Second Language Research 18,2 (2002); pp. 95–136

Why is 'is' easier than '-s'?: acquisition of tense/agreement morphology by child second language learners of English

Tania Ionin and **Kenneth Wexler** *Massachusetts Institute of Technology*

This study of first-language (L1) Russian children acquiring English as a second language (L2) investigates the reasons behind omission of verbal inflection in L2 acquisition and argues for presence of functional categories in L2 grammar. Analyses of spontaneous production data show that the child L2 learners ($n = 20$), while omitting inflection, almost never produce incorrect tense/agreement morphology. Furthermore, the L2 learners use suppletive inflection at a significantly higher rate than affixal inflection, and overgenerate *be* auxiliary forms in utterances lacking progressive participles (e.g., *they are help people*). A grammaticality judgement task of English tense/agreement morphology similarly shows that the child L2 English learners are significantly more sensitive to the *be* paradigm than to inflection on thematic verbs. These findings suggest that Tense is present in the learners' L2 grammar, and that it is instantiated through forms of the *be* auxiliary. It is argued that omission of inflection is due to problems with the realization of surface morphology, rather than to feature impairment, in accordance with the Missing Surface Inflection Hypothesis of Prévost and White (2000). It is furthermore suggested that L2 learners initially associate morphological agreement with verb-raising and, thus, acquire forms of *be* before inflectional morphology on *in situ* thematic verbs.

I Introduction

There is much evidence that second language (L2) learners frequently omit verbal inflection in their speech. A question that has been debated by many researchers is whether this optionality in the use of tense and agreement morphology means that the functional categories of Tense and Agreement are somehow impaired in L2 grammar, or whether the functional categories are indeed present, with the lack of overt inflection attributable to some other cause. Specifically, when L2 learners of English produce utterances such as *she go* or *he playing*, does the lack of overt

Address for correspondence: Tania Ionin, NE20-415, MIT, 77 Massachusetts Ave., Cambridge, MA 02139, USA; email: tionin@mit.edu

 10.1191/0267658302sr195oa

inflection signify an absence of functional categories or features in the learners' grammar (see, e.g., Meisel, 1997)? Or does it indicate problems with mapping from existing features to their surface morphological representations (see, e.g., Lardiere, 2000; Prévost and White, 2000)?

In this article we examine production as well as grammaticality judgement data obtained from first-language (L1) Russian children acquiring English as a second language and argue that there is evidence for the presence of functional categories in the learners' L2 grammar. To this end we examine how the child L2 learners treat forms with vs. without overt inflection in spontaneous production as well as in a grammaticality judgement task. We argue, based on our data, that Tense is fully specified in the L2 learners' grammar, and that omission of inflection stems from difficulties in acquiring feature specifications of inflectional morphemes. Focusing on differences in how the L2 learners treat *be* forms vs. thematic verb inflection in English, we suggest that L2 learners initially consider morphological agreement to be a reflex of verb-raising. We also take a brief look at how the child L2 learners differ from L1 learners of English and argue that the L2 learners do not go through the Optional Infinitive stage common to L1 learners.

This article is organized as follows. Section II reviews relevant existing data on L1 acquisition of inflection. Section III gives an overview of L2 studies on the acquisition of inflection. Section IV describes our production study with child L2 learners, and discusses the results. Section V presents the results and analyses of the grammaticality judgement task we conducted with child L2 learners. Finally, Section VI ties together the findings of both studies and presents suggestions for further research.

II Inflection in L1 acquisition

On the surface, L1 and L2 learners resemble each other in the apparent variability of their use of verbal inflection. However, research has shown that different processes may underlie omission of inflection in L1 vs. L2 acquisition. In this section, we briefly outline phenomena surrounding omission of inflection for L1 learners. Inflection in L2 acquisition is discussed in more detail in Section III.

1 Production of nonfinite forms in L1 acquisition

Research on first language acquisition has shown that child L1 learners of non-null subject languages go through a period (from

roughly 2–4 years of age) during which they alternate between using finite and nonfinite verbs in main clauses. This phenomenon has been attested for a variety of languages, including English (e.g., Brown 1973), French (e.g., Pierce, 1989; 1992) and German (e.g., Poeppel and Wexler, 1993).

The production of nonfinite forms can be quite high; for example, Phillips (1995) found that two L1 English children, Adam and Eve (Brown, 1973; MacWhinney and Snow, 1990; MacWhinney, 1995) used nonfinites in more than 60% of their verbal utterances. This phenomenon is known as the Optional Infinitive (OI) or Root Infinitive stage (Wexler, 1994; Rizzi, 1993/94). As Wexler (1994) showed, there is much evidence that the finite and nonfinite forms produced during the OI stage are structurally distinct; for example, in French and German, finite forms and nonfinite forms are placed differently, in accordance with the rules of adult French and German (see Pierce, 1989; 1992; Poeppel and Wexler, 1993). This is demonstrated in (1a) and (1b) for French (from Pierce, 1992) and in (1c) and (1d) for German (from Poeppel and Wexler, 1993).

1) a. Finite verb precedes negation
   marche pas
   walks not
   b. Nonfinite verb follows negation
   pas manger la poupée
   not eat-INF the doll
   c. Finite verb in second position
   Ich habe ein großen Ball
   I have a big ball
   d. Nonfinite verb in final position
   Thorsten Ball haben
   Thorsten ball have-INF

In addition to differentiating between finite and nonfinite verbs structurally, L1 learners seem to know the specifications of finiteness morphemes: when children in the OI stage do use finite verbs, the inflection is nearly always correct (e.g., Clahsen and Penke, 1992; Poeppel and Wexler, 1993; Harris and Wexler, 1996; Rice and Wexler, 1996). Thus, an L1 English two-year-old may produce utterances such as *Ernie likes chocolate* as well as *Ernie like chocolate*, but will not produce *I likes chocolate*.

It may be argued that children in the OI stage are using stem forms with missing inflection as opposed to true infinitives, since in English the two forms are identical. However, languages such as French and German, in which the infinitival form and the stem form differ, show this not to be the case: children in the OI stage use

forms with infinitival affixation, such as *manger* in (1b) and *haben* in (1d), in place of finite verbs.

2 Null subjects and finiteness in L1 acquisition

The OI stage in a variety of non-null subject languages is furthermore characterized by the use of null subjects (for an overview, see Phillips, 1995; the percentages reported in this section are computed from Phillips's tables). In languages such as French and German, null subject use with nonfinites is much greater than with finites. For example, Phillips (1995) found that two L1 German children, Andreas (Krämer, 1993; data from Wagner, 1985; MacWhinney and Snow, 1990) and Simone (Behrens, 1993; data from Miller, 1976), omitted subjects in 68% and 89%, respectively, of all nonfinite verbal utterances, but in only 9% and 21%, respectively, of finite utterances. He reports that Krämer (1993) found similar null subject use among three L1 French children, Nathalie and Daniel (Lightbown, 1977) and Philippe (Suppes *et al.*, 1973; MacWhinney and Snow, 1990), who omitted subjects in 83%, 95% and 94% of nonfinite utterances, respectively, but in 31%, 65% and 33% of finite utterances, respectively. ('Null subject' for the French children actually means 'no preverbal subject'.)

English is not as clear. Phillips found that two L1 English children, Adam and Eve (Brown 1973; MacWhinney and Snow, 1990), omitted subjects in 11% and 20% of nonfinite utterances, respectively, and 9% and 30% of finite utterances, respectively, so that no correlation could be drawn between overt subjects and finiteness. Schütze and Wexler (2000), on the other hand, conducted an elicitation study with L1 English preschool-age children and found a definite correlation between use of optional infinitives and subject drop. For example, across their 16 youngest (two-year-old) participants, subjects were omitted in 47% of optional infinitive utterances but in only 18% of inflected utterances. While the relationship between OIs and null subjects in English is, thus, not completely clear, there is evidence for an overall correlation between disappearance of early null subjects and emergence of consistent finiteness marking on verbs (see Guilfoyle, 1984).

3 Theories of the OI stage

To sum up this section, the syntactic behaviour of nonfinite forms in young children's utterances, the lack of incorrect verbal morphology in children's finite utterances, and the relationship between finiteness and null subjects (in some languages) all suggest

that nonfinite verbs are syntactically different from finite verbs in L1 grammar. According to the Agreement and Tense Omission Model (ATOM) of Schütze and Wexler (1996), infinitival forms are allowed in young children's speech because Tense and/or Agreement can be optionally left underspecified. In adult grammar, on the other hand, Tense and Agreement must be specified, so root clauses are always finite. Other proposals have attributed the OI stage to an underspecified Number category (Hoekstra *et al.*, 1997); to truncation – specifically, availability of root VPs, which are nonfinite, in child grammar, alongside finite clauses (Rizzi, 1993/94; Haegeman, 1995); and to use of a finite null auxiliary with nonfinite verbs (Borer and Rohrbacher, 1997). Crucially, all of these accounts of the OI stage agree that:

- while L1 learners may omit agreement morphology, they do not use incorrect finiteness morphemes; and
- finite and nonfinite verbs in L1 acquisition have distinct syntactic properties.

Is the OI stage specific to child L1 acquisition or is it a property of acquisition in general? Wexler (1998), building on the Maturational Hypothesis of Borer and Wexler (1987; 1992), argues that the OI stage is due to the immature state of young children's grammar. According to this hypothesis, children's grammar is at all times consistent with the Universal Grammar, but may be constrained by principles somewhat different from those constraining adult grammar. As the child matures, his or her grammar does as well, eventually coming to resemble the target adult grammar (for a specific proposal concerning the OI stage and maturation, see Wexler, 1998). Under this hypothesis, we would not expect older learners – for instance, adult L2 learners – to pass through an OI stage. We now turn to a more detailed consideration of finiteness in L2 grammar.

III Inflection in L2 acquisition

L2 learners frequently use nonfinite forms in place of finites. Accounts of this phenomenon fall into two broad categories. One view attributes L2 learners' use of nonfinite verbs to an impairment of functional categories and/or features in L2 grammar. This impairment view has been espoused by a number of L2 researchers (e.g., Meisel, 1991; 1997; Eubank, 1993/94; Eubank *et al.*, 1997; Beck, 1998).

On the other side are researchers (e.g., Epstein *et al.*, 1996; Haznedar and Schwartz, 1997; Lardiere, 1998a; 1998b; 2000; Prévost

and White, 1999; 2000) who argue that the grammar of L2 learners contains abstract categories and features, and that the problem lies in mapping from the abstract features to the corresponding surface morphology. Prévost and White (1999; 2000) term this the Missing Surface Inflection Hypothesis (MSIH), building upon the Missing Inflection Hypothesis of Haznedar and Schwartz (1997). We examine both views in some detail below.

1 Impairment

Some researchers have argued that functional categories are impaired or underspecified in L2 acquisition. For instance, Meisel (1997) found that, for L2 learners of German, nonfinite forms frequently appeared in finite position and finite verbs in nonfinite position; he concluded that there are no finiteness distinctions in L2 acquisition, and that L2 learners suffer from a global impairment in the domain of abstract features. Beck (1998), Eubank (1993/94) and Eubank *et al.* (1997) assumed a more local impairment under which functional categories such as Tense are present in L2 grammar, but their feature strength is impaired.

Prévost and White (2000) point out (following Borer and Rohrbacher, 1997; Lardiere, 2000) that if functional categories or features are missing or impaired in L2 grammar, then nothing would prevent use of incorrect inflectional morphology as well as random placement of both finite and nonfinite verbs.

2 Missing surface inflection

Thus, under the impairment account, L2 learners should make mistakes in the use of both finite and nonfinite verbs. However, Prévost and White (1999; 2000), in studying adult L2 learners of French and German, found evidence to the contrary: the learners frequently placed nonfinite verbs in finite position but rarely placed finites in nonfinite position. Prévost and White (2000) also found that when overt tense/agreement morphology was used by the L2 learners, it was used accurately about 95% of the time. Prévost and White (2000: 127) argue that L2 learners 'have abstract features for finiteness and agreement in their interlanguage representation, as evidenced by the syntactic and morphological behaviour of finite verbs'.

Lardiere (1998a; 1998b) found similar results in examining the L2 English of an adult L1 Chinese speaker, Patty. Lardiere found that Patty showed knowledge of syntactic phenomena surrounding English verbs, such as nominative case assignment and lack of thematic verb-raising; at the same time, Patty had very low

production of past tense and third person singular morphology on thematic verbs.

If there is no syntactic impairment in L2 grammar, what accounts for the frequent omission of agreement morphology in L2 data? Prévost and White follow Lardiere (1998a; 1998b; 2000) in arguing for a 'mapping problem' between abstract features and surface morphological forms, suggesting that L2 learners sometimes use 'default' nonfinite forms in place of finite forms. Prévost and White (2000) suggest a possible formulation of this mapping problem in terms of Distributed Morphology (DM) (Halle and Marantz, 1993). In DM, an inflected form is associated with grammatical features such as tense, number, person, etc. The form can be inserted into a terminal node in syntax as long as its features are consistent with the features of the terminal node. It is possible for a lexical item to be inserted into the hosting node even if its features are not an exact match for those on the hosting node, as long as they form a proper subset of the features on the hosting node. Prévost and White (2000: 127) argue that the L2 learners 'have acquired the relevant features of the terminal nodes in syntax (from the L1, from UG or motivated by L2 input)' but that they have not fully acquired feature specifications of the associated lexical items. Specifically, Prévost and White propose that nonfinite forms in L2 grammar are underspecified for finiteness and can therefore be inserted into a node bearing the [+finite] feature. On the other hand, finite forms in L2 grammar are specified as [+finite] and therefore cannot be inserted into a nonfinite node. By virtue of being underspecified, nonfinite forms function as defaults in L2 acquisition; i.e., they can show up either in [–finite] or in [+finite] environments. Under this hypothesis, there is no syntactic deficit in L2 grammar; i.e., the Tense node is fully specified; therefore, a nonfinite form inserted into a [+finite] node exhibits the syntactic behaviour of a finite verb for such phenomena as null subject licensing, subject clitics, and placement with respect to negation.

Prévost and White note that nonfinite forms continue to be used by L2 learners even after the more fully specified finite forms are acquired. They speculate that access to the finite forms is sometimes blocked, perhaps by processing or communication pressures.

3 Child L2 acquisition: missing surface inflection or the OI stage?

Thus, for adult L2 learners, the two main positions concerning knowledge of inflection are impairment and missing surface inflection. For child L2 learners who are not much older than typical L1 learners, there is a third relevant possibility, namely that of the OI stage.

Haznedar and Schwartz (1997), who studied the acquisition of English by a four-and-a-half-year-old Turkish-speaking child named Erdem, argued for lack of an OI stage in this child's L2 acquisition. They found that while Erdem used many nonfinite forms in his speech, he stopped omitting subjects long before he began producing verbal inflection obligatorily. Haznedar and Schwartz point out that this shows a lack of a developmental relation between emergence of finiteness and overt subjects in L2 English, unlike the situation in L1 English (see Guilfoyle, 1984). They suggest that there is no evidence for an underspecification of Tense in the grammar of Erdem (who produced fully inflected utterances in his native language), and considered the English nonfinite forms produced by Erdem to be Missing Inflections (MIs).

On the other hand, Prévost (1997), in studying the acquisition of French by two young English-speaking children, found that, like L1 learners, the child L2 learners differentiated between finite and nonfinite verbs (placing most finites before negation and most nonfinites after negation). He also found that null subjects were more prevalent with nonfinites than with finites for one of the two L2 learners, again conforming to the pattern of L1 learners in the OI stage. It is thus not clear whether young L2 learners pass through an OI stage like L1 learners, or whether they resemble adult L2 learners in treating nonfinite forms as finites.

4 Suppletive vs. affixal inflection in L2 acquisition

Before passing on to a description of the current study, we would like to discuss an additional factor concerning inflection in L2 acquisition of English. Many of the studies concerning the presence or absence of inflection in L2 acquisition of English have relied almost exclusively on affixal agreement – suffixes such as the third person singular *-s* and the past tense *-ed*, disregarding the use of suppletive agreement – the use of *be* copula and auxiliary forms. For example, as Lardiere (1999) points out, Eubank *et al.* (1997), in testing L2 learners' knowledge of inflection and verb-raising, judged the learners' knowledge of agreement by their ability to correctly produce *-s* in a translation task; items with *be* were used solely as distractors.

However, there is evidence that *be* forms are, in fact, mastered by L2 learners of English prior to suffixal agreement endings. Zobl and Liceras (1994) reviewed the morpheme order studies of L1 and L2 acquisition carried out in the 1970s. In the case of L1 acquisition, they found that related functional elements (such as inflectional morphemes) cluster close together in development (away from

other morphemes, such as the plural *-s* and the progressive *-ing*). This finding is further supported by Rice *et al.* (1998), who used statistical techniques to show that for young L1 learners of English, finiteness morphemes cluster close together regardless of whether they are affixal or suppletive in form.

In contrast to the L1 findings, Zobl and Liceras found that L2 learners from a variety of language backgrounds master suppletive agreement morphemes *before* the third person *-s* and past tense *ed*, with other (noninflectional) morphemes being mastered in between the two inflectional morpheme types. Zobl and Liceras argue from their findings that functional projections are available early in L2 acquisition, and are (in the case of finiteness) instantiated through the use of *be* forms.

Lardiere (1999) adopts a similar view, arguing that discounting the use of suppletive agreement could cause researchers to underestimate L2 learners' knowledge of inflection. She gives evidence from an adult L2 learner of English (Patty), who produces hardly any affixal *-s* inflection, but does produce many *be* forms, which are raised to Tense and appropriately inflected. Lardiere (1999: 394) points out that since the L2 learner has mastered the suppletive agreement paradigm, she must have an agreement feature-checking mechanism, 'implicating the presence in the syntactic representation of the associated functional category'.

IV The current study: production

Given the prior findings on L1 and L2 acquisition, we collected and examined spontaneous production data of L1 Russian children acquiring English, with the goal of exploring the issue of finiteness in child L2 grammar.

1 Hypotheses

The findings of Haznedar and Schwartz (1997), Lardiere (1998a; 1998b; 2000) and Prévost and White (1999; 2000), among others, led us to hypothesize that the L2 learners would not be impaired with respect to abstract categories or features underlying finiteness. Additionally, given the findings of Zobl and Liceras on affixal vs. suppletive agreement in L2 English, we expected to find a higher production rate for *be* forms than for inflectional affixes. We thus made three specific hypotheses for the child L2 learners.

Hypothesis 1: The L2 learners will produce nonfinite forms in place of finite forms.

> Hypothesis 2: Since the abstract categories and feature-checking mechanisms are in place for L2 learners, there will be little or no incorrect finiteness inflection in the speech of the L2 learners.
>
> Hypothesis 3: Tense and Agreement will be instantiated through suppletive agreement forms: the *be* copula and auxiliary forms. The L2 learners will, therefore, be more successful in the acquisition of suppletive agreement than of affixal agreement.

We were also interested in comparing the child L2 learners to L1 English learners. Given the hypothesis that the OI stage in L1 acquisition is maturationally determined (Wexler, 1998), we did not expect to find hallmarks of the OI stage – such as null subject use with either finites or nonfinites – in the data of the L2 learners.

2 Methods

a Participants: The participants in this study were 20 L1 Russian children (12 females and 8 males) who, at the time they were first studied, ranged in age from 3;9 (i.e., 3 years and 9 months) to 13;10 (i.e., 13 years and 10 months). The mean age was 8;4, and the median age was 7;11. Ten of the children had lived in the USA for less than a year when they began participating in the study; six had lived in the USA for more than one year but under three years. Four children had been born to Russian-speaking families in the USA or Canada and had been exposed to English for three years or less, with the first exposure taking place when the child was between three and a half and four years old. Of the 16 children who were not born in the USA, only the oldest three had had any exposure to English prior to arrival in the USA. At the time of the study, all 20 children were able to speak and understand English but were not entirely comfortable speaking English. Of the 15 children who attended school (ages five or older), all but one received special help with English through ESL or Russian Bilingual classes or special tutors. Full information about individual children is given in Appendix 1.

b Data collection: English-language speech samples were obtained from each of the children. The children were engaged in conversation by the investigator, and were encouraged to talk about their friends or schoolwork, or to describe pictures in storybooks. The conversations, each of which lasted from 30–60 minutes, were recorded on audio-tapes and later transcribed. At least one speech sample was obtained from each child; a second speech sample, recorded two to five months after the first, was obtained from eight

of the children. There are, thus, a total of 28 transcripts, which we examined for analysable verbal utterances.[1] The raw numbers and percentages given in the following sections are taken across all 28 transcripts. Individual results are summarized in Appendix 2.

3 Results

a Morpheme omission: First, the use of four types of verbal inflectional morphemes in obligatory contexts was examined: the third person *-s*, the past tense *-ed*, the *be* auxiliary and the *be* copula. Obligatory contexts were those contexts in which the morpheme would normally be used in adult English. Table 1 gives the number of obligatory contexts in which each morpheme was omitted, as well as the proportion of omission over all obligatory contexts.[2] The numbers and percentages are across all 28 transcripts. In the case of the two categories of suppletive inflection, omission of inflection refers to an absence of the *be* auxiliary or copula, rather than to use of nonfinite *be* (there were only two instances of use of a nonfinite *be* as the root verb across all transcripts). Table 1 does not contain the categories of irregular past-tense verbs or irregular third person forms (e.g., *has*); these categories are discussed in a later section. We counted as irregular any verb form that involved a change to the stem, as opposed to simple affixation; thus, *said* and *says* were counted as irregular. This was done to ensure that we were comparing truly affixal forms (i.e., forms with *-s* or *-ed* but no change to the stem) to truly suppletive forms (forms of *be*).

As Table 1 shows, omission of inflection was high across categories, supporting our first hypothesis. We come back to the

[1] By 'analysable verbal utterances', we mean all utterances that clearly contained a finite verb, a nonfinite verb or a missing copula (as in *he funny*), as well as an overt or null subject. All imperatives were excluded, as were formulaic utterances such as *I don't know* and *see?* Also excluded from the analysis were unintelligible or interrupted utterances, apparent repetitions of adult speech, multiple identical repetitions of the same utterance (in which case only the first instance of the utterance was included in the analysis) and those instances where the child either read a line from a book or recited a line or poem from memory. In subsequent sections, we do not report those verbal utterances that do not require overt agreement morphology in adult English (i.e., present-tense forms other than third person singular).

[2] The obligatory contexts include utterances where the morpheme was omitted or used correctly as well as those where it was used incorrectly (e.g., *we is going*). Since, as Table 2 shows, there were very few instances of incorrect morpheme use, the percentages in Table 1 would not differ significantly if we excluded the incorrect morpheme instances from the count. Obligatory contexts for the auxiliary *be* include all instances of use of a progressive participle. In the case of the *be* copula, we excluded from the count utterances of the form *this is* or *there is*, since they appeared to be largely formulaic, unanalysed utterances for most of the children.

Table 1 Omission of morphemes in obligatory contexts

	Third person *-s*	Past tense *-ed*	*be* auxiliary	*be* copula	All inflection
Number of omissions in obligatory contexts	250	101	158	69	578
Percentage of omission over all obligatory contexts	78	58	33	16	41

difference in omission rates between different types of inflection below.

The examples in (2) illustrate the four types of omission of inflection; the child's name, sample number (where necessary) and age are given in parentheses. Individual counts of omission in obligatory contexts are given in Appendix 2.

2) a. Third person *-s*
girl play with toy (DA, sample 1, 9;7)
b. Past tense *ed*
one time I watch this movie (AY, sample 2, 10;4)
[I watched this movie once]
c. *Be* auxiliary
here she making a cake (AT, 6;2)
d. *Be* copula
Mary so funny (OL, sample 1, 6;10)

b Tense/agreement errors: We also computed the number of tense/agreement errors in the data: this included the use of a *be* form for inappropriate person, number or tense (as in *I is playing* or *they is going*) and *-s* used with any subject other than third person singular. There were no instances of incorrect use of a past-tense form in a nonpast context[3] (there were, however, seven uses of an *-ed* morpheme in place of an irregular past-tense form, as in *waked up*; since these forms were appropriately used in past-tense contexts, we did not consider them incorrect). Table 2 summarizes the results. The percentage of inappropriate use is given over all instances of use (thus, excluding the instances of omission). Some examples of agreement errors are given in (3).

3) a. Third person *-s*
I likes costumes for Halloween for Batman (KI, sample 2, 6;10)

[3] Interestingly, Zobl (1998) found that adult L1 Russian learners of English sometimes used past-tense forms in present tense contexts. Zobl's findings compared to ours may indicate age effects in acquisition of English past-tense morphology.

Table 2 Tense/agreement errors in morpheme use

	Third person *-s*	Past tense *-ed*	*be* auxiliary	*be* copula
Number of instances of inappropriate use	4	0	21	33
Percentage of inappropriate use over all instances of use	5	0	7	9

b. *Be* auxiliary
this three ducks is going (GU, 3;9)
c. *Be* copula
this two kittens is big (MA, sample 2, 7;5)

As Table 2 shows, there were very few tense/agreement errors in the data. When finite forms are used by the child L2 learners, they are almost always used with the appropriate tense/person/number specifications. Thus, our second hypothesis is supported. These data provide evidence against the impairment hypothesis, since we would expect a higher rate of feature mismatch as a result of impaired features or categories.

c Use of be *forms vs. use of main verb inflection:* As Table 1 shows, morpheme omission was much greater for inflectional affixes than for forms of *be*. Figures 1 and 2 give the breakdown of morpheme omission in terms of number of children demonstrating a given rate of omission. The difference in use between affixal (*-s* and *-ed*) and suppletive (*be*) forms becomes clear from the figures. As Figure 1 shows, all but one of the 20 children demonstrate at least 30% omission of affixal inflection, and the majority of the children (12) cluster on the right side of the figure, with 60% or higher rates of omission. Figure 2 shows the opposite pattern to be true for suppletive inflection: four children show very low (under 10%) rates of omission, the majority of the children (17) cluster on the left side, with omission under 40%, and no child has more than 70% omission.

Further evidence for the difference in the use of suppletive and affixal inflection comes from statistics. We performed a paired *t*-test across all transcripts, pooling together the two types of affixal inflection (*-s* and *-ed*) on the one hand, and the two types of suppletive inflection (*be* copula and auxiliary) on the other. The difference in the rates of omission for the two types of inflection was highly significant (a paired two sample *t*-test for means yielded a two-tailed *p*-value of less than .0001, with a *t*-statistic of 9.49).

The high use of suppletive inflection cannot be the effect of direct transfer from Russian, since Russian lacks an overt *be* copula in the present tense and has no *be* auxiliary in any tense except for the compound future tense. However, Russian does have affixal inflection in all tenses. Thus, the agreement paradigm that the L2 learners are acquiring first is precisely the one that is not fully available in their native language. As Lardiere (1999) has noted, high use of *be* forms implies the presence of a corresponding functional category in L2 grammar.

What then accounts for the low use of affixal inflection? One potential explanation is that the affixal status of *-s* and *-ed* makes them difficult to acquire. Epstein *et al.* (1996: 692) suggest that the omission of *-s* and *ed* may be due to reduction of phonemes or clusters in word-final position. In order to examine this hypothesis,

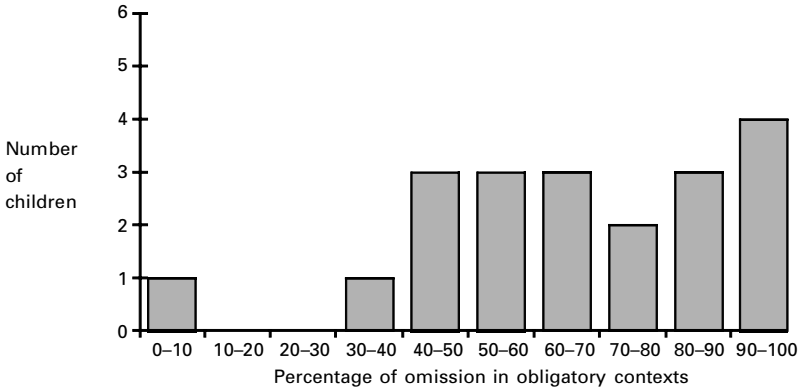

Figure 1 Omission of affixal agreement morphemes in obligatory contexts

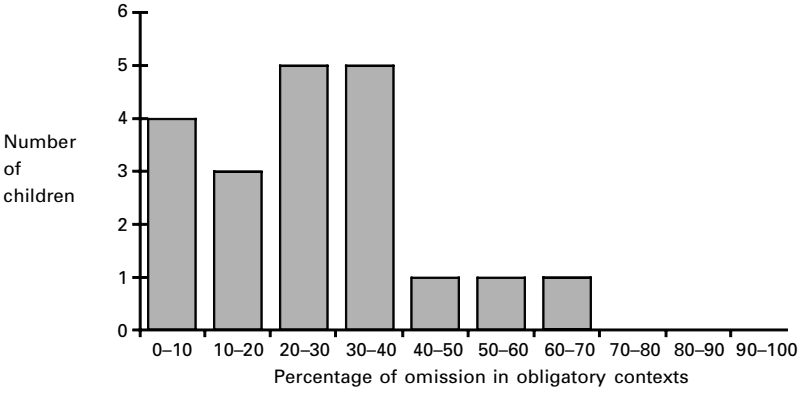

Figure 2 Omission of suppletive agreement morphemes in obligatory contexts

Table 3 Substitution of uninflected forms for inflected third person singular forms: irregular verbs

	Thematic *do/does*	Thematic *have/has*	*say/says*	Total
Number of uninflected forms *do, have, say* used in place of third person singular present tense forms	10	33	6	49
Number of inflected forms used (*does, has, says*)	0	9	8	17
Percentage of uninflected forms	100	79	43	74

we looked at the L2 learners' production of irregular inflection, which requires a change to the stem rather than simple affixation. Specifically, we examined the use of third person present tense singular inflection on the lexical *do* and *have*, as well as *say*. (Thanks to David Pesetsky (p.c.) for suggesting this test.) Our results are summarized in Table 3. For similar results with *have* in L1 English, see Harris and Wexler, 1996.

Comparing the omission rates in Table 1 and Table 3, we see that rates of third person *-s* omission with regular verbs (78%, Table 1) and with irregular verbs (74%, Table 3) are nearly identical. This suggests that *-s* omission is not purely phonological in nature: if it were, we would expect higher production of *-s* with irregular verbs, or use of stems such as *ha* and *sa*, which never occurs.

Similarly, use of uninflected forms in past-tense contexts does not appear to be simply a matter of dropping the affix. In contexts where an irregular past-tense form was required, use of stem forms was 42% (193 tokens) across all transcripts. This number is not significantly different from the 58% omission of *ed* for regular verbs.[4] Like regular past-tense forms, irregular past tense forms

[4] A paired two-sample *t*-test was run on mean percentages of stem use (for regular vs. irregular verbs) by transcript; the two-tailed *p*-value was not significant ($p = .24$). The relatively low rate of stem use for irregular verbs (compared to regular verbs) in the past tense appears to be largely due to the use of a single verb, *say*, the most frequent irregular verb in the data. A total of 40 irregular verb types (461 tokens) appeared in the data, in inflected or bare stem form. The use of *said* accounted for 37% of all inflected irregular past-tense forms; on the other hand, the uninflected *say* used in a past-tense context accounted for only 2% of all bare stem forms. No other verb showed a similar discrepancy. For instance, the second most frequent irregular verb, *go*, accounted for 19% of all bare-stem forms and 10% of all inflected forms. The use of *said* was nearly always in a story-telling context, as in *and then she said* . . . It is possible that this use of *said* was largely formulaic and not truly representative of appropriate use of past-tense morphology. If *say/said* is excluded from the count, we find that use of stem forms in place of irregular past-tense forms is 53%, which is very similar to the 58% omission rate for regular past-tense verbs. Verbs whose past-tense and present-tense forms are indistinguishable phonetically, such as *put* and *cut*, were not included in any count of past-tense use.

were never misused: inflected forms, both regular and irregular, were only used in past-tense contexts.

If irregular forms, past tense as well as third person singular, are pooled together with regular affixal inflection forms, we find that use of uninflected forms across all obligatory thematic-verb contexts is 58%, still much greater than the 25% omission rate for *be* forms (auxiliary and copula combined). A *t*-test (paired two-sample for means) was conducted comparing the rates of omission of inflection for all thematic verb contexts vs. all *be* contexts across transcripts. It yielded a highly significant two-tailed *p*-value of less than .0001 (*t*-statistic = 8.47).

Another piece of evidence against the hypothesis that omission of affixal inflection is phonological comes from our findings regarding the learners' production of plural *-s*. If omission of third person *-s* were due to reduction of word-final phonemes, we would expect similar omission rates for plural *-s*. We tested this hypothesis by examining those utterances in the L2 production data where the context made a plural *-s* clearly obligatory; i.e., when the NP follows a number (e.g., *two*) or a quantifier (e.g., *many*, *a lot of*). We found that the plural *-s* was omitted in only 11% (16 out of 143) of such obligatory contexts. This low omission rate for plural *-s* as opposed to third person singular *-s* parallels the findings of Zobl and Liceras (1994: 173) that plural *-s* is acquired earlier than third person singular *-s* by adult L2 learners.

All of these data suggest that the differential use of *be* forms and agreement morphology on thematic verbs does not reflect a particular difficulty with affixation. Rather, L2 learners have a particular difficulty using inflection on thematic verbs. Before examining this issue further, we turn to a related issue: the use of *be* forms in place of affixal agreement morphology.

d Overgeneration of be *forms:* Examining the use of *be* forms in the production data we found another, quite unexpected phenomenon. Namely, that some of the L2 learners used forms of *be* in utterances that contained an uninflected thematic verb in place of a progressive participle. Some examples of this type of utterance are given in (4).

4) a. the lion is go down (MA, sample 1, 7;4)
   b. and then the police is come there (EL, 4;2)

This was not an isolated phenomenon: 18 out of 28 transcripts show at least one instance of such *be* overgeneration, and the 108 overgeneration utterances account for 9% of all inflected

utterances across all transcripts. Since this form alone was as frequent in the data as all instances of incorrect tense/agreement morphology combined (see Table 2), and since the overgenerated utterances constituted 25% of all utterances with an overt, finite *be* auxiliary[5], we hesitated to write it off as wrong inflection and decided to analyse it separately.

What could account for this phenomenon? At first glance, it might seem that the L2 learners are omitting the *ing* suffix from progressive participles (unlike L1 English learners, who, per Brown (1973: 271), acquire *ing* earlier than any inflectional morphemes). However, a detailed analysis of the overgeneration utterances shows that the vast majority of them are not intended as progressives. Instead, they frequently have generic/habitual or past-tense meanings, and are often used with stative verbs that do not normally take an *ing* suffix at all. Table 4 gives the breakdown of the overgenerated utterances by intended meaning, and some examples are given in (5). Individual counts of *be* overgeneration are given in Appendix 2.

5) a. *Progressive meaning*
the cats are pull mouse's tail (AN, 10;1)
[The cats are pulling the mouse's tail]
b. *Generic meaning*
they are help people when people in trouble (DA, sample 1, 9;7)
[They help people when people are in trouble]
c. *Stative meaning*
he is want go up then (GU, 3;9)
[He wants to go up then]
d. *Past-tense meaning using stem form*
he is run away, I stayed there (GU, 3;9)
[He ran away and I stayed there]
e. *Past-tense meaning using irregular past-tense form*
in one episode he is said to Bart, I kill you (RO, 13;10)
[In one episode [of *The Simpsons*] he said to Bart, I'll kill you]
f. *Future meaning*
I'm buy for my mother something (AY, sample 2, 10;4)
[I'll buy something for my mother][6]

As Table 4 and the examples in (5) show, the L2 learners use *be* with generic and stative verbs as well as to talk about events in the past and future. While *be* is also used with progressives, it is clear

[5] In Tables 1 and 2, when giving percentages of missing or incorrect forms of *be*, we excluded the overgenerated utterances from the count of obligatory contexts.

[6] It is possible, as an anonymous reviewer pointed out, that this utterance type involves omission of *gonna* rather than *be* overgeneration; i.e., that the intended meaning is *I'm gonna buy something for my mother*. If this is, indeed, the case, *gonna*-omission accounts for only 5 of the 108 overgenerated *be* utterances (see Table 4); most of the overgenerated *be* utterances clearly have present-tense or past-tense meanings.

Table 4 Overgeneration of *be*: utterance types

	Progressive	Generic	Stative	Past	Future	Ambiguous	Total
Number of utterances	32	33	12	21	5	5	108
Percentage of total	30	31	11	19	5	5	100

that in the majority of cases *be* is not used to mark progressive aspect. On the other hand, the L2 learners do not use the *ing* suffix with generic or stative verbs (i.e., they do not produce utterances such as *he is knowing*). They, thus, behave like L1 English children in this respect: Brown (1973: 318) found that L1 English children in the early stages of acquisition use *ing* to make the verb into 'a primitive progressive . . . almost always naming an action or state in fact of temporary duration and true at the time of utterance'; i.e., they do not misuse *ing*.

An additional finding is that when *be* is used, there is almost always no affixal inflection on the verb. There are six instances that contain an irregular past-tense form along with a *be* form; (5e) is an example. Affixal inflection is used with *be* only twice; both instances are given in (6).

6) a. I'm never opened this one (AY, sample 2, 10;4)
[I've never opened this one]
b. he is goes to elementary school (RO, 13;10)
[He goes to elementary school]

The vast majority of the overgenerated *be* forms, then, are used with uninflected stem forms. It is possible that *be* is being used by the L2 learners to mark tense and/or agreement on the verb. Their error is in using *be* forms in all types of root clauses, not only those containing progressive participles.

e Verb placement in child L2 English: We next examine the syntactic behaviour of verbs in the data. A number of L2 English studies have found an optionality in the placement of verbs in L2 English. For example, while thematic verbs do not normally raise to Tense in English (see Pollock, 1989), White (1990/91; 1991; 1992) found that L1 French schoolchildren acquiring English as an L2 frequently placed thematic verbs before adverbs in English. While White's findings could potentially be interpreted as transfer from French, a verb-raising language, Eubank *et al.* (1997) found that speakers of Chinese, a language without verb-raising, also allowed verb–adverb order in their L2 English. Eubank *et al.* argued that

optional verb-raising is an inherent property of early L2 grammar, and is due to impaired or inert features on Tense. (Interestingly, however, Yuan (2000) did not find any optional verb-raising in the reverse scenario, i.e., in L1 English speakers acquiring Chinese as an L2.)

We therefore asked the question of whether the child L2 learners in our study (whose L1, Russian, does not have thematic verb-raising; see Bailyn, 1995) would also optionally raise thematic verbs, and of whether this optionality might be indicative of impaired Tense features. We also examined *be* raising in L2 English. Consistent placing of *be* before negation and adverbs would provide evidence for the presence of Tense in L2 grammar.

We looked first at the L2 learners' use of negation. This was relatively infrequent in the data: 15 out of the 20 children produced any negated utterances at all, and there were only 92 instances of negation across all transcripts. Even with this small number, however, we can see that the L2 learners know the verb-raising rules of English. In the case of *be* forms, there were 33 instances of an inflected *be* auxiliary/copula form followed by negation (7), as well as six instances of negation used when the *be* form was missing. Importantly, there was not a single instance of negation–auxiliary or negation–copula ordering in the data, suggesting that when the L2 learners do produce *be* forms, they correctly raise them to Tense.

7) and uncle is not going [MA, sample 2, 7;5]

The opposite pattern occurred with thematic verbs. Of the 53 instances of negation with thematic verbs, 48 contained *do*-support (8a), and the remaining five lacked a form of *do*, but contained negation followed by the uninflected form of the verb (8b). There was not a single instance of a thematic verb appearing before negation (i.e., in Tense). The overwhelming use of *do*-support with negation (91%) provides additional evidence for the presence of a Tense category in L2 grammar.

8) a. mom didn't help me [MY, sample 2, 5;5]
   b. no she not break it [AY, sample 1, 10;1]

Similar results obtain when we look at the use of adverbs in the production data. In English, adverbs precede unraised thematic verbs but follow auxiliaries and modals that are in Tense. Thus, if the L2 learners have unimpaired Tense features, we expect them to know that thematic verbs follow, but that forms of *be* and modals precede, adverbs.

Unfortunately, there are even fewer instances of adverbs than of negation in the child L2 data. Excluding utterances with adverbs at the very end or the very beginning, we find only 29 instances of adverb use; the utterances are spread over nine of the 20 L2 learners. Yet, even with this very limited data, we see correct adverbial placement.

Of the 16 uses of adverbs with thematic verbs, we found six instances of a correctly inflected verb following the adverb (9a), and nine instances of an uninflected verb (sometimes appropriately uninflected, as in the case of first person present tense singular) following the adverb. There is only one instance of a verb coming before an adverb; this is given in (9b).

9) a. Mary sometimes sings songs really loud [OL, sample 2, 7;0]
   b. she make already a cake [AT, 6;2]

Of the remaining 13 instances of adverb usage, eight involve an auxiliary or copula *be* form followed by an adverb (10a), and three have a missing *be* form, with the adverb correctly preceding the participle. There are two exceptions, neither one of which involves an adverb followed by a *be* form. Example (10b) is a case of a participle placed before the adverb – by the same child who raises the main verb in (9b) – and (10c) is a case of an adverb preceding a modal (AY regularly uses *little* as an adverb in English, probably translating the Russian adverb *nemnogo* 'a little').

10) a. the bear is still sleeping [DV, 7;1]
   b. we done already first [AT, 6;2]
      [We have already done the first assignment]
   c. I little can write English [AY, sample 2, 10;4]

Thus, we can see that, with very few exceptions, the L2 learners know the differential placement of thematic verbs and auxiliaries in English with respect to both adverbs and negation.

f A note on null subjects and the OI stage: We will now take a brief look at null subjects in L2 acquisition. As mentioned previously, while the OI stage in L1 acquisition is accompanied by subject omission, Haznedar and Schwartz (1997) did not find a developmental relationship between null subjects and finiteness in a child's L2 acquisition (i.e., overt subjects became obligatory before finiteness did). Since the data in our corpus do not reflect the most initial stages of L2 acquisition and since our data are not longitudinal, we cannot similarly trace the development of overt subjects vs. finiteness over time. However, our data do allow us to

see whether null subjects exist in the intermediate stages of child L2 acquisition.

We found that null subjects were virtually nonexistent: null subject utterances made up only 1.8% of all verbal utterances. This overwhelming use of overt subjects cannot be attributed to direct transfer from Russian which, while not a null-subject language, has context-determined subject drop (see Matushansky, 1999).

Interestingly, nearly a quarter of all null subjects came from a single transcript: the first speech sample of AY who (see Appendix 1), with two months of exposure to English, was one of the least advanced L2 learners. An example is given in (11).

11) *Investigator*: who is Garfield?
Child: cat . . . is cat (AY, sample 1, 10;1)

This suggests that while null subjects may be present at the very start of L2 acquisition (as Haznedar and Schwartz found), they disappear long before finiteness becomes obligatory. The lack of a developmental relationship between overt subjects and finiteness in child L2 English is in contrast to L1 English learners, who continue to omit subjects throughout the OI stage.

Nor do the child L2 learners resemble L1 learners in other respects: instead of acquiring all inflectional morphemes at roughly the same time as do L1 learners (see Rice *et al.*, 1998), they have acquired *be* forms more successfully than affixal inflection on main verbs.[7] While lack of more longitudinal data does not allow us to make direct comparisons between the child L2 learners and L1 learners in the OI stage, it does appear that the child L2 learners pattern more with adult L2 learners (see Zobl and Liceras, 1994) than with L1 learners.[8] We now proceed to discussion of the L2 data.

4 Discussion

The results given in Section 3 show that the child L2 learners produce high rates of uninflected verbs, but almost never use agreement morphemes for inappropriate tense, person or number.

[7] The child L2 learners also use almost exclusively nominative-case subjects, in contrast to L1 English learners who frequently use accusative-case subjects during the OI stage (see Schütze and Wexler, 1996). However, since nominative appears to be the default case in Russian, this result could potentially be due to transfer.

[8] While our data do not allow us to tease apart the effects of maturation on the OI stage and the effects of learning an L2 as opposed to an L1, the data do suggest that the OI stage cannot be attributed to general learning mechanisms employed by everyone acquiring a new language.

The L2 learners also demonstrate significantly higher proficiency in the use of *be* forms than in the use of main verb agreement, and appropriately raise *be* forms to Tense. We have shown that low production of agreement morphology on the main verb is not due to a problem with affixation.

We would now like to suggest that the differential use of *be* forms and inflected thematic verbs is due to the different raising possibilities of these two verb types. While auxiliaries and copula raise to Tense in English, thematic verbs stay *in situ* and acquire agreement through the process traditionally described as 'affix-lowering' (Chomsky, 1957). A number of researchers have associated L2 learners' difficulties with affixal inflection with the lack of thematic verb-raising in English. For instance, White (1992) found that L1 French children (ages 10–12) acquiring English as an L2 had very high use of *be* forms (around 95%) but almost never marked agreement on the main verb with third person singular subjects. White (1992: 280) suggested that 'the more economical derivation (Chomsky, 1989) raising auxiliaries out of the VP to pick up agreement in AGR/T was acquired before the less economical affix-lowering of agreement which is required in the case of main verbs in English.' Zobl and Liceras (1994: 173) made a similar suggestion, saying that for L2 learners 'thematic head-movement (AUX BE) is unmarked vis-à-vis affix-movement.'[9]

In Minimalist terms (Chomsky, 1993; 1998) affix-lowering is seen as long-distance Agreement between the verb and Tense. How can the L2 learners' difficulties with affixal inflection best be explained within this framework? We would like to say that L2 learners initially associate morphological agreement with overt movement to Tense. That is, long-distance Agreement does not initially trigger morphological agreement for L2 learners (thanks to Ora Matushansky, p.c., for suggesting this formulation).

This proposal has support in the connection between verb-raising and agreement morphology crosslinguistically. Languages with rich agreement paradigms, such as French and Icelandic, tend to have verb-raising, whereas languages with impoverished morphological paradigms, such as English and Danish, do not have raising of thematic verbs (see Roberts, 1992; Rohrbacher, 1994; Vikner, 1995). While there are exceptions to this rule, there does seem to be a connection between verb-movement and agreement morphology. It is possible that this connection plays a role in L2

[9] Vainikka and Young-Scholten (1996; 1998) made a related proposal, arguing that acquisition of free inflectional morphemes (*be* forms) allows L2 learners to 'break into' the inflectional system. Vainikka and Young-Scholten (1998) argue that free morphemes, rather than bound morphemes, serve as triggers for acquisition of an Agreement Phrase in the L2.

acquisition: L2 learners initially consider morphological agreement to be a reflex of verb raising. Under this hypothesis, L2 English learners would not initially even analyse *-s* and *-ed* as inflectional morphemes, or would at least not consider them obligatory. By contrast, the L2 learners would master *be* forms, which raise to Tense.

This analysis is fully compatible with Guasti and Rizzi's (2001) proposal concerning morphological feature expression. Guasti and Rizzi propose the following crosslinguistic generalization (in the framework of Chomsky, 1995): if a feature is checked overtly, it is expressed in the morphology (as long as the relevant morphological paradigm exists in the language); features that are checked covertly (at LF), on the other hand, may or may not be expressed morphologically, depending on the language-specific rules. Guasti and Rizzi give examples from the domains of subject movement and participial movement to support their proposal. They show that preverbal subjects (which have moved overtly to [Spec, AgrS] to check features on AgrS) obligatorily trigger morphological agreement on the verb (as long as the language has a morphological agreement paradigm); on the other hand, languages vary as to whether they manifest morphological agreement with postverbal subjects (which check Agr features only at LF). Guasti and Rizzi propose a similar analysis for morphological agreement marking on past participles in Italian vs. French: in the former morphological agreement with the object clitic is obligatory, while in the latter it is optional. Guasti and Rizzi suggest that this difference is due to overt participial movement to Agr (and hence overt feature checking) in Italian, but not in French.

A crucial point for Guasti and Rizzi's analysis is that morphological expression of overtly checked features is required by UG, while morphological expression of covertly checked features depends on language-specific properties, i.e., some languages require it and some do not. (While Guasti and Rizzi treat the language-specific rules as being outside the core system of UG, Schütze (2001) notes that they could potentially be characterized as parametric choices.) Guasti and Rizzi apply this generalization to L1 acquisition. They propose that the UG-based rule governing morphological expression of overtly checked features is fully available to children acquiring their L1; in contrast, the language-specific rules governing expression of covertly checked features take children a long time to acquire. This difference allows Guasti and Rizzi to propose an account for L1 English children's use of *do* with negation vs. in questions (however, for a counter-proposal, see Schütze, 2001). Guasti and Rizzi also note (their footnote 5)

that (at least some of) uninflected lexical verb forms in child L1 English may be due to lack of verb-raising in English:

> Uncontroversially, lexical verbs do not raise to the highest inflectional heads in English . . . so that Agr is unchecked in overt syntax . . . and the marking of agreement is a matter of a language specific morphological rule. We . . . expect instability in acquisition, with a longish period in which *-s* may be omitted.

This analysis can be straightforwardly extended to child L2 English. We simply need to assume that child L2 learners are like L1 learners (in Guasti and Rizzi's analysis): i.e., they have full access to UG rules but need time to acquire language-specific morphological rules (alternatively, we could say that the L2 learners need time to set the corresponding parameter to the appropriate L2 value). As a result, the child L2 learners know that morphological expression is obligatory for *be* forms (which, as Guasti and Rizzi also note, raise to Agr and check their features overtly), but have not mastered the English-specific rule requiring agreement morphology on unraised lexical verbs in certain contexts (i.e., for 3rd person present-tense singular, and in the past tense). Until the English-specific rule has been mastered, the child L2 learners may consider use of *-s* and *-ed* optional.[10] The uninflected forms that the learners will then use in place of inflected forms may be thought of as 'defaults' (following Prévost and White, 1999): i.e., they are finite forms that have simply not received morphological agreement marking and that can be used across all tense/agreement contexts.

The above discussion naturally raises the question of why child L2 learners ever omit *be* forms. Take a child utterance such as *she playing*, produced in a present-tense context. We want to say, following Prévost and White (2000), that the L2 learners would know that the INFL node of this sentence is fully specified as [third person, –past, –plural]: if INFL were impaired, we would expect feature mismatch, which we do not see. Moreover, the fairly high use of appropriately inflected *be* forms in the data suggests that the L2 learners have mastered the morphemes' feature specifications.

If we extend Guasti and Rizzi's analysis to child L2 grammar, we furthermore have to say that an overtly raised form of *be* must receive morphological inflection. In fact, the child L2 learners

[10] It is possible that the greater uniformity of past-tense inflection as opposed to present-tense inflection in English causes a reanalysis of tense morphology before agreement morphology. Thus, L2 learners may acquire the English-specific rule governing morphological expression of tense features before the rule governing expression of agreement features. This would potentially explain the greater omission rate for *-s* than for *-ed*. In the absence of longitudinal data this is, however, only a tentative suggestion.

almost never produce an uninflected *be* in place of a finite form (as in *she be playing*). The same is true for L1 learners in the OI stage (e.g., Wexler, 1994; Rizzi, 1993/94). Guasti and Rizzi (2001) suggest that L1 learners appropriately raise *be* forms to the highest inflectional head, checking agreement features overtly and thus inflecting the auxiliary: hence the absence of non-finite *be* in root clauses. The question remains, however, of why *be* forms in child L2 English are sometimes omitted altogether (Guasti and Rizzi do not address the issue of *be* omission in child L1 English; an account of *be* omission is, however, proposed under the OI stage theory of L1 acquisition; Wexler, 1994; 1998).

A possible solution may lie in lack of access to the appropriate form. Even when the L2 learners have acquired a fully specified form of *be*, access to the finite form may sometimes be blocked. As Prévost and White (2000: 129) note, 'even when a form specified for the relevant features has been acquired, it becomes temporarily irretrievable from the lexicon . . . this might be due to processing reasons or communication pressure.' The exact nature of these access/retrieval difficulties is beyond the scope of this article. Importantly, access difficulties alone cannot account for the difference in use of *be* forms vs. affixal inflection. This difference is, however, easily accounted for under an analysis, such as Guasti and Rizzi's, that ties agreement morphology to overt vs. covert feature checking.

On a final note, it is possible that (some of) the L2 learners use *be* forms as a 'substitute' for affixal inflection; this would potentially explain the *be* overgeneration phenomenon noted in Section IV.3.d. Having hypothesized that unraised verbs do not obligatorily carry inflection, and having acquired the paradigm of *be* forms (which raise), the L2 learners may sometimes use forms of *be* to mark tense/agreement in a non-progressive clause.

V L2 English grammaticality judgement task

In the preceding sections, we discussed evidence from production data for the existence of functional categories underlying finiteness in L2 grammar. We have argued that omission of inflectional morphology is not indicative of syntactic impairment. Specifically, we have argued that L2 learners initially associate inflectional morphology with verb-raising. As a result, they do not initially analyse *-s* and *ed* as inflectional morphemes.

To further investigate agreement morphology in L2 grammar, we conducted a small grammaticality judgement study with child L2 learners, replicating the grammaticality judgement task that had

been conducted with L1 learners – children suffering from Specific Language Impairment (SLI), as well as normal controls – by Rice *et al.* (1999).

1 Background and predictions

Rice *et al.* obtained L1 learners' grammaticality judgements for three types of utterances:

- normally inflected utterances;
- Optional Infinitive (OI) utterances;
- wrongly inflected utterances (bad grammar, or BG); and
- utterances with dropped *ing* (DI).

Since L1 English learners are known to almost never drop *ing* (see Rice and Wexler, 1996), the last were used as controls to ensure that the children were capable of rejecting items ungrammatical for them. Rice *et al.* found that both children suffering from SLI (and, thus, posited to be in an Extended Optional Infinitive stage) and normal L1 English four-year-olds:

1) had significantly higher sensitivity to BG than to OI items; and
2) showed no difference in sensitivity to BG vs. DI items; that is, they found both kinds unacceptable.

The results showed that uninflected, but not wrongly inflected, utterances were grammatical for children in the Optional Infinitive (as well as Extended Optional Infinitive) stage.

We set out to investigate how L2 learners would perform on a similar grammaticality judgement task. We were specifically interested in how the L2 learners would treat suppletive vs. affixal agreement morphology. Given our findings from production data, we expected the L2 learners to be more sensitive to items with suppletive agreement than to items with affixal agreement in the grammaticality judgement task. We also expected to find higher sensitivity to items with incorrect agreement than to items with missing agreement. Since the latter serve as default forms, L2 learners in earlier stages of acquisition may consider them grammatical. These issues are discussed in more detail in Section V.3.c.

2 Methods

a Participants: The participants in the grammaticality judgement task were 18 children (9 females and 9 males) who spoke Russian as their first language and English as their L2. Twelve of the children had participated in the production study. The children

ranged in age from 6;0 to 14;0 (mean = median = 10;3). All but one of the children had resided in the USA for two years or less; the remaining child was born in the USA but had been exposed to English only since age four, for three years. (Two additional participants completed only half of the study, so data from those participants were discarded.)

b Test: A grammaticality judgement test, consisting of 56 test items, was administered to each participant. Each item was a single English sentence, with the types broken down as follows, to replicate the types on the Rice *et al.* (1999) test:

- sixteen correctly inflected (good inflection, or GI) items: 8 thematic verbs and 8 auxiliary/copula;
- sixteen nonfinite (OI) items: 8 thematic verb items with no overt inflection and 8 items with missing *be* copula or auxiliary;
- sixteen wrongly inflected (BG) items: 8 thematic verbs and 8 auxiliary/copula; and
- eight dropped *ing* (DI) items.

All of the thematic verb items were with third person present-tense singular subjects, except BG items, which had inflected present-tense verbs with inappropriate subjects and all of the auxiliary/copula items were in the present tense. The morphemes being examined were thus *-s*, *is*, *am* and *are*. Vocabulary items chosen for the test were words that tend to be among the first taught to children in an L2 classroom; e.g., *boy*, *girl*, *cat*, *table*, etc. Examples of test items are given in Appendix 3.

The test was administered to each participant individually, in the participant's home or school. The test was administered orally by the investigator (who was fluent in both Russian and English). Since many of the participants had difficulty reading English, the oral format was deemed advisable. The investigator explained the goal of the test in Russian and administered some practice items; some were Russian sentences and others were simple English sentences with mistakes other than verbal inflection. The investigator talked the practice items over with the child and ensured that the child was responding to the grammaticality and not to the meaning of the sentences. The investigator then proceeded to administer the actual test items and recorded the participants' responses on paper. The participants were requested to reply 'yes' when the test item was grammatical and 'no' when it was ungrammatical. No feedback was given to the participant during or after the test. The participants were sometimes asked to correct an item they had rated as bad. All participants were told at the completion of the test that they had done a great job.

c Measure: In order to assess participants' sensitivity to the different types of items, we followed Rice *et al.* (1999) in utilizing the A' measure from Linebarger *et al.* (1983). The A' measure computes sensitivity to ungrammatical items by taking into consideration the participants' responses to ungrammatical as well as to grammatical items. The formula is given in (12). Here, x is the proportion of false alarms (i.e., percentage of 'yes' answers to OI, BG or DI items) and y is the proportion of hits (i.e., percentage of 'yes' answers to correctly inflected items):

12) $$A' = \frac{0.5 + (y - x)\,(1 + y - x)}{4y\,(1 - x)}$$

Following Rice *et al.*, we computed A' measures for the three categories that would be ungrammatical in adult English (OI, BG and DI). Since we were interested in comparisons between suppletive and affixal inflection items, we furthermore computed A' measures separately for OI main verb, OI auxiliary, BG main verb and BG auxiliary items.

The proportion of 'hits' was computed as follows:

- for OI main verb and BG main verb items, the 'hits' measure was proportion of 'yes' responses to correctly inflected main verb items;
- for OI auxiliary and BG auxiliary items, the 'hits' measure was proportion of 'yes' responses to correctly inflected auxiliary items; and
- for DI items, the 'hits' measure was proportion of 'yes' responses to all correctly inflected items (main verb and auxiliary).

The 'false alarm' measure for each category was proportion of 'yes' responses to items in that category. An illustration is given in (13). One of the L2 learners said 'yes' to 88% of correctly inflected main verb items and to 50% of OI main verb items. In (13), this learner's A' measure for OI main verb items is computed, using the formula in (12).

13) a. y (proportion of hits) = .88
b. x (proportion of false alarms) = .50
c. $$A' = \frac{.5 + (.88 - .5)\,(1 + .88 - .5)}{4 \times .88 \times (1 - .5)} = .80$$

3 Results and discussion

Before describing the results, it is necessary to break the participants into distinct groups. Data from three of the 18 participants had to be discarded. One of these three was a young learner (KI, who was 6;6 at the time), who did not understand the nature of the test. When asked why he had rated certain sentences as 'bad' or 'good' he would respond 'Because I'm right!' Two other children understood the purpose of the test but showed a very poor command of English grammar and vocabulary. The most recent arrivals in the USA of all the participants, these two children regularly asked for translations of the test items.

The remaining 15 participants understood the nature of the task and appeared to be comfortable with the vocabulary. When asked to correct an item they had rated as 'bad', they appropriately corrected the verbal inflection (however, the correction was not always appropriate; for instance, *he go* might be corrected to *he is go* instead of *he goes*).

The 15 participants were further subdivided into two groups. Five of the participants exhibited nearly perfect performance, making between zero and four errors on the 56 test items. Since these participants also spoke English with few, if any, errors, and since they had had either lengthier or more intensive exposure to English than the remaining participants, they were judged to have successfully acquired agreement in English, and were classed as the more advanced group.[11]

The ten remaining participants made some errors on the test and were classed as the less advanced group. The percentage of errors made by the participants ranged from 13% to 50%, with the mean at 29%. Nine of the 10 participants had taken part in the production study, and all but one of them made a number of inflectional errors, showing that they had not fully mastered English inflection. The tenth participant was also reported by her teacher to make errors when speaking English.[12]

[11] Four of the five advanced learners did not participate in the production study, but were reported by parents and teachers to be fully fluent in English (the older two of the four, ages 13 and 14, had also had several years of English instruction in Russia prior to arriving in the USA). The fifth child (DI) did take part in the production study, and was one of the highest-performing participants.

[12] The nine children in this group who had also participated in the production study were AN, AT, DV, KA, RO, TI, TO, VA and YA (see Appendix 1). The grammaticality judgement task was administered either immediately following the collection of production data, or in a separate session about a month later. The tenth child, EI, was TI's twin sister; she was too shy to participate in the production study but was reported by her teacher to have a slightly better command of English than her brother.

Table 5 Mean proportions of 'yes' responses by item type (as percentages)

	Less advanced learners ($n = 10$)	More advanced learners ($n = 5$)
GI: thematic verbs	78	98
GI: auxiliaries	96	95
OI: thematic verbs	53	3
OI: auxiliaries	40	3
BG: thematic verbs	44	5
BG: auxiliaries	20	0
dropped *-ing* items	19	3

a Acceptance of item types: We calculated the mean percentages of 'yes' responses to each item type. Table 5 reports the mean score for each group of participants. Recall that for the good inflection (GI) items, a 'yes' response is appropriate, but for the other item types, it is inappropriate. The more advanced learners perform at nativelike levels, exhibiting knowledge of both suppletive and affixal inflectional paradigms. Given these learners' reported proficiency in English, this is not surprising. For the remainder of this section, we are concerned with the less advanced learners.

The pattern of responses shown by the less advanced group demonstrates the same general pattern as the production data.

Table 6 Results of *t*-tests (paired two sample for means) showing A' measure comparisons for the ten less advanced L2 learners

A' comparison	*t*-statistic	Two-tailed *p*-value	Significant?
OI main (A' mean = .66) vs. OI aux (A' mean = .87)	–2.62	$p < .05$	Yes
BG main (A' mean = .77) vs. BG aux (A' mean = .93)	–5.02	$p < .001$	Yes
OI main (A' mean = .66) vs. BG main (A' mean = .77)	–1.47	$p = .17$	No
OI aux (A' mean = .87) vs. BG aux (A' mean = .93)	–2.15	$p = .06$	Almost
OI main (A' mean = .66) vs. DI (A' mean = .91)	–2.82	$p < .05$	Yes
BG main (A' mean = .77) vs. DI (A' mean = .91)	–4.07	$p < .01$	Yes
OI aux (A' mean = .87) vs. DI (A' mean = .91)	–0.84	$p = .42$	No
BG aux (A' mean = .93) vs. DI (A' mean = .91)	0.67	$p = .52$	No

Within each of the first three item types (GI, OI, BG), learners perform better on auxiliary than on main verb items. The 96% acceptance of GI auxiliary items (compared to lower acceptance rates for missing or incorrect auxiliaries) suggests good mastery of the *be* paradigm. Learners also prefer missing inflection to incorrect inflection on both thematic verb and auxiliary items. The 19% acceptance of DI items is probably related to our finding from production data that L2 learners sometimes produce utterance with *be* but no *ing*, such as *he is go*.

b Sensitivity to item types: In order to gauge sensitivity to the relevant item types, we computed A' measures for each participant in the less advanced group. The mean A' measures across the 10 subjects and the relevant statistical comparisons are reported in Table 6. All of the statistical tests are paired two-sample *t*-tests for means; we report the two-tailed *p*-value. As can be seen from Table 6, performance was significantly better on items with auxiliaries than on items with thematic verbs. Performance was similar on auxiliary items and on dropped *ing* items.[13]

c Discussion: What do the results of the less advanced L2 learners mean? Turning first to the suppletive inflection items, we see that the L2 learners show fairly high sensitivity to items with omitted auxiliaries. Sensitivity to incorrect auxiliaries is even higher. These results suggest that the L2 learners have mostly mastered the feature specifications of *be* forms: they overwhelmingly accept *be* forms with correct agreement as grammatical and reject those with incorrect agreement as ungrammatical. These results suggest that categories and features underlying inflection are unimpaired in the

[13] Rice *et al.* treated DI items as controls, since L1 English children have been reported not to drop *ing* in their speech. We cannot similarly treat DI items as controls, since we have found that the L2 English children do produce utterance such as *he is go* in their speech. The 19% acceptance rate of DI items in the grammaticality judgement task suggests that these items are at least marginally acceptable for the child L2 learners. However, most of the acceptance of DI items in the task is in fact due to just two of the ten participants. Not surprisingly, these two participants (RO and TI) had high rates of utterances such as *he is go* in their production (see Appendix 1). Of the other eight participants, the seven who had participated in the production study (see note 12) had very low (or nonexistent) rates of *be* overgeneration, and the eighth, EI, was reported by her teacher not to make this type of error in production (we felt we could trust the teacher's judgement, since she had correctly noted that RO and TI often made this error).

If data from RO and TI are excluded, acceptance of DI items for the group goes down to 8%, and the mean A' measure for DI items goes up to .94. Even then, however, performance on auxiliary items (OI as well as BG) for the remaining eight children does not differ significantly from performance on the DI items. Performance on thematic verb items (OI as well as BG) continues to differ significantly from performance on DI items for the eight children.

children's L2 grammar. However, we still need to explain the 40% acceptance rate of items with omitted *be* in the grammaticality judgement task. If all omission of *be* forms in production were due to access/retrieval problems, we should expect 0% acceptance rates of omitted *be* in the grammaticality judgement task. As Prévost and White (2000: 129) note, once L2 learners acquire a fully specified finite verb form, they 'might be expected to perform more accurately on an untimed grammaticality judgement task (where they have time to access the relevant representation) than in spontaneous production or in timed tasks.'

A possible explanation for the 40% acceptance rate is that a grammaticality judgement task, like spontaneous production, places some processing and retrieval pressures on the participants. While the task administered to the child L2 learners was not timed, learners were asked to give their responses orally, in the presence of an investigator; some communication pressure was clearly present. Note that acceptance of incorrect (wrong person/number) auxiliary forms is only 20%, and that the difference in sensitivity to incorrect vs. missing auxiliary items borders on significance. Thus, even under communication pressure, learners are quite unlikely to rate incorrect suppletive agreement forms as grammatical. (A slight 'yes' bias may play a role in the results as well. Note that the less advanced L2 learners do not have a 0% acceptance rate in any category: the lowest acceptance rate is 19% for DI items.) Without a more elaborate model of how retrieval difficulties interact with knowledge of finiteness, we cannot explain the 40% acceptance rate for missing auxiliary items.

Turning to the affixal agreement items, we see significantly lower performance across the board. Recall our hypothesis (related to Guasti and Rizzi's proposal) that L2 learners initially consider morphological agreement a reflex of verb-raising. Under this hypothesis, it is not surprising that acceptance of uninflected thematic verb items is fairly high (53%), and sensitivity to this item type quite low (mean A' = .66). If the L2 learners do not initially analyse *-s* as an agreement affix, or if they consider presence of *-s* optional, they would naturally accept the default uninflected forms as grammatical. What is more puzzling is the fairly high (44%) acceptance of inappropriately inflected items (e.g., *I goes*), especially since the learners almost never make this type of error in production. The explanation may again lie in the nature of the task. Suppose that at least some of the L2 learners have not yet analysed *-s* as an agreement affix at all (i.e., have not mastered the English-specific rule that requires covertly checked features to receive morphological expression). In production, these learners

would simply use an uninflected verb form. In the grammaticality judgement task, they would suddenly hear forms with *-s* and be forced to rate them as good or bad. One strategy might be to accept only uninflected forms as grammatical and reject any form with *-s*, whatever the person and number of the subject. Another strategy might be to simply guess, accepting some GI as well as some BG thematic verb items. We are not claiming this to be the case for all of the learners in the less advanced group; some of the L2 learners may have already learned the feature specifications of *-s*, as well as the rule requiring affixal inflection in English. These learners would prefer GI items to BG items; hence the 78% acceptance of the former vs. 44% acceptance of the latter.

These are tentative explanations since, without a more extensive study, we cannot truly analyse the processes underlying a child L2 learner's responses to a grammaticality judgement task. A more detailed study is necessary, which would carefully control for each learner's knowledge of the suppletive and affixal agreement paradigms (perhaps through an elicitation task), as well as maximally remove communication pressures (perhaps by using a written test, with participants who demonstrate knowledge of written English). While the present grammaticality judgement study is necessarily incomplete, it supplements the production data in showing clear differences in knowledge of suppletive vs. affixal agreement in child L2 English. On a final note, the high scores of the five more advanced L2 learners on all item types suggest that child L2 learners are able to fully master both suppletive and affixal agreement, given enough exposure to English.

VI Conclusions and suggestions for further research

By using production and grammaticality judgement data obtained from L1 Russian children learning English as an L2, we have hoped to show that functional categories – at least with respect to finiteness – are fully present in L2 grammar,[14] and that problems with producing appropriate verbal inflection are due to problems in accessing particular morphemes and acquiring language-specific

[14] We cannot make any claims about the initial state of the L2 grammar, since all of our participants had had at least a few months exposure to English before participating in this study. As White (1996: 8) correctly points out, even if one studies L2 learners from the moment they begin speaking the L2, one can never be completely certain that one is obtaining data on the learners' initial state, because 'there may well be grammar acquisition in the "silent period" that precedes first productions.' Thus, all our claims have to do with what the interlanguage grammar of the learners looks like during the course of L2 acquisition.

rules. Our main conclusions are summarized below, and are discussed in more detail later in the section.

- The child L2 learners have unimpaired Tense and Agreement categories and features in their grammar.
- Universal rules but not language-specific rules governing morphological expression (in the framework of Guasti and Rizzi, 2001) are initially available to the child L2 learners:
  - The L2 learners have not mastered the English-specific rule that calls for affixal inflection on unraised thematic verbs.
  - On the other hand, the learners have full access to the UG rule which requires morphological expression of overtly checked agreement features (e.g., on raised forms of *be*).
- Retrieval and communication pressures may cause learners to sometimes leave out inflectional morphemes in production.

While the L2 learners frequently omit verbal inflection in production, they make very few tense/agreement errors, suggesting that features and feature-checking mechanisms underlying finiteness are fully in place. Moreover, both production and grammaticality judgement data show that L2 learners know suppletive agreement better than affixal agreement. The high and accurate use of *be* forms in the data (including overgeneration of *be* in non-progressive clauses) points towards the presence of a fully specified Tense node. Under a theory of syntactic impairment, on the other hand, we would expect omission of all inflectional morpheme types, as well as a higher rate of feature mismatch.

The results (differences in suppletive vs. affixal inflection use as well as lack of null subjects in the data) also suggest that the L2 learners are not in the OI stage. Since the child L2 learners are older than typical L1 learners who are in the OI stage, our results are consistent with the hypothesis that the OI stage is maturationally driven (Wexler, 1998).

Our findings, which suggest fully specified functional categories coupled with difficulties in acquiring certain morpheme types (i.e., affixal agreement morphemes), are consistent with the MSIH (Prévost and White, 1999; 2000). However, the MSIH alone cannot account for the differences in suppletive vs. affixal inflection use.

We have suggested that low production of affixal agreement on thematic verbs is due to a generalization that ties morphological agreement to verb-raising; this generalization fits into the more overarching proposal of Guasti and Rizzi (2001), who suggest that children take a long time to learn language-specific rules governing morphological expression of features that are checked covertly. While their proposal is for L1 acquisition of English, we have seen

that it also predicts the *be* forms vs. affixal inflection difference in the data of our child L2 learners: the L2 learners initially acquire morphological agreement only on the raised *be* forms, and frequently omit affixal inflection. We have argued that the (much smaller) omission of *be* forms is due mainly to retrieval difficulties placed on the children by communication demands.

The hypothesis that acquisition of morphological agreement is tied to verb-raising makes specific predictions for L2 acquisition of other languages. We would expect L2 learners of languages with verb-raising (e.g., French) to have a lower rate of omission of affixal inflection than L2 learners of English. Indeed, if we look at Prévost's (1997) data for the two L1 English children acquiring French, we see that the children's rates of omission of verbal inflection during their first 18 months of L2 exposure (the period roughly comparable to the English exposure of most children in our study) were 15% and 9%, respectively. While we cannot directly compare the longitudinal data obtained by Prévost to the cross-sectional data of our study, the differences in affixal omission between the two L2 French learners (15% and 9%), and the L2 English learners of our study (58% of all thematic verb inflection, across all transcripts) is quite striking. While it is tempting to claim that the differences in omission are due to the differences in verb-raising between English and French, it is important to note another possible explanation for the low number of infinitival forms in L2 French: namely, that for regular verbs in French, the inflected forms for present-tense first, second and third person singular, as well as (depending on the conjugation) third person plural are (in sound, though not spelling) stem forms. Thus, L2 learners of French could be using the stem form as a default much in the same way that they use the infinitival form as a default. Since the stem form is the appropriate finite form for much of the verbal paradigm, this could potentially explain the low proportion of infinitival utterances in Prévost's data. In order to truly examine our hypothesis of the relationship between verb-raising and use of inflection, we would need to look at the L2 acquisition of a verb-raising language in which all finite forms are distinct from stem forms, such as Italian.

Another direction for additional research is a more longitudinal study of child L2 English, coupled with a more controlled grammaticality judgement study, as discussed in Section V.3.c. Yet another potential direction is comparisons between child and adult L2 learners. Various studies (e.g., Eubank *et al.*, 1997) have found that verb-raising past adverbs for adult L2 learners of English is optionally possible, and White (1992) found this optionality for children ages 10 to 12. However, we failed to find such optionality

for somewhat younger (on average) child L2 English learners. While the different results may be attributable to different methods of data collection (experimental studies vs. spontaneous production data), it is also possible that there is a developmental difference in setting the verb-raising parameter in L2 acquisition. The difference between our results and those of previous verb-raising studies clearly does not stem from different L1s: Ionin and Wexler (to appear) found that adult L1 Russian learners of English allowed thematic verb-raising past adverbs in English. The question of how development interacts with verb-raising would also benefit from a more longitudinal study with learners of different ages.

On a final note, we hope that this work sheds some light on the processes underlying (child) L2 acquisition and its relation to UG. We have seen that child L2 learners are not identical to L1 learners in their course of acquisition; at the same time, our data suggest that the L2 learners do have access to at least some aspects of UG. Adopting Guasti and Rizzi's (2001) theoretical framework, we have argued that, in the domain of verbal agreement, universal rules are available to the child L2 learners early on, while language-specific rules take a long time to acquire. If language-specific rules are thought of as parametric choices (see Schütze, 2001), we could make the following generalization: UG principles are fully available in L2 acquisition early on, while parameter-setting takes time (with, perhaps, the unmarked value being adopted first). A fruitful research direction would be to examine whether this generalization holds up in other domains of child as well as adult L2 acquisition.

Acknowledgements

We would like to thank Teresa Satterfield for her help with the initial data collection and analysis and Ora Matushansky for much helpful discussion. Thanks to all the children who participated in the study, and to the parents and teachers who made their participation possible. We are grateful to Lydia White and to an anonymous reviewer for *Second Language Research* for their invaluable suggestions and comments. And thanks also to the audiences of SLRF 2000 and of HUMIT 2000, where earlier versions of this article were presented. All errors are our own.

VII References

Bailyn, J. 1995: A configurational approach to Russian 'free' word order. Doctoral dissertation, Cornell University.

Beck, M.-L. 1998: L2 acquisition and obligatory head movement: English-

speaking learners of German and the local impairment hypothesis. *Studies in Second Language Acquisition* 20, 311–48.

Behrens, H. 1993: Temporal reference in German child language. Doctoral dissertation, University of Amsterdam.

Borer, H. and **Rohrbacher, B.** 1997: Features and projections: arguments for the full competence hypothesis. In Hughes, E., Hughes, M. and Greenhill, A., editors, *Proceedings of the 21st Annual Boston University Conference on Language Development*. Somerville, MA: Cascadilla Press, 24–35.

Borer, H. and **Wexler, K.** 1987: The maturation of syntax. In Roeper, T. and Williams, E., editors, *Parameter setting*. Dordrecht: D. Reidel, 123–720.

—— 1992: Bi-unique relations and the maturation of grammatical principles. *Natural Language and Linguistic Theory* 10, 147–89.

Brown, R. 1973: *A first language: the early stages*. Cambridge, MA: Harvard University Press.

Chomsky, N. 1957: *Syntactic structures*. The Hague: Mouton.

—— 1989: Some notes on economy of derivation and representation. In Laka, I. and Mahajan, A., editors, *Functional heads and clause structure: MIT Working Papers in Linguistics* 10. Also published 1991, in Freidin, R., editor, *Principles and parameters in comparative grammar*. Cambridge, MA: MIT Press, 417–54.

—— 1993: A Minimalist Program for linguistic theory. In Hale, K. and Keyser, S.J., editors. *The view from Building 20: essays in linguistics in honor of Sylvain Bromberger*. Cambridge, MA: MIT Press.

—— 1995: *The Minimalist Program*. Cambridge, MA: MIT Press

—— 1998: Minimalist inquiries: the framework. *MIT Occasional Papers in Linguistics* 15.

Clahsen, H. and **Penke, M.** 1992: The acquisition of agreement morphology and its syntactic consequences: new evidence on German child language from the Simone-corpus. In Meisel, J., editor, *The acquisition of verb placement: functional categories and V2 phenomena in language acquisition*. Dordrecht: Kluwer.

Epstein, S., Flynn, S. and **Martohardjono, G.** 1996: Second language acquisition: theoretical and experimental issues in contemporary research. *Brain and Behavioral Sciences* 19, 677–714.

Eubank, L. 1993/1994: On the transfer of parametric values in L2 development. *Language Acquisition* 3, 183–208.

Eubank, L., Bischof, J., Huffstutler, A., Leek, P. and **West, C.** 1997: 'Tom eats slowly cooked eggs': thematic-verb raising in L2 knowledge. *Language Acquisition* 6, 171–99.

Guasti, M.T. and **Rizzi, L.** 2001: Agreement and tense as distinct syntactic positions: evidence from acquisition. To appear in Cinque, G., editor, *Functional structure in DP and IP*. Oxford: Oxford University Press.

Guilfoyle, E. 1984: The acquisition of tense and the emergence of thematic subjects in child grammars of English. *The McGill Working Papers in Linguistics* 2, 20–30.

Haegeman, L. 1995: Root infinitives, tense and truncated structures. *Language Acquisition* 4, 205–55.

Halle, M. and **Marantz, A.** 1993: Distributed morphology and the pieces of inflection. In Hale, K. and Keyser, S.J., editors, *The view from Building 20: essays in linguistics in honor of Sylvain Bromberger*. Cambridge, MA: MIT Press, 111–76.

Harris, T. and **Wexler, K.** 1996: The optional infinitive stage in child English: evidence from negation. In Clahsen, H. editor, *Generative perspectives on language acquisition: empirical findings, theoretical considerations and crosslinguistic comparisons*. Amsterdam: John Benjamins, 1–42.

Haznedar, B. and **Schwartz, B.D.** 1997: Are there optional infinitives in child L2 acquisition? In Hughes, E., Hughes, M. and Greenhill, A., editors, *Proceedings of the 21st Annual Boston University Conference on Language Development*. Somerville, MA: Cascadilla Press, 257–68.

Hoekstra, T., Hyams, N. and **Becker, M.** 1997: The underspecification of number and the licensing of root infinitives. In Hughes, E., Hughes, M. and Greenhill, A., editors, *Proceedings of the 21st Annual Boston University Conference on Language Development*. Somerville, MA: Cascadilla Press, 293–306.

Ionin, T., and **Wexler, K.** to appear: Optional verb raising in L2 acquisition: evidence from L1-Russian learners of English. To appear in *Proceedings of GALA 2001*, Palmela, Portugal.

Krämer, I. 1993: The licensing of subjects in early child language. In Phillips, C., editor, *Papers on Case and Agreement II, MIT Working Papers in Linguistics* 19, 197–212.

Lardiere, D. 1998a: Case and tense in the 'fossilized' steady state. *Second Language Research* 14, 1–26.

—— 1998b: Dissociating syntax from morphology in a divergent end-state grammar. *Second Language Research* 14, 359–75.

—— 1999: Suppletive agreement in second language acquisition. In Greenhill, A., Littlefield, H. and Tano, C., editors, *Proceedings of the 23rd Annual Boston University Conference on Language Development*. Somerville, MA: Cascadilla Press, 386–96.

—— 2000: Mapping features to forms in second language acquisition. In Archibald, J., editor, *Second language acquisition and linguistic theory*. Oxford: Blackwell, 102–29.

Lightbown, P. 1977: Consistency and variation in the acquisition of French. Doctoral dissertation, Columbia University.

Linebarger, M., Schwartz, M. and **Saffran, E.** 1983: Sensitivity to grammatical structure in so-called agrammatic aphasics. *Cognition* 13, 361–92.

MacWhinney, B. 1995: *The CHiLDEs project: tools for analyzing talk*. Hillsdale, NJ: Lawrence Erlbaum.

MacWhinney, B. and **Snow, C.** 1990: *The CHiLDEs project: computational tools for analyzing talk*. Pittsburgh, PA: Carnegie Mellon University.

Matushansky, O. 1999: Partial pro-drop in Hebrew and Russian. *Documents de Travail Langues et Grammaire* 7, 145–62.

Meisel, J. 1991: Principles of universal grammar and strategies of language learning: Some similarities and differences between first and second language acquisition. In Eubank, L., editor, *Point counterpoint: universal grammar in the second language*. Amsterdam: John Benjamins, 231–76.

—— 1997: The acquisition of the syntax of negation in French and German: contrasting first and second language development. *Second Language Research* 13, 227–63.

Miller, M. 1976: *Zur Logik der frühkindlichen Sprachentwicklung* [On the logic of early child language development]. Stuttgart: Klett.

Phillips, C. 1995: Syntax at age two: cross-linguistic differences. In Schütze, C., Ganger, J. and Broihier, K., editors, *Papers on Language Processing and Acquisition: MIT Working Papers in Linguistics* 26, 325–82.

Pierce, A. 1989: On the emergence of syntax: a cross-linguistic study. Doctoral Dissertation, MIT, Cambridge, MA.

—— 1992: *Language acquisition and syntactic theory: a comparative analysis of French and English child grammars*. Dordrecht: Kluwer Academic Publishers.

Poeppel, D. and **Wexler, K.** 1993: The full competence hypothesis of clause structure in early German. *Language* 69, 1–33.

Pollock, J.-Y. 1989: Verb movement, universal grammar, and the structure of IP. *Linguistic Inquiry*, 20, 365–424.

Prévost, P. 1997: Truncation in second language acquisition. Doctoral dissertation, McGill University.

Prévost, P. and **White, L.** 1999: Finiteness and variability in SLA: more evidence for missing surface inflection. In Greenhill, A., Littlefield, H. and Tano, C., editors, *Proceedings of the 23rd Annual Boston University Conference on Language Development*. Somerville, MA: Cascadilla Press, 575–86.

—— 2000: Missing surface inflection or impairment in second language acquisition? Evidence from tense and agreement. *Second Language Research* 16, 103–33.

Rice, M.L. and **Wexler, K.** 1996: Toward tense as a clinical marker of Specific Language Impairment in English-speaking children. *Journal of Speech and Hearing Research* 39, 1239–57.

Rice, M.L., Wexler, K. and **Hershberger, S.** 1998: Tense over time: the longitudinal course of tense acquisition in children with Specific Language Impairment. *Journal of Speech and Hearing Research* 41, 1412–31.

Rice, M.L., Wexler, K. and **Redmond, S.M.** 1999: Grammaticality judgments of an extended Optional Infinitive grammar: evidence from English-speaking children with Specific Language Impairment. *Journal of Speech and Hearing Research* 42, 943–61.

Rizzi, L. 1993/94: Some notes on linguistic theory and language development: the case of root infinitives. *Language Acquisition* 3, 371–93.

Roberts, I. 1992: *Verbs and diachronic syntax: a comparative history of English and French*. Dordrecht: Kluwer.

Rohrbacher, B. 1994: The Germanic VO languages and the full paradigm: a theory of V to I raising. Doctoral dissertation, University of Massachusetts at Amherst.

Schütze, C. 2001: The status of *he/she don't* and theories of root infinitives. Unpublished manuscript, UCLA.

Schütze, C. and **Wexler, K.** 1996: Subject case licensing and English root infinitives. In Stringfellow, A., Cahana-Amitay, D., Hughes, E. and Zukowski, A., editors, *Proceedings of the 20th Annual Boston University Conference on Language Development*. Somerville, MA: Cascadilla Press, 670–81.

—— 2000: An elicitation study of young English children's knowledge of tense: semantic and syntactic properties of Optional Infinitives. In Howell, S.C., Fish, S.A. and Keith-Lucas, T., editors, *Proceedings of the 24th Annual Boston University Conference on Language Development*. Somerville, MA: Cascadilla Press, 669–83.

Suppes, P., Smith, R. and **Leveillé, M.** 1973: The French syntax of a child's noun phrases. *Archives de Psychologie* 42, 207–79.

Vainikka, A. and **Young-Scholten, M.** 1996: Gradual development of L2 phrase structure. *Second Language Research* 12, 7–39.

—— 1998: Morphosyntactic triggers in adult SLA. In Beck, M.-L., editor, *Morphology and its interfaces in second language knowledge*. Amsterdam: John Benjamins, 89–113.

Vikner, S. 1995: V^0-to-I^0 movement and inflection for person in all tenses. *Working Papers in Scandinavian Syntax* 55, 1–27.

Wagner, K. 1985: How much do children say in a day? *Journal of Child Language* 12, 475–87.

Wexler, K. 1994: Optional Infinitives, head movement and the economy of derivations. In Lightfoot, D. and Hornstein, N., editors, *Verb movement*. Cambridge, UK: Cambridge University Press.

—— 1998: Very early parameter setting and the Unique Checking Constraint: a new explanation for the Optional Infinitive stage. *Lingua* 106, 23–79.

White, L. 1990/91: The verb-movement parameter in second language acquisition. *Language Acquisition* 1, 337–60.

—— 1991: Adverb placement in second language acquisition: some effects of positive and negative evidence in the classroom. *Second Language Research* 7, 133–61.

—— 1992: Long and short movement in second language acquisition. *Canadian Journal of Linguistics/Revue Canadienne de Linguistique* 37, 273–86.

—— 1996: The tale of the ugly duckling (or the coming of age of second language acquisition research). In Stringfellow, A., Cahana-Amitay, D., Hughes, E. and Zukowski, A., editors, *Proceedings of the 20th Annual Boston University Conference on Language Development*. Somerville, MA: Cascadilla Press, 1-17.

Yuan, B. 2000: Syntactic behaviours of thematic verbs in German, French, and English speakers' L2-Chinese: against inevitability of thematic-verb-raising in L2 acquisition. Paper presented at the Generative

Approaches to Second Language Acquisition Conference, MIT. Cambridge, MA.

Zobl, H. 1998: Representational changes: from listed representations to independent representations of verbal affixes. In Beck, M.-L., editor, *Morphology and its interfaces in second language knowledge*. Amsterdam: John Benjamins, 339–71.

Zobl, H. and **Liceras, J.** 1994: Functional categories and acquisition orders. *Language Learning* 44, 159–80.

Appendix 1 Background of individual participants

Child name	Sex	Age (years;months) at first recording	Age (years;months) at second recording (where applicable)	Length of residence in the USA at first recording
AN[a]	F	10;1		18 months
AT	F	6;2		8 months
AY	F	10;1	10;4	2 months
DA	F	9;7	9;9	6 months
DI[a]	M	11;9		18 months (and some study in Russia)
DV	M	7;1		since birth (exposure to English since age 4)
EL	F	4;2		since birth (exposure to English: 4 months)
GU[b]	F	3;9		since birth (exposure to English: 3 months)
KA[c]	F	11;3		2 years
KI	M	6;5	6;7	4 months
MA	F	7;4	7;5	3 months
MY[d]	F	5;3	5;5	5 months
OL[d]	F	6;10	7;0	5 months
RO	M	13;10		2 months (and some study in Russia)
TI	M	11;11		1 month (and limited study in Russia)
TO	F	7;8		11 months
VA	M	9;6	9;8	5 months
VI	M	8;1		12 months
YA[c]	F	11;3		2 years
YS[b]	M	4;7	4;10	since birth (limited exposure to English: 3 months)

Notes: a DI and AN are siblings. b YS and GU are siblings, but YS's first speech sample precedes GU's by nearly a year. c KA and YA are twins and had the same amount of English exposure. d OL and MY are siblings from a Russian orphanage who were adopted by an American family and received more intensive English exposure than the other children. The rest of the children come from immigrant families.

Appendix 2 Agreement morphology in production data: individual results

Child/sample	Number omissions/number of obligatory contexts						Number of over-generated *be* auxiliary utterances
	Third person singular *-s*	Irregular third person singular	Past tense *-ed*	Irregular past tense	*be* auxiliary	*be* copula	
AN	8/11	1/1	n/a	1/8	3/10	0/5	3
AT	2/2	3/4	3/3	19/22	16/24	1/12	1
AY sample 1	10/10	n/a	2/3	0/1	n/a	1/5	4
AY sample 2	37/47	10/12	7/9	27/45	7/44	15/35	23
DA sample 1	38/38	1/1	2/3	6/6	2/3	1/2	1
DA sample 2	5/6	1/1	16/18	22/32	2/3	5/23	4
DV	0/1	n/a	0/3	0/12	0/14	0/2	0
DI	3/7	n/a	0/3	0/2	1/27	0/11	1
EL	3/7	n/a	15/30	26/71	0/8	2/12	3
GU	4/7	0/1	6/10	5/17	1/23	7/26	17
KA	2/4	n/a	4/5	4/19	9/13	1/15	0
KI sample 1	5/7	4/4	0/1	1/2	18/26	0/8	6
KI sample 2	0/1	1/2	9/12	8/18	0/8	0/6	2
MA sample 1	25/25	n/a	n/a	n/a	16/17	2/5	7
MA sample 2	13/13	0/1	n/a	0/23	9/43	0/8	11
MY sample 1	8/11	3/5	3/3	3/4	3/23	2/27	0
MY sample 2	0/4	1/2	2/7	6/27	0/14	1/20	0
OL sample 1	8/21	4/6	3/7	9/17	10/20	12/41	4
OL sample 2	2/9	2/3	6/8	3/8	2/8	2/27	0
RO	3/5	1/3	0/2	3/6	0/1	0/14	7
TI	21/21	n/a	n/a	0/2	2/4	4/7	8
TO	3/6	5/5	4/8	23/34	9/24	2/67	0
VA sample 1	29/32	4/4	1/2	16/24	12/33	2/13	2
VA sample 2	2/4	1/3	3/15	3/40	5/33	2/13	0
VI	4/4	n/a	1/3	1/1	8/16	1/7	0
YA	1/1	n/a	4/5	3/7	12/17	1/4	0
YS sample 1	12/13	7/8	8/11	2/5	10/13	5/12	0
YS sample 2	2/3	n/a	2/3	2/8	1/15	0/17	4

Appendix 3 Examples of test items used in the grammaticality judgement task

Good Inflection items:

Thematic verb
the boy likes cheese
she goes to school every day

Auxiliary/copula
the girl is little
the dog is sleeping

Optional Infinitive (OI) items:

Thematic verb
the boy want the toy
the girl play outside

Auxiliary/copula
the dog angry
he jumping on the bed

Bad Grammar (BG) items:

Thematic verb
the children likes chocolate
I goes to the movies every day

Auxiliary/copula
we is sleeping
the boy are tall

Dropped *-ing* (DI) items:
the man is sit on the chair
you are read a book