Tense and temporality: A comparison between children learning a second language and children with SLI

Johanne Paradis and Martha Crago

McGill University
Abstract

The present study consists of a comparison between the morphosyntax of children with SLI and children acquiring a second language (L2), conducted to determine whether the optional infinitive phenomenon (Rice, Wexler & Cleave, 1995; Wexler, 1994) is evident in both learner groups and to what extent cross-learner similarities exist. We analyzed spontaneous production data from French-speaking children with SLI; English-speaking L2 learners of French, and French-speaking controls, all approximately 7 years old. We examined the children's use of tense morphology, temporal adverbials, agreement morphology and distributional contingencies associated with finiteness. Our findings indicate that the use of morphosyntax by children with SLI and L2 children has significant similarities, although certain specific differences exist. Both the children with SLI and the L2 children demonstrate optional infinitive effects in their language use. These results have theoretical and clinical relevance. First, they suggest that the characterization of the optional infinitive phenomenon in normal development as a consequence of very early neurological change may be too restrictive. Our data appear to indicate that the mechanism underlying the optional infinitive phenomenon extends to normal (second) language learning after the primary acquisition years. Second, they indicate that tense-marking difficulty may not be an adequate clinical marker of SLI when comparing children with impairment to both monolingual and bilingual peers. A more specific clinical marker would be more effective in diagnosing disordered populations in a multilingual context.
Tense and temporality: A comparison between children learning a second language and children with SLI

Tense in Acquisition

Researchers have long noted that grammatical morphemes, particularly those associated with the verb, cause problems for language learners of various populations, including first language (L1) learners (Brown, 1973), second language (L2) learners (Dulay, Burt & Krashen, 1982) and children with specific language impairment (SLI) (Steckol & Leonard, 1979). Grammatical morphology plays an important role in recent versions of syntactic theory which put more emphasis on functional categories in determining the properties of particular language grammars (e.g. Chomsky, 1993). This centrality of functional categories in syntactic theory has led to renewed interest in studying the acquisition of grammatical morphemes, especially those associated with the verb, such as tense inflections and auxiliaries (Clahsen, Penke & Parodi, 1993/94; Meisel, 1992; Radford, 1990; Rizzi, 1993/94; Wexler, 1994, 1996, 1998, for example). The present study is situated in this current framework and focuses on the functional category associated with tense markers in a comparison between two language learning groups: children acquiring a second language (L2) and age-matched children acquiring their first language with specific language impairment (SLI).

One of the most influential proposals put forth to characterize the emergence of verbal grammatical morphemes in first language acquisition is Wexler’s (1994, 1996, 1998) Optional Infinitive (OI) account. According to the OI proposal, children go through a stage where developmental omission errors in the use of inflections marking finiteness or tense are frequent. Root or main clauses with an untensed verb are nonfinite or infinitive clauses, for example, children’s utterances like ‘truck go there’ in English or the French equivalent ‘Camion aller là’
are root infinitives. Importantly, the OI account does not claim that children have a generalized difficulty in the realization of inflectional morphemes and their properties. First, even if children use nonfinite clauses some or most of the time, it has been observed that the syntactic knowledge associated with finiteness is intact (Wexler, 1994, 1996, 1998). Specifically, children obey the word order rules for whichever form they use, finite or nonfinite. For example, in French, the negative operator, *pas* ‘not’, is placed after a tensed verb, but before an infinitival form, as shown in (1a) and (1b) respectively, from (Pollock, 1989, pp 367, 374). Note that the form *ne* is not the negator. Even in child French, finite verbs are placed to the left of the negator, but nonfinite verbs are placed to the right, as shown in the examples in (1c) and (1d) from Pierce (1992, p. 65). Thus, in spite of the infinitive verb being an ‘error’ in (1d), the correct, adult-like distributional contingency is obeyed nonetheless. In addition to knowledge of verb placement, Wexler observes that children in the OI stage also tend to have accurate rates of form choice (1994, 1996). For example, when children produce a finite verb form, it tends to have the correct subject-verb agreement marking.

(1)  a. Jean (n’) aime pas Marie
    ‘John       likes not  Mary’

    b. Ne pas regarder la télévision consolide l’esprit critique.
    ‘not      to watch    television  strengthens one’s independence’

    c. Elle roule pas.
    it roll not
    ‘it doesn’t roll’

    d. Pas rouler en vélo.
    ‘not roll     on bike’
The cluster of properties that comprise the OI stage can be summarized as follows: (1) Presence of omission errors with tense-bearing or finiteness markers; (2) Intact distributional contingencies associated with finiteness; (3) Paucity of errors of commission in agreement. Hence the OI stage in development refers to a particular deficit: The grammatical feature tense is not marked obligatorily in child language as it is in adult language. The OI phenomenon has been attested in children’s acquisition of English, French and German, among other non-null subject languages (Déprez & Pierce, 1993; Pierce, 1992; Poeppel & Wexler, 1993; Wexler, 1994, 1996, 1998). Given the prevalence of OI in language development, Wexler suggests that the etiology of OI lies in ontological maturation. He proposes that the initial absence of obligatory tense marking is part of a biologically-determined program for language acquisition (Wexler, 1994, 1996, 1998).

Research on the first language acquisition of children who are specifically-language impaired has shown that they also exhibit difficulties with respect to tense-marking properties of the grammar (Cleave & Rice, 1997; Hadley & Rice, 1996; Oetting & Horohov, 1997; Rice, Wexler & Cleave, 1995; Rice & Wexler, 1996; Rice, Wexler & Hershberger, 1998). These investigations of English-speaking children’s patterns of obligatory finiteness marking through inflections, auxiliaries and the copula have yielded striking similarities between impaired five year olds and normally-developing three year olds matched in MLU (mean length of utterance), in comparison with five year old normally-developing children. Both the three year olds and the children with SLI omitted tense-marking morphology in obligatory context, although the three year olds had higher rates of accuracy than the SLI group. In accordance with other predictions of an OI stage, both the SLI and three-year-old group displayed highly accurate rates of subject-verb agreement, and compliance with syntactic contingencies associated with verb placement.
Further, children with SLI have been shown to have greater difficulty with verbal than nominal grammatical morphemes, also predicted by the OI account (Bedore & Leonard, 1998; Eyer & Leonard, 1995; Leonard, Eyer, Bedore & Grela, 1997; Oetting & Rice, 1993). These findings suggest that the primary locus of grammatical impairment in SLI is tense marking. Accordingly, Rice and colleagues have used the term Extended Optional Infinitive (EOI) stage to characterize the grammars of children with SLI (Rice, Wexler & Cleave, 1995). Subsequent longitudinal research supports this characterization as the growth curves from emergence to mastery in the use of tense-bearing morphemes are similar in shape between SLI and normally-developing children, with the exception that the SLI children undergo the process at a later age (Rice, Wexler, & Hershberger, 1998). Recent research on German-speaking and French-speaking children with SLI also suggests that the EOI characterization could be useful crosslinguistically (Jakubowicz, Nash & van der Velde, 1999; Paradis & Crago, 1999; Rice, Ruff Noll & Grimm, 1997; except see Clahsen, Bartke & Göllner, 1997 for an opposing perspective). Finally, in line with the proposal for normal first language development, Rice, Wexler and colleagues propose that the mechanism underlying EOI could be a deficit in linguistic maturation, or the acquisition program, which causes an extension of the normal OI period (Ganger, Wexler, & Soderstrom, 1998; Rice, Wexler & Hershberger, 1998). In other words, affected children have the same amount of experience with language as their unaffected age-mates, and yet display a protracted acquisition of tense marking, indicating that an internal mechanism might be the principal cause.

Concurrent with the investigations of the OI stage in children with SLI, researchers have also been examining the properties of root infinitives in L2 learners, both adults and children (Eubank, 1993/94, 1996; Gavruseva & Lardiere, 1996; Grondin & White, 1996; Lardiere, 1998; Paradis, Le Corre & Genesee, 1998; Prévost, 1997; Prévost & White, in press, for example).
Research on childhood L2 acquisition shows evidence for an OI stage in their development. First, Paradis, Le Corre & Genesee (1998) and Eubank (1993/4, 1996) found that the grammatical feature agreement and its properties emerged before accuracy in tense marking in the L2 acquisition of English and French. These authors argue that the underspecification or optionality of grammatical tense may be a characteristic of early L2 acquisition. Second, Gavrus eva & Lardiere (1996) found evidence for finite/nonfinite root clause alternations at early stages in L2 English. Third, Prévost (1997) Prevost & White (in press) and Grondin & White (1996) observed that French L2 children undergo an early stage with the following characteristics: (1) Root infinitives alternate with finite clauses; (2) Syntactic contingencies between verb placement and negation and between finite verb and subject type are mainly intact, and (3) subject-verb agreement is accurate. Although these latter authors do not discuss their findings directly in terms of an OI account, it appears that the L2 children’s grammars are consistent on the whole with the characteristics of OI grammars.

In contrast to the findings for childhood L2 acquisition, adult L2 learners do not seem to display the same cluster of OI characteristics. Prévost & White (in press) and Lardiere (1998) found that while adult L2 learners use root infinitives, there does not appear to be a relationship between the presence or absence of finite inflection and certain distributional contingencies. For example, adult learners of French produced many nonfinite verbs preceding negative markers, in contrast to the child L2 learners of French who obeyed the contingency, demonstrated above in (1) (Prévost & White, in press). Hence, evidence for an OI stage in L2 acquisition appears to be found for child learners only.

Even though Wexler’s influential OI proposal for L1 has been carried over into both SLI and L2 research, direct comparisons of OI characteristics between SLI and L2 populations have
not yet been made. Based on the within-group findings for L1, SLI and L2 acquisition, one might expect three-way similarities in the acquisition of tense marking. However, direct comparisons between children acquiring L1 (both normal and impaired) and L2 Swedish word order indicated that the SLI and L2 group showed similarities with each other, but distinct patterns from the normally-developing L1 group (Håkansson & Nettelbladt, 1993, 1996). Thus, direct between-group comparisons do not always follow the predictions based on extant findings from separate studies. Accordingly, the principal objective of the present study is to conduct a direct cross-learner comparison of tense marking in SLI and L2 French. Our study is aimed at addressing the following theoretical questions: Should the OI-EOI characterization be broadened to include other learner grammars? Is the ontological maturational view of the nature of OI tenable if tense-marking difficulties can occur in normal language learning outside the primary acquisition period?

**Temporal Reference in Acquisition**

One aspect of the OI research that has not been thoroughly explored is whether learners in the EOI, L1-OI or L2-OI stage have problems with grammatical tense alone or whether they have broader difficulties with temporal reference. Grammatical tense is one among many devises indicating temporal reference, which include temporal adverbials, inherent temporal features of the verb or aspect marking (Dietrich, Klein & Noyau, 1995; Klein, 1994). In particular, temporal adverbials such as ‘yesterday’ or ‘next week’ were found to be one of the first methods employed by adult L2 learners acquiring a variety of languages to indicate temporal reference in discourse, in advance of any grammatical tense marking (Dietrich, Klein & Noyau, 1995). In contrast, research on the use of past tense inflections and past tense adverbs in five year old children with SLI has shown that they have higher rates of use for past tense
inflections than past tense adverbs (Moore & Johnston, 1993). These researchers found that this asynchrony paralleled normally-developing children in that the language-matched three year old group showed similar discrepancies between the use of morphological tense and temporal adverbs. It would be significant for the OI proposal to clarify how specific the temporal reference problems are at this stage across learner groups. Wexler’s (1994) claim that absence of tense marking is not a conceptual deficit, but is only particular to an abstract grammatical category, could be supported by empirical evidence that children in the OI stage demonstrated the ability to achieve temporal reference through means other than grammatical tense. On the other hand, if there are differences in the use of temporal adverbials between L2 learners and children with SLI, this may bear on speculations about the generality of the OI phenomenon across learner groups. Thus, a secondary theoretical question of interest to us concerns whether it is grammatical tense in particular or temporal reference in general that is troublesome at the OI period, and if this is true for all learner groups.

Tense as a Clinical Marker

Beyond the useful theoretical implications of the EOI account, Rice & Wexler (1996) suggest that difficulties with tense morphemes could function as a clinical marker of SLI because their omission is optional or ‘variable’ in the clinical population, but stable in the age-matched normal population. Their claim implies that use of verbal inflections is a more important diagnostic entity than use of nominal inflections. This implication is supported by Bedore & Leonard’s (1998) discriminant function analysis of the contribution of noun and verb morphological composites in separating SLI children from normally-developing age-mates. The verb morphology composite, consisting mainly of tense-bearing morphological items, succeeded in discriminating the groups at greater than 80% accuracy, while the noun composite did not.
In addition to theoretical questions regarding tense and temporality, this study also addresses an applied concern which depends crucially on finding differences between the SLI and L2 groups. Specifically, we wish to address whether optional tense use in older children can be considered a clinical marker or, more generally, a marker of incompletely-learned grammars. In comparisons between children with SLI and their monolingual age-mates, variable tense marking appears to be a distinguishing characteristic of SLI. However, it is unknown if variable tense marking can effectively distinguish children with SLI from their bilingual or L2 age-mates. Therefore, determining whether there are differences in the use of tense marking and temporal reference between learner groups would be significant for the purpose of differential diagnosis. It could be important for avoiding misclassifications of children, such as inappropriate diagnoses of slower L2 children as having SLI, or conversely, the absence of appropriate identification of L2 children who are also language impaired. Typically, a diagnosis is based on the evaluation of L2 children’s L1 language skills. However, in cases where the L1 cannot be tested, it is important to distinguish between SLI-type and L2-type errors. The inability to test L2 children in their L1 is a difficulty present in multilingual societies.

**Finiteness, Tense and Agreement in Quebec French**

Before describing the study we are reporting on, we examine aspects of tense-marking, distributional contingencies associated with finiteness, and subject-verb agreement that form the basis of our investigation of OI effects in French SLI and L2 grammars.

The three finite verb forms most commonly used by the children in this study were the present tense, the composite past (le passé composé) and the composite future (le futur proche). The formation of these tenses is illustrated in (2) with the 1st conjugation verb donner ‘give’. Phonetic forms for the suffixes are given in square brackets. The example in (2a) shows that for
1st conjugation verbs, the present tense consists of the verb stem. The verb stem is modified only on a limited basis for the different persons in the paradigm, which will be discussed below as part of subject-verb agreement. Unlike English, there is no aspect distinction in the present tense between progressive (i.e., -ing) and non-progressive action. The composite past is formed with an auxiliary verb, mainly avoir ‘have’ but for some verbs it is être ‘be’, and the past participle, shown in (2b). The composite past does alternate with another past tense form, the imperfect (l’imparfait); however, the L2 and SLI group did not use the imperfect in sufficient numbers to permit a separate analysis, with the exception of certain verbs, like être ‘be’, which take the imperfect form most of the time. There are two verb constructions used to express the future in French, but only one, the composite future, was used by the children in this study. As shown in (2c), the verb aller ‘go’ and the infinitive are combined to express future time. In sum, the finite verb forms we examined in the children’s speech consisted of the verb stem, and two composite structures.

(2)  
a. present = verb stem: \text{donn-er} [e] \rightarrow \text{je donne} [\emptyset] ‘I give’  
b. composite past = aux + past participle: \text{donn-er} [e] \rightarrow \text{j’ai donn-é} [e] ‘I gave’  
c. composite future = go + infinitive: \text{donn-er} [e] \rightarrow \text{je vais donn-er} [e] ‘I am going to give’

There are two nonfinite verb forms used in the speech of the children, the past participle and the infinitive. The past participle is nonfinite because in a composite tense construction the auxiliary verb bears the tense features and not the participle. Examples of past participles followed by infinitives are given in (3) for each conjugation. Phonetic forms for the suffixes are given in square brackets. For the 1st conjugation, shown in (3a), the past participle and the infinitive are homophonous in spite of the orthographic difference; whereas, these forms are
phonologically distinct for the 2\textsuperscript{nd} and 3\textsuperscript{rd} conjugations, shown in (3b) and (3c). Concerning distributional contingencies associated with finiteness, in adult French finite verb forms precede the negator and nonfinite verb forms appear after the negator, as illustrated above in (1). This word order contingency seems to be obeyed by French-speaking children in the OI stage in normal first language acquisition.

(3)  
\begin{itemize}
  \item a. \textit{donn-er} [e] / \textit{donn-\textacute{e}}[e] \text{‘give’}
  \item b. \textit{fin-ir} [\textaccent"eR] / \textit{fin-i} [i] \text{‘finish’}
  \item c. \textit{pren-dre} [d\textaccent"eR"] / \textit{pris} [pRi] \text{‘take’}
\end{itemize}

French in general and Quebec French in particular does not have present tense verb paradigms richly inflected for person and number. Although the orthography may indicate otherwise, most of the written suffixes are silent in the spoken language. The first and second person plural verb forms are phonologically distinct, but the former has been supplanted in Quebec French with the simple verb stem and the 3\textsuperscript{rd} person neutral clitic, for example, \textit{on donne} and not \textit{nous donn-ons} is used to mean ‘we give’. Also, the second person plural was not used frequently enough by the children in this study to permit analysis. There were two remaining sources of subject-verb agreement as marked by the verb form that we examined. First, the third person plural form for 2\textsuperscript{nd} and 3\textsuperscript{rd} conjugation verbs is phonologically distinct from the other persons. For 2\textsuperscript{nd} conjugation verbs, the inflection is regular, for 3\textsuperscript{rd} conjugation verbs it is irregular. Examples are presented in (4a) and (4b); silent suffixes are in parentheses and phonetic forms are in square brackets. Second, high frequency irregular verbs have suppletive paradigms where not only is the third person plural distinct, but also the first person singular, as shown in (4c) to (4e). Thus, part of our analysis of subject-verb agreement entailed examining
the children’s accuracy with third person plural and first person singular agreement, where applicable. For the composite tenses, the form of the auxiliary verb was examined.

(4)  

a. finir:  
      il fini-(t) [fêni]‘he finishes’ / ils fini-ssent [fênis]‘they finish’

b. prendre:  
      il pren-(d) [pRES] ‘he takes’ / ils pren-nent [pReN]‘they take’

c. avoir:  
      j’ai [e]‘I have’ / il a [a]‘he has’ / ils ont [o$]‘they have’

d. être:  
      je suis [swi]‘I am’ / il est [E]‘he is’ / ils sont [so$]‘they are’

e. aller:  
      je vais [ve]‘I go’ / il va [va]‘he goes’ / ils vont [vo$]‘they go’

A more productive source of subject-verb agreement occurs in Quebec French through the pronominal subjects. In contrast to English, pronominal subjects in all French dialects are not free-standing entities like pronouns, but instead are syntactic clitics. In Quebec French, there is substantial evidence that subject clitics actually function as person and number morphology (Auger, 1995; Cummins & Roberge, 1993). That clitics are bound morphemes is best illustrated in subject-doubled constructions where a lexical subject and a co-referential clitic appear together, as in Olivier il boit du lait ‘Oliver (he) is drinking milk’. Auger (1995) found that subject-doubling occurs 70-75% of the time in adult speakers of Quebec French, and thus argues that the use of a subject clitic, as agreement morphology, is becoming obligatory in this dialect. Accordingly, in addition to our analyses of agreement in the verb form, we examined the children’s accuracy with respect to lexical subject-clitic agreement in subject-doubled constructions.

The particular syntactic status of subject clitics in French produces another distributional contingency associated with finiteness. As bound morphemes, subject clitics must attach to a conjugated or finite verb. Therefore, learners in an OI stage who optionally produce nonfinite root clauses should not select clitic subjects to appear in those clauses, if their knowledge of this
contingency is intact (see also Pierce, 1992; Paradis & Genesee, 1996). We examined this co-occurrence dependency as well as verb placement in negative utterances to assess the children’s knowledge of syntactic contingencies associated with finiteness.

Method

Participants and Procedure

The participants in this study were drawn from subjects participating in two independent studies on morphosyntactic aspects of SLI in French (Gauthier, 1995; Methé & Crago, 1996; Stanké, 1996) and the L2 acquisition of French (Paradis, Le Corre & Genesee, 1998). Design and data collection similarities between these studies permitted the compilation of some of the children’s data for the present study. For the present study, we examined spontaneous language samples from three groups of children: 10 monolingual French-speaking children with SLI (mean age = 7;6), 10 normally-developing monolingual French-speaking children (mean age = 7;3), and 15 English-speaking children learning French as a second language (mean age = 6;7).

The children with language impairment were recruited through special classes in elementary schools in the greater Montreal and Sherbrooke areas of Quebec, Canada. The children had all been diagnosed with either ‘phonological-syntactic’ or ‘lexical-syntactic’ language impairment by a certified speech-language pathologist. These two subcategories of language impairment, used in the province of Quebec and in countries outside North America, correspond to what is referred to as specific language impairment in English-speaking North America. These are the two categories of a six category diagnostic system that indicate a child has grammatical difficulties (see Conti-Ramsden & Botting, 1999; Allen, Mendelson & Rapin, 1988). Part of the criteria for the diagnosis as either lexical-syntactic or phonological-syntactic included performance on the Dudley/Delage (a language assessment battery standardized for
Quebec French; Dudely & Delage, 1980) of 1.5 standard deviations below the norm and a non-verbal IQ of 80 or above. Children were not included in the study if they had significant cognitive, behavioral, neurological or oral-motor impairments, were unintelligible, or had hearing that was not within the normal limits. Children classified as phonological-syntactic were included only if their articulation difficulties did not interfere with our ability to discern their production of the grammatical morphemes of interest to this study. Because much of the tense-bearing morphology in French is vowel-based, many typical articulatory difficulties did not impede pronunciation of these morphemes.

The second-language children were recruited from French-language schools in the Greater Montreal area. The children were all first language learners of English who had experienced both kindergarten and grade one in French schools. Note that these were not French-immersion schools where the entire class consists of English-speaking learners of French. In contrast, the L2 children in this study were attending school alongside monolingual French-speaking peers. Testing took place at the end of grade one, after the children had had two years of full-time exposure to the second language. According to parental reports, none of these children had been suspected of and/or diagnosed with language-learning difficulties when they were acquiring their first language.

The French-speaking, normally-developing children acted as an age control group. These children were recruited through summer day-camps and elementary schools in the greater Montreal area. Based on parental and school reports, these children had uneventful births and medical histories and achieved developmental milestones as expected.

Data collection for all three groups consisted of individual interview sessions with an experimenter, a native-speaker of French, which was audio- and video-taped and later
transcribed. The interview session was more structured for the L2 children in that a greater number of specific questions were asked to each child, whereas, more spontaneous discourse was permitted with the SLI and normally-developing monolingual children. However, the children in all three groups were asked questions relating to recent past and future events in their lives, which provided the contexts to elicit the tense structures that are the main focus of this study.

The children’s language production was transcribed according to the conventions of the CHAT system (MacWhinney, 1991). The children’s MLUs in words were calculated in order to ascertain whether the SLI and L2 groups were at roughly the same level of language development, and whether both groups differed from the age controls. We chose to calculate MLU in words instead of morphemes to avoid a confound because presence of verbal inflectional morphemes form part of the dependent variables in our analyses. The mean ages, MLUs and sample sizes for each of the three groups are given in Table 1. The first row indicates that the children with SLI and the L2 children have very similar MLUs (3.977-4.087), while the age controls’ (7N) average MLU is 1.7 words higher (5.702). The second row indicates that all three groups of children are approximately, but not exactly, seven years old. The third row shows that the sample sizes for the L2 group are smaller on average, which is the result of differences in interview length. The L2 children’s interviews lasted 30 minutes, while the SLI and 7N children were interviewed for 45 minutes each. Because our analyses of use in obligatory context are based on proportion scores, differences in sample length between individual children or groups were controlled. When there were low frequencies of contexts for items examined (< 3) in a child’s transcript, the child’s data for that item were excluded from the analyses. This only occurred for the analyses of third person plural agreement for both SLI and L2 children (see footnote one).
Coding and Analyses

The transcripts were coded using our own code inventory that is compatible with the CLAN system, the analysis companion to the CHAT transcription system (MacWhinney, 1991). We coded for items related to the OI cluster of behaviors, such as finiteness/tense, subject-verb agreement and distributional contingencies. We also coded for the use of temporal adverbials. More specifically, the children’s utterances were coded on two tiers, one indicating the temporal context required for the child’s utterance and the second indicating what the child actually produced. On the second tier, the child’s utterance was coded for temporal adverbials, finite/nonfinite main verbs, tense choice (present, past or future), clitic or lexical subjects or both, correct or incorrect subject-verb agreement, presence and position of the negative marker and error type for tense choice. Verbless utterances which were judged to be unambiguously missing a copula were coded as nonfinite, following the logic of Rice, Wexler & Cleave (1995) and Rice & Wexler (1996). Approximately one-third of the corpus for each of the three groups of children was selected randomly, coded separately and compared to initial coding. Inter-rater reliability rates for the context tier were 93.4% for L2; 95.2% for 7N; 96.3% for SLI. For the child’s utterance tier, they were 95% for L2; 95.6% for 7N; 95.4% for SLI. Disputed codes were discussed and changed through consensus.

Analyses for accuracy of use of finiteness, tense choice, and adverbials were achieved through matching the morphosyntax used with the temporal context required. Analyses of tense error patterns consisted of examining the actual tense form used in the cases of incorrect matches between context and tense choice. For error patterns in future time contexts, pragmatically acceptable uses of the present tense to refer to future contexts were not counted as errors.
Analyses for subject-verb agreement were performed on the basis of the child’s utterance, since this is a structurally-determined phenomenon. Similarly, matches between the finiteness status of the main verb and the presence of a subject clitic and the position of a negative marker were also based on the child’s utterance alone.

Results

Finite Verbs

Percentage scores of correct finite verb forms used overall for the three groups were calculated from the number of finite verbs of any tense used out of the number of obligatory contexts for finite verbs. Obligatory context for finite verbs was defined as the first or only verb in a root clause. Errors consisted of nonfinite verb forms or zero-copulas. Incorrect form choice, i.e. agreement errors, were ignored for this analysis. A One-way between-learner groups ANOVA performed on the finite verb scores was significant ($F(2, 32) = 16.208, p < .0001$).

Pairwise Fisher LSD t-tests with a Bonferroni adjustment of the alpha level (Maxwell & Delaney, 1990) were performed on the cell means and results are given in Table 2. Both the SLI and L2 groups produced significantly less finite verbs in obligatory context than the control group, 7N. In addition, there was no difference in the scores between the SLI and L2 children. It is worth noting that even though the experimental and control groups were significantly different, the overall accuracy for the SLI and L2 groups is actually quite high, 88% and 89%, respectively.

| Insert Table 2 about here |  |
Tense Choice

In addition to examining the children’s use of finite verbs overall, we were also interested in examining their correct choice of tense in obligatory context. For this analysis, percentage scores of correct present, past and future tense forms were calculated from the number of correct forms used out the number of obligatory contexts for those forms. Obligatory context was determined by discourse, for example, a question asked to the child about past events should have been answered using the past tense. Errors consisted of nonfinite forms, zero-copulas and finite forms of an inappropriate tense choice. A two way, one-between (learner group), one-within (tense type) ANOVA was performed on the scores and showed significant main effects for learner group ($F(2,32) = 42.168, p < .0001$) and tense type ($F(2, 32) = 21.653, p < .0001$), as well as a significant interaction between learner group and tense type ($F(4,64) = 8.468, p < .0001$). The results of pairwise comparisons of the cell means using Fisher’s LSD t-test with Bonferroni adjustment are presented in Tables 3 and 4. Table 3 consists of the comparisons within each tense type but between the three learner groups; Table 4 consists of the comparisons within the SLI and L2 groups for the different tense types.

The comparisons in Table 3 show a marked difference between accuracy with the present tense versus the past and future for the experimental groups. Neither the SLI nor the L2 groups’ score on accurate use of the present tense was significantly different from that of the control group (SLI vs. 7N: 89%-99%; L2 vs. 7N: 88%-99%). In contrast, both the SLI and L2 groups’ scores on past and future tense use were significantly lower than those of the control group (past: 74%-99% and 48%-99%; future: 64%-99.5% and 49%-99.5%, respectively). In addition, the L2 children’s scores for both past and future were significantly lower than those of the children with SLI (past: 48%-74%; future: 49%-64%, respectively).
The within-learner group comparisons for the L2 children and the children with SLI in Table 4 show slightly different patterns for both groups. The L2 children were significantly more accurate in their use of the present tense than the past (88%-48%) or future (88%-49%), but did not differ in their accuracy between the past and future (48%-49%). The children with SLI were also more accurate in their use of the present than the future (89%-64%) and showed no difference between the past and the future(74%-64%). Unlike the L2 children, the children with SLI did not show significantly greater accuracy with the present than the past tense (89%-74%). However, this lack of difference could be an artefact of our conservative alpha level; this comparison would be significant at the .01 level.

Insert Tables 3 and 4 about here

### Tense Error Patterns

In order to further investigate the use of tense in the SLI and L2 groups, we examined the error types produced in the past and future tense contexts since the children were the least accurate in these contexts. (Errors in present tense context consisted nearly exclusively of nonfinite and zero-copula constructions). With only a handful of exceptions, there were two types of errors produced by both groups in past and future tense contexts: (1) The use of a nonfinite form and (2) The use of the present tense. Examples from the interviews with the children illustrating both error types in both tense contexts are provided in the appendix. Even though both the children with SLI and the L2 children produced errors of each type, the preponderance of error types differed between the groups. For both tense contexts, the children with SLI produced a greater percentage of nonfinite verbs than present tense verbs (past: 73% (41/56) - 27% (15/56); future: 64% (29/45) - 36% (16/45)) and the L2 children showed the
opposite pattern of producing a greater percentage of present tense verbs than nonfinite verbs (past: 72% (73/102) - 28% (29/102); future: 78% (61/78) - 22% (17/78)). A chi-square analysis revealed that this interaction between learner group and error type is significant (past: $X^2 = 29.383, p < .0001$; future: $X^2 = 22.171, p < .0001$).

The greater use of nonfinite forms as errors by the children with SLI could indicate that they have particular difficulty producing non-thematic verbs such as auxiliaries, which are the verb elements that bear tense in a composite structure. (The verb stem is the finite element in non-composite structures). This hypothesis is supported by the larger proportion of zero-copula constructions out of nonfinite utterance types for the SLI group (SLI: 19% vs. L2: 5%). Copulas are also non-thematic verb forms. Furthermore, when a nonfinite form emerges instead of an auxiliary + nonfinite form construction, two possible underlying processes are: (1) Either nonfinite form, participle or infinitive, has been accessed without regard to the temporal context, or (2) The participle or the infinitive is accessed as appropriate to the past or future tense context, but the auxiliary is ‘missing’. The latter possibility points more directly to potential specific difficulties with producing non-thematic verbs. To understand which process appears to be correct, we examined all the nonfinite 2nd and 3rd conjugation verb forms used as errors in past and future tense contexts for the SLI group. (Recall that it is not possible to determine this distinction for 1st conjugation verbs because the past participle and infinitive are homophonous). Frequencies are not very high but trends are apparent. For the children with SLI, 100% (8/8) of nonfinite verbs of this subset appearing in past tense contexts were unambiguously past participles and 90% (8/9) of nonfinite verbs appearing in future tense contexts were unambiguously infinitives. Thus, this limited analysis is consistent with the hypothesis that producing non-thematic verbs poses greater problems for the SLI group.
Temporal Adverbials

In order to examine whether the children can achieve temporal reference even though they are not always accurate with grammatical tense, we looked at their use of temporal adverbials.

For this analysis, we examined the total number of utterances in which the children with SLI and the L2 children used both a temporal adverbial and a verb, and classified their use of each as either correct or incorrect according to the discourse context. Because the frequencies of these types of utterances varied a great deal between the children, individual scores were not calculated and parametric statistics were not performed on the data. The data in Table 5 represent the proportional distribution of utterances of each type for the entire group. There are four types: (1) The adverbial and tense were correct; (2) The adverbial was incorrect, but the tense was correct; (3) The adverbial was correct but the tense was incorrect, and (4) Both the adverbial and the tense were incorrect. This breakdown reveals that the majority of the children’s utterances for both groups contained correctly used grammatical tense and correctly used temporal adverbials. In contrast, both groups of children produced approximately 20% of these utterances with a correct adverbial and incorrect tense (SLI: 17.7%; L2: 25.9%). The number of utterances with an incorrect adverbial was negligible for both groups. In sum, this qualitative analysis seems to indicate that both the L2 children and the children with SLI are almost always correct in their choice of a temporal adverbial, while they are not always correct in their choice of grammatical tense. One could conclude that both groups are more accurate with their use of temporal adverbials than they are with grammatical tense.

Insert Table 5 about here
**Subject-Verb Agreement**

In addition to analyses of tense and temporal reference, we also examined children’s accuracy with respect to subject verb agreement, which should be quite high according to the predictions of the OI account. Percentage scores were calculated for correct matches between (1) Lexical or clitic subjects and verb forms for those verb forms showing phonologically overt agreement, and (2) Lexical subjects and co-referring clitics in subject-doubled constructions. In contrast to the analyses of finite verbs and tense choice, errors of subject-verb agreement consist of errors of commission not omission. That is to say, we examined whether the correct form was supplied by child, not whether a form of any kind was supplied or not. The group means for the agreement scores are presented in Table 6.

The row of 1st person singular verbs consists of scores for correct matches for the verbs avoir ‘have’ and être ‘be’. Accuracy rates for all three groups are at ceiling (SLI: 98%; L2: 100%; 7N: 100%). Similarly, accuracy rates for agreement in subject-doubled constructions are equally high with little variation, and moreover, are based on a wide variety of verb types (SLI: 99%; L2: 100%; 7N: 99.7%). No statistics were performed on the 1st person singular and subject-clitic scores because they were all at ceiling.  

---

**Distributional Contingencies and Finiteness**

We examined two kinds of distributional contingencies associated with verb finiteness: (1) The co-occurrence dependency of clitics with finite verbs and (2) The placement of finite and nonfinite verbs with respect to the negative marker. Both these contingencies should be intact in the children’s grammars if the predictions of the OI stage are correct.
We examined all utterances with subject clitics for the L2 and SLI group. Subject-doubled constructions were excluded from this analysis because we were uncertain what the influence of the lexical subject would be on verb form choice. For each group, we calculated the percentage of these utterances which contained a finite and a nonfinite verb. Results show that both the L2 children and the children with SLI obey the co-occurrence dependency the majority of the time because over 90% of their clitics appeared with finite verbs (L2: 95% (639/672) and SLI: 93.4% (775/830)).

To investigate the contingency between verb placement and the negative marker, we examined all utterances with a negative marker and a verb for the two experimental groups separately. Within each group, the distribution of finite and nonfinite verbs in either pre-negative marker or post-negative marker positions was calculated. For both the SLI and L2 groups, the majority of their utterances conformed to the rule that finite verbs must appear before the negative marker (SLI: 99.29% (139/140); L2: 97.7% (42/43)) and nonfinite verbs after the negative marker (SLI: 72.73% (8/11); L2: 80% (4/5)). The strength of the contingency between verb placement and finiteness was assessed using a chi-square analysis. Because there are frequencies less than five for some cells, Yates’ correction of continuity was applied before the analysis (Ferguson & Takane, 1989). For both groups, the contingency proved to be significant (SLI: $X^2 = 23.143, p < .0001$; L2: $X^2 = 13.628, p < .0002$).

Discussion

Optional Infinitive Stage in French SLI and L2?

Our review of the extant literature indicates that an OI stage may be present in all learner grammars, first language, second language and impaired. The literature also suggests that the OI phenomenon may emerge in the acquisition of French as well as English. Accordingly, we first
examine the results of this study with respect to whether there is evidence for a similar OI stage in the impaired and L2 acquisition of French.

The most prominent characteristic of the OI stage is the absence of obligatory tense marking in children’s utterances resulting in the use of nonfinite verbs in root clauses. Our analyses show that both the children with SLI and the L2 children use significantly more nonfinite verbs in root clauses than their normally-developing, monolingual age-mates. In addition, when accuracy with tense is broken down by temporal context, the SLI and L2 groups show substantially and significantly lower accuracy rates for the use of the past and future tenses than the control group, although differences in error patterns between the experimental groups emerged, as discussed in the following section. It is important to point out that in spite of being significantly different from age-controls, the use of nonfinite verbs is not very prevalent for the experimental groups. Furthermore, some of the tense choice errors in the past and future tense context were the present tense, and not exclusively nonfinite forms. Thus, we found evidence for an OI stage with respect to the appearance of optional tense marking, but we did not find an overwhelming number of root infinitives during that stage. This contrasts with the findings for English-speaking children with SLI where 87% to 48% of utterances in spontaneous speech are nonfinite (Rice & Wexler, 1996).

One possible source of difference between the French and English findings could be the age of the children. Rice, Wexler & Cleave (1995) and Rice & Wexler (1996) studied five year olds, not seven year olds, with SLI. For example, a longitudinal study of English-speaking children with SLI showed that by age seven, the children were producing finite verbs in obligatory context at a level similar to the French-speaking seven year olds with SLI (Rice, Wexler & Hershberger, 1998). However, while it is still unknown whether five year old French-
speaking children with SLI produce root infinitives to the extent that their English-speaking counterparts do, we have found that normally-developing French-speaking three year olds use finite utterances at least 90% of the time in contrast to their English-speaking peers who are still in the OI stage (Paradis & Crago, 1999). These findings line up with other research showing crosslinguistic nuances in the age-related OI/EOI pattern (for example, Bortolini, Caselli, & Leonard, 1997; Crago & Allen, 1997; Rice, Ruff Noll & Grimm, 1997). Thus, we can consider both age and individual language structure to be factors in explaining the differences in the French and English data.

Returning to the question of an OI stage in both impaired and second language acquisition, other aspects of our data also argue in favor of such a stage. First, regarding whether optional tense marking is a linguistic or conceptual problem, we found that the L2 children and the children with SLI both showed near perfect accuracy in their use of adverbials to mark temporal reference. Although this analysis is limited in scope, it suggests that difficulties with grammatical tense marking is not a domain-general cognitive problem with temporal reference, but instead is a problem domain-specific to linguistic structures. Second, in contrast to tense-marking, there were no differences between the control and experimental groups for the accurate selection of agreement morphemes examined. Although, we acknowledge that our analysis of agreement suffixes is not exhaustive. Third, in spite of optional tense marking, the SLI and L2 groups showed that their understanding of the distributional consequences of the choice of a nonfinite form was intact, in terms of co-occurrence restrictions and word order. All these patterns support the notion that an OI stage is apparent in French SLI and L2, and moreover, this stage involves specific problems with tense rather than generalized problems with all inflectional morphology and its properties.
We now consider the main theoretical questions we asked of this research: Should the OI-EOI characterization be broadened to include other learner grammars? Is the ontological maturational view of the nature of OI tenable if tense-marking difficulties can occur in normal language learning outside the primary acquisition period? Recall that it has been claimed that OI effects emerge from the interaction of experience with a specific language and neurological maturation in normal first language development, and a deficit in the maturation program results in prolonged OI effects in impaired first language development. The L2 children in this study showed OI effects in their grammar, but were developing normally and were well beyond the primary acquisition years when the neurological changes underlying obligatory tense-marking are alleged to take place. Thus, we would like to suggest that whatever brain-based mechanisms are responsible for acquisition patterns like the OI stage, they do not appear to be restricted to the L1 acquisition (normal and impaired) context, but also interact with language experience during the early stages of L2 acquisition. Considering that a similar OI stage might not exist in adult L2 acquisition (e.g., Lardiere, 1998; Prévost & White, in press), one could hypothesize that the mechanisms underlying the OI phenomenon do undergo change, but that change occurs during adolescence or later. Alternatively, if future research indicates that a comparable OI stage is indeed present in adult L2 acquisition, then the ontological view of the OI stage may need to be reconsidered. For example, the OI stage may be better characterized as an intermediate process in all language learning contexts, L1 (normal and impaired) and L2, whose source is operative throughout the lifespan.

Notwithstanding the SLI-L2 similarities for the overall OI characteristics, between-group differences are still apparent, in particular for trends in error types. These differences could indicate that while an OI stage is generally present across child language learners, it displays
some unique qualities depending on the learner type. For instance, EOI grammars might include a subset of specific characteristics that are subsumed by mechanisms or structures not found in normal acquisition. However, we are not suggesting that completely separate sources underlie OI in SLI and L2 learners. First, in our view, the degree of similarity between the groups argues against such a strong conclusion. Second, comparisons between the control group and the experimental groups yielded differences between mastery and incomplete mastery; whereas, comparisons between the SLI and L2 groups yielded differences in various and overlapping levels of incomplete mastery. In other words, as we point out in the following section, the differences between the SLI and L2 groups are relative as we found no errors committed exclusively by the SLI group.

**Tense as a Clinical Marker**

The investigation of cross-learner similarities and differences has consequences not only in the theoretical but also in the applied domain. A secondary research question we asked was whether tense-marking difficulties could be considered an effective clinical marker of SLI in a multilingual context. Recall that Rice & Wexler (1996) propose that variability with tense marking could be a signature characteristic of the clinical population at an age when use of tense-markers in the normally-developing population has stabilized at ceiling. The similarities we found between L2 and impaired learners demonstrate that tense-marking difficulties can also be found in normal development at later ages, but for second language acquisition. If L2 children are being assessed in their first language, variable tense marking could be an effective diagnostic marker, depending on how the OI/EOI pattern is manifest in the first language. However, our findings suggest that tense-marking difficulty is too broad a category for an effective clinical
marker when one is assessing both monolingual and bilingual children in the bilingual children’s L2.

Rice, Wexler & Hershberger (1998) add a further criterion of prolonged acquisition of tense by affected children to the clinical marker status. It is possible that this additional criterion would effectively eliminate L2 children because they would not have been acquiring tense for as long as their monolingual age-mates. However, how long is the ‘normal’ period for tense acquisition in a second language? Individual children vary in their acquisition rates when learning a second language, as they do for their first language (see standard deviations for L2 group in Tables 2 to 4). Thus, it cannot be assumed that all L2 learners would still have variable tense use after two years of exposure, nor is it possible to assume that after, say, three years of exposure, all normal L2 children would cease to mark tense variably. To the best of our knowledge, adequate normative information on the rates and error patterns in the second language acquisition of either English or French are not available at the present time, and would probably vary depending on the first language of the L2 learner, among other factors.

On the other hand, perhaps a more selective criteria than tense-marking difficulties could be developed to assist in the differential diagnosis between normal second language learners and impaired language learners (either monolingual or bilingual). For example, the L2 children were relatively less accurate with tense choice in obligatory context than the children with SLI, and had relatively different distributions of error patterns in past and future tense contexts. With respect to the latter difference, our data suggest that children with SLI have greater problems with non-thematic verbs, like copulas and auxiliaries, and this tendency could form the basis of a more selective criteria for distinguishing between second language error patterns and impaired error patterns in learners of French. Unfortunately, the group differences in errors patterns are
relativistic and not absolute. It is not the case that the L2 learners never produce the same errors as children with SLI. Thus, the important criterion Rice and Wexler (1996) set for a clinical marker, stable in the normal population but variable in the clinical population, is not met by relative trends in error patterns. An error that is rare or non-existent in L2 but present in SLI would be a more effective marker of differential diagnosis between these two groups.

To summarize, the results of the present study are relevant to both theoretical and clinical issues. Our cross-learner comparison suggests that the OI/EOI account of stages in morphosyntactic acquisition applies to second language learning, and thus should be explained by invoking mechanisms operative in the L2 learning context. In addition, the similarities between children with SLI and their L2 age matches suggest that variable tense marking may need to be further refined for clinical purposes in a multilingual context.

References


Author Note

We would like to thank Mathieu Le Corre and Julie Bélanger for their assistance in data coding and analysis. This research was supported by the Social Sciences and Humanities Research Council of Canada in the form of a research grant (#410-98-0281) to Martha Crago and a postdoctoral fellowship (#756-97-0025) to Johanne Paradis, for which we are grateful. Address for correspondence: Johanne Paradis, Department of Linguistics, Assiniboia Hall, University of Alberta, Edmonton, AB, Canada, T6G 2E7. Email: johanne.paradis@ualberta.ca
Appendix

1. Errors in past tense context

1.1 Error: Present tense. Verbs in italics are in the present tense form, but in past time context.

**SLI** CHI: Vendredi, j’apporte une affaire de xxx.... 'Friday (last), I bring something from xxx (unintelligible).'</p>

**L2** INT: Qu’est-ce c’est qui s’est passé avec tes oreilles? ‘What was it that happened with your ears?’

**CHI:** Quand maman elle dit quelque chose, j’entends pas très bon. ‘When Mommy says something, I don’t hear very well.’

1.2 Error: Nonfinite verb. Verbs in italics are in an infinitive or participle form, but in past time context.

**SLI** INT: Tu as dessiné quoi? Un jeu? ‘You drew what? A game?’

**CHI:** Non, je dessiner un jeu de pupitre. ‘No, I draw a desk game.’

**L2** INT: Qu’est-ce que vous avez fait ensemble la fin de semaine passée? ‘What did you do together last weekend?’

**CHI:** Moi je jouer au baseball. ‘(me) I play baseball.’

2. Errors in future tense context

2.1 Error: Present tense. Verbs in italics are in the present tense form, but in future time context.

**SLI** INT: Est-ce que tu sais déjà qu’est-ce que ‘Do you already know what you are going
tu vas faire à ta fête? 
to do for your birthday?

CHI: Ma mère il achète le patin à roulettes. ‘My mother buys me roller-blades.’

L2 INT: Qu’est-ce que tu feras ce soir après l’école? ‘What are you going to do after school?’

CHI: Mon père est là. ‘My father is there.’

2.2 Error: Nonfinite verb. Verbs in italics are in the infinitive form, but in future time context.

SLI CHI: Oui, dedans trois semaines je avoir ma fête. ‘Yes, into three weeks I to have (infinitive) my birthday.’

L2 INT: Qu’est-ce que vous allez faire? ‘What are you going to do?’

CHI: aux vacances? ‘For the holidays?’

INT: Hmm hmm. ‘Hmm hmm’

CHI: Je me jouer au baseball, tag, soccer. ‘I play baseball, tag, soccer.’
Footnote

1. Transcripts were analysed for accuracy in the use of the third person plural forms; however, we do not believe these data to be reliable and thus did not report them. First, the standard deviations were very high for the SLI and L2 groups (35.8 and 32.2, respectively). Also, the frequency of obligatory contexts varied immensely between children, with several children having no unambiguous contexts in their transcripts. Finally, low frequencies produced large fluctuations in percentage scores for a small number of examples. Therefore, the more reliable scores for the other two sources indicate that both experimental groups are capable of accurate subject-verb agreement.
Table 1

Mean MLU’s, Ages and Number of Utterances in Samples for SLI, L2 and 7N Groups

<table>
<thead>
<tr>
<th>Language Learner Groups</th>
<th>SLI</th>
<th>L2</th>
<th>7N</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLU^a</td>
<td>3.977 (1.4)^b</td>
<td>4.087 (.87)</td>
<td>5.702 (.83)</td>
</tr>
<tr>
<td>Age</td>
<td>7;6 (0;7.3)^c</td>
<td>6;10 (0;6.9)</td>
<td>7;3 (0;4.6)</td>
</tr>
<tr>
<td>Utterances</td>
<td>373 (54)</td>
<td>114 (35)</td>
<td>264 (19)</td>
</tr>
</tbody>
</table>

Note. SLI = French-speaking children with specific language impairment (N=10); L2 = English-speaking children acquiring French as a second language(N=15); 7N = Normally-developing French-speaking children (N=10).

^a MLU = Mean length of utterance in words

^b Standard deviations

^c Years;months.days
Table 2

Pairwise Comparisons for the Mean Percentage Use of Finite Verbs†

<table>
<thead>
<tr>
<th>Learner Groups</th>
<th>Means</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLI-L2</td>
<td>88% (8.1) - 89% (4.5)</td>
<td>0.798</td>
</tr>
<tr>
<td>SLI-7N</td>
<td>88% - 99.5% (4.3)</td>
<td>5.157*</td>
</tr>
<tr>
<td>L2-7N</td>
<td>89% - 99.5%</td>
<td>4.484*</td>
</tr>
</tbody>
</table>

†The number of finite verb forms of any tense out of the number of contexts for finite verbs, defined as the first or only verb in a root clause. Errors consist of nonfinite verb forms or zero-copulas.

* Standard deviations

*p < .016 (Bonferroni adjustment)
Table 3

Pairwise Comparisons for the Mean Percentage of Use of Tense Morphology† Between Learner Groups

<table>
<thead>
<tr>
<th>Tense Type by Group</th>
<th>Means</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLI-L2</td>
<td>89% (6.9) - 88% (8.4)</td>
<td>0.165</td>
</tr>
<tr>
<td>SLI-7N</td>
<td>89% - 99% (1.2)</td>
<td>1.508</td>
</tr>
<tr>
<td>L2-7N</td>
<td>88% - 99%</td>
<td>1.816</td>
</tr>
<tr>
<td>Past</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLI-L2</td>
<td>74% (11.8) - 48% (5.8)</td>
<td>4.257*</td>
</tr>
<tr>
<td>SLI-7N</td>
<td>74% - 99% (.74)</td>
<td>3.568*</td>
</tr>
<tr>
<td>L2-7N</td>
<td>48% - 99%</td>
<td>8.163*</td>
</tr>
<tr>
<td>Future</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLI-L2</td>
<td>64% (25.1) - 49% (27.1)</td>
<td>3.641*</td>
</tr>
<tr>
<td>SLI-7N</td>
<td>64% - 99.5% (1.3)</td>
<td>5.146*</td>
</tr>
<tr>
<td>L2-7N</td>
<td>49% - 99.5%</td>
<td>9.275*</td>
</tr>
</tbody>
</table>

†The use of the correct tense form out of the number of contexts for that tense form, defined by discourse context. Errors consist of nonfinite forms, zero-copulas and use of another tense.

a Standard deviations

p < .003 (Bonferroni adjustment)
Table 4

Pairwise Comparisons for the Mean Percentage of Use of Tense Morphology† Within the SLI and L2 Groups

<table>
<thead>
<tr>
<th>Group by Tense Type</th>
<th>Means</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SLI</td>
<td></td>
</tr>
<tr>
<td>Present-Past</td>
<td>89% (6.9) † - 74% (11.8)</td>
<td>2.119</td>
</tr>
<tr>
<td>Present-Future</td>
<td>89% - 64% (25.1)</td>
<td>3.557*</td>
</tr>
<tr>
<td>Past-Future</td>
<td>74% - 64%</td>
<td>1.437</td>
</tr>
<tr>
<td></td>
<td>L2</td>
<td></td>
</tr>
<tr>
<td>Present-Past</td>
<td>88% (8.4) - 48% (5.8)</td>
<td>7.173*</td>
</tr>
<tr>
<td>Present-Future</td>
<td>88% - 49% (27.1)</td>
<td>8.24*</td>
</tr>
<tr>
<td>Past-Future</td>
<td>48% - 49%</td>
<td>1.07</td>
</tr>
</tbody>
</table>

† The use of the correct tense form out of the number of contexts for that tense form, defined by discourse context. Errors consist of nonfinite forms, zero-copulas and use of another tense.

a Standard deviations

* p < .003 (Bonferroni adjustment)
Table 5

Distribution of Correct and Incorrect Use of Temporal Adverbials and Tense in Utterances Containing Both for the SLI and L2 Groups

<table>
<thead>
<tr>
<th>Adverb-Tense Matches</th>
<th>CC</th>
<th>IC</th>
<th>CI</th>
<th>II</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLI</td>
<td>81.2%</td>
<td>.3%</td>
<td>17.7%</td>
<td>.8%</td>
</tr>
<tr>
<td>L2</td>
<td>74%</td>
<td>0%</td>
<td>25.9%</td>
<td>0%</td>
</tr>
</tbody>
</table>

†Correct use is defined by discourse context.

**Note.** CC = correct adverb-correct tense; IC = incorrect adverb-correct tense; CI = correct adverb-incorrect tense; II = incorrect adverb-incorrect tense
Table 6

Percentage Correct Use of Subject-Verb Agreement†

<table>
<thead>
<tr>
<th></th>
<th>SLI</th>
<th>L2</th>
<th>7N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1\textsuperscript{st} pers. sing.</td>
<td>98% (2.8)\textsuperscript{a}</td>
<td>100% (0)</td>
<td>100% (0)</td>
</tr>
<tr>
<td>Subj-clitic</td>
<td>99% (2.4)</td>
<td>100% (0)</td>
<td>99.7% (.92)</td>
</tr>
</tbody>
</table>

†Use of subject-verb agreement is the number of correct matches between either a lexical or clitic subject and the verb form, or between a lexical subject and a co-referring clitic.

\textsuperscript{a} Standard deviations