Tense as a Clinical Marker in English L2 Acquisition with Language Delay/Impairment

Johanne Paradis

University of Alberta

Contact information:

Johanne Paradis

Department of Linguistics

4-46-Assiniboia Hall

University of Alberta,

Edmonton, AB

T6G 2E7, Canada.

Telephone: 1-780-492-0805

Fax: 1-780-492-0806

Email: johanne.paradis@ualberta.ca

Abstract

This study examines the use of tense- and non-tense-marking morphology over time by a group of English second language (L2) children with typical language development and two English L2 children with language delay/impairment. The aim was to ascertain whether the Extended Optional Infinitive (EOI) account (Rice and Wexler, 1996) characterized the acquisition patterns displayed by the affected children, which would suggest that tense functions as a clinical marker in impaired L2 as well as first language (L1) English. Results showed that the two children with language delay/impairment displayed a hybrid pattern between typical child L2 English and L1-based EOI characteristics. The difference in age of English acquisition onset between L1 and L2 is put forward as a potential explanation for the dissimilar patterns between L1 and L2 impaired acquisition.

Tense as a Clinical Marker in English L2 Acquisition with Language Delay/Impairment

Research comparing children acquiring French and Swedish as a second language (L2) to their monolingual age peers with specific language impairment (SLI) has shown there are striking similarities between these two populations of learners (Grüter, 2005; Håkansson, 2001; Paradis and Crago, 2000, 2004; Paradis, 2004). Such similarities have both theoretical and practical consequences. On the theoretical side, explanatory accounts conceived to circumscribe the key characteristics of the impaired population should not equally well describe the language of an unaffected population. On the practical side, effective differential diagnosis of children with language impairment in a multilingual context could be compromised. The goal of this chapter was to further our understanding of the similarities and differences between typically-developing and impaired populations by examining the English development of child L2 learners, a group with typical language development (TLD), and two learners with language delay/impairment. This examination was designed specifically to test the predictions of the Extended Optional Infinitive (EOI) account of SLI in the context of L2 acquisition.

Rice and Wexler (1996) proposed that the use of tense-marking morphology, e.g. *she walk**ed*** or *they **are** walking*, is a clinical marker of SLI in English. For example, five-year-old children with SLI variably produce tense-marking morphology, and at the same time accurately produce non-tense marking morphology, while their unaffected age-matched peers show stable and highly accurate production of both kinds of grammatical morphemes (Rice and Wexler, 1996; Rice, Wexler and Cleave, 1995). Furthermore, children with SLI exhibit general delays in their acquisition of morphosyntax and the lexicon, but they exhibit specific delays in their acquisition of tense-marking morphemes, meaning tense acquisition is more prolonged than would be expected based on their general morphosyntactic delay, and follows a different growth curve than measures of lexical development (Rice, 2003). In addition, Rice and colleagues have found that when children with SLI do not produce the target tense morphemes, their errors are overwhelmingly those of omission rather than form choice errors. They have also found that affected children's difficulties with tense are generalized across all individual morphemes that mark tense in English, and children's accuracy abilities among tense morphemes are correlated and the growth curves of these morphemes are largely the same (Rice and Wexler, 1996; Rice and Wexler, 2001; Rice, Wexler and Cleave, 1995; Rice, Wexler and Hershberger, 1998). Rice and colleagues have labeled these characteristics of tense acquisition in English-speaking children with SLI as an EOI stage because they represent a highly protracted extension of the Optional Infinitive (OI) stage that is evident in younger English-speaking children with TLD (Rice and Wexler, 1996; Rice, Wexler and Cleave, 1995).

Wexler (1998, 2003) offers a theoretical account in a minimalist framework (e.g., Chomsky, 1995) of the (E)OI stage by proposing the presence of the (Extended) Unique Checking Constraint ((E)UCC) in children's grammars. The UCC is considered to be a developmental principle of Universal Grammar (UG) that constrains checking operations in the computation, and in so doing, causes surface structures to variably appear without morphological reflexes of tense. The UCC competes with a non-developmental UG principle requiring matrix clauses to be finite, and thus, reflexes of tense are realized in surface structures in the cases where the UCC did not “win out”. Wexler (2003) proposed that the influence of the UCC fades away as UG matures in the preschool years in children with TLD. But, the EUCC persists longer in those with SLI, hence rendering protracted omission of tense-marking morphology in affected children’s speech a clinical marker, i.e., separating them from their unaffected age peers. Not only does the influence of the EUCC fade slowly in children with SLI, but it might also never completely disappear. While the ability to use tense markers grows over time in children with SLI, by age 8;0 this ability seems to plateau close to the lower bound of performance of children with TLD the same age (Rice, 2003; Rice et al, 1998).

On an (E)OI account, school-age children learning English as a L2 with TLD would not be expected to show special difficulties with tense-marking morphemes since they would possess a mature UG with the UCC no longer operative. In contrast, school-age children with SLI learning English as a L2 would be expected to show special difficulties with tense because the EUCC would still be operative to some extent in their grammars. Accordingly, the central question addressed in this chapter is whether tense acts as a clinical marker in English L2 acquisition with SLI as it does in English first language (L1) acquisition with SLI.

The potential effectiveness of tense as a clinical marker for distinguishing the impaired population among English L2 children may be limited because errors with tense-marking morphology have been documented in several studies of English L2 interlanguage, even in children who have had several months or years of exposure to the language (Dulay and Burt, 1973, 1974; Gavruseva and Lardiere, 1996; Haznedar, 2001; Ionin and Wexler, 2002; Lakshmanan, 1994, Paradis, 2005). Therefore, in order to understand whether tense is indeed a clinical marker in L2 English as it is in L1 English, we need to examine *comparative* differences between L2 children with TLD and L2 children with SLI, on the grounds that L2 children with SLI would be expected to have problems with tense as a function of being L2 learners as well as by having SLI. In other words, while L2 children with TLD and with SLI would be expected to make errors with tense morphemes, L2 children with SLI could be expected to make more. We also need to examine L2 children's interlanguage over time, since we would predict that L2 children with TLD would eventually perform like unaffected native-speaker peers with tense-marking, i.e., highly accurate; whereas, L2 children with SLI would be expected to eventually perform like their native-speaker peers with SLI, and furthermore, should display slower acquisition of tense morphology than their L2 peers with TLD.

While general difficulties in the acquisition of tense morphemes are common to both L2 learners with TLD and L1 learners with SLI, key differences have also been found between these learner populations regarding this target structure. First, Paradis (2005) noted that the gap between tense and non-tense morpheme accuracy was narrower for L2 with TLD than has been reported for L1 with SLI, suggesting that difficulties with grammatical morphology are more diffuse in L2 than in impaired L1 acquisition, and thus, tense-marking morphology is not as selectively affected. Paradis (2005) also noted that while omission errors with grammatical morphemes were more frequent than form choice/commission errors in the speech of L2 children with TLD, commission errors were proportionally more frequent than what has been reported for L1 children with SLI. Finally, Haznedar (2001), Ionin and Wexler (2002), Lakshmanan (1994), Paradis, Rice, Crago and Richman (2004), and Zobl and Liceras (1994) have found that L2 learners with TLD acquire BE morphemes (*am, is, are, was were*) much faster than affixal morphemes for tense, so much so that learners could reach near mastery levels with BE, while supplying affixal tense morphemes less than 50% in required contexts. The work of Rice and colleagues reveals that children with SLI are somewhat more advanced in their acquisition of BE compared to the affixal morphemes (Rice et al., 1995; Rice et al., 1998). For example, Rice et al. (1995) found that for five-year-old children with SLI, accuracy with BE was about 10-20% higher than for third person singular [-s] or for past tense [-ed]. However, precocious BE acquisition is much more striking in child L2 acquisition with TLD than child L1 acquisition with SLI (Paradis et al., 2004). Therefore, special attention to each of these patterns would be necessary for detecting differences between L2 with TLD and L2 with SLI regarding tense acquisition. L2 children with SLI might show the L2 with TLD pattern, the L1 with SLI pattern, or a hybrid pattern.

In this chapter, data from English L2 children were used to investigate whether the acquisition of tense-marking morphology might serve to distinguish English L2 children affected with language delay/impairment from their unaffected peers. The patterns and rates of these children's acquisition of tense and non-tense marking grammatical morphology was examined over time, and compared between them as well as with normative data from English monolingual native speakers.

Participants

Nine Chinese (Cantonese and Mandarin) L1 children with TLD, and two Cantonese L1 children, KVNL and WLLS, known to have language delay/impairment in their L1s participated in this longitudinal study. Keeping the L1 constant for both affected and unaffected children eliminates the possibility that any differences found between the children could be attributable to L1 transfer. All children were from immigrant families acquiring English as a L2 in Edmonton, Canada, and had a mean age of 5;4 at the outset of data collection, and 7;1 at the final round. The mean amount of exposure to English was 11 months at the first round of data collection, 24 months at the second round, and 36 months at the third round. Children's exposure to English was considered to have begun at their entry into full-time preschool or school programmes, confirmed by parental report. The children with TLD were recruited through agencies that assist new arrival families in the Edmonton area.

Both KVNL and WLLS were referred to my lab by registered Speech-Language Pathologists, and were receiving intervention at the time the study began. WLLS continued to receive therapy throughout the length of the study. KVNL was assessed after a year in an ABC Head Start programme as having English abilities much lower than age-expected norms. With the assistance of an interpreter, the Speech-Language Pathologist determined that his Cantonese language development appeared to also exhibit mild-to-moderate delay. In addition, KVNL showed some articulation delays with certain segments, but importantly for this study, he could produce word final obstruents. WLLS was assessed as having moderate receptive language delay and severe expressive language delay in both his languages, and was recommended for an early education programme at a school with a focus on special-needs children. WLLS has an older brother who is similarly affected and also attends this school. Even L2 children with TLD could score very low on a test standardized for native-speakers early on in their English L2 development; therefore, for children to be considered affected with language delay or impairment in this study, there had to be documentation of difficulties in their L1 acquisition (Eng and O'Connor, 2000; Gutiérrez-Clellen and Kreiter, 2003; Juárez, 1983), and both KVNL and WLLS met this inclusion criterion.

Note that KVNL was assessed as having mild-to-moderate difficulties, while WLLS was assessed as having moderate-to-severe difficulties. Rice (2007) discusses the possible distinction between language delay and (specific) language impairment as clinical groups. Both groups exhibit significant delays in the onset and unfolding of acquisition milestones, but children who are simply language delayed may eventually "catch up" to their unaffected peers, while children with language impairment show more pronounced specific delays within their general delay, for example, very protracted acquisition of tense morphemes, and may never completely catch up to unaffected peers. As will be shown, this difference between KVNL and WLLS in their degree of affectedness was apparent in their acquisition patterns with grammatical morphemes in English. It is likely that KVNL is mainly language delayed while WLLS is specifically-language impaired. For this reason the children are referred to as affected with "language delay/impairment" throughout this chapter.

The information in Table 1 shows how the two affected children compare to the group of children with TLD. Table 1 contains the means and standard deviations (SD) from the TLD group at each round for age in months, months of exposure to English (MOE), non-verbal IQ, and mean length of utterance in morphemes (MLU). Table 1 also contains the individual information for these variables from KVNL and WLLS. For age, MOE, and non-verbal IQ, KVNL and WLLS's numbers are within 1.0 SD of the TLD mean. On the other hand, KVNL's and WLLS's MLUs are greater than 1.0 SD below the TLD MLU mean at round 1 and round 2, and are close to 1.0 SD below the mean at round 3. (KVNL's very low MLU at round 2 is most likely due to his lack of volubility during the recording session). Therefore, as expected, the affected children show delay in their overall morphosyntactic development compared to their peers with TLD, even though the children are comparable in other respects.

INSERT TABLE 1 ABOUT HERE

Procedures

Data for this study consisted of coded spontaneous speech transcripts and elicitation probes from a standardized instrument, the Test of Early Grammatical Impairment (TEGI: Rice and Wexler, 2001). Spontaneous speech samples were gathered through an informal interview and free play session between the child and a student research assistant, and transcribed using the CHAT conventions from CHILDES (MacWhinney, 2000; www.childes.psy.cmu.edu). The children's MLUs were calculated from 100 consecutive utterances in their spontaneous speech transcripts, and these transcripts were also coded for use in obligatory context of the following tense-marking morphemes: (1) third person singular [-s], *he walk**s***, (3S-s); (2) regular past tense [-ed], *she walk**ed***, (PAST-ed) and irregular past tense, *dig-**dug**,* (PAST-IR); (3) the auxiliary and copula *be*, *he **is** walking*, *she **is** happy,* (BE), and (4) the verb *do* as an auxiliary, ***does** he walk to school?*. Transcripts were also coded for use in obligatory context of the following non-tense marking morphemes: (1) Definite and indefinite articles *the/a*; (2) locative prepositions *in/on*; (3) the nominal plural [-s], *one cat-two cat**s***, and (4) the progressive verbal suffix [-ing], *he is walk**ing***. Tense and non-tense composite scores were calculated as an average of children's mean percent correct use in context for each individual morpheme. Ten percent of the spontaneous speech transcripts were re-done by a different student assistant, compared with the originals, and reliability scores were calculated for words agreed upon in the transcription and codes agreed upon in the coding tiers. Reliability scores ranged from 91% to 96% for words in transcriptions and 87% to 95% for coding.

Three probes from the TEGI designed to elicit 3S-s, PAST (-ed and -IR), and BE/DO were administered. For the 3S-s probe, children were shown pictures of professionals engaged in work activities and given prompts like, *Here is a teacher. Tell me what a teacher does*, with the expected response being something like *A teacher teach**es*** or *A teacher writ**es** on the board*. For the PAST probe, children were shown pictures of children engaged in activities, followed by a picture showing the activity being completed, and given prompts like, *Here the boy is raking. Now he is done. Tell me what he did*. The expected response would be *He rak**ed***. Elicitation of BE and DO was accomplished through a play scenario involving a puppet, stuffed animals, and other items. Children were told that only the puppet could talk to the stuffed animals, so if the child wanted to know something about the animals, she would have to ask the puppet. The child was encouraged by the experimenter to ask the puppet about one or more of the animals, e.g., *I wonder if the bears are thirsty after their nap. You ask the puppet*, or to make statements about the animals, e.g., *Oh, now the bears are tired. What about the kitty?*. Thus, this play scenario was designed to elicit third person singular and plural statements and questions such as, *Are the bears thirsty?*, *The kitty is tired*, or *Do the bears like apples?*. Percent correct scores were calculated for each morpheme individually out of the number of scorable responses given by the child during each probe. Scorable responses consisted of those where an attempt was made at the target morphological structure, or a bare verb stem was used. An elicited grammar composite score was also calculated as an average percent correct score across all the target morphemes.

Finally, non-verbal IQ standard scores presented in Table 1 were from the Columbia Mental Maturity Scale (Burgemeister, Hollander Blum and Lorge, 1972), administered at round 1. Information about children's months of exposure to English was obtained through parental interviews.

Analyses and Specific Research Questions

The comparative analyses took two forms and were aimed at determining if the two affected children displayed EOI patterns in their acquisition of tense morphemes and/or showed distinct characteristics from the L2 children with TLD. The first set of comparisons was between the L2 children, with and without language delay/impairment, and the monolingual norming sample means and SDs from the TEGI. The TEGI norming sample consisted of 393 children with TLD, and 444 children with SLI. The purpose of these comparisons was to address this question: (1) Are the affected L2 children more likely to score as monolinguals with SLI than the L2 children with TLD, and does this change over time?

The second set of comparisons was conducted between the L2 children with TLD and the L2 children with language delay/impairment. In this case, individual scores from KVNL and WLLS were compared to the means and SDs from the TLD group for various measures. The purpose of these comparisons was to address the following questions:

(2) Does accuracy with tense-marking morphemes over time distinguish KVNL and WLLS from their L2 peers with TLD? (3) Do KVNL and WLLS perform worse with tense than with non-tense-marking morphemes? Do they show a larger gap between their abilities with tense and non-tense morphemes than L2 children with TLD? (4) Do KVNL and WLLS show precocious acquisition of BE versus affixal inflections, as would be expected for L2 acquisition with TLD, or do they show closer development of BE and affixal tense morphemes, like L1 acquisition with SLI? (5) Do KVNL and WLLS show relatively greater proportions of omission versus commission errors with BE morphemes than L2 children with TLD?

For both sets of comparisons, estimation of the affected children's performance *vis à vis* monolinguals with SLI or L2 children with TLD was gauged by distance in SD units of their scores from group means. For the comparisons with monolinguals, the L2 children with TLD's group means were also analysed in terms of SD units from the mean of their monolingual peers. The rationale for conducting analyses in this fashion was that a commonly-used diagnostic criterion for determining if children have SLI is whether they perform lower than 1.0 SD from a comparison group of children on various language outcomes. Put differently, it was not expected for the L2 children with language delay/impairment to display qualitatively different patterns from the comparison groups, but instead to display quantitatively different patterns, which is the case for L1 children with SLI when compared with L1 children with TLD. SD units provide a systematic measurement for determining the extent of quantitative differences.

Acquisition of Tense Compared with Monolingual Norms

The children's elicited grammar composite (EGC) scores from the TEGI (expressed as proportions) were compared to those of the monolingual norming sample from the TEGI. Means for the TEGI TLD and SLI groups are given in the manual according to six-month age intervals (Rice and Wexler, 2001). In Table 2, the mean EGC for the L2-TLD group, and the means from the TEGI norming samples covering the appropriate age range are given. Individual scores for the two affected L2 children are given as well. The data in Table 2 reveal that at round 1, both the L2-TLD mean and the individual scores from KVNL and WLLS were similar to each other and closer to the mean score for their monolingual age peers with SLI than with TLD. The L2 children with TLD's mean score was -6.3 SDs from the mean for their monolingual age peers with TLD, but within 1.0 SD of the mean for monolinguals with SLI. Both KVNL's and WLLS's scores were within 1.0 SD of the mean for monolinguals with SLI. At round 2, the L2 children with TLD were performing better than their monolingual age peers with SLI, although much lower than their monolingual age-peers with TLD, the L2 mean being -3.8 SDs from the monolingual mean. In contrast at round 2, KVNL and WLLS were performing slightly worse than monolinguals with SLI; KVNL's score was -1.2 SDs and WLLS's score was -1.1 SDs from the mean of affected monolinguals. At round 3, the mean score of the L2 children with TLD was starting to approach their unaffected monolingual age peers with TLD, at 1.5 SDs lower. The affected L2 children were different from each other at round 3; KVNL had a score higher than the mean of the monolinguals with SLI, and 1.1 SDs below the mean of the monolinguals with TLD, while WLLS's score was close to the mean of the monolinguals with SLI.

This comparison with monolingual native-speakers shows that acquisition of tense-marking morphology is gradual in both L2 acquisition with TLD and L2 acquisition with language delay/impairment. It is not the case that the L2 children with TLD leapt to native-speaker performance within a few months of exposure. However, gradual development for all L2 children notwithstanding, the two affected children performed more closely to the monolinguals with SLI at round 2 than did the L2 children with TLD. Furthermore, the L2 child with SLI, WLLS, performed like a monolingual child with SLI at round 3 as well.

INSERT TABLE 2 ABOUT HERE

Acquisition of Tense versus Non-Tense Morphemes

The children's EGC from the TEGI, tense composite (TC) and non-tense composite (NTC) scores from their spontaneous speech samples are given in Figures 1, 2 and 3 respectively. The scores for the L2-TLD group are expressed as means with SD bars, while individual scores are given for KVNL and WLLS.

Let us examine the data in Figure 1 first, from the TEGI. At round 1, both KVNL and WLLS had scores within 1.0 SD of the TLD group. So, at 11 months of exposure to English, the children with language delay/impairment and with TLD were not separated from each other by EGC scores, which we also noted in the analyses above. In contrast, at round 2, where children had close to two years' exposure to English, some separation was apparent. KVNL's EGC score was -1.6 SDs from the TLD mean, and WLLS's was

-1.5 SDs from the TLD mean. In addition, only one child in the L2-TLD group had a score close to that of KVNL and WLLS. At round 3, as also noted above, the affected children differed from each other in their EGC scores. WLLS's score was -1.3 SDs below the TLD mean, but KVNL's was within 1.0 SD at that round. A somewhat different pattern can be observed in Figure 2 for the tense morphemes from spontaneous speech, in that both KVNL and WLLS scored below 1.0 SD from the TLD mean at round 1 (KVNL = -2.4 SDs; WLLS = -1.5 SDs), but only WLLS scored below at round 2, -1.3 SDs. At round 3, both scored within 1.0 SD of the TLD group. At round 1 for TC, 2 of the TLD children scored as low as WLLS, but none as low as KVNL.

Turning to the NTC scores in Figure 3, KVNL performed like the TLD group at every round, but WLLS scored below 1.0 SD at rounds 1 and 2 (round 1 = -1.5 SDs, and round 2 = -2.2 SDs). No child from the TLD group had a score as low as WLLS's for rounds 1 and 2. The gap, or differential, between the TC and NTC scores was similar for the TLD group and for KVNL and WLLS at each round. The gap between the EGC and NTC scores was also similar at round 1 for the TLD group and the affected children, but this changed at rounds 2 and 3. KVNL displayed a more pronounced differential between his EGC and NTC scores than the TLD group at round 2, .65 versus .20 respectively. WLLS displayed a more pronounced differential between his EGC and NTC score than the TLD group at rounds 2 and 3 (round 2 = .41 versus .20; round 3 = .30 versus .05).

In summary, KVNL was slower to acquire tense morphemes than the TLD group at rounds 1 and 2, taking EGC and TC together, but appeared to catch up by round 3 for both EGC and TC. KVNL was more accurate with non-tense than tense morphemes at rounds 1 and 2, but only slightly more so at round 3, parallel to the TLD group; however, at round 2 his gap between tense and non-tense was larger than that of the TLD group. Thus, KVNL displayed the EOI characteristics of specific delay with tense morphemes to some extent early on, but these characteristics disappeared by round 3. WLLS was slower to acquire tense morphemes than the TLD group at rounds 1 and 2, taking EGC and TC together, and did not catch up in the final round for the EGC. WLLS was also more accurate with non-tense than tense morphemes at all rounds, like the TLD children, but his gap between tense and non-tense was larger than for TLD at rounds 2 and 3. Therefore, WLLS displayed the EOI characteristics of specific delay with tense morphemes, and more consistently than KVNL. These differences between KVNL and WLLS could be expected based on their differences in degree of affectedness.

INSERT FIGURES 1, 2 AND 3 ABOUT HERE

Acquisition of Individual Tense Morphemes

In order to ascertain whether the L2 children showed precocious acquisition of BE, children's percent correct scores for BE (COP and AUX combined) versus the affixal tense morphemes, 3S-s and PAST-ed, were plotted at each round from the TEGI probes in Figures 4 to 6[1]. The L2-TLD group means and SDs are given, along with individual scores from KVNL and WLLS. Where there is no score given for one of the affected children, this was because he had no scorable responses on the TEGI probe for that morpheme.

At round 1 in Figure 4, it can be seen that all the children show a gap in acquisition rate between affixal and BE morphemes. In order to compare the performance of the L2 children with monolingual peers, the scores from the TEGI norming sample were consulted for 3S-s and BE (Rice and Wexler, 2001, p. 65; PAST-ed was not used because the norms are for irregular and regular past tense combined). For the monolinguals with TLD in the age range of the L2 children at round 1, mean proportion scores for 3S-s were .91- .97, and for BE they were .90-.93. For monolinguals with SLI, mean scores were .39 to .47 for 3S-s, and .57-.60 for BE. Clearly, all the L2 children displayed a wider separation between their performance with 3S-s and BE than their monolingual age peers, both with and without SLI. Even if we consider the norms for the youngest group of monolinguals from the TEGI, 3;0-3;5, we find that for children with TLD, the mean for 3S-s was .71 and for BE it was .72. For the monolinguals with SLI, the means for 3S-s and BE were .29 and .23 respectively. Thus, the separation pattern in L2 is not simply parallel to an earlier stage in L1 acquisition.

Turning to round 2 (Figure 5), the separation between accuracy with affixes and with BE remained pronounced for KVNL and WLLS, but not for the L2 children with TLD. KVNL's and WLLS's scores with 3S-s and PAST-ed were greater than 1.0 SD below the mean for L2 children with TLD. By round 3 (Figure 6), the children with TLD had similar and high levels of accuracy for both the affixal morphemes and BE, and so did KVNL. WLLS still maintained the separation pattern.

INSERT FIGURES 4, 5 AND 6 ABOUT HERE

Concerning errors with BE forms, the number of errors children made in contexts in spontaneous speech for BE-AUX and BE-COP were combined, and then proportions of omission and commission errors were calculated. Commission errors included the following: (1) substitution of the wrong person/number form, *they**'s** just plain crackers* or *my mom and dad* ***was*** *saying happy birthday to me*; (2) double-marking of an auxiliary, *they* ***are is*** *flying up*, and (3) substitution of DO for BE, *no, I* ***do****n't grown up*, or *what* ***does*** *it doing?*. For the L2 children with TLD, errors were totaled across children. Only rounds 1 and 2 were examined because the children were highly accurate with BE forms by round 3 (over 80%), and individual frequencies for errors were often below 4, and therefore, calculations of proportions might be unreliable. At round 1, the L2 children with TLD had .65 (107/164) omission errors and .35 (57/164) commission errors. In contrast, KVNL and WLLS had .93 (13/14) and .89 (17/19) omission errors and .07 (1/14) and .11 (2/19) commission errors respectively. At round 2, the children with TLD had .53 (75/142) omission errors and .47 (67/142) commission errors. KVNL had .50 omission errors (3/6) and .50 (3/6) commission errors, and WLLS had .75 (12/16) omission errors and .25 (4/16) commission errors. Thus, at round 1, KVNL and WLLS exhibited distinct error-type distributions from the children with TLD, and at round 2, WLLS also exhibited this distinct distribution. For KVNL at round 2, the even split in his distribution may be an artifact of low frequency of errors (6 in total).

To summarize, all the L2 children demonstrated a separation pattern between affixal tense morphemes and BE, but the two L2 children with language delay/impairment lagged behind the L2 children with TLD in that they manifested the separation pattern longer. The precocious acquisition of BE is not a phenomenon in L1 acquisition, with or without SLI, and as we elaborate on below, it poses some challenges to an EUCC-based explanation of the EOI stage. In contrast, KVNL and WLLS patterned more like L1 children with SLI in terms of their preponderance of omission errors with BE.

Tense as a Clinical Marker in Child L2 English

The main question underlying this study was whether the acquisition of tense morphology constitutes a clinical marker in English L2 acquisition as it does in English L1 acquisition. In other words, it was asked whether acquisition patterns and rates with tense marking morphemes displayed by L2 children with SLI would go beyond the vulnerabilities expected in L2 acquisition in general, and show evidence of selective deficits in this domain. The concept of tense as a clinical marker was operationalized through examining EOI acquisition patterns. The presence of continuity in tense acquisition patterns between English L1 and L2 learners with SLI would provide further support for the EOI account, as well as have potential applied relevance for assessment of SLI in L2 learners.

The data showed partial support for the contention that tense functions as a clinical marker in L2 English. First, the two L2 children with language delay/impairment lagged behind L2 children with TLD in approaching monolingual norms in tense marking, and WLLS scored more consistently like monolinguals with SLI across time than did the L2 children with TLD. Second, KVNL and WLLS had scores below the normal limits for tense morphology, as determined by the L2 children with TLD, at round 2 in particular. Third, both KVNL and WLLS showed larger differentials in accuracy between tense and non-tense morphemes than the TLD group at round 2, and for WLLS, round 3. Fourth, KVNL and WLLS had negligible or few commission errors with BE. These findings are consistent with the EOI patterns reported for monolinguals. Note also that WLLS, who is more severely affected than KVNL, exhibited more pronounced EOI characteristics. On the other hand, errors with both tense and non-tense grammatical morphology and the precocious acquisition of BE were common to all the L2 children, and are not consistent with the acquisition patterns of the EOI stage in monolingual children. Let us explore some possible explanations for why diffuse problems with grammatical morphology and precocious acquisition of BE could be expected in impaired L2 but not in impaired L1 acquisition.

An important difference between L1 with SLI and L2 with SLI is age of acquisition onset, which results in differences in amount of target language exposure. Five-year-old L1 children with SLI would have had at least three more years' exposure to English than the affected L2 children in this study had at the outset. Therefore, L1 children with SLI would have had enough exposure to become accurate with non-tense morphology, even taking into consideration their general language delay. It is not surprising, then, that the L2 children in this study would not have displayed stable and ceiling abilities with non-tense morphemes at rounds 1 and 2. Note that all the L2 children do show stable and highly accurate abilities with non-tense morphemes by round 3. Therefore, it might be expected that the gap in abilities between tense and non-tense marking morphology in English L2 five year olds with SLI would be narrower than the gap reported in studies of English L1 five year olds with SLI.

Differences in age at acquisition onset between L1 with SLI and L2 with SLI not only result in differences in target language exposure, but also result in differences in linguistic maturity when acquisition begins. This point is relevant in consideration of the EUCC, the constraint proposed to underlie the EOI stage. Recall that the influence of the EUCC is supposed to fade gradually such that L1 children with SLI reach close to the lower bound of performance of their unaffected age peers by age 8;0 (Rice et al, 1998). Children affected with SLI who begin learning another language at school age, begin learning this language with an operative but fading EUCC, and so, might experience weaker constraints on their abilities to produce tense morphemes at the beginning of their acquisition period than affected monolinguals experience at the beginning of their L1 acquisition period. If this supposition is on the right track, it could explain why these affected L2 children display precocious acquisition of BE, like their L2 peers with TLD and unlike their L1 peers with SLI. Ionin and Wexler (2002) put forward the proposal that earlier acquisition of BE versus affixal tense morphemes in L2 English with TLD might be due to the greater computational complexity associated with checking operations for affixal tense morphemes in English (see also Zobl and Liceras, 1994). For example, in a minimalist framework, BE forms under go overt movement to the Tense projection in the computation, while English verb forms with tense affixes do not, and clauses with affixal morphological expression of tense are viewed as having long-distance agreement between the verb and Tense, which is less economical and more marked crosslinguistically (Ionin and Wexler, 2002). For L1 children with SLI, the strong internal limits placed on their early grammars by the EUCC could have mitigated the effects of computational complexity in their expression of tense morphemes, or sensitivity to computational complexity has not yet matured. Because affected L2 children begin the English acquisition process older and with a comparatively weakened

EUCC, they might be more sensitive to computational complexity. Thus, it is possible that an interaction of the (fading) EUCC and emerging sensitivity to computational complexity at this stage results in BE forms being virtually the only expression of tense in affected children's English interlanguage early on.

If we assume that children with SLI who begin learning a language in the school years begin that process with weakened constraints on tense production, we can also explain another finding in these data concerning rate of tense acquisition. A striking finding from this study is how quickly WLLS caught up to his seven-year-old monolingual peers with SLI, after just three years of exposure to English. The ability for French-English simultaneous bilingual seven-year-olds with SLI to perform similarly to their monolinguals peers with SLI in accuracy with grammatical morphology has been documented in Paradis, Crago, Genesee and Rice (2003) and Paradis, Crago and Genesee (2005/2006). The L2 and bilingual findings together offer evidence against claims that the primary and sole deficit in SLI is a domain-general limitation in cognitive processing, slowing down affected children's abilities to uptake, store and access linguistic as well as non-linguistic information (e.g., Miller, Kail, Leonard and Tomblin, 2001). It would be expected on this perspective that dual language learning would overload these children's already limited processing capacity, and in turn, severely decelerate their ability to intake linguistic information in their two languages, making catching up unlikely, or at best, a very long process. In contrast, the EOI account assumes that a domain-specific constraint on linguistic representation, like the EUCC, is responsible for difficulties with tense acquisition. Such an internal constraint would be operative regardless of processing load due to dual language input, and so it should be possible for a bilingual with SLI to catch up to monolinguals with SLI (cf. Paradis et al., 2005/2006).

In conclusion, these two L2 children with language delay/impairment appeared to display characteristics of both L1 learners with SLI and L2 learners with TLD. It is possible that differences between L1 and L2 English impaired acquisition lie in differential age of acquisition onset. Assuming this perspective permits an explanation of the patterns that are not consistent with the reported EOI patterns in monolinguals, while still preserving the essential concept that a selective deficit on tense is a component of impaired acquisition in all child learners of English.

Let us now consider these findings in light of their relevance for differential diagnosis of impairment in bilingual populations. First, the delay in acquisition of tense morphemes appeared to distinguish these affected L2 children from their L2 peers with TLD only after the initial stage of acquisition has passed, and not in terms of a contrast with non-variable or ceiling performance with non-tense marking morphology. Furthermore, the acquisition of affixal tense markers constituted a more substantial domain of difference between L2 with language delay/impairment and L2 with TLD than the acquisition of BE morphemes. Thus, affixal tense-marking morphology holds more promise than tense morphology composite scores as a target structure in the development of assessment tools to be used with L2 learners. In sum, the timing of assessment with respect to an L2 child's chronological age and amount of exposure to English, and choosing which verbal forms to examine, are important factors to consider in a clinical setting.

Notes

1. The patterns from the spontaneous speech were highly similar to those from the TEGI for this analysis, but only the TEGI scores were chosen to present here to reduce the overall number of Figures, and because they can be compared to monolingual norms. Scores for regular verbs only in the past tense were chosen for this analyses because irregular verbs do not involve straightforward affixal inflection comparable to 3S-s, and also, are not as distinct from the suppletive BE forms as regular past tense verbs.

References

Burgemeister, B., Hollander Blum, L., & Lorge, I. (1972). *Columbia Mental Maturity Scale*. New York: The Psychological Corporation.

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

Dulay, H. and Burt, M. 1973. Should we teach children syntax? *Language Learning 24*: 245-258.

Dulay, H. and Burt, M. 1974. Natural sequences in child second language acquisition. *Language Learning 24*: 37-53.

Eng, N. and O'Connor, B. 2000. Acquisition of definite article + noun agreement of Spanish-English bilingual children with specific language impairment. *Communication Disorders Quarterly* 21: 114-124.

Gavruseva, E. and Lardiere, D. 1996. The emergence of extended phrase structure in child L2 acquisition. In *BUCLD 20 Proceedings*, A. Stringfellow, D. Cahan-Amitay, E. Hughes and A. Zukowski (eds.), 225-236. Somerville, MA: Cascadilla Press.

Grüter, T. 2005. Comprehension and production of French object clitics by child second language learners and children specific language impairment. *Applied Psycholinguistics* 26: 363-392.

Gutiérrez-Clellen, V.and Kreiter, J. 2003. Understanding child bilingual acquisition using parent and teacher reports. *Applied Psycholinguistics 24*: 267-288.

Håkansson, G. 2001. Tense morphology and verb-second in Swedish L1 children, L2 children and children with SLI. *Bilingualism: Language and Cognition* 4: 85-99.

Haznedar, B. 2001. The acquisition of the IP system in child L2 English. *Studies in*

Second Language Acquisition 23: 1-39.

Ionin, T. and Wexler, K. 2002. Why is “is” easier than “s”? Acquisition of tense/agreement morphology by child L2-English learners. *Second Language Research* 18: 95-136.

Juárez, M. 1983. Assessment and treatment of minority-language-handicapped children: the role of the monolingual speech-language pathologist. *Topics in Language Disorders* 3: 57-65.

Lakshmanan, U. 1994. *Universal Grammar in Child Second Language Acquisition: Null Subjects and Morphological Uniformity*. Amsterdam: John Benjamins.

MacWhinney, B. 2000. *The CHILDES Project: Tools for Analyzing Talk* (3rd edition). Mahwah, NJ : Lawrence Erlbaum.

Miller, C., Kail, R., Leonard, L., and Tomblin, B. 2001. Speed of processing in children with specific language impairment. *Journal of Speech, Language and Hearing Research* 44: 416-433.

Paradis, J. 2005. Grammatical morphology in children learning English as a second language: Implications of similarities with Specific Language Impairment. *Language, Speech and Hearing Services in the Schools* 36: 172-187.

Paradis, J. 2004. On the relevance of specific language impairment to understanding the role of transfer in second language acquisition. *Applied Psycholinguistics 25*: 67-82.

Paradis, J. and Crago, M. 2004. Comparing L2 and SLI grammars in French: Focus on DP. In *The acquisition of French in different contexts: Focus on functional categories,* P. Prévost and J. Paradis (eds.), 89-108. Amsterdam: John Benjamins.

Paradis, J. and Crago, M. 2000. Tense and temporality: Similarities and differences between language-impaired and second-language children. *Journal of Speech, Language and Hearing Research 43*: 834-848.

Paradis, J., Crago, M. and Genesee, F. 2005/2006. Domain-specific versus domain-general theories of the deficit in SLI: Object pronoun acquisition by French-English bilingual children. *Language Acquisition* 13: 33-62.

Paradis, J., Crago, M., Genesee, F. and Rice, M. 2003. Bilingual children with specific language impairment: How do they compare with their monolingual peers? *Journal of Speech, Language and Hearing Research* 46: 1-15.

Paradis, J., Rice, M., Crago, M. and Richman, A. 2004. Missing inflection or (Extended) Optional Infinitives? Comparing child L2 English with English SLI. Paper presented at the *Boston University Conference on Language Development*, Boston, MA.

Rice, M. 2007. Children with Specific Language Impairment: Bridging the genetic and developmental perspectives. In *The Handbook of Language Acquisition,* E. Hoff and M. Shatz (eds.), 411-431. Oxford: Blackwell.

Rice, M. 2003. A unified model of specific and general language delay: Grammatical tense as a clinical marker of unexpected variation. In *Language Competence Across Populations: Towards a Definition of Specific Language*

Impairment, Y. Levy and J. Schaeffer (eds.), 63-94. Mahwah, NJ: Lawrence Erlbaum.

Rice, M. and Wexler, K. 2001. *Test of Early Grammatical Impairment*. New York, NY: The Psychological Corporation.

Rice, R. and Wexler, K. 1996. Toward tense as a clinical marker of specific language impairment. *Journal of Speech, Language and Hearing Research* 39: 1236-1257.

Rice, M., Wexler, K. and Cleave, P. 1995. Specific language impairment as a period of extended optional infinitive. *Journal of Speech, Language and Hearing Research* 38: 850-863.

Rice, M., Wexler, K. and Hershberger, S. 1998. Tense over time: The longitudinal course of tense acquisition in children with specific language impairment. *Journal of Speech, Language and Hearing Research* 41: 1412-1431.

Wexler, K. 2003. Lennenberg's dream: Learning, normal language development, and specific language impairment. In *Language Competence Across Populations: Towards a Definition of Specific Language Impairment*, Y. Levy and J. Schaeffer (eds.), 11-62. Mahwah, NJ: Lawrence Erlbaum.

Wexler, K. 1998. Very early parameter setting and the Unique Checking Constraint: A new explanation of the Optional Infinitive Stage. *Lingua* 106: 23-79.

Zobl, H. and Liceras, J. 1994. Functional categories and acquisition orders. *Language Learning* 44: 159-180.

Table 1. Children's Ages, Exposure to English, Non-Verbal IQs, and Mean Length of Utterances

	Round 1				Round 2			Round 3		
	Age	MOE	NVIQ	MLU	Age	MOE	MLU	Age	MOE	MLU
L2-TLD	66(11)	10(5)	116(13)	3.61(.73)	78(9)	23(5)	4.48(1.1)	90(9)	35(5)	4.4(.95)
KVNL	57	14	104	2.85	70	26	1.76	82	38	3.52
WLLS	58	11	115	2.59	71	24	2.97	83	36	3.68

Note. Age = age in months; MOE = Months of exposure to English; NVIQ = non-verbal IQ standard score; MLU = mean length of utterance in morphemes. L2-TLD information is expressed in means and standard deviations.

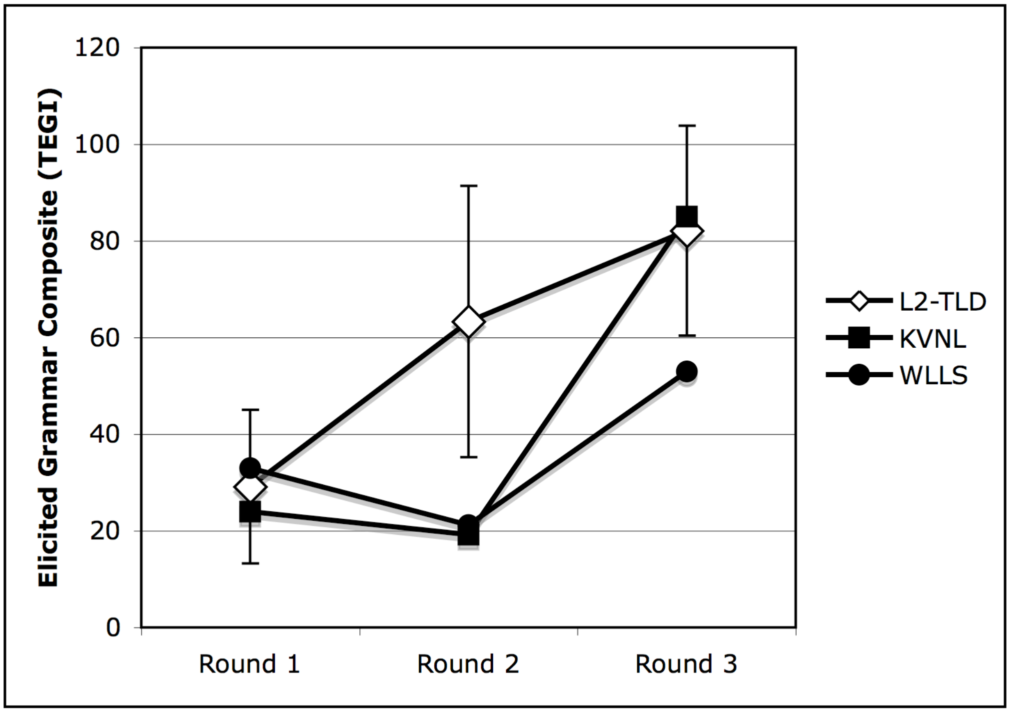
Table 2. Children's Elicited Grammar Composite Scores Compared to the Scores from the TEGI Norming Sample.

	Round 1			Round 2			Round 3		
	EGC	TEGITLD	TEGISLI	EGC	TEGITLD	TEGISLI	EGC	TEGITLD	TEGISLI
L2-TLD	.29	.89-.94	.41-.55	.63	.92-.94	.47-.55	.82	.94	.55
		(.11-.8)	(.23-.25)		(.8-.8)	(.24-.25)		(.8)	(.25)
KVNL	.24	.89	.41	.19	.92	.47	.85	.94	.55
WLLS	.33	.89	.41	.21	.92	.47	.53	.94	.55

Note. TEGI scores from Rice and Wexler (2001), p. 65.

Figure Captions

Figure 1.



Elicited Grammar Composite (TEGI)
120
100
80
60
40
20
0
Round 1
Round 2
Round 3
L2-TLD
KVNL
WLLS

Figure 2.

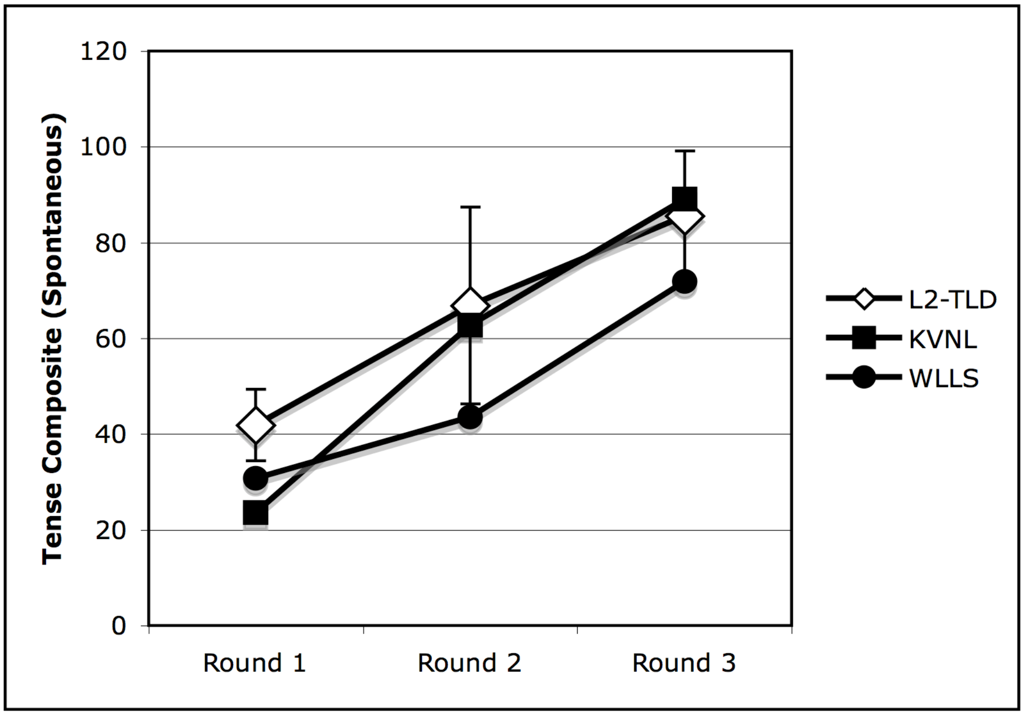
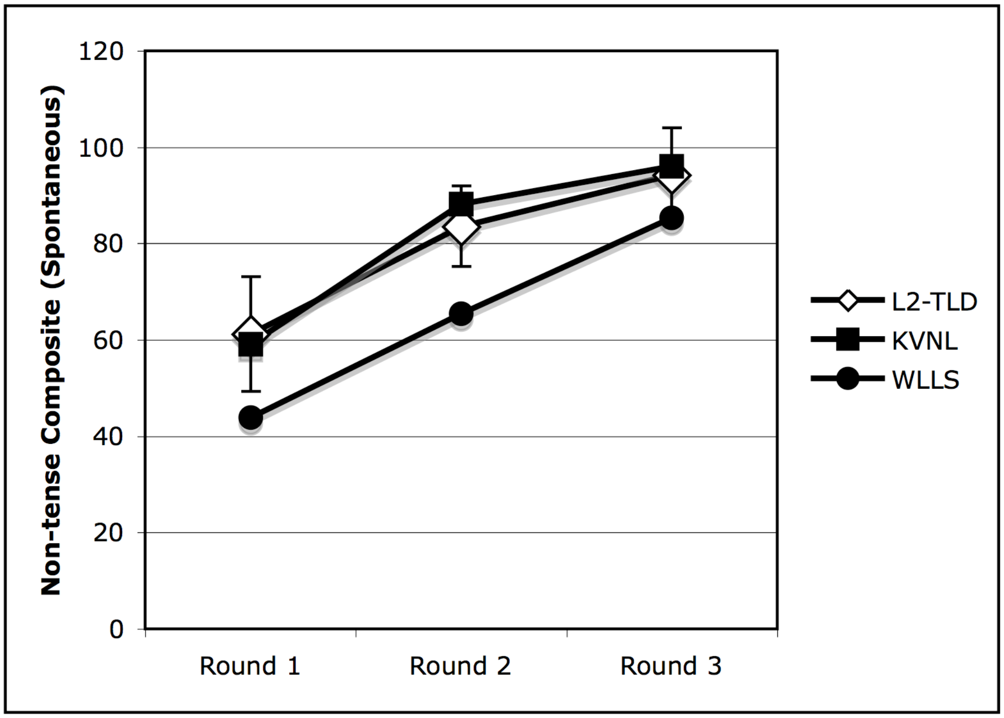
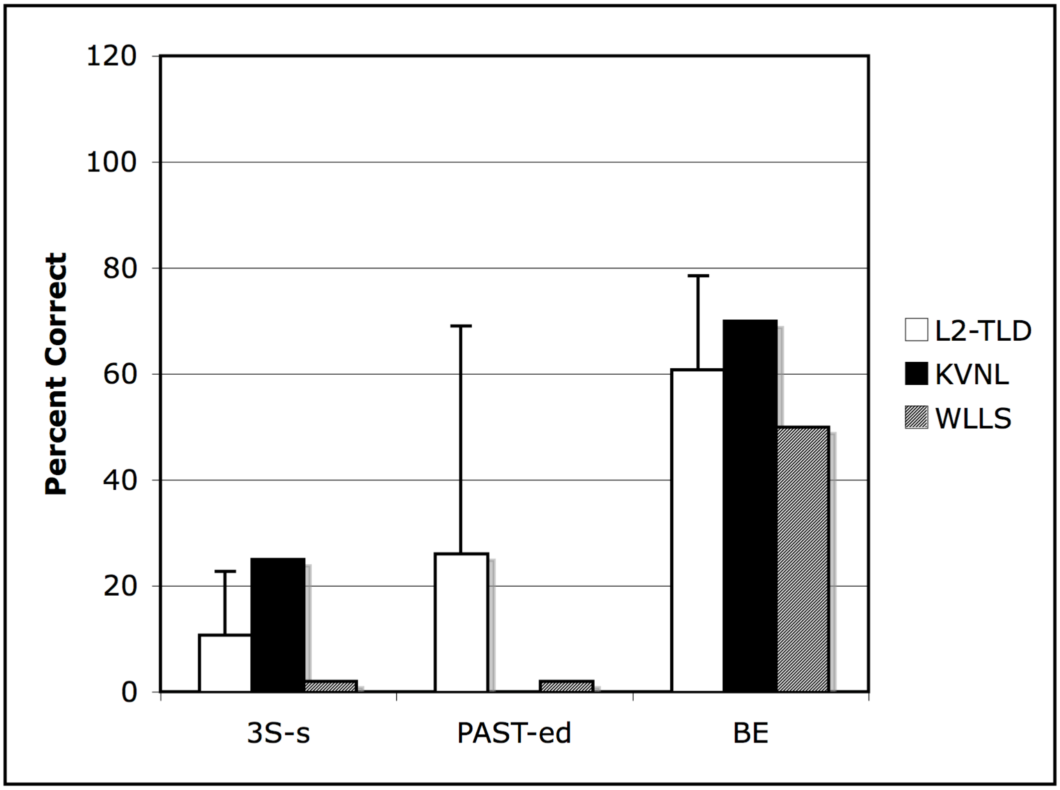

120
100
80
60
40
20
0
Tense Composite (Spontaneous)
Round 1
Round 2
Round 3
L2-TLD
KVNL
WLLS

Figure 3.



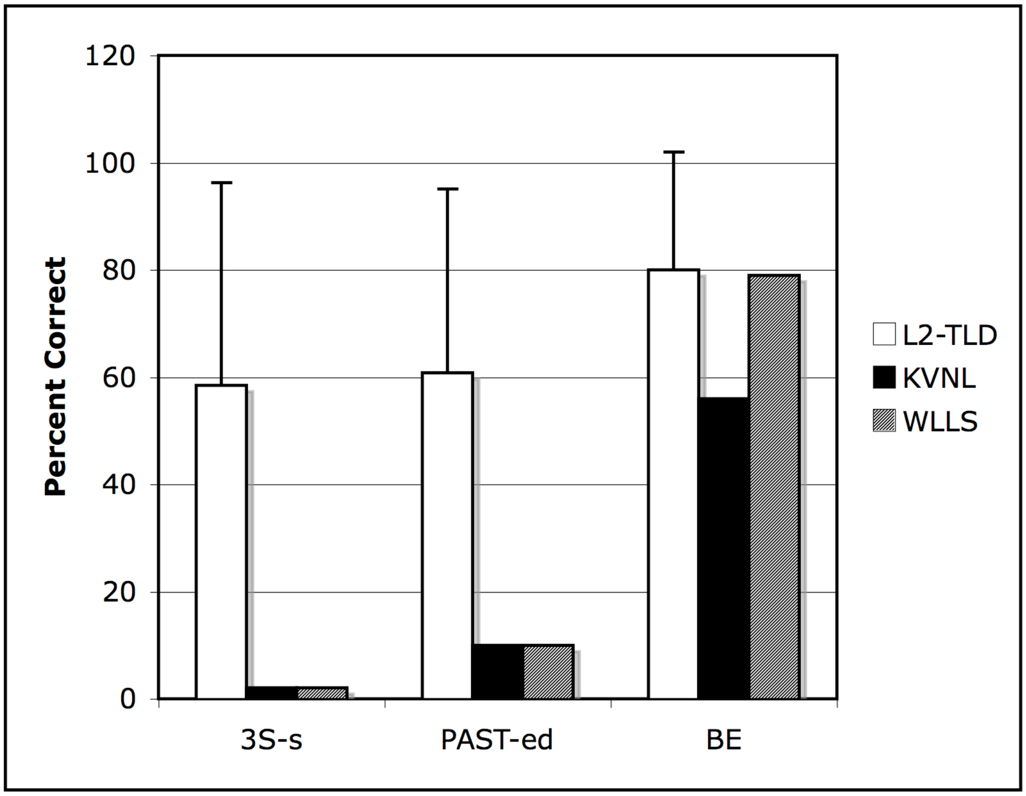
120
100
80
60
40
20
0
Non-tense Composite (Spontaneous)
Round 1
Round 2
Round 3
L2-TLD
KVNL
WLLS

Figure 4.



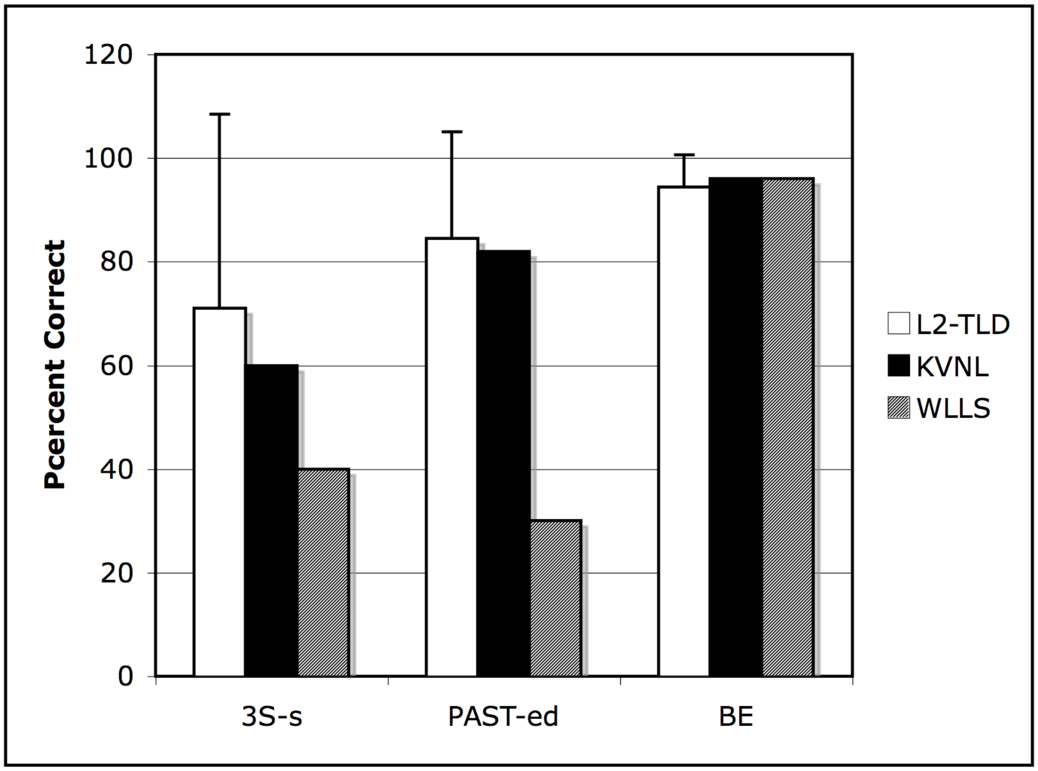
120
100
80
60
40
20
0
Percent Correct
3S-s
PAST-ed
BE
L2-TLD
KVNL
WLLS

Figure 5.



120
100
80
60
40
20
0
Percent Correct
3S-s
PAST-ed
BE
L2-TLD
KVNL
WLLS

Figure 6.



120
100
80
60
40
20
0
Pcercent Correct
3S-s
PAST-ed
BE
L2-TLD
KVNL
WLLS