Grammatical Morphology in Children Learning English as a Second Language: Implications of Similarities with Specific Language Impairment

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Abstract

Purpose. This study was conducted to examine whether the expressive language characteristics of typically-developing children learning English as a second language have similarities to the characteristics of the English spoken by monolingual children with SLI, and whether this could result in the erroneous assessment of typically-developing English language learners as language impaired.

Method. Twenty-four typically-developing language minority children who had been learning English as a second language for an average of 9.5 months participated. The children's accuracy and error types in production of the following grammatical morphemes was examined in spontaneous and elicited speech: third person singular [–s], past tense [–ed], irregular past tense, BE as a copula and auxiliary verb, DO as an auxiliary verb, progressive [–ing], prepositions 'in' and 'on', plural [–s], and determiners 'a/the'. The elicitation probes were part of a recently developed standardized test for language impairment, TEGI (Rice & Wexler, 2001).

Results. The English language learning children's accuracy rates and error patterns with the grammatical morphemes were similar to what has been reported for monolingual children the same age with SLI, in both elicited and spontaneous speech. In addition, the children's elicitation probe scores were compared to the criterion scores and group means from the sample of monolingual children used to develop the TEGI, and their performance on the TEGI was in the range of the clinical population even though there is no reason to suspect any of these children is language impaired. Both analyses point to the possibility that typically-developing second language learners could be mistaken as language impaired.

Clinical Implications. The results provide information that can be used to set appropriate expectations of error patterns and rate of grammatical development in the early stages of English second

language learning. The results also emphasize how the use of English standardized tests with non-native English speaker populations is not a good practice, and suggestions are given for points to consider when assessing English language learning children.

Key words: English Language Learners, bilingual children, second language acquisition, grammatical morphology, specific language impairment

Grammatical Morphology in Children learning English as a Second Language: Implications of Similarities with Specific Language Impairment

In both Canada and the United States, preschool programs and schools welcome children from a variety of language backgrounds: some are monolingual English-speaking, others have some proficiency in English as well as another language, and still others are virtually monolingual speakers of a language other than English. Conducting assessments of language and learning disabilities in such a multilingual setting is challenging. For the most part, assessment protocols and tools like language tests are designed for monolingual populations, and so educators, psychologists and speech-language pathologists are often left with few resources with which to determine whether a bilingual child is progressing adequately in her language development, or whether she may be in need of special services. For example, a child learning English as a second language (ESL) who seems to be below expectations in her abilities in English could be a typically-developing but slower-than-average second language learner, and will eventually catch up with her peers, or she might have a language learning disability and would greatly benefit from clinical or special education services in order to achieve success in learning English. How can we tell the difference?

The difficulty teasing apart non-fluent and errorful language

that is part of the normal process of second language (L2) learning, from the non-fluent and errorful language exhibited in impaired acquisition is not straightforward. Research comparing monolingual children with specific language impairment (SLI) and their L2 age-mates in Swedish and in French has shown striking similarities in the kinds of errors they make in their expressive language (Crago & Paradis, 2003;Gruter, 2003; Håkansson & Nettelbladt, 1993; Paradis, 2004; Paradis & Crago, 2000, 2004). Such overlap complicates the search for markers in children's speech that effectively circumscribe the clinical from the non-clinical population in a multilingual context. For children and practitioners in multilingual settings, the problem of "mistaken identity" is a well-known hazard (e.g., Cummins, 1984, 2000; Genesee, Paradis & Crago, 2004; Ortiz, 2001). Mistaken identity occurs when a typically-developing L2 learner is inappropriately diagnosed as language or learning disabled and receives unnecessary services, and/or is inappropriately placed in special education classes. Equally important, and possibly on the rise, is the problem of what can be called "missed identity" (Crutchley, Conti-Ramsden & Botting, 1997; Genesee et al, 2004; Roseberry-McKibbin, 1995). Missed identity occurs when an L2 learner has a language impairment, but his impairment goes unnoticed or undiagnosed because educators and speech-language pathologists assume that his poor performance in oral English and in language-related academic activities is the result of his not being a native speaker, or because educators and speech-language pathologists adopt a "wait and see" approach with diagnosis of bilingual children that may extend for years.

With respect to contexts where English is the societal language L2 children are learning, several researchers and clinicians have advised caution in making decisions about assessment with these children, noting the risks of mistaken and missed identity, and offer guidelines for dealing with assessment in multilingual settings

(Genesee et al, 2004; Goldstein, 2000; Juárez, 1983; Langdon & Irvine Saenz, 1996; Roseberry- McKibbin, 1995; Schiff- Myers, 1992; Westernoff, 1991, among others). However, there has been little research conducted specifically to examine the oral English of children learning English as an L2, in terms of how it compares with the oral language of English- speaking children with SLI, in order to determine the overlap in expressive language characteristics these two groups exhibit (except see Damico, Oller & Storey, 1983; Restrepo & Kruth, 2000). In addition, there has been little research examining ESL children's performance in their second language on diagnostic oral language tests norm- referenced for monolingual speakers of English, in order to illustrate directly what the potential for erroneous assessment of typically- developing ESL children as language disordered could be. Accordingly, this study examined the expressive language of typically- developing English second language learners in order to address the following questions: (1) Is the English of second language learners similar to the English of monolingual children with SLI approximately the same age? (2) If there are similarities, could these be a cause of real cases of mistaken identity in an assessment context? The ESL children's use of grammatical morphology in particular was examined because prior research has shown that this is an area of noted difficulty for both monolingual children with SLI and children who are English language learners. Grammatical morphological abilities were examined in the children's spontaneous and elicited speech, as well as with respect to their performance on a recently developed standardized test for language impairment in English that focuses on this aspect of language.

The population of English language learners this study is concerned with are those who are sequential bilinguals, that is to say, those who began to learn their L2 after the foundations of their first language (L1) had been established, e.g., after 3 1/2 to 4 years of age.

In addition, the English language learners this study is concerned with are those from minority entholinguistic backgrounds meaning that their L1s were not high-status and widely spoken languages in the community in which they were living at the time of study. The term 'ESL children' is used throughout to denote children in this population who are still in the process of learning English, and so have not yet achieved native-speaker attainment in English. Thus, the term ESL used in this study denotes a similar population as other terms like ELL (English Language Learners) or LEP (Limited English Proficiency). This study is concerned with children with specific language impairment as a comparison group for the ESL children. Because SLI is a form of language disorder where certain etiologies, such as neurological damage or hearing loss, social-emotional difficulties in the autism spectrum, or nonverbal intelligence below the normal range, have been ruled out, children with SLI are a likely candidate group for potential mistaken identity with ESL children. In other words, both groups have intact nervous and sensory systems, appear typically-developing for their age in all respects outside of language, and both have incomplete linguistic skills in the target language.

Grammatical Morphology in English SLI and L2

Grammatical morphology has long been noted as an area of difficulty for all child learners of English: typically-developing first language, first language with SLI and second language (Brown, 1973; Dulay & Burt, 1973, 1974; Leonard, 1998). Grammatical morphology in English includes both bound and free morphemes. Thus, verbal and nominal suffixes like past tense [-ed] in "Brendan jump<u>ed</u>" and the plural [-s] in "dog<u>s</u> are running" are grammatical morphemes, as well as the verb BE in constructions like "Brendan <u>is</u> running", DO in "<u>do</u> you want a cookie?" and the articles in "<u>the</u> dog" and "<u>a</u> dog". In traditional linguistic classification, grammatical morphemes are closed class items that stand in opposition to open-class, content morphemes

like the nouns “dog” and “cookie” and the verbs “jump”, “run” and “want”.

More specifically in English SLI, the development of verbal grammatical morphology tends to be more affected in children with SLI than grammatical morphology in the nominal domain (Bedore & Leonard, 1998; Clahsen, Bartke & Göllner, 1997; Leonard, Eyer, Bedore & Grela, 1997; Oetting & Rice, 1993; Rice, 2003a; Rice & Wexler, 1996; Rice, Wexler & Cleave, 1995). Rice et al (1995) examined the following set of morphemes in English that mark tense/agreement (henceforth “tense”): third person singular [-s], “Brigitte run s past here every day”; past regular [-ed], “Brigitte jump ed”; BE as an auxiliary for the progressive, “Brigitte is running”; BE as a copula, “Brigitte is fast”, and DO as an auxiliary, “do you like to run? no, I don’t”. In a subsequent study, Rice and Wexler (1996) examined these tense morphemes in comparison with grammatical morphemes that do not mark tense (henceforth “non-tense”): progressive verbal suffix [-ing], “Brigitte and Brendan are runn ing”; prepositions in/on; nominal plural suffix [-s], “rabbit s run fast”, and articles a/the. The combined results of these two studies yield the following general patterns: (1) Children with SLI are significantly less accurate in production with tense than with non-tense morphemes; (2) Children with SLI tend to make errors of omission with grammatical morphemes (dropping them) much more often than errors of commission (applying morphemes in the wrong places, i.e., “you eat s”, or using the wrong morpheme, i.e. “they is” instead of “they are”); (3) These overall patterns are the same for elicited and spontaneous production.

The children with SLI were less accurate in producing tense-bearing morphemes not only when compared to typically-developing children their own age, but also when compared with younger typically-developing children matched on language-level as measured by mean length of utterance (MLU) (Rice & Wexler, 1996; Rice et al,

1995; Rice, Wexler & Hershberger, 1998). This last observation in particular prompted the claim that tense morphology could be a clinical marker of SLI in English because it is an extremely delayed or "disrupted" aspect within what is already delayed language development (Rice, 2003a; 2003b). Rice and Wexler have developed a standardized test for identifying children with specific language impairment that is focused on testing expressive abilities with tense morphology, TEGI (Test for Grammatical Impairment: Rice & Wexler, 2001). The sample of children used for the standardization development of this test were monolingual speakers of standard American English, and according to the examiner's manual, a panel of reviewers found that the test may be biased for L2-influenced English, with particular comments on how typically-developing L2 children whose L1 is either Spanish or certain East Asian languages may omit these morphemes in their speech (Rice & Wexler, 2001, pp 55-57). However, no systematic study was conducted administering the TEGI to typically-developing L2 children in order to determine the extent of this bias, or how it may be dependent on how much English exposure a child has had, and whether the child's L1 makes a difference.

Grammatical morphology in children learning English as a second language has not been examined in a way that is parallel to the research of Rice and colleagues for SLI, but the current knowledge of this aspect of ESL development points to the strong possibility of similarities with SLI, and in turn, to the possibility of the TEGI being highly biased if used with this population of children. In two seminal studies, Dulay and Burt examined accuracy in the use of 14 grammatical morphemes by over 200 6-8 year old children who spoke either Spanish or a Chinese language as their L1 (Dulay & Burt, 1973, 1974). These 14 morphemes included many of the tense and non-tense morphemes examined in Rice and colleagues' work. Dulay and Burt found that certain non-tense morphemes, like progressive [–ing]

and prepositions in/on, were used more accurately than certain tense morphemes, like third person singular [-s], suggesting parallels between ESL and SLI. However, there were some differences between Dulay and Burt's two studies in terms of accuracy rates for the morphemes, and incomplete information is given about the children's language backgrounds, so we do not know how much exposure to English they received, how variable it was between individuals, and whether this might have affected the results.

Other research on grammatical morphology in ESL children consists mainly of longitudinal case studies (Gavruseva & Lardiere, 1996; Hakuta, 1978; Haznedar, 2001; Lakshmanan, 1993/1994, 1994). Taken together, these case studies reveal that ESL children make errors both of omission and commission with tense- bearing grammatical morphology such as past [-ed], third person singular [-s], and BE, and that mastery of this aspect of language varies immensely between individuals: some children supply certain tense morphemes over 80% of the time after just a few months exposure to English, like the Spanish L1 child, Marta, in Lakshmanan (1993/1994, 1994), while others such as Hakuta's Japanese L1 subject, Uguisu, hardly spoke spontaneously for several months, and even after she became more voluble in English, she still made errors with third person singular [-s] and past [-ed] over the 15 month study (Hakuta, 1978). There are also individual differences in terms of which tense morphemes are acquired earlier than others. For example, the Turkish L1 boy Haznedar studied, Erdem, was still omitting BE auxiliary after 17 months exposure to English, but had mastered the use of BE copula in less than one year's exposure (Haznedar, 2001). Uguisu on the other hand, showed no difference in her acquisition of BE copula and BE auxiliary (Hakuta, 1978). One generalization that seems to hold across these children, and the groups of children in Dulay and Burt's studies, is that ESL children take a long time to be accurate with third person

singular [-s] and past [-ed].

What is the role of the L1 in the L2 acquisition of grammatical morphemes? Grammatical morphemes are difficult to acquire regardless of L1, as children from diverse L1 backgrounds make errors with them in L2 English. Dulay and Burt (1973, 1974) found that the acquisition sequence of these morphemes, as inferred from relative levels of accuracy, was independent of L1 because it was similar for both the Spanish and Chinese L1 children. Also, Dulay and Burt (1973) found little evidence of predicted transfer of specific grammatical properties, such as morpheme order, from L1 Spanish into L2 English. Thus, very little L1 influence has been found in the acquisition of this aspect of English; however, there are other forms of L1 influence that this prior research did not consider: L1 phonology and L1 typological characteristics. Expressing certain grammatical morphemes in English requires the ability to pronounce word-final consonants, sometimes in clusters, such as [ts] in “hats”, or [kt] in [beikt] “baked”. Languages like Japanese do not have word final obstruents, singly or in clusters, and thus, phonological constraints imposed by a Japanese-speaking child’s L1 might interfere with his ability to produce obligatory morphology in English. In addition, if a child’s L1 is an inflectionally-rich language, like Spanish, Japanese or Arabic, this might influence his acquisition of L2 morphology in that he may be more attentive to bound morphemes in the input than a child whose L1 has sparse bound morphology, e.g. Cantonese, Mandarin or Vietnamese. The possible impact of these two L1 factors on the children’s production of grammatical morphology in L2 English is examined in this study.

Erroneous Assessment of Typically-Developing L2 Children as Language Impaired

Prior research on English SLI and English L2 suggests the possibility of overlap in expressive language characteristics between these two groups, and as mentioned above, unlike French and

Swedish, systematic comparisons of L2 and SLI language characteristics in English have not been carried out. The absence of research on ESL and SLI similarities notwithstanding, it is relevant to ask whether the presence of any similarities would have an impact in an assessment context. In this section, factors in the referral and assessment process that could lead to mistaken identity are examined, and reasons are given why a better understanding of typical ESL development and ESL-SLI overlap are relevant to preventing it from happening.

Referral in many cases is likely to be on the basis of observation of an ESL child's English abilities in the classroom by a teacher. If the teacher is not familiar with how quickly one can expect a child to acquire native-like proficiency in their L2, she may mistake protracted limited English proficiency for a language or learning disorder. While much research has shown that it takes English language learners 5-7 years to achieve at the same level as their native-speaker peers in academic language skills (see Cummins, 2000 for review), much less research has focused on establishing when oral English abilities reach native-speaker levels; however, available studies indicate that it could be anywhere from 2-5 years (Cummins, 1984, 2000; Hakuta, Goto Butler & Witt, 2000). Therefore, if L2 children's English proficiency is not native-like within a minimum expected timeframe, say 2 years, then typically-developing ESL children could be mistaken for language impaired. Setting realistic expectations for when ESL children achieve native-speaker proficiency could reduce the incidence of unnecessary referrals.

Unnecessary referrals could result, in turn, in erroneous assessment. For example, assessment of non-native speakers using diagnostic tests standardized with monolingual English-speakers has been criticized as invalid and possibly prejudicial to ESL children, but nevertheless, is still a prevalent practice. (Anderson, 1996; Klingner &

Artiles, 2003). More information about the extent of prejudicial bias present when English standardized tests are used to interpret the performance of non-native speakers might reduce the prevalence of this practice. A related factor in erroneous assessment is the use of translated English tests. When a speech-language pathologist can speak the L1 of an L2 child, she may choose to give an informally translated version of an English language test, with the good intention of trying to obtain a more full and accurate assessment of the child's language ability. However, using translated versions of standardized tests is not a good practice because target structures indicating level of development may be different in the other language, norm-referenced criteria for score interpretation is completely invalid, and even if tests are adapted linguistically to another language, they may not be adapted in terms of culturally-appropriate procedures (Anderson, 1996; Eng & O'Connor, 2000; Restrepo & Silverman, 2001). In sum, it is reasonable to believe that typically-developing L2 children could be erroneously referred and assessed as language disordered when their L2 abilities alone are considered.

The potential for erroneous assessment could be reduced by assessment of L2 children in their L1 using appropriate protocols, not translated tests. This is frequently recommended as the best practice, and research indicates it is reliable (Restrepo, 1998; Juarez, 1983; Eng & O'Connor, 2000). For example, Restrepo (1998) found that errors-per-turn-unit in spontaneous speech was a highly discriminating measure for SLI in the Spanish L1 of Spanish-English bilingual children. Even though testing in the L1 is a recommended procedure, it may not be possible in all cases. For children whose non-English language is widely spoken, like Spanish in the United States or French in Canada, availability of bilingual speech-language pathologists and testing materials is often no difficulty. For children whose L1 is a more minority language, L1 assessment by a professional who speaks

that language with testing tools designed for that language is often impossible. Also, tests in the L1 that are available may have been normed on a standard variety of L1, and the child may speak a different variety (Schiff-Meyers, 1992). Finally, the assumption that the L1 is the child's most proficient language may not be true for some children. Some L1 minority children are in the process of losing their L1 proficiency gradually as they make more use of English in their lives at home and school. This process happens at varying rates for individuals, and various components of linguistic competence can be differentially affected (Kohnert & Bates, 2002; Restrepo & Kruth, 2000; Wong-Fillmore, 1991). Thus, the phenomenon of L1 attrition might make an L2 child appear to have deficits in their L1 that are not due to language disorder (Schiff-Meyers, 1992).

To summarize, erroneous assessment of ESL children as language impaired could occur due to factors like unrealistic expectations of rate of English development and uncritical use of English standardized tests with ESL children. Consequently, examining the L1 of an L2 child suspected of language impairment, either through appropriate tests or parent report, is recommended to avoid problems like erroneous assessment (Restrepo, 1998; Gutiérrez-Clellen & Kreiter, 2003). However, there are situations where mainly a child's L2 abilities will form the basis of judgment for both referral and assessment. Given this reality, it is important for educators and speech-language pathologists to know about the language characteristics of typical ESL, in terms of how they may overlap with SLI, and how they may affect performance on diagnostic language tests in English.

Method

Participants

The participants in this study were 24 minority language children between the ages of 4;4 and 7;10 (mean = 5;7), who were

within their first year and a half of consistent exposure to English (mean = 9.5 months) either in a preschool or school setting in a large, English majority language city in Western Canada, Edmonton. Nineteen of the children were recently arrived immigrants, and 5 were born in Canada. The children who were born in Canada had been exposed nearly exclusively to the minority language at home and in their family's social circle before school entry, and thus, had not received any consistent exposure to English until that time. The families were recruited for the study through agencies that provide assistance to immigrants, and through government-sponsored English language training classes for adult immigrants. These 24 children are taking part in an on-going longitudinal study, but only the results from the first round of data collection are presented in this article. Table 1 gives the following information on each of the participants: their L1 background, their age, grade, non-verbal IQ score, months of exposure to English at the time of testing, the number of utterances in their spontaneous language sample, and their MLUs in morphemes. Regarding language use in the home, parents were asked to indicate where their home language use fit on a five point continuum from only the native language [1] to only English [5]. All of the families indicated either [1] or [2] on this scale, so all of the children in the study had little or no exposure to English in the home. Also according to parental report, all of the children had proficiency in their L1 at the first round of data collection, and had normal language development in their L1. Each child had a non-verbal IQ in the normal range, as determined by the Columbia Mental Maturity Scale, CMMS (Burgemeister, Hollander Blum & Lorge, 1972), which was administered along with the language tasks.

Children whose first language is not English are not rare in Edmonton, as the city has approximately 165,000 immigrants out of a total population of 968,000 (http://www.cic.gc.ca [Citizenship and

Immigration Canada, 2002]). In 2003, the two main school boards reported having about 4,800 children identified as "ESL", which means 4,800 children were within the first three years of English schooling in Edmonton, because the identification is no longer applied after that time. In spite of the size of the ESL population, the Edmonton Public School Board provides very little in the way of specialized programs for ESL children. There are no special ESL classes, and only a few schools have a "pull-out" system where numbers warrant, which means that ESL children receive a few hours a week of individualized instruction, although this is often provided by a teacher's aide who has no training in teaching English as a second language. The Edmonton Catholic School Board has more specialized programs and trained instructors for ESL children, but still the most common form of instruction is the pull-out system. Thus, generally-speaking, ESL children in Edmonton are simply mainstreamed in elementary school. There is a possibility that the results reported in this study might be different for ESL children attending schools with more support for their language learning needs.

Procedures

As mentioned above, the children are participating in an on-going study where data collection takes place every six months. The children are visited in their homes two to three times within the space of two weeks at each six-month interval and they participate in several tasks, only some of which will be reported here. The first round of visits to the homes included an interview with the parents, often with an interpreter present, part of which has questions about the child's and parents' language background as well as language use in the home, and relevant information from this interview is reported in the *Participants* section and in Table 1. The Columbia Mental Maturity Scale was administered on the first visit as well, and scores are also in Table 1. As noted above, the phonological influence of an

L1 may constrain an L2 learner's ability to pronounce some of the target grammatical morphemes investigated in this study because they consist of word final consonants. In order to control for L1 phonological influence, all children were administered a phonological probe from the TEGI (Rice and Wexler, 2001). The probe requires children to either name or repeat words with /s/, /t/, /z/, and /d/ in final position. Children can pass the probe if they can produce these sounds or make systematic and recognizable substitutions for them. All 24 children passed the phonological probe.

Spontaneous speech. The children were given a semi-structured interview within the context of a 45 minute free play session with an English-native-speaker research assistant that was video-taped for later transcription. The interview was designed to elicit some discussion of present habitual, past and future events by the child, and thus, provide identifiable discourse contexts for the use of the target grammatical morphemes marking tense (see Appendix A). The interview questions took approximately half or two thirds of the 45 minute session. The videotapes of the play sessions were transcribed according to the conventions of the CHAT system (MacWhinney, 2000; http://childes.psy.cmu.edu). Mean length of utterance in morphemes was determined for each of the children from the first 100 utterances of the transcripts, using the *mor* and *mlu* programs in CLAN (MacWhinney, 2000; http://childes.psy.cmu.edu). The transcripts were then coded for the use in obligatory context of the following target morphemes: (1) Tense group: TPS (third person singular –s), PASTREG (past tense –ed), PASTIRREG (irregular past tense forms like run-ran), BE (BE as an auxiliary or BE as the copula), DO (DO as an auxiliary verb); (2) Non-tense group: PROG (–ing for progressive aspect), PREP (prepositions 'in' and 'on'), PLU (plural –s), DET (articles 'the' and 'a'). The copula and auxiliary BE were combined to facilitate comparison with the TEGI probes. Obligatory context was determined either

structurally, within the sentence itself, or by expectations based on discourse context, or both. In brief, obligatory context for each morpheme was operationalized as follows: TPS = a verb in a present habitual context with a third person subject should have an [–s]; PASTREG = a regular verb denoting a past temporal context should have [-ed]; PASTIRREG = an irregular verb denoting a past temporal context should be in the irregular past form; BE = a context for the copula (predicate following), or a context for the auxiliary (main verb in progressive following) should have a BE form; DO = a negative or interrogative sentence with a simple main verb should have a DO form; PROG = a non-stative verb denoting progressive aspect, e.g. durative activity, should have [-ing]; PREP = a locative phrase describing the spatial locations of "on" or "in" for an object should have the appropriate preposition of location; PLU = a count noun referring to more than one exemplar should have an [-s]; DET = a noun in a context where bare nouns cannot be used should have an article determiner, e.g., a context that is not generic non-specific reference, and where possessive determiners would be infelicitous.

Failure to use a target morpheme in each obligatory context was coded as either an error of omission or commission. As mentioned above, omission errors are simply cases where no morpheme was used, for example an absent auxiliary verb BE or a bare noun with no article, as illustrated in the sample excerpts (1a) to (1c). In contrast, commission errors occur when an incorrect or misplaced form of a morpheme was used, and some examples are given in the excerpts (2a) to (2c). Ten percent of the corpus was independently transcribed and coded by a different research assistant and inter-rater agreement rates were calculated by comparing this assistant's versions with the originals and determining the percentage of discrepant words and codes overall. Agreement rates for words in the transcription were 91-98%, and for coding they were 91-93%. Disagreements were

discussed and a final version was arrived at through consensus, and if necessary, some adjustments were made to the transcription and coding for the rest of the corpus. All research assistants were either senior undergraduate Honors students or Master's level students in the Department of Linguistics at the University of Alberta.

(1) Errors of Omission

a. CNDX (age: 81 months; exposure to English: 5 months)
EXP: who's your best friend at school?
CHI: I don't have **Ø** best friend. [Ø should be "a", DET context]

b. RMLM (age: 51 months; exposure to English: 9 months)
EXP: what are you guys doing?
CHI: we **Ø** playing hide and seek. [Ø should be "are", BE context]

c. CNDX (age: 81 months; exposure to English: 5 months)
EXP: what did you do this morning before you went to school?
CHI: I open- **Ø** my eyes and take- **Ø** off my sleeping clothes. [Ø should be "ed", PASTREG context; Ø should be "took" in PASTIRREG context]

(2) Errors of Commission

a. DNNS (age: 54 months; exposure to English: 7 months)
EXP: what does Una like to do?
CHI: Una **is** want to say bad words with me [=! laughing]! [copula instead of 3rd person -s in TPS context]

b. FLPP (age: 68 months; exposure to English: 10 months)
EXP: tell me about your party.
CHI: lots of people **cameed**. [overegularization in PASTIRREG context]

c. LGKR (age: 79 months; exposure to English: 13 months)
EXP: do you like math?
CHI: there **'s are** not maths. [double form of BE in BE context]

Transcripts were analysed using the CLAN program *kwal* for the use of each morpheme in obligatory context as either correct, omission error or commission error. Each child was assigned a percent correct, percent omission, and percent commission score for each morpheme, calculated from the total number of contexts, so the sum of correct, omission and commission scores is 100%. If there were fewer than four contexts for the use of a target morpheme in a child's transcript, a score was not assigned for that morpheme on the grounds that fewer than four contexts would not yield reliable information about the child's ability with that morpheme. This occurred mainly for the regular past tense because the children used verbs that take the irregular past tense more often. Consequently, for the analysis of PASTREG, nine children did not contribute scores. For some morphemes there is a category overlap, for instance, "was" and "did" are both PASTIRREG and BE or DO, and "does" is both TPS and DO. All forms of BE and DO were placed as BE and DO, so no BE and DO (auxiliary) appear in the other categories. However, main verb DO is in TPS and PASTIRREG[1].

Finally, in addition to percent correct scores for the individual morphemes, composite scores for each child were calculated for the tense and non-tense morpheme groups as an average of the means of the morphemes in each group. The rationale for calculating composite scores is as follows: First, the overarching finding from the research of Rice and colleagues is that tense as a grammatical category is especially affected in children with SLI, and this grammatical category is realized across the set of tense morphemes, and not by any one of

these morphemes in particular. Second, some variation in scores amongst the individual morphemes would be expected and such variation may complicate the investigation of whether tense *as a grammatical category* poses more difficulties for learners than morphemes marking other grammatical categories (see Rice, Wexler & Hershberger, 1998; Rice & Wexler, 2001 for further elaboration on the subject of composite tense scores).

Probes/Elicited speech. In order to examine the children's use of tense morphemes in an elicitation task, the grammatical probes from the TEGI (Rice & Wexler, 2001) were used. The TEGI includes separate probes for third person singular (TPS), irregular and regular past tense, (PASTREG and PASTIRREG), and BE (copula and auxiliary) and DO auxiliary. The scores on these individual probes are percent correct, where responses from the child that are off-topic or do not attempt the target form are considered "unscorable" and are excluded from the denominator for the score. If all the child's responses are unscorable, no score is assigned for that probe. The TEGI also yields an Elicited Grammar Composite (EGC) score, which is an overall percent correct score calculated as an average from the individual probe scores. The probe scores on the TEGI are raw scores, and can be used independently from norm-referenced interpretations.

The TPS and PAST probes consist of asking the child questions regarding pictures in a book. For TPS, the child is shown pictures of people engaged in activities related to their professions, and the experimenter says to the child, e.g., "Here is a teacher. Tell me what a teacher does", with the expected response from the child being something like "She/A teacher teaches" or "She/A teacher writes on the board", etc. For the PAST probe, the child is presented with two pictures, one showing an activity in progress and the other showing the completed activity. The experimenter then says to the child, e.g., "Here the girl is skating. Now she is done. Tell me what she did", with

the expected response from the child being “She skated”. The BE/DO probe has a different format. This probe is designed to elicit both statement and interrogative uses of these morphemes, in third person singular and plural forms. In order to set up the referential context for eliciting these forms, a puppet and a set of toys is used and the child is invited to ask the puppet about one or more of the toys. For example, if the experimenter asks “I wonder if the kitty’s resting. You ask the puppet about the kitty”, the child is expected to say to the puppet “Is the kitty resting?”. If the experimenter asks, “I wonder if the bears like milk. You find out”, the child is expected to ask the puppet “Do the bears like milk?”.

For all of the probes, the research assistant wrote down answers while administering the probes, and the entire session was videotaped. Later, the same assistant would finalize their answers reviewing the videotape. As with the spontaneous data, all research assistants for the probe tasks were either senior undergraduate Honors students or Master’s level students in the Department of Linguistics at the University of Alberta. All research assistants viewed the training video that comes with the TEGI, and practiced administering the probes on monolingual English-speaking children before using them with the ESL children

Analyses and Predictions

The first research question asked in this study was whether the English of second language learners is similar to the English of monolingual children with SLI approximately the same age. To answer this question, the ESL children’s percent correct, omission and commission scores from the spontaneous and probe data were analysed to ascertain whether their use of grammatical morphology followed patterns commonly found in the speech of English-speaking children with SLI. The particular patterns examined were those found by Rice and colleagues: (1) Production of tense morphology is less

accurate than production of non-tense morphology; (2) Errors of omission with grammatical morphemes are more frequent than errors of commission, and (3) These patterns are the same for elicited and spontaneous production. Based on prior L2-SLI comparative research on French and Swedish, it was predicted that the ESL children's data would show the same patterns as those found for monolingual English SLI.

The second research question asked in this study was if there are ESL-SLI similarities, could these be a cause of real cases of mistaken identity in an assessment context? To answer this question, the results of the above analyses were used, together with analyses comparing individual ESL children's percent correct scores to the norm-referenced criterion scores and standardizing sample group means from the TEGI. The above analyses on grammatical morpheme use yielded information about the extent of similarities that could trigger mistaken referrals, and complicate informal assessment methods. The criterion score and group means analyses yielded information about the potential for mistaken identity through the use of formal assessment methods. Based on the note in the examiner's manual about possible bias in the TEGI for English language learners (Rice and Wexler, 2001, p.55-57), and the expected outcome of the analyses aimed at the first research question, it was predicted that most, if not all, of the ESL children's performance on the TEGI would fall within the range of the clinical rather than the typically-developing population.

Results

Patterns in Production of Grammatical Morphology

The percent correct, omission and commission scores for the tense and non-tense morphemes from the spontaneous data, and the percent correct scores from the TEGI probes are presented in Table 2, along with the composite scores. An Analysis of Covariance was

performed with the composite scores (un-transformed) as a within-subjects factor (3 levels = tense-spontaneous (TC), non-tense-spontaneous (NTC) and tense-probe (EGC)) and months of exposure to English as a covariate in order to see whether the children were more accurate with non-tense than tense morphology, and whether the variation in exposure in English had an effect on the scores. There was a significant main effect for composite scores ($F(2,2) = 8.567$, $p = .005$, $\eta^2 = .197$), but no significant interaction between morpheme scores and exposure to English ($F(2,66) = 0.744$, $p = .4791$, $\eta^2 = .017$). Post-hoc paired two-tailed t-test comparisons revealed that the non-tense composite scores were higher than the spontaneous tense composite scores (NTC: 70.58% vs. TC: 48.81%, $t(23) = -7.624$, $p < .0001$) as well as being higher than the probe tense composite scores (NTC: 70.58% vs. EGC: 31.39%, $t(23) = 9.537$, $p < .0001$). The spontaneous tense composite scores were higher than the probe tense composite scores (TC: 48.81% vs. EGC: 31.39%, $t(23) = 5.330$, $p < .0001$). Looking at comparisons of individual scores, 23/24 children showed the TC < NTC score pattern, 23/24 showed the EGC < NTC pattern, and 20/22 children showed the TC > EGC pattern (two children had equivalent scores for TC and EGC). Thus, the group patterns obtained in over 90% of individual cases. Looking at the means for the individual morphemes in Table 2, the TPS, PASTREG and PASTIRREG means from the spontaneous data and all the means from the probe data were lower than the non-tense morpheme means. In contrast, BE and DO from the spontaneous data were similar to the non-tense morpheme means.

To further examine whether the spontaneous and probe scores were similar, paired two –tailed t-tests showed no difference between the children's scores for TPS, PASTREG, and BE for the spontaneous and probe data respectively (TPS: 18.81% vs. 16.57%, $t(21) = 1.032$, $p = .3138$; PASTREG: 22.76% vs. 22.60%, $t(12) = -0.660$, $p = .5217$; BE:

70.21 vs. 60.16%, $t(22) = -1.874$, $p = .0743$), but PASTIRREG and DO were significantly lower in the elicitation task (PASTIRREG: 36.48% vs. 12.73%, $t(19) = 4.985$, $p < .0001$; DO: 65.25% vs. 29.07%, $t(13) = 3.818$, $p = .0021$). While it would be unrealistic to expect each individual child's score to be identical for the spontaneous and probe tasks, it is possible that individual scores for PASTIRREG and DO would be lower for the probe task, following the group pattern. Looking at the individual scores, 17/19 children had lower scores for PASTIRREG on the probe than in their spontaneous speech (4 of the children did not contribute data to either the probe or the spontaneous task for this morpheme; one child's scores were equivalent between the spontaneous task and probe), and 11/13 children had lower scores on the DO probe (10 of the children did not contribute data to either the probe or the spontaneous task for this morpheme; one child's scores were equivalent between the spontaneous and probe task). Thus, individual children's performance parallels the group performance for differences between the probe and spontaneous language tasks on PASTIRREG and DO.

In order to test the prediction that omission errors should be more frequent than commission errors, the mean percent omission and commission errors for TC and NTC were compared using paired one-tailed t-tests. These percentages were calculated as an average across all morphemes in the tense and non-tense categories. For tense morphemes, there were a significantly greater proportion of errors of omission than commission (TC-OM: 67.75% vs. TC-COM: 12.48%, $t(23) = -7.864$, $p < .0001$), and the same pattern was found for the non-tense morphemes (NTC-OM: 24.29% vs. NTC-COM: 5.13%, $t(23) = -7.369$, $p < .0001$). Looking at comparisons of individual scores, 24/24 children showed the omission > commission pattern for non-tense morphemes, and 22/24 showed omission > commission for tense. Thus, as with the percent correct scores, the group patterns for error

type are duplicated in over 90% of the individual cases. Looking at the individual morphemes in the tense group, the mean percent omission score is greater than the commission score for all morphemes except DO. All individual morphemes in the non-tense group show higher proportions of omission than commission errors.

Relationships Between Morphological and Other Variables

A series of Pearson correlations were performed to examine how the grammatical morpheme variables related to each other and to other variables, and a correlation matrix is in Table 3. Results are reported for comparisons significant at $p < .05$, and for comparisons significant with a Bonferroni correction applied, at $p < .002$. Age, months of exposure to English (MOE), non-verbal IQ (CMMS) and MLU were not correlated with TC, NTC or EGC; however, MLU was significantly correlated with CMMS at $p < .05$. TC and NTC, and NTC and EGC were significantly correlated at $p < .05$, but only TC and EGC were significantly correlated at $p < .002$. Therefore, as expected from the ANCOVA results, amount of exposure to English is not related to the children's morphological abilities, nor is it related to their overall level of language development as measured by MLU. It is also noteworthy that the children's overall level of language development, in turn, is not related to their accuracy in producing grammatical morphology. Finally, this analysis indicates that the variation in the children's ages and non-verbal IQ is not exerting a significant effect on the variation in their performance with grammatical morphology. The co-relations between all the morphological variables, TC, NTC and EGC, are pertinent to the predictions concerning tense being specially affected, and performance being similar on spontaneous and probe tasks.

Recall that it was hypothesized that L1 typology might exert an effect on children's morphological production in their L2. In order to determine if L1 typology was influencing the children's performance,

the children were divided into two groups based on their L1s: richly-inflected L1 (RI) and non-richly-inflected L1 (NRI). Languages that were classified as RI were those that have richer inflectional systems than English, and NRI consisted of those languages whose inflectional systems are similar or less rich than English. Effectively, the NRI group consisted of the children whose L1 is Mandarin or Cantonese. Mann Whitney U comparisons were performed between the means for TC, NTC and EGC for the two groups, and results are in Table 4. Nonparametric tests were chosen for this comparison because the sample sizes are uneven and there are just 8 children in the NRI group. While there was no difference based on L1 typology for the tense composite scores, either spontaneous or probe, the mean for the non-tense composite is significantly higher for the richly-inflected L1 group.

ESL Children's Scores Compared to Criterion Scores and Means from the TEGI

In Table 5, the ESL children's individual EGC scores are presented, along with comparison scores from the validation tests conducted for the TEGI. The TEGI was validated through testing on 393 typically-developing children and 444 children known to have SLI, from the ages of 4-9. The criterion scores represent the lowest cut off point between the distribution of the typically-developing children and the children with SLI, according to age. The mean EGC scores are based on the two validation groups' scores, also divided by age. Only 3 of the ESL children reached the criterion cut off for the non-clinical population for their age. Only one of the ESL children's EGC was equal to or higher than the typically-developing mean for his age. Eighteen of the 24 ESL children's EGC scores were lower than the SLI group mean. In sum, the majority of scores for the ESL children fell within the SLI range of performance, both in terms of criterion cut off and group mean scores, even though there is no reason to suspect

that any of these children has a language learning disorder. Because the criterion scores increase with age, one could hypothesize that the younger ESL children with longer exposure to English might be more likely to reach the criterion scores than the other children. The data in Table 5 do not support this hypothesis. The participants DNLN, LLKC, RNL, SBST and THRJ all have ages lower than the mean age of the group (66 months), and exposure to English higher than the mean for the group (9.5 months). Only DNLN's EGC met the criterion score for his age, and the other children's EGC scores were lower than the SLI group mean scores for their ages.

Discussion

Difficulties with production of grammatical morphology, tense morphology in particular, is a noted hallmark of English-speaking children with SLI and has also been reported in the L2 learning of English. Thus, errors in the use of grammatical morphology are a likely area of overlap in expressive language between these two populations, and such overlaps make differential diagnosis between the clinical and non-clinical population among L2 learners problematic. This study consisted of an examination of grammatical morpheme production in ESL children designed to address the following questions: (1) Is the English of second language learners similar to the English of monolingual children with SLI approximately the same age? (2) If there are similarities, could these be a cause of real cases of mistaken identity in an assessment context?

ESL Children's Use of Grammatical Morphology

The children's use of grammatical morphology was examined to see if the following three predicted patterns were apparent. These patterns have been found in the speech of English-speaking children with SLI.

Tense < non-tense. In support of this prediction, the ESL children's composite tense means from both the spontaneous and

probe task were significantly lower than the composite mean from the non-tense morphemes, and this pattern also held in over 90% of the individual children's scores, so that morphemes marking tense are especially vulnerable to error. These morphemes are homophonous suffixes, and yet, third person singular [-s] is substantially more difficult for the children, as the accuracy scores for this morpheme were 18.81% in spontaneous speech and 16.57% in the probe while the accuracy score for plural [-s] was 71.74% in spontaneous speech. However, there were some equivocal findings with respect to this prediction. The effect size from the ANCOVA comparing the tense and non-tense scores was not large, eta-squared = 0.197. Also, both spontaneous and probe tense scores had similar standard deviations to, and were correlated with, the non-tense scores. Thus, some shared underlying mechanism could be operating for both tense and non-tense morphology, and abilities with tense morphology may not be as specially affected in typically-developing ESL children as has been reported for monolingual children with SLI. It was also found that the spontaneous morpheme scores for BE and DO were within the range of the non-tense morphemes, although in the SLI data these predictions were based on, higher scores for BE and DO than the other tense morphemes were also found.

Omission > commission errors. This prediction was upheld in the data. The ESL children made significantly more omission than commission errors for both tense and non-tense morphemes, and over 90% of the individual children's scores show this pattern. Also, omission errors were greater than commission errors for all the morphemes except DO. Commission errors with DO mainly consisted of "do" in a context requiring "does". For example, in DO contexts requiring the "do" form, when children supplied a morpheme at all, they supplied "do" 85.58% of the time; whereas, in DO contexts requiring the "does" form, when children supplied a morpheme, they

supplied “does” just 25% of the time. Therefore, if these DO errors of commission were re-considered as instances of omission of third person singular, then the omission > commission patterns would hold for all the morphemes.

Spontaneous and elicitation data are similar. The results showed weak support for this prediction. The ESL children’s scores were the same for both tasks for third person singular [-s], past [-ed] and BE, and the composite scores for the spontaneous and probe tasks were significantly correlated. However, the children’s scores for irregular past tense verbs and DO were lower on the TEGI than in spontaneous speech. Consequently, the composite score for the probes was lower than for spontaneous speech. The difference between the two tasks in scores for DO could have arisen because the BE/DO probe forced the children to use this form in interrogatives, whereas, most of the DO forms in the spontaneous speech were negatives, i.e., “don’t”. In addition, some of the children appear to have found the DO probe questions confusing because 13/24 children had more than half the DO items in the BE/DO probe as “unscorable”; whereas, only 6/24 had more than half the BE items as “unscorable”. Because unscorables are not counted in the percent correct, the children’s percent correct scores for this probe are based on substantially fewer items responded to than the other probes. Thus, the spontaneous/probe difference for this morpheme suggests there is some extra difficulty involved in forming interrogative sentences with DO for ESL children. Regarding the lower score for irregular past tense forms on the probe, this is most likely because in spontaneous speech, the child can choose what verb he wants to use, and the children tended to use a small set of high frequency irregular past forms like “went”. It seems that the children simply did not know the correct past irregular forms for some of the verbs used in the TEGI. This discrepancy between the probe and spontaneous tasks for irregular forms indicates that an

elicited context can provide more thorough information about an ESL child's lexical knowledge. Viewed differently, the discrepancy between accuracy with irregular past and regular past highlights a particular way in which a test can be biased against English language learners – knowing irregular forms requires more memorization, and thus more experience and practice with a language.

In sum, the predictions about ESL children's patterns of use with grammatical morphology were mainly upheld, and are in line with the prior research on the L2 acquisition of grammatical morphology in English. Therefore, typically-developing ESL children's error patterns with grammatical morphology parallel what has been reported for monolingual English-speaking children with SLI at similar ages, and these parallels emerge not only in spontaneous speech but also in the context of an elicitation task. While it may be the case that tense is not as specially affected in unimpaired L2 as it is in monolingual SLI, this is a difference of degree rather than kind. Finally, the patterns based on the grouped data were also displayed in the individual children's scores most of the time.

Individual Differences Among the ESL Children

The ESL children in this study seemed to be learning English at variable individual rates. This is evident from the sizable standard deviations and ranges in the accuracy scores with grammatical morphology. In spontaneous speech, the range in individual accuracy with tense morphemes was 28.25% to 82.08%, and with non-tense morphemes it was 47.07% to 93.56%. Moreover, these individual differences were not the outcome of the range in exposure to English (2-18 months) in this sample, nor were they the result of the range in ages of the children (50-94 months), as neither variable correlated significantly with the composite scores for grammatical morphology use. Such heterogeneous performance in the early stages of learning English has also been found by other researchers. The ESL children in

the longitudinal case studies cited above showed a great degree of variation in their rate of morphological acquisition. In addition, researchers looking at other aspects of early second language development in preschool to first grade, also report substantial individual differences between children, even those who began and continued their English learning in the same class (Strong, 1983; Tabors & Snow, 1994; Wong Fillmore, 1979, 1983).

The extent of individual differences in rate of learning English make the similarities between typical L2 development and language impairment even more problematic from the standpoint of trying to differentially diagnose the clinical population among L2 learners. For example, with such a high degree of individual variation in the typically-developing population, it would be difficult to distinguish between a typically-developing ESL child and an ESL child with language impairement, based merely on observations of oral language characteristics in the second language. While ESL children will eventually achieve native-speaker levels of accuracy with grammatical morphology, it is unknown how long it takes, and large individual differences in rates of development may persist past the early stages.

Several factors were examined to see whether they were related to the children's rates of development of English, as measured by accuracy scores with grammatical morphemes and mean length of utterance, and thus, could perhaps explain some of the individual differences. As mentioned previously, months of exposure did not correlate significantly with the morpheme scores or with MLU, but it appears counterintuitive for amount of exposure to a language not to have an impact on development. One reason for the absence of correlation could be that the range of months of exposure was not wide enough, or that amount of experience with the L2 only begins to correlate with accuracy after a certain threshold, perhaps higher than

18 months. Another reason for the absence of a correlation might be that exposure as measured in months in a classroom may be too simplistic to account for the quality of input and actual practice with the language. Wong Fillmore (1979, 1983) argues that individual cognitive-style and social-personality attributes contribute to determining how effective exposure to English can be, and in turn, how quickly ESL children achieve fluency in the language. The ESL children in this study ranged in age from 50-94 months, and it could be hypothesized that the younger children should acquire English faster; however no relationship was found between age and accuracy scores or MLU. Finally, non-verbal IQ was moderately related to MLU, but not to morphological accuracy scores. Inherent cognitive skill in the form of language aptitude has been found to be related to rate of second language development in children (Ranta, 2002), but language aptitude is a more specific set of skills than what is measured in non-verbal IQ, and this may explain why CMMS did not correlate with all the language variables. Finally, the role of the ESL children's L1 was examined as an explanatory factor for individual differences. It was hypothesized that the children whose L1 was not a richly-inflected language would acquire grammatical morphology more slowly because this aspect of English may be less salient to them. This hypothesis was borne out in the case of the non-tense morphemes, but not for tense morphemes. However, the absolute score for tense use in spontaneous speech was lower for the children with non-richly-inflected L1s and it is possible that with larger numbers in the groups, the hypothesis would be borne out for tense morphemes as well. Interestingly, no differences emerged in the absolute scores for the TEGI.

It is important to point out that even though individual differences in rates of English development varied among the children, the overall errors patterns with grammatical morphemes did

not. As mentioned above, the group patterns of tense being less accurate than non-tense and omission errors being more frequent than commission errors were also found at the individual level for over 90% of the children. In other words, these error patterns with grammatical morphology are consistent across children even though their individual rates of development varied. Thus, the patterns hold regardless of English language proficiency levels, and they hold for learners who are relatively quick in English development and those who are relatively slow.

Potential for Erroneous Assessment of Typically-Developing ESL Children as Language Impaired

The second research question asked in this study was whether any existing similarities between ESL and SLI could result in the misdiagnosis of ESL children as language impaired. In the introduction, factors in the referral and assessment process that might lead to such an outcome were discussed, and they are reviewed here in light of these findings.

With respect to the referral process, the overlap in linguistic characteristics between ESL and SLI together with the large individual differences in rate of development could make ESL children appear to be language impaired, and thus be a cause of unnecessary referrals. Regarding assessment, if informal techniques are used like error counts in language sampling in the L2, this could also lead to misdiagnosis because the kinds of errors may be similar for grammatical morphology, and very possibly for other aspects of language, in samples from typically-developing L2 children and monolingual children with SLI. It is also not certain whether an ESL child with SLI should be expected to simply make more errors than unaffected ESL children, given the variation in the typically-developing population. For example, Restrepo & Kruth (2000) examined errors in spontaneous speech in the English of two ESL

children, one with and one without SLI and found that the child with SLI had more errors per T-unit than the typically-developing child; however, the typically-developing child was chosen for their study because she was a highly successful English language learner. The data in this study suggest that a non-impaired but less successful English language learner might not have looked as different from the ESL child with SLI on this measure, although further research comparing more ESL children with and without SLI is necessary to know for certain.

Turning to formal assessment methods, the ESL children's performance on the TEGI as compared to the criterion scores and monolingual group means suggests that the bias potential noted in the examiner's manual of the TEGI is actually quite strong. As predicted, the vast majority of the ESL children performed within the clinical range on this test, even though they are not language-impaired. It is also important to point out that the differences in amount of exposure to English and the children's ages did not significantly affect their performance on this task, as these variables were not correlated with the probe composite score. Note also that children whose L1 was a richly-inflected language did not score higher on the TEGI than the children whose L1 was not richly inflected. Because the TEGI is focused on exactly a domain of language where there is an overlap between L2 and SLI language characteristics, the danger of mistaken identity if this test is used with non-native speakers in the early stage of L2 development appears to be very high, and these findings fully support the cautions given by the test developers that use of the TEGI with non-native speakers is not recommended.

Clinical Implications

The results of this study have two kinds of clinical implications: They provide information to set appropriate expectations of typical English as a second language development, and they provide

information relevant to assessment procedures. In this section, the term "early ESL children" will be used to denote children who have been learning English for less than two years, like the children in this study. This term does not refer to children's individual levels of proficiency in English, only to their exposure to English.

Early ESL children can be expected to make errors with grammatical morphology, and these errors can extend into their second year of experience speaking the language. Difficulties in producing grammatical morphology will be evident regardless of L1 background, although there is some indication that difficulties may be more pronounced in children whose L1 is not a richly inflected language, i.e., a language like Mandarin or Cantonese. Difficulties in producing grammatical morphology will be more pronounced for morphemes that mark the grammatical category tense, like auxiliary verb and verb inflections with the exception of [-ing], and when children make errors they usually omit them more often than substitute the wrong morpheme. ESL children will alternate between correct use and omission of a morpheme in their speech until they gradually achieve native-speaker accuracy levels with them. These characteristics describe typical English language learning, but because they largely overlap with the characteristics of monolingual impaired language, it becomes difficult to determine whether a early ESL child's errorful language is due to the process of second language learning, or due to impaired language learning. Therefore, it is advisable to be cautious when considering the presence of errors with grammatical morphology as a sign of language impairment in early ESL children.

In addition, there is an immense amount of individual variation in how quickly early ESL children become accurate in their use of tense morphemes, and a broad measure like months of exposure to English does not predict how quickly they acquire these morphemes. It would be wise not to set firm expectations for English language

attainment with grammatical morphology in early ESL, and to be very cautious setting expectations when one's experience with ESL children is based on a small number. For example, what if, by chance, one's experiences have been with children like FLPP in this study? This child's development of English proceeded so rapidly that his proficiency with tense morphology reached the level of an age-matched, typically-developing native-speaker after just 10 months of exposure. In contrast, what if one's experiences have been with children like BRND? This child has the same Spanish L1 as FLPP, and is just two months older, but his development of English in a 10 month period was much slower since his MLU was half as long as FLPP's, and his proficiency with tense was lower than the mean for age-matched monolingual children with SLI. Again, there is no reason to suspect that BRND is not a typically-developing child. In sum, because individual differences in rate of development are so pronounced in early ESL, expectations based on experience with small numbers of these children could be set too high or too low.

Setting appropriate expectations based on understanding typical early ESL development is vital to reducing unnecessary referrals for assessment. However, some early ESL children will need to undergo assessment. The findings of this study reinforce key points from the introduction regarding assessment of L2 children. First, the use of tests standardized on monolingual English native speakers with early ESL children is not a good practice, and could easily result in cases of misdiagnosis. While the findings in this study with the TEGI were particularly pernicious in this regard, there is no reason to believe that early ESL children would fare much better on other English standardized tests. Because of the potential pitfalls of testing ESL children in their L2, the findings of this study reinforce the recommendation that examining the L1 of ESL children, through appropriate tests or parent report, can be an effective method for

determining if an ESL child has SLI.

However, as discussed in the introduction, for a variety of reasons, educators and speech- language pathologists may not be able to assess an ESL child through her L1, and thus, that child's L2 abilities would form the basis for assessment. Since the use of standardized tests is ruled out, what might appropriate assessment measures be? If using interpretations of a child's language abilities based on raw scores from tests, or error counts from a language sample, there a couple of things to be aware of: First, it is important not to rely too much on raw scores from tests, or error counts in a sample, that focus primarily on use of grammatical morphology or any other aspect of language that typical L2 children frequently make errors with. Second, it may be more informative to compare language measures of an ESL child suspected to have SLI with the English of his ESL peers, rather than to the English of monolingual peers, either with or without SLI. Comparative information could come from the group and individual data in a study like this (while the sample size is not large, it might provide some frame of reference for comparison), or it could also be obtained from a consultant with extensive experience with ESL children, for example, a kindergarten teacher.

In conclusion, the overlap between ESL and SLI in grammatical morphology is probably not the only area of overlap in language characteristics between these two populations. An important focus for future research would be to compare the English of ESL children with and without SLI in order to detect errors that characterize the affected children only. Such findings would greatly facilitate the process of assessment with this population of children.

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Footnotes

1. Many of children's omissions of TPS in spontaneous speech were with main verb DO; however, there are no DO verbs in the TPS probe, and the children's percent correct scores for the spontaneous and probe data were not significantly different for TPS. Thus, the "overrepresentation" of errors with DO in the spontaneous speech does not skew their overall performance with TPS.

Table 1

Participants' First Languages, Ages, Level of School or Preschool, Non-Verbal IQ (CMMS), Months of Exposure to English at Time of Testing, Number of Utterances in Spontaneous Language Sample, and Mean Length of Utterance in Morphemes

	Child	First Language	MOE	Age	Grade	CMMS	Utterances	MLUm
1	GSYN	Korean	2	62	K	113	535	3.980
2	MRSS	Mandarin	4	60	K	110	399	3.474
3	RNDL	Spanish	5	94	1	95	294	3.043
4	CHRSn	Romania	5	74	1	113	509	5.220
5	SMNS	Spanish	6	66	K	104	500	3.282
6	TNYN	Mandarin	7	77	1	131	732	4.333
7		Mandarin/Cantonese	7		pre-K	124	463	4.881
8	DNNSe	Arabic	8	54	pre-K	97	762	2.217
9	TRRK CNDX	Mandarin	8	50 81	K 2	123	554	3.930
10	DVDC	Spanish	8	75	K	106	522	4.288
11		Japanese	9		pre-K	133	605	4.934
12	RMLM DNNC	Mandarin	9	51 64	K K	128	829	3.248
13	YSSF	Arabic	9	59	K	105	195	4.146
14	BNFS	Dari	10	73	K	101	871	3.497
15	BRND	Spanish	10	66	K	105	568	2.853
16	FLPP	Spanish	10	68	K	118	754	4.704

17	THRJ	Farsi	11	50	K	111	430	2.987
18		Arabic	11		pre-	94	495	3.224
	LLKC			58	K			
19	SHHN	Farsi	12	78	1	115	557	3.861
20		Ukrainia	13		1	108	597	5.414
	LGKR	n		79				
21		Cantones	14		K	113	558	3.233
	DNLN	e		62				
22	SBST	Spanish	15	61	K	97	322	4.334
23		Cantones	16		pre-	96	290	2.681
	RNLL	e		56	K			
24	JNNH	Mandarin	18	71	1	103	260	3.059
			9.5	66.2		110.1		3.784
	Mean			1		3		
			3.9	11.1		11.47		0.853
	SD			4				
								2.217
			2-	50-		94-	195- 871	-
	Range		18	94		133		5.414

Note. CMMS = Columbia Mental Maturity Scales.

Table 2

Mean Percent Correct, Error of Omission and Error of Commission for Tense and Non- Tense Morphemes from Spontaneous Speech and Probes

	%Correct Spon	%Omission Spon	% Commission Spon	%Correct Probe
		Tense		
TPS	18.81 (23.45)	64.10 (14.38)	17.09(4.33)	16.57(25.21)
PASTREG	22.76 (22.73)	67.62 (24.59)	9.62(13.68)	22.60 (31.81)
PASTIRRE	36.48 (19.81)	49.98 (22.51)	13.54(12.58)	12.73(13.11)
G				
BE	70.21 (13.97)	22.18 (12.74)	7.60(5.21)	60.16(23.04)
DO	65.25 (25.14)	15.40 (24.07)	19.35(18.56)	29.07(36.47)
Mean	48.81 (13.70)TC	38.71 (13.33)	12.48(7.03)	31.39(21.00) EGC[a]
		Non- tense		
PROG	73.79 (28.20)	26.21 (28.20)	0.00	
PREP	72.01 (16.08)	16.98 (11.97)	11.01(10.58)	
PLUR	71.74 (17.33)	25.46 (15.22)	2.80 (4.02)	
DET	65.52 (22.38)	28.06 (19.37)	6.42(7.59)	

Mean	70.58 (15.42) NTC	24.29 (13.75)	5.13(3.32)

Note. Standard deviations are in parentheses. Third person singular [-s] (TPS), regular past tense [-ed](PASTREG), irregular past tense (PASTIRREG), auxiliary and copulas BE (BE), do- support DO (DO), tense composite score (TC), progressive [-ing] (PROG), prepositions in/on (PREP), plural [-s] (PLUR), determiners the/a (DET), the non- tense composite score (NTC), and the Elicited Grammar Composite (EGC)

[a]EGC is the mean of TPS, PAST(total score not divided into PASTREG and PASTIRREG), BE and DO

Table 3

Correlations Between Non-verbal IQ (CMMS), Tense Composite Score (TC), Non-tense Composite Score (NTC), Elicited Grammar Composite (EGC), Months of Exposure to English (MOE), Age (AGE), Mean Length of Utterance in Morphemes (MLU)

	CMMS	TC	NTC	EGC	MOE	AGE	MLU
CMMS	—	-.185	-.288	.187	-.268	-.023	.501*
TC		—	.544*	.647**	.236	-.072	.217
NTC			—	.422*	.002	.123	.341
EGC				—	.290	-.179	.280
MOE					—	-.121	-.176
AGE						—	.200
MLU							—

Note. Where *, $p < .05$; where **, $p < .002$ (Bonferroni correction applied to alpha level of .05)

Table 4

Means Comparisons for Tense Composite (TC), Non-tense Composite (NTC) and Elicited Grammar Composite (EGC) Between Children with Richly-Inflected L1s (RI) and Non-Richly-Inflected L1s (NRI)

	N	TC	NTC	EGC
NRI	8	41.90 (7.51)	61.19 (11.89)	33.95 (18.63)
RI	16	52.27 (14.93)	75.28 (15.10)	30.11 (22.57)
Mann Whitney U		$z = -1.531$, $p = .1258$	$z = -2.266$*, $p = .0235$	$z = -0.337$, $p = .7363$

NB. Standard deviations are in parentheses.

Table 5

Children's Elicited Grammatical Composite scores (EGC) for TEGI Compared with the Criterion and Mean EGC Scores for Monolingual Age Peers with and without SLI.

	Child	EGC	Criterion Score	TD Mean	SLI Mean
1	GSYN	27	66	90	41
2	MRSS	21	66	90	41
3	RNDL	7	93	(94)[a]	(55)[a]
4	CHRS	28	77	94	53
5	SMNS	26	71	92	47
6	TNYN	25	77	94	53
7	DNNS	45	59	89	41
8	TRRK	18	54	83	36
9	CNDX	19	81	94	55
10	DVDC	10	77	94	53
11	RMLM	26	54	83	36
12	DNNC	27	66	90	41
13	YSSF	63	59	90	41
14	BNFS	15	77	94	53
15	BRND	0	66	92	47
16	FLPP	94	71	92	47
17	THRJ	27	54	83	36
18	LLKC	38	59	89	41
19	SHHN	40	81	94	55
20	LGKR	27	81	94	55
21	DNLN	67	66	90	41
22	SBST	36	66	90	41
23	RNLL	15	59	89	41
24	JNNH	52	71	92	47

Note. ECG = ESL children's individual elicited grammar composite from the TEGI; Criterion score = cut off EGC score between the typically-developing and impaired population for ESL child's age; TD score = mean ECG score for typically-developing monolingual children same age as ESL child; SLI score = mean EGC for monolingual children with SLI same age as ESL child.

[a]Means not available for 94 months, so means for 73 months are given.

Appendix

Interview Questions for Spontaneous Speech Sample

1. How old are you? When is your birthday?
2. Do you go to school? (What grade are you in? Who is your teacher?)
3. What do you like about your new school? What don't you like about your new school?
4. What subject do you like best in school? Why?
5. Tell me about the other kids in your class.
6. What country do you come from? What is different about your school/life in your country and your school/life here?
7. What is your favorite food? Can you tell me how to make it? (if no: What food do you know how to make?)
8. Do you have friends and bothers and sisters? Tell me about them. (names, ages, what games they like to play, etc)
9. What would you like to be when you grow up? Why? Tell me what you're going to do when you're a _____.
10. What games and toys do you like the best? Why? Tell me how to play _____.
11. What was the last movie/video/TV program that you saw? Tell me what happened.
12. If you could ask your fairy Godmother for three wishes, what would they be? Pretend I am your fairy Godmother and ask me for them. Why do you want those things?
13. What did you do on the weekend/ yesterday after school?

14. What are you going to do tonight? What are you going to do tomorrow after school?

15. What season of the year do you like the best? Why?

16. What did you do at home this morning before going to school/ before I came here to visit?

17. Do you know what Halloween (or closest holiday) is? What are you going to be/were you for Halloween? What are you going to/did you do?