natural language grammar? How exactly are these properties acquired? As in most studies, the focus in this section will be on adult L2ers. The study of child L2 acquisition from a generative perspective is dealt with in the following section.

2.1   UG and/or L1 transfer

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[3] This does not mean that language acquisition is complete at this age: some aspects of language e.g. relating to the more complex properties of discourse, are acquired later.

Adult L2ers and L1 children differ by definition because L2ers already know another language. The extent to which L2ers use this knowledge in the L2 acquisition process, and whether and how the role of the L1 can be teased apart from the role of UG has been subject to considerable debate.

In early generative work, the question of whether L2 grammars are UG-constrained was framed in terms of *access* to UG. L2ers were claimed either to have *no access* (e.g. Clahsen and Muysken 1986), *direct* or *full* access (e.g. duPlessis, Solin, Travis and White 1987, Schwartz and Tomaselli 1990, Epstein, Flynn and Martohardjono 1996) or *indirect* (or *partial*) access to UG (e.g. Clahsen and Muysken 1989). On the *no access* view, L2ers are claimed to make use of general learning mechanisms, such as 'linear sequencing strategies which apply to surface strings' (Meisel 1997:258).

In the approaches proposing access to UG, the existence of L1 influence was generally left implicit or denied, often because attributing a role to the L1 was considered to weaken the case for UG in L2 acquisition (White 2003b:27). For those espousing the indirect access view, UG is only available via the L1. If L2ers demonstrate unconscious knowledge of UG principles which could not be acquired as a result of L2 input, these are claimed to derive from the L1, which is viewed as a particular instantiation of UG (Bley-Vroman 1990, Schachter 1989). On this latter approach, UG is no longer available as a separate entity; rather, it can only be accessed in terms of the language-specific grammar that is the L1. Any parameter settings which are not instantiated in the L1 are lost.

As White (2003b) notes, in early work the terms *direct* and *partial* access were used inconsistently across the research community. Furthermore, the dichotomy which was often adopted between UG access and L1 influence was 'overly simplistic and misleading' (White 2003b:27). When L2ers demonstrate knowledge of UG principles, it may be impossible, for some L1/L2 combinations at least, to determine whether this knowledge stems directly from UG or from the L1 (Hale 1996). In light of this problem, it is argued by some that the role of UG in L2 acquisition is best established by determining whether, as in L1 acquisition, the learner faces a logical problem and whether this problem can be overcome (White 1985, 1989, Schwartz and Sprouse 2000). This research is reviewed in the following section.

The role of the L1 has been explored more explicitly as part of recent approaches focussing on the *initial state*. The initial state refers to the earliest stage of L2 development, that is, the knowledge which the L2er brings to the acquisitional task. There are three main approaches: Schwartz and Sprouse's (1994, 1996) Full Transfer/Full Access, Vainikka and Young-Scholten's Minimal Trees (1994, 1996a, 1996b) and Eubank's (1993/4, 1994, 1996) Valueless Features Hypothesis. Let us briefly examine each of these approaches in turn.

As its name suggests, Schwartz and Sprouse's (1994, 1996) Full Transfer/Full Access model claims that L2ers initially transfer all of their L1 grammar (excluding the phonetic matrices of lexical/morphological items) to their interlanguage grammar. In other words, the L2 initial state is the L1 final state. When this L1-based analysis of the TL fails, the IL grammar is restructured. During this restructuring process, learners have 'access' to properties of UG, including those which are not instantiated in their L1 grammar. On this approach, then, L2 development is determined by L1 transfer (the initial state), UG and L2 input, and a learner's IL grammar – even if it is neither like the L1 nor the target language – remains within the confines of UG at all stages of development (cf. Epstein et al.'s 1996 Full Access approach, which claims that L2ers have full access to UG but that the initial state is not the L1). For example, in their analysis of the development of German by a native speaker of Turkish called Cevdet, Schwartz and Sprouse observe that at a certain point in his acquisition of word order, Cevdet's IL grammar is restricted in such a way that it resembles French rather than Turkish or German. In German, finite verbs in matrix clauses always appear in second constituent position, a phenomenon known as Verb Second (V2). Thus, when a non-subject constituent appears sentence-initially, the finite verb and subject invert so that the verb appears in second position and the subject in third position. This is illustrated in (7)-b; the canonical order for matrix clauses is given in (7)-a.

(7) a.   Er hat gestern   meine Tante gesehen

        he has yesterday my   aunt   seen

        'He saw my aunt yesterday.'

b.   Gestern hat er meine Tante gesehen

c.   dann trinken wir bis neun Uhr

then drink   we until nine o'clock

'Then we drink until nine o'clock.'

d.   in der Türkei der Lehrer kann den Schüler schlagen

in the Turkey the teacher can the pupil   beat

'In Turkey, the teacher can hit the pupil.'

(Schwartz and Sprouse 1994:336-337, exs. 21-c and 22-c)

Schwartz and Sprouse (1994) observe that when Cevdet initially starts to use V2, it is restricted to utterances where there is a pronominal subject. When the subject is a full NP, no subject-verb inversion takes place, as in (7)-d. This restriction is not consistent with the target language, German, but it is consistent with an option present in French. In question formation in French, full NP subjects cannot invert with the verb, but pronominal subjects can. Thus, Schwartz and Sprouse argue, although Cevdet's grammar resembles neither the L1 nor the target language, it is still a natural language grammar, that is, it is still constrained by UG (see Finer and Broselow 1986, Hirakawa 1990 for similar results). Evidence supporting the existence of full transfer at the morphological level comes from work by Montrul (2000, 2001).

Vainikka and Young-Scholten (1994, 1996a, 1996b) also claim that IL grammars are constrained by UG but, in contrast to Schwartz and Sprouse, these authors adopt a weak continuity approach, claiming that the initial state comprises the Verb Phrase (VP) projection only. Furthermore, according to Vainikka and Young-Scholten, this is the only category which is transferred from the L2er's L1. Evidence for this claim comes from data on the acquisition of German word order by native speakers of Turkish, Korean, Spanish and Italian. The VP in German is head-final, which means that in matrix clauses, the non-finite verb appears in sentence-final position, to the right of the object, as in (7)-a above. Turkish and Korean are also OV

languages, but Italian and Spanish, like English, are VO languages. Vainikka and Young-Scholten (1994, 1996a, 1996b) observe that in the initial stages of their L2 development, the Turkish and Korean learners in their study produced right-headed VPs, as in (8), whereas the Italian and Spanish learners produced left-headed VPs, as in (9).

(8)   Oya Zigarette trinken   (Aysel, L1 Turkish)

         Oya cigarette drink-INF

         'Oya drinks cigarettes'

                                                  (Vainikka and Young-Scholten 1996a:16, ex. 16-a)

(9)   Ich sprechen die meine Firma   (Salvatore, L1 Italian)

         I   talk-INF the my   firm

         'I speak (to/at) my firm'

                                                  (Vainikka and Young-Scholten 1996b:156, ex. 159-b)

At the same time, the learners' production is characterised by a marked absence of properties relating to functional projections, such as verb raising, auxiliaries and modals, and inflectional morphology, which, according to Vainikka and Young-Scholten, suggests that functional categories are absent at this stage of development. These categories are subsequently added in a stepwise fashion and unlike the VP, they are not subject to L1 transfer. Rather, the IL grammar develops on the basis of the L2 input interacting with UG.

On Eubank's (1993/4, 1994, 1996) Valueless Features account, L2ers transfer all of the L1 grammar except the 'strength' of the features of functional categories. Such features are unvalued or 'inert' at the initial state and they are set to 'weak' or 'strong' during the course of development, once the L2er has acquired the overt inflectional morphology to which they are related. Thus, for example, the strength of the feature in Tense in the IL grammar of an English-

speaker acquiring French would be set to strong once the L2er had acquired verbal inflectional morphology.

2.2 Logical problem of L2 acquisition?

The motivation for an innate language acquisition device driving L1 acquisition comes from the logical problem of language acquisition: children go beyond the input to which they are exposed. In recent years, researchers have argued that there is also a logical problem of L2 acquisition. Like L1 children, L2ers develop knowledge of complex and subtle properties of the target language which are underdetermined by the input (White 1985, Schwartz and Sprouse 2000). Note, however, that this does not necessitate that they make use of the same innate language acquisition device as L1 children. Unlike L1 children, L2ers know another language, and according to some researchers, this is the source of the complex and subtle L2 knowledge which they acquire (e.g. Bley-Vroman 1990).

Another important difference between L1 children and L2ers is that L2ers often receive language instruction. This could potentially also account for the development of sophisticated L2 knowledge. In order to demonstrate that there is a logical problem of L2 acquisition *and* that L2ers must use UG to overcome this problem, it is necessary to demonstrate that L2ers develop knowledge of complex and subtle properties of the target language which could not be derived from either (i) the L2 input, (ii) the L1, or (iii) instruction (White 1990, 1989, Schwartz and Sprouse 2000). It should also not be possible to acquire these properties using general learning mechanisms, such as analogy, frequency or the linear sequencing strategies mentioned above (White 2003a:23).

In one of a series of studies on the L2 acquisition of French by native speakers of English, Dekydtspotter, Sprouse and Thyre (1999/2000) demonstrate that adult L2ers are indeed capable of acquiring target language knowledge which must be derived from UG. The property of French under investigation is the interpretation of so-called discontinuous and continuous *combien-*questions. French allows the interrogative numeral determiner *combien* 'how many' to appear

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either together with or separated from its nominal complement, as in (10)-a and (10)-b, respectively.

(10) a. **Combien** **de livres** est-ce que tous les étudiants lisent?

how many of books is-it that all the students read

'How many books do all the students read?'

b. **Combien** est-ce que tous les étudiants lisent **de livres**?

how many is-it that all the students read of books

'How many books do all the students read?'

These so-called continuous and discontinuous constituents differ in interpretation. Take the following situation: one student, Graham, reads *The Tax Inspector*, *Oscar and Lucinda* and *Jack Maggs*, and another student, Lorna, reads *Oscar and Lucinda*, *Jack Maggs* and *Illywhacker*. In this situation, the answer to the question in (10)-a is either two, because there are two books which both Graham and Lorna read, namely *Oscar and Lucinda* and *Jack Maggs* (the so-called 'wide scope' reading), or three, the number of books per student (the 'narrow scope' reading). The only answer to question in (10)-b, on the other hand, is three.[4]

For the English-speaking L2er, the acquisition of this particular property of French represents a poverty of the stimulus problem (as it does for the L1 child acquiring French). There is nothing in the TL input or the L1 to prevent the L2er from assuming that the (much less frequent) discontinuous pattern is simply a rewrite of the continuous pattern because (i) the L1 equivalent, the continuous form given in the gloss in (10), allows both narrow and wide scope readings, and (ii) whenever the continuous *combien* interrogative is true, the discontinuous *combien* interrogative is true. Thus, Dekydtspotter *et al.* argue, if L2ers demonstrate knowledge of

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[4] According to Dekydtspotter *et al.* (1999/2000), the unavailability of the wide-scope reading in (10)-b results from the interaction of various syntactic and interface constraints (Obenauer 1984/1985, Diesing 1992), the details of which need not concern us here.

this property of French, which furthermore is not covered in the L2 French classroom, this must result from the L2 hypothesis space being severely constrained and in a similar fashion to L1 acquisition. In a truth value judgement task, Dekydtpotter *et al*. found that like native speakers, advanced English-speaking adult L2ers of French make the relevant distinction between continuous and discontinuous questions. Such a distinction, Dekydtspotter et al. claim, 'could not feasibly be acquired without a restricted relation between levels of syntactic and conceptual structure representations' (Dekydtspotter et al. 1999:170).

Similar results are observed in several other studies focussing on the logical problem of L2 acquisition (e.g. Dekydtspotter, Sprouse and Anderson 1997, Kanno 1998, Marsden 2004). One advantage of this type of approach to L2 acquisition is that it is not deeply embedded within a particular linguistic theory, as are some generative studies of L2 acquisition (Schwartz and Sprouse 2000). This means that when the linguistic theory in question is revised, this revision will not have potentially fatal consequences for the conclusion that, for example, L2 acquisition is constrained by UG.

2.3 Ultimate attainment

Most (adult) L2ers fail to reach the same level of knowledge as native speakers. This observation is often used as an argument against UG involvement in L2 acquisition: if L2ers make use of the same innate language acquisition device as children, who – under 'normal' circumstances – are always successful, then, the argument goes, L2ers should be equally successful. In other words, whether or not L2ers are successful is measured in terms of how close they come to the native-speaker standard. Bley-Vroman (1983) dubbed this line of reasoning the *comparative fallacy*. He pointed out that 'the learner's system is worthy of study in its own right, not just as a degenerate form of the target system' (Bley-Vroman 1983:4). The question which ought to be asked in order to determine UG involvement in adult L2 acquisition is thus not whether IL grammars resemble native-speaker grammars but whether they are constrained by UG. In other words, the focus should be on whether IL grammars fall within the realms of natural language grammars, rather than whether they are identical to the particular natural language

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grammar which is the target of acquisition (e.g. Martohardjono 1993, duPlessis *et al.* 1987, Schwartz and Sprouse 1994).

Another objection to such a teleological approach to L2 acquisition is put forward by Schwartz (1990). She draws an analogy with L1 children who, in situations of language change, do not necessarily exactly reconstruct the grammar of the input providers, and with the grammar of English, which has changed over time (to wit, Old English, Middle English and Modern English). Both cases involve different grammars, but no-one would claim that these grammars are epistemologically non-equivalent. Thus, Schwartz argues, if IL grammars fail to converge on the target, they, too, cannot necessarily be deemed epistemologically non-equivalent. L2ers may look different from L1 children at the end state, quite simply, because their initial state is different (Schwartz 1998, Schwartz and Sprouse 1994).

Failure to reach a nativelike level of ultimate attainment cannot in and of itself be used against the claim that UG is involved in L2 acquisition, but it still requires explanation of course. Various explanations for non-targetlike end states have been proposed within the generative paradigm. For example, in accounting for the consistently non-targetlike verbal inflectional morphology in a Chinese-speaking L2er of English clearly at her end state, Lardiere (1998) suggests that L2ers may experience problems in the specific mapping from syntax to morphology (see also e.g. Prévost and White 2000). While their underling syntactic representations may be targetlike, they may e.g. for processing reasons fail to consistently produce certain morphemes. Sorace (2003) accounts for the residual/persistent optionality she observes in end-state grammars as the L2ers' failure to eradicate the non-targetlike parameter setting which they transferred from their L1, whereas Beck (1998), in an extension of Eubank's (1993/4, 1994, 1996) Valueless Features hypothesis, proposes that feature strength in IL grammars is permanently impaired and that this accounts for optionality in, for example, verb raising (cf. (4)-b). In their Failed Functional Features Hypothesis, Hawkins and Chan (1997) argue that L2 adults can not acquire features which differ from those in their L1; even when learners are relatively successful in acquiring a TL property which is not instantiated in their L1, their interlanguage grammars are, according to these authors, still derived from an L1-based analysis of the TL input.

2.4 Summary

The generative approach to L2 acquisition seeks to determine whether IL grammars are constrained in the same way as native-speaker grammars. It has been claimed that, like L1 children, L2ers go beyond the input to which they are exposed, that is, there is a logical problem of L2 acquisition and in order to overcome this problem, L2ers must use UG. Most researchers agree that the initial state of L2 acquisition is characterised by some form of L1 transfer, although what exactly is transferred is subject to debate. With respect to the end state, it is important to note that in and of itself, failure to achieve a nativelike level of ultimate attainment does not constitute an argument against UG involvement in L2 acquisition.

3. UG in child L2 acquisition

After having been the focus of an active research programme in the 1970s (e.g. Hakuta 1976, Felix 1977, Cancino, Rosansky and Schumann 1978, Ervin-Tripp 1978, Ravem 1978, Wode 1978 amongst others), child L2 acquisition had until recently somewhat taken the back seat in the field of generative L2 acquisition. As the previous section illustrates, in the 1980s and early 1990s, the focus was mainly on adult L2ers. In recent years, however, child L2 acquisition has been the subject of renewed interest in the field (see Lakshmanan 1995, Paradis in press, Unsworth 2005 for reviews). The term child L2 acquisition is generally used to denote L2ers whose first exposure to the second language occurs early in childhood, at a point at which the bulk of their first (native) language is already in place, say around age four.

The age at which child L2 acquisition becomes adult L2 acquisition is subject to considerable debate; it is an issue which is intrinsically linked to the debate about whether there is a critical period in L2 acquisition, that is, whether 'there is a limited developmental period during which it is possible to acquire a language, be it L1 or L2, to normal, nativelike levels' (Birdsong 1999:1, see Hyltenstam and Abrahamsson 2003a for a recent review of the literature). This debate is far from resolved and various ages have been put forward as the start of a decline in the ability to reach nativelike levels of L2 proficiency: 3 years (Meisel 2007), 5 years (Krashen 1973), 7

years (Johnson and Newport 1989, DeKeyser 2000), 8 years (Bialystok and Miller 1999), 9 years (Penfield and Roberts 1959), puberty (Lenneberg 1967) and 15 years (Long 1990). Others have argued that there is no cut-off point, that is, that there is no critical period for L2 acquisition (e.g. Birdsong 1992, Bongaerts 1999, White and Genesee 1996, Slabakova 2006). Studies investigating the critical period hypothesis use child L2 acquisition to say something about adult L2 acquisition. By comparing L2 children and L2 adults, it is possible to determine whether L2 acquisition proceeds in the same fashion for both groups, that is, whether, as a result of biological and/or cognitive and/or sociological factors, the acquisition of an L2 as an adult is fundamentally different (Bley-Vroman 1989) from the acquisition of an L2 as a child.

The standard assumption made throughout the literature is that child L2 acquisition *is* constrained by UG. The evidence for this assumption comes from the critical period studies mentioned above which observe that, on the whole, L2 children are more successful than L2 adults (e.g. DeKeyser 2000, Johnson and Newport 1989, 1991). Recently, however, this assumption has been questioned: Hyltenstam and Abrahamsson (2003b) present data showing non-nativelike levels of ultimate attainment in the child L2 acquisition of Swedish. Meisel (2007) claims that only those L2 children who are exposed to the L2 before the age of three or four will pattern similarly to L1 children.

Virtually all critical period studies focus on ultimate attainment and in order to ensure that the L2 children have indeed reached their end state, they are usually tested when they are adults. Not only is this focus on ultimate attainment problematic for the reasons outlined in the preceding section, it also means that nothing can be said about child L2 *development*. Irrespective of the level of ultimate attainment which L2 children reach, it is possible that the route they took on their way to this (non-)nativelike end state differs from L1 acquisition (Schwartz to appear). To obtain more insight into all three types of acquisition – child L2, adult L2 and L1 – we need to investigate child L2 *development* and systematically compare this, on the one hand, with L1 development, and on the other, with adult L2 development (Schwartz 1992, 2003, 2004, Unsworth 2005, van de Craats 2000).

In Unsworth (2005), I compare English-speaking L2 children and adults with L1 Dutch children in their acquisition of direct object scrambling in Dutch. I observe that in their production of scrambled objects, the L2 children and adults in this study pass through the same developmental sequence and that this sequence subsumes the one which L1 children are observed to follow. The major difference between the L2 and L1 sequences is the presence of an initial stage of L1 transfer for the L2ers. Thus, like L2 adult development, child L2 development is also characterised by L1 transfer (Haberzettl 1999, Whong-Barr and Schwartz 2002, Haznedar 1997, but cf. Zdorenko and Paradis 2008).

The comparison between L1 and L2 children has been particularly fruitful in assessing approaches to L1 acquisition which involve some element of maturation. Specifically, several researchers (e.g. Haznedar and Schwartz 1997, Ionin and Wexler 2002, Prévost 2003, Schwartz 2004) have argued that given that L2 children are cognitively more mature than L1 children, developmental patterns in L1 acquisition which are explained by making recourse to maturation should not be found in child L2 acquisition when the L2 children are beyond the relevant maturational point. The area which has generated the most research using this logic is the phenomenon of *Root Infinitives* (cf. (6) above). L1 children (both monolingual and bilingual), acquiring languages such as Dutch, French, German and English, have been observed to pass through a stage where their declarative matrix clauses regularly contain non-finite forms where a finite verb is required. Two of the accounts put forward to explain this phenomenon, Rizzi's (1993/1994) *Truncation Hypothesis* and Wexler's (1998) *Very Early Parameter Setting* account, are both couched in terms of maturation. Both propose that the RI stage in L1 acquisition is maturationally driven and that by about the age of three, children leave this developmental stage and, consequently, finite verb forms replace the non-finite forms. Such approaches make very clear-cut predictions for child (and adult) L2 acquisition: L2 children should not pass through an RI stage of the same type as L1 children because (on the definition of child L2 acquisition adopted here), they are beyond the relevant maturational point. Several studies have investigated whether this is the case, but as yet, the results are mixed (Ionin and Wexler 2002, Haznedar 1997, Prévost 2003, Grondin and White 1996).

To summarise, child L2 acquisition, the study of which is witnessing a resurgence in generative L2 acquisition, is usually assumed to be constrained by UG. By adopting a comparative approach, child L2 acquisition can be employed to increase our understanding of adult L2 acquisition, on the one hand, and L1 acquisition, on the other. Investigating child L2 development – in addition to ultimate attainment, the focus of studies investigating the critical period hypothesis – will also allow us to find out more about child L2 acquisition itself. In order to achieve this goal, more data from L2 children are needed.

4. What the UG approach doesn't do, what it does do, and what it still needs to do

The generative approach to language acquisition is often criticised because it is rather limited. For example, it has nothing to say about how acquisition is affected by social factors, or about which factors affect performance. Rather, it seeks to 'describe and explain the nature of interlanguage [or the child's developing – SU] competence, defined in a technical and limited sense' (White 2003a:xi). It is thus concerned with grammar in its narrowest sense rather than language in a broad sense. Most of the research in this paradigm – and consequently this chapter – concentrates on linguistic representations. In addition to describing and explaining what a learner's developing grammar looks like at a given moment in time, it is also necessary to describe how learners' developing grammars develop over time. In other words, in addition to a 'property theory' of language acquisition, a 'transition theory' is also needed (Gregg 1996), that is, a theory which will explain how development comes about and what its causes are. This aspect of the acquisition process, dubbed by Felix (1984) as the 'developmental problem of language acquisition', has on the whole been given short shrift in the generative paradigm, especially with respect to L2 acquisition (Gregg 1996, Carroll 2001). Carroll's (1999, 2001) work constitutes one of the few attempts to address this problem for L2 acquisition.

One of the advantages of the generative approach to L2 acquisition is its formality. Formalisms are needed to characterise the learner systems which are the object of study (Gregg 1989); and unlike other formal approaches to language, the generative approach is also concerned with acquisition (Gregg 1989:31, fn. 18). Furthermore, the generative approach to language

acquisition can be used to make clear and falsifiable predictions. The linguistic principles which it uses are also independently motivated; the task of the acquisition researcher is to determine whether and how they are acquired.

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