

Research Article

English Verb Accuracy of Bilingual Cantonese–English Preschoolers

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Purpose: Knowledge of verb development in typically developing bilingual preschoolers may inform clinicians about verb accuracy rates during the 1st 2 years of English instruction. This study aimed to investigate tensed verb accuracy in 2 assessment contexts in 4- and 5-year-old Cantonese–English bilingual preschoolers.

Method: The sample included 47 Cantonese–English bilinguals enrolled in English preschools. Half of the children were in their 1st 4 months of English language exposure, and half had completed 1 year and 4 months of exposure to English. Data were obtained from the Test of Early Grammatical Impairment (Rice & Wexler, 2001) and from a narrative generated in English.

Results: By the 2nd year of formal exposure to English, children in the present study approximated 33% accuracy of tensed verbs in a formal testing context versus 61% in a narrative context. The use of the English verb BE approximated mastery. Predictors of English third-person singular verb accuracy were task, grade, English expressive vocabulary, and lemma frequency.

Conclusions: Verb tense accuracy was low across both groups, but a precocious mastery of BE was observed. The results of the present study suggest that speech-language pathologists may consider, in addition to an elicitation task, evaluating the use of verbs during narratives in bilingual Cantonese–English children.

The development of verbs has been widely studied for decades in English monolingual children (e.g., Brown, 1973; Rice, Wexler, & Cleave, 1995). Although research has reached a relative consensus on the order of acquisition of different verb forms and the developmental milestones for English monolingual children, there is still much theoretical debate on how verbs are acquired (see Ambridge & Lieven, 2011). In the last 20 years, the literature has reported several factors that might have an affect on the development of verb forms of monolingual children as they move toward correct grammatical use (i.e., verb accuracy), including internal factors, such as verbal short-term memory (e.g., Paradis, Tulpar, & Arppe, 2016; Verhagen & Leseman, 2016) and working memory (e.g., Verhagen & Leseman, 2016), and external factors, such as environmental variables related to the quality and quantity of input (e.g., Paradis et al., 2016). Several studies have revealed a relationship between grammar acquisition (including tense morphology) and vocabulary size in English

(Bates & Goodman, 1997; Bybee, 1995; Marchman & Bates, 1994; Marchman, Saccuman, & Wulfeck, 2004), as well as in other languages, including Hebrew (Maital, Dromi, Sagi, & Bornstein, 2000), Italian (Caselli, Casadio, & Bates, 1999), and Finnish (Kidd & Kirjavainen, 2011). In particular, Marchman and Bates (1994), as well as Kidd and Kirjavainen (2011), indicated an effect of vocabulary size on finite tense morphology. In addition to vocabulary size, word (or lemma) frequency is a strongly supported factor that influences tense development in English monolingual children (e.g., Marchman, Wulfeck, & Weismer, 1999; Oetting & Horohov, 1997). The current study was designed to investigate English verb accuracy in bilingual Cantonese–English preschoolers and, specifically, the predictors of English verb accuracy, such as English language experience, vocabulary size, and lemma frequency. Given the increasing number of bilingual caseloads reported by speech-language pathologists (SLPs) in Western societies (Jordaan, 2008), it is important to determine whether these factors (i.e., language experience, vocabulary size, and lemma frequency) may account for verb accuracy in bilingual children. An exploration of these factors may provide relevant information for language assessment of bilingual children, in particular for Cantonese–English preschoolers. In fact, although the body of literature of bilingual acquisition is growing, bilingual evaluation remains a challenge for clinicians, especially for those who do not share both languages

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Editor: Shelley Gray

Associate Editor: Kerry Ebert

Received June 28, 2016

Revision received October 4, 2016

Accepted March 31, 2017

https://doi.org/10.1044/2017_LSHSS-16-0054

Disclosure: The authors have declared that no competing interests existed at the time of publication.

with their young clients (Paradis, Schneider, & Duncan, 2013).

The first purpose of the present study was to examine the grammatical use of verbs in English by Cantonese–English bilingual preschoolers attending English-speaking schools in a societal context in which English is the dominant language. To do so, this study analyzed the grammatical use of third-person singular verbs (i.e., third-person singular accuracy), as well as the use of BE (i.e., BE accuracy) in two activities, a narrative generation and an elicitation task. The third-person singular position is particularly interesting in English because this position, contrary to other positions (i.e., singular or plural first and second person or plural third person), is marked by verb morphology, either the regular present –s, the regular past –ed, or an irregular past form. The second purpose of the present study was the exploration of the potential predictors of children’s verb and BE accuracy. It is particularly relevant to study verb accuracy of children who speak Chinese because of the challenges that verb morphology may pose. Chinese is a language with minimal morphology, and once these children enroll in English language preschools, they are exposed to a language typology that possesses verb morphology. Both purposes are important from an academic and a clinical point of view because they have the potential to contribute to a better understanding of typical bilingual development and provide clinicians with developmental data for this specific population.

Development of Tense Morphology in Bilingual Children

The first purpose of the study was motivated by recent studies that have investigated bilingual verb development and suggest a complex picture (Gavruseva, 2004; Paradis, Rice, Crago, & Marquis, 2008; Prévost & White, 2000). As Paradis (2010) pointed out, compared with their monolingual peers, bilingual children may receive less exposure to each of their two languages. This may influence the patterns of language development, particularly with regard to tense morphology, which is mastered notably later than other nontense morphemes (e.g., plural [-s], progressive [-ing]) in both first and second language acquisition of English (Brown, 1973; Paradis, 2010; Rice, Wexler, & Hershberger, 1998). Regarding the unbound morpheme BE, there is evidence that bilingual children can learn to use BE forms accurately within just a few months of exposure to English (Ionin & Wexler, 2002; Paradis et al., 2008). This pattern differs from what is observed in monolingual children, who tend to acquire BE and finite morphology concurrently (Paradis & Blom, 2016). Several studies have confirmed that children learning two languages (both simultaneously and sequentially) experience a lag in their acquisition of English tense morphology relative to monolingual children of the same age, while showing a precocious mastery of BE. This has been observed for French–English bilinguals aged 4 to 6 years (Nicoladis, Palmer, & Marentette, 2007) and 6 to 7 years (Paradis, 2010).

In theory, different hypotheses are proposed to account for these findings. Several studies have supported the Missing Surface Inflection Hypothesis (Chondrogianni & Marinis, 2012; Haznedar & Schwartz, 1997; Ionin & Wexler, 2002; Paradis, et al., 2008; Prévost & White, 2000), suggesting that bilingual speakers may have the knowledge of the tense feature, but they do not produce the morphological markers at the surface level (Prévost & White, 2000). The precocious use of BE in bilingual children is consistent with the Missing Surface Inflection Hypothesis (Prévost & White, 2000), suggesting that tense may be easier to realize with a word than with a bound morpheme (Ionin & Wexler, 2002). Other research (e.g., Blom & Paradis, 2015; Mueller Gathercole, 2007) suggests that factors, such as the size of the lexicon (in English) and the word frequency, may also play a role in the development of finite verb morphology in bilingual children. The effect of vocabulary size on verb accuracy has been observed for French–English bilinguals (Nicoladis et al., 2007) and for bilingual children from mixed first-language backgrounds (Blom & Paradis, 2013). The effect of verb frequency on the development of finite morphology has been observed in French–English bilinguals (Paradis, 2010; Nicoladis, Song, & Marentette, 2012) and for the regular and irregular past tensed verbs in a mixed group of bilingual children (Blom & Paradis, 2013). The early acquisition of BE is also consistent with frequency accounts of verb acquisition, arguing that the higher frequency and distributional consistency of BE relative to other verbs may partially account for their more accurate use relative to finite verb morphology in bilingual children (Paradis et al., 2008).

Factors Influencing Bilingual Children’s Use of Verb Morphology

The second purpose of the study examined the predictors of verb accuracy. Although at least part of the variation in the use of finite morphology may be accounted for by similar predictors to those observed in monolingual populations (e.g., size of vocabulary and word frequency), bilingual verb accuracy may also be influenced by other factors that are not relevant to monolingual development (cf. Blom & Paradis, 2013). In fact, unique to bilingualism, the patterns of acquisition in a bilingual child may depend on the typologies of the two languages (Yip, 2013), the environments in which each language is spoken (Hammer et al., 2012; Pearson, 2007), and the age of exposure to each of the languages, as well as the proportion of the exposure (Hipfner-Boucher et al., 2015; Marian, Blumenfeld, & Kaushanskaya, 2007; Unsworth, 2008, 2016; Wei & Lee, 2001). Another important factor that is specific to bilingual language acquisition is the cross-linguistic influence between the two languages being acquired (Yip & Matthews, 2007). Although some features seem to develop in an independent manner (see Serratrice, 2012, for a review), Marian and Kaushanskaya (2007) highlighted the importance of an interaction between the two languages being acquired by bilingual children. Human languages vary greatly on several

aspects, including morphology and syntax (Song, 2013). The development of bilingual children's verb morphology could be influenced by the proximity of language typology of the bilingual child's two languages. This hypothesis has been investigated by a recent study (Blom & Paradis, 2015), which showed that for typically developing bilingual children with at least 15 months of exposure to English, the typology of their first language (L1; i.e., whether or not it marks verbs for tense) was an important predictor of English verb accuracy. Their results showed that children whose L1 marks tense (e.g., Portuguese, Spanish, Urdu) obtained significantly higher verb accuracy scores on the Test of Early Grammatical Impairment (TEGI; Rice & Wexler, 2001) than children whose L1 did not mark tense (e.g., such as Cantonese, Mandarin, and Vietnamese). In addition to level of accuracy, language typology has also been shown to affect the pattern of errors observed in the verb morphology of bilingual children. Nicoladis et al. (2012) investigated the verb accuracy of two groups of bilingual children in Canada and found that children who spoke French as their L1 were more likely to produce overregularization errors, while L1 speakers of Chinese were more likely to make errors of omission. The authors suggest that this can be seen as an influence of language typology, as French marks verbs for tense, while Chinese does not (Nicoladis et al., 2012).

These results suggest that it is relevant to continue to study the verbs of children speaking a Chinese language (e.g., Cantonese) learning English to gain a better understanding of the influence of language typology on verb accuracy. For instance, Chinese languages, including Cantonese, lack inflections to encode tense contrast (Gisborne, 2009; Tsang & Stokes, 2001) and thus do not rely on attaching grammatical morphemes to verbs for marking tense, as in English (Gisborne, 2009). Instead, these languages adopt independent particles to represent aspect, such as, perfective, progressive, and durative (Matthews & Yip, 2011). Furthermore, in most cases, and different from the English verb BE, the use of the copular verb *hai6* is optional in Cantonese (Matthews & Yip, 2011, p. 145). There is no equivalent of the auxiliary BE in Cantonese (Matthews & Yip, 2011, p. 465). These typological differences may influence the acquisition of verb morphology by learners of English who speak a language without tense marking—that is, Cantonese.

English Verb Accuracy of Children Speaking a Chinese Language at Home

To the best of our knowledge, only four published studies have investigated and described the English verb accuracy of children speaking a Chinese language at home in a country in which English is the dominant language. Overall, although these children improved in verb accuracy as they got older and gained more exposure to English (Nicoladis et al., 2012; Paradis, 2008), they did exhibit initial difficulty in acquiring English verb morphology. For example, Paradis (2008) analyzed the tense morphology of nine Chinese–English bilingual children, including speakers of both Mandarin and Cantonese, using the TEGI (Rice

& Wexler, 2001), as well as a spontaneous language sample. At the initial assessment of this longitudinal study, the children in the sample (mean age = 5 years, 4 months) had an accuracy score of only 29%, which is lower than the expected criterion for age-matched typically developing monolinguals. Nicoladis et al. (2012) studied 14 Chinese–English bilingual children between the ages of 5 and 12 and found that they scored 77.1% accuracy on past tense morphology. Although this score is fairly high, it is lower than the expected accuracy score for younger monolinguals (aged 4–6 years), which is about 90% (Nicoladis et al., 2007, 2012).

Regarding tense morphology, some studies have also indicated a difference between inflectional morphemes ([*-s*], [*-ed*]) and suppletive morphemes (BE and DO). Paradis and Blom (2016) suggested that although inflectional morphology often poses a particular challenge to English language learners, they may learn to accurately use BE much more quickly following initial exposure to English (see also Ionin & Wexler, 2002). This has been observed in Chinese–English bilingual populations as well. Paradis (2008) found that at age 5 years, typically developing bilingual children obtained significantly higher scores on the BE probe of the TEGI than on the third-person singular or past tense probes. Jia and Fuse (2007) examined the verb production of 10 Mandarin-speaking children, aged 5 to 16 years, using a spontaneous speech sample. They found that although the younger group of children in their sample (aged 5 to 8 years) produced inflectional morphology correctly approximately 50% of the time, their accuracy on BE was close to 80%. A recent study by Paradis et al. (2016) indicated that out of the 18 children they followed longitudinally from age 4 to 6 years, 11 “did not display native speaker levels of accuracy for one or more morphemes” (p. 553). The results of this study indicated that variation in accuracy was predicted by English vocabulary size, verbal short-term memory (measured by nonword repetition), and quality and quantity of English at home.

In summary, the body of literature on Chinese–English bilingual children tends to indicate slow development of finite morphology in English but a greater mastery of BE forms. However, existing studies have used relatively small sample sizes and wide age ranges (e.g., Nicoladis et al., 2012, 14 children aged 5–12 years; Jia & Fuse, 2007, 10 children aged 5–16 years). Additional information is needed to provide a clearer picture of Cantonese–English children in an English-speaking preschool setting. The present study uses a cross-sectional sample of 47 children that was divided into two groups (4-year-olds with 4 months' exposure to English in a formal school setting and 5-year-olds with 1 year and 4 months' exposure to English) to allow for an investigation of the early use of English verb morphology in this bilingual population. Note that this study examined two commonly used production tasks in language evaluation protocols (i.e., narrative generation and direct elicitation task). Thus, the aim of the current study was to describe this population in terms of their verb accuracy in English in two tasks and to evaluate the predictors for verb accuracy, in particular

the role of experience (i.e., the use of Cantonese in the home, the richness of the English environment, maternal fluency of English, chronological age), the size of vocabulary (English expressive vocabulary test), and the verb frequency.

Evaluations of bilingual children with suspected language impairment typically include elicitation tasks, which provide a highly structured context for obtaining a language sample, and narrative tasks, shown to provide naturalistic and ecologically valid data (Bamberg, 1987; Berman & Slobin, 1994; Bliss, McCabe, & Mahecha, 2001). Studies have shown that the nature and the goal of the task may affect individual performance; language use may vary between observation and elicitation tasks, as well as between different observational settings (Masterson, 1997; Masterson & Kamhi, 1991; Thordardottir, 2008). Paradis (2005) investigated a possible effect of task on morphological accuracy. This study compared data from a spontaneous speech sample and data from the TEGI (Rice & Wexler, 2001). Paradis observed that the children from a mixed-language group obtained similar scores between the two activities for third-person singular [-s], regular past [-ed], and BE. However, the children obtained lower scores for the irregular past tense verbs and DO during the TEGI in comparison to the spontaneous speech samples. The difference in past tense verbs was explained by the fact that in the spontaneous speech setting, children could choose which verbs to use and they were more likely to select high-frequency irregular verbs. This performance discrepancy between tasks may lead to a potential bias in the language assessment of these children. However, to date, no study has compared narrative generation and elicitation tasks, two commonly used assessment procedures.

The first goal of the present study was to describe the use of verbs by two groups of Cantonese–English children in two tasks that vary in structure. The second goal of the study was to study the factors explaining the grammatical or ungrammatical use of third-person singular verb accuracy, as well as BE accuracy. This study had four research questions:

1. What is the third-person singular verb accuracy on two different tasks (i.e., narrative and elicitation task) for Cantonese–English preschoolers?
2. What is the BE accuracy on two different tasks (i.e., narrative and elicitation task) for Cantonese–English preschoolers?
3. What are the predictors of the grammatical use of verbs (regular and irregular forms) in third-person singular obligatory contexts?
4. What are the predictors of the grammatical use of BE verbs for Cantonese–English preschoolers?

It was hypothesized that Cantonese–English bilingual children living in an English-dominant society would have a low rate of verb accuracy but precocious use of BE (Paradis, 2008; Nicoladis et al., 2012). Further, it was hypothesized that these children would have higher verb

accuracy during a narrative in comparison to the elicitation task (Paradis, 2005). According to recent studies (Kidd & Kirjavainen, 2011; Blom & Paradis, 2013), it was expected that the grade and vocabulary would be important predictors for verb accuracy, regular verb morphology, and the accurate use of BE.

Methods

Study Design

This study used a cross-sectional design using two different preschool groups at one testing time. The design balanced the sample for age and sex and counterbalanced the narrative and the elicitation tasks. Dependent variables (i.e., third-person singular and BE accuracy) and independent variables are presented below. Ethics approval was obtained from the University of Toronto, Ontario, Canada, and informed consent was obtained for all the participants.

Participants

A total of 47 children (24 boys and 23 girls) participated in this study, after informed consent was obtained. The participants were Cantonese–English bilingual children enrolled in English-speaking kindergartens in Toronto, Ontario, Canada. Table 1 summarizes the characteristics of the participants. Twenty-three children were enrolled in junior kindergarten (JK; 13 boys and 10 girls). The mean age of the JK group was 51.17 months ($SD = 3.5$). Twenty-four children were enrolled in senior kindergarten (SK; 11 boys and 13 girls). The mean age of the SK group was 65.58 months ($SD = 3.47$). Both programs (i.e., JK and SK) are publicly funded, preschool-based programs. JK programs are intended for 4-year-olds, whereas SK programs are for 5-year-olds. All but two children were born in Canada. The participants' first exposure to a formal English setting was the first year of JK. The 4-year-olds had received 4 months of English instruction, whereas the 5-year-olds in SK had received 1 year and 4 months of exposure. Information about the home language environment was obtained by using the Alberta Language Environment Questionnaire (ALEQ; Paradis, 2011), a survey that includes questions that examine the children's and families' language background and exposure to all languages in the home. Children in both age groups heard and spoke predominantly Cantonese in the home. This was confirmed by the mean on ALEQ Language Use in the Home score for children in JK, .26 ($SD = .16$), and for the children in SK, .24 ($SD = .15$). This score is an index, ranging between 0 and 1, where 0 = *only the minority language (i.e., Cantonese) is spoken in the household* and 1 = *only English is spoken in the household*. The maximum score recorded on ALEQ Language Use in the Home score was .58 for three children. In all three cases, the parents reported speaking predominantly Cantonese to their children, while the children tended to use more English. English richness scores were also obtained from ALEQ questionnaires. English richness score was .66 for JK and .60 for SK on a scale from 0 = *no exposure to*

Table 1. Characteristics of the participants.

Variable	JK (n = 23)		SK (n = 24)		Total (n = 47)	
	M (SD)	Min-max	M (SD)	Min-max	M (SD)	Min-max
Age	51.17 (3.50)	46.00–58.00	65.58 (3.47)	58.00–69.00	57.51 (7.15)	46.00–69.00
Sex, n						
Male		13		11		
Female		10		13		
Maternal education (years)	16.00 (1.34)	12.00–18.00	15.33 (2.00)	8.00–18.00	15.66 (1.74)	8.00–18.00
Language Use in the Home score ^a	.26 (0.16)	.00–.58	.24 (.15)	.00–.58	.25 (.16)	.00–.58
Nonverbal IQ ^b	14.30 (3.34)	9.0–22.00	19.04 (4.82)	12.00–28.00	16.72 (4.77)	9.00–28.00
Expressive vocabulary (English) ^c	36.95 (9.90)	21.0–59.00	47.83 (15.43)	3.00–75.00	42.51 (14.00)	3.00–75.00
Receptive vocabulary (Cantonese) ^d	46.91 (15.22)	12.00–70.00	66.54 (20.74)	26.00–99.00	56.94 (20.60)	12.00–99.00
Verbal memory ^e	9.13 (2.70)	6.00–15.00	11.63 (3.10)	7.00–19.00	10.40 (3.17)	6.00–19.00
Mother fluency (English) ^a	2.83 (0.65)	2.00–5.00	2.62 (0.77)	1.00–5.00	2.72 (0.71)	1.00–5.00
Richness score (English) ^a	.66 (.14)	.38–.94	.60 (.13)	.25–.80	.63 (.14)	.25–.94

Note. JK = junior kindergarten; SK = senior kindergarten; Min-max = minimum-maximum.

^aAlberta Language Evaluation Questionnaire. ^bRaw scores (maximum 46 items), Kaufman Brief Intelligence Test-Second Edition. ^cRaw scores (maximum 170 items, expected maximum for age range 81–96), the Expressive One-Word Picture Vocabulary Test-III. ^dRaw scores (maximum 204 items), the Cantonese-translated version of the Peabody Picture Vocabulary Test-III. ^eRaw scores, Memory for Digits (forward, maximum 21 items) subtest of the Comprehensive Test of Phonological Processing.

English to 1 = full exposure to English outside the home environment. Mothers' self-reported English fluency was 2.83 for JK and 2.62 for SK on a scale from 0 = not fluent in English to 4 = very fluent in English. The mean number of years of education completed by the mothers of the participants was 15.6 years, suggesting that most of the mothers had college or university education. Children's English expressive vocabulary scores on the Expressive One-Word Picture Vocabulary Test-Third Edition (EOWPVT-3; Brownell, 2000) were within 1 SD in comparison to age peer monolingual children. None of the children in the study had standard scores below the expected range on a measure of nonverbal intelligence, the Kaufman Brief Intelligence Test-Second Edition (KBIT-2; Kaufman & Kaufman, 2004), and none of the parents reported a history of developmental or language disorders.

Procedure

Cantonese and English measures were used to assess language, narrative, and cognitive skills in Cantonese-English bilingual preschoolers. All English testing was performed by SLPs who were fluent in English only. All Cantonese testing was performed by SLPs who were fluent in Cantonese and English. The Cantonese-speaking SLPs used only Cantonese during the Cantonese test sessions. English and Cantonese test sessions were counterbalanced. All examiners were blind to the study questions. Raw scores rather than norms were used for both English and Cantonese tests administered.

Nonverbal Reasoning Ability

To obtain a measure of nonverbal intelligence, the Matrices subtest of the KBIT-2 (Kaufman & Kaufman, 2004) was administered to all the participants. The test instructions were given in Cantonese using the original test

material and scoring table. The raw scores were calculated as per the test manual by the testers and represented the number of items correct. Because the children who participated in this study were from a different population than the children in the validation sample, internal consistency was computed using Cronbach's α . Cronbach's α was .84 for this sample, exceeding the generally accepted threshold for good reliability (Henson, 2001).

Verbal Memory

The Memory for Digits (forward-only recall) subtest of the Comprehensive Test of Phonological Processing (CTOPP; Wagner, Torgesen, & Rashotte, 1999) was administered to all participants in Cantonese. The examiner orally presented strings of numbers of increasing length. The children were asked to repeat them in the order in which they were heard. The strings ranged in length from two to eight digits. The order of the items and the scoring procedure were maintained as per manual. The raw score represented the number of correct responses. Cronbach's α was .84 for this sample, indicating good internal consistency.

English Expressive Vocabulary

To obtain a measure of English vocabulary, EOWPVT-3 (Brownell, 2000) was administered to all children per manual instructions. Children were asked to name a series of illustrations depicting a single object, a category of objects, a single action, or a category of actions. The raw score for expressive vocabulary represented the number of items correctly named. Cronbach's α was .94 for this sample, indicating good internal consistency.

Cantonese Receptive Vocabulary

The Cantonese adaptation of the Peabody Picture Vocabulary Test-III (Dunn & Dunn, 1997) developed by Chow and McBride-Chang (2003) was administered

according to standardized procedures and materials. The examiner read a word to the child who was asked to choose the corresponding picture from four pictures. The raw score represented the number of correctly identified items. Cronbach's α was .95 for this sample, indicating good internal consistency.

Story Generation in English

All participants generated a story in English from a wordless picture book. To elicit a narrative generation, the children were presented with the wordless picture book, *One Frog Too Many* (Mayer & Mayer, 1975), which was shortened to 16 pages due to the young ages of the children. The children were asked to look carefully at the pictures in the book, after which they were asked to tell their story. Each child's story was digitally recorded for later transcription by a research assistant.

Morphological Development

The TEGI (Rice & Wexler, 2001) was administered in English according to standard procedures. A research assistant who was a clinical master student in speech-language pathology was specifically trained to score the test. The TEGI is composed of three sets of probes eliciting third-person singular [-s], regular past tense [-ed], and irregular past tense, as well as BE (copula and auxiliary) and DO (auxiliary). The TEGI uses visual and verbal stimuli to elicit the production of the target morpheme or verbal form. The children produced 341 scorable responses on the present tense probes (125 unscorable), 612 on the past tense probes (237 unscorable), and 1,235 on the BE and DO probes (457 unscorable). Unscorable responses for JK children were 38% on the present probe, 31% on the past tense probe, and 30% in the BE and DO probe. Unscorable responses for SK children were 15% on the present tense probe, 25% on past tense probe, and 23% on the BE and DO probes. Unscorable responses represented as per the test manual the items for which the target form was not attempted by the child (e.g., "if the target was past tense -ed, and the child responded, 'she ties her shoes,' the item was considered to be unscorable"; Rice & Wexler, 2001, pg. 21). Unscorable responses rates are similar to the rates reported by Blom & Paradis (2013). The Criterion Scores—that is, the norm-referenced cutoff points calculated to separate monolingual typically developing children from monolingual children with specific language impairment—were computed per the test manual. Twenty percent of the sample was scored by a research assistant that was specifically trained on the TEGI and interrater reliability was calculated by using the formula: number of agreements/(number of agreements + disagreements) \times 100. Reliability was 96% on the present tense probe, 96% on the past tense probe, and 94% on the BE and DO probe.

Transcription

Transcription and reliability of the narratives were completed by research assistants who were blind to the

specific study questions. A research assistant transcribed all narratives in English by using Systematic Analysis of Language Transcripts software (Version 7.0; Miller & Chapman, 2002). Consensus procedure (Johnston, 2001) was used for agreement reliability on 100% of the transcription. Reliability was calculated at the word level and utterance boundary level by using the following formula: number of agreements/(number of agreements + disagreements) \times 100 (Sackett, 1978). The calculation yielded agreement reliability of 99% for utterance boundaries ($n = 1,320$) and 98% for words ($n = 6,816$) for the narrative generation task.

Dependent Variables

Third-Person Singular Verb Accuracy

Each third-person singular verb was coded as grammatical or ungrammatical from both the narrative and the TEGI. Grammatical use of verbal morphology included [-s] for third-person singular present tense (e.g., *he goes*, *he climbs*), the use of [-ed] for verbs with a regular past (e.g., *he climbed*), and the expected form for irregular past (e.g., *he went*). Ungrammatical forms included omissions (e.g., *he go*, *he climb*) and overgeneralizations (e.g., *he goed*). Twenty percent of the data were coded by a second research assistant for interrater reliability. Interrater reliability yielded 98% for third-person singular verb accuracy in the narratives and 96% for the TEGI.

BE Accuracy

Instances of BE in third-person statements (singular and plural) from both narratives and the TEGI were coded by usage type as either a copula or an auxiliary, as well as for accuracy. Grammatical use of BE forms included those that agreed with their subject (e.g., *he is sad*; *they were angry*; *the boy is looking at the box*). Ungrammatical uses of copulas included omissions (e.g., *he so scary*) and number agreement errors (e.g., *all the animals was sad*). Ungrammatical uses of auxiliary verbs included omission of the auxiliary (e.g., *they watching*) and errors of number agreement (e.g., *they was going*). Twenty percent of the transcripts were coded by a second research assistant for interrater reliability. Interrater reliability yielded 94% for BE forms for both narrative and TEGI.

Predictor Variables

To grasp the potential effect of the linguistic environment on the grammatical use of verbs, several variables were selected to define the characteristics of the linguistic environment in which children participating in the study grew. These variables include grade (JK vs. SK), indicating the length of formal schooling in English, as well as three variables from the ALEQ (Paradis, 2011). First, the Language in the Home Score indicated the rate of Cantonese and English in the home, second, the richness score in English indicated the presence of English in the immediate environment of the children, and third, the self-report of

maternal fluency of English approximated the quality of English input received at home. Information on the home environment also included maternal education (years of education).

To assess the role of language (both in English and Cantonese) and the cognitive level on the dependent variables, children's raw scores on vocabulary tests (i.e., EOWPVT and Cantonese-PPVT), nonverbal reasoning (KBIT-2, raw scores), and verbal memory (CTOPP, raw scores) were included in the study as independent variables. To examine the possible link between vocabulary and grammar, English expressive vocabulary was included as an independent variable. To explore the potential effect of children's knowledge of Cantonese, Cantonese receptive vocabulary was also selected as an independent variable. Cognitive measures (i.e., nonverbal reasoning and verbal memory) were included as independent variables to control for their potential impact on language learning.

In addition, the potential effect of the task (narrative vs. TEGI) and the lemma frequency was considered. Lemma frequency of each verb was obtained through the information available from the Corpus of Contemporary American English (Davies, 2008). For this scale variable, a specific frequency was allocated for each verb lemma.

Results

Comparison of Demographic Information

Summary characteristics of the children are presented in Table 1. Group comparisons of demographic data were completed using *t* tests for interval data and Mann-Whitney *U* tests or chi-square tests for categorical data. The JK and SK groups did not differ on gender, $\chi^2(1) = 0.537, p = .464$, maternal education, $U = 226.5, N = 47, p = .202$, the ALEQ Language in the Home score, $t(45) = 0.572, p = .570$, English Richness score, $t(45) = 1.496, p = .142$, or Maternal self-reported English fluency, $U = 251, N = 47, p = .548$. As expected, SK children were significantly older than JK children, $t(45) = -12.196, p < .001$, had significantly higher raw scores on the KBIT-2, $t(39.404) = -2.862, p < .001$, and significantly higher raw scores on both lexical measures, the EOWPVT-3, $t(45) = -2.862, p = .006$, and the Cantonese PPVT, $U = 417.5, N = 47, p = .003$.

Third-Person Singular Verb Accuracy

The first question asked was about the third-person singular verb accuracy of Cantonese-English bilingual preschoolers during a story generation and an elicitation task. The 47 children in the present study produced 953 scorable verbs during TEGI present and past test probes. The analysis per the TEGI manual indicated that only two children reached the criterion score—the norm-referenced cutoff points calculated to separate monolingual typically developing children from monolingual children with specific language impairment—for the present tense score (no JK and two SK children) and six children (two JK and

four SK children) reached the criterion score for the past tense score. Thus, the majority of the children were functioning below age expectations for monolingual English-speaking children. The verb accuracy for the TEGI probes was .18 ($SD = .21, .12$ for regular verbs only, $SD = .17$) for the JK children and .33 ($SD = .21, .32$ for regular verbs only, $SD = .25$) for the SK children. Regarding narrative generation, the children produced a total of 405 third-person singular verbs. The verb accuracy rate was .47 for JK children ($SD = .27, .47$ for regular verbs only, $SD = .44$) and .61 for SK children ($SD = .25, .63$ for regular verbs only, $SD = .38$). Figure 1 indicates the variability by displaying the median and quartiles. Although variability within each group in third-person singular verb accuracy rates was observed, the dominant error pattern observed in both tasks was the use of an unmarked verb form; overregularizations were a limited phenomenon. In the story generation, overgeneralizations were 2.35% of JK children's errors and 5.50% of SK children's errors. In the TEGI (past tense probe), overregularizations were 2.48% of JK children's errors and 6.48% of SK errors. The role of exposure to English in school (i.e., JK vs. SK) and the task was assessed using binomial mixed-effects models and are presented below.

BE Accuracy

The second question asked was about the BE accuracy of Cantonese-English bilingual preschoolers during a story generation and an elicitation task. Out of 47 children, 16 children (34%) reached the TEGI criterion score for BE (two children in JK and 14 in SK). Thus, the majority of the children scored below expectations for monolingual English-speaking children. On the TEGI, the children in this study produced a total of 491 scorable BE statement forms—that is, 256 auxiliaries and 235 copulas. A total of 223 BE forms were produced by children in JK (115 auxiliaries and 108 copulas) and 268 by SK children (141 auxiliaries and 127 copulas). The JK children accuracy rate of the auxiliary was .61 ($SD = .34$), and accuracy rate of the copulas was .62 ($SD = .35$). The SK children accuracy rate of the auxiliaries was .93 ($SD = .13$), and accuracy of the copulas was .90 ($SD = .14$). During the story generation task, a total of 416 BE forms were produced, 237 by children in JK and 179 by children in SK. The JK children accuracy of the auxiliary was .62 ($SD = .31$), and accuracy of the copula was .77 ($SD = .33$). Accuracy rates in SK were .70 ($SD = .27$) for auxiliary forms and .85 ($SD = .20$) for copulas.

A large amount of within-group variation was observed (see Figure 2), particularly in JK. For this group, more variation in performance was observed on the TEGI than the story generation. On both tasks, the vast majority of errors observed were omissions of both auxiliary and copula forms. Paired *t* tests indicated that the accuracy rate of BE was significantly higher than accuracy of other verbs both in the narrative sample, $t(44) = -4.103, p < .001$, and in the TEGI, $t(45) = -10.841, p < .001$.

Figure 1. Third-person singular verb accuracy according to task, grade, and regularity. White box plots depict the third-person singular present and past verb accuracy (i.e., the rate of grammatical use of these forms) for regular and irregular verbs; gray box plots depict third-person singular verb accuracy for regular verbs only. The horizontal bold bars indicate the median, top, and bottom edges of the boxes delimitate, respectively, the third from the fourth quartile and the second from the first quartile. JK = junior kindergarten; SK = senior kindergarten; TEGI = Test of Early Grammatical Impairment.

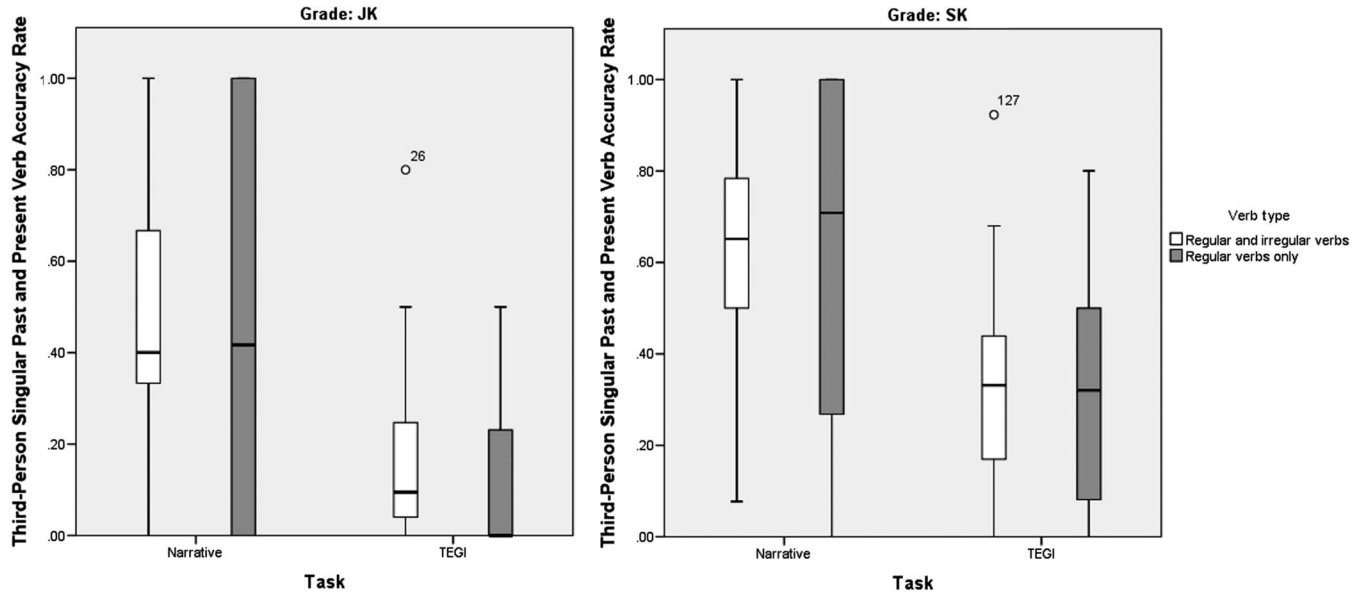
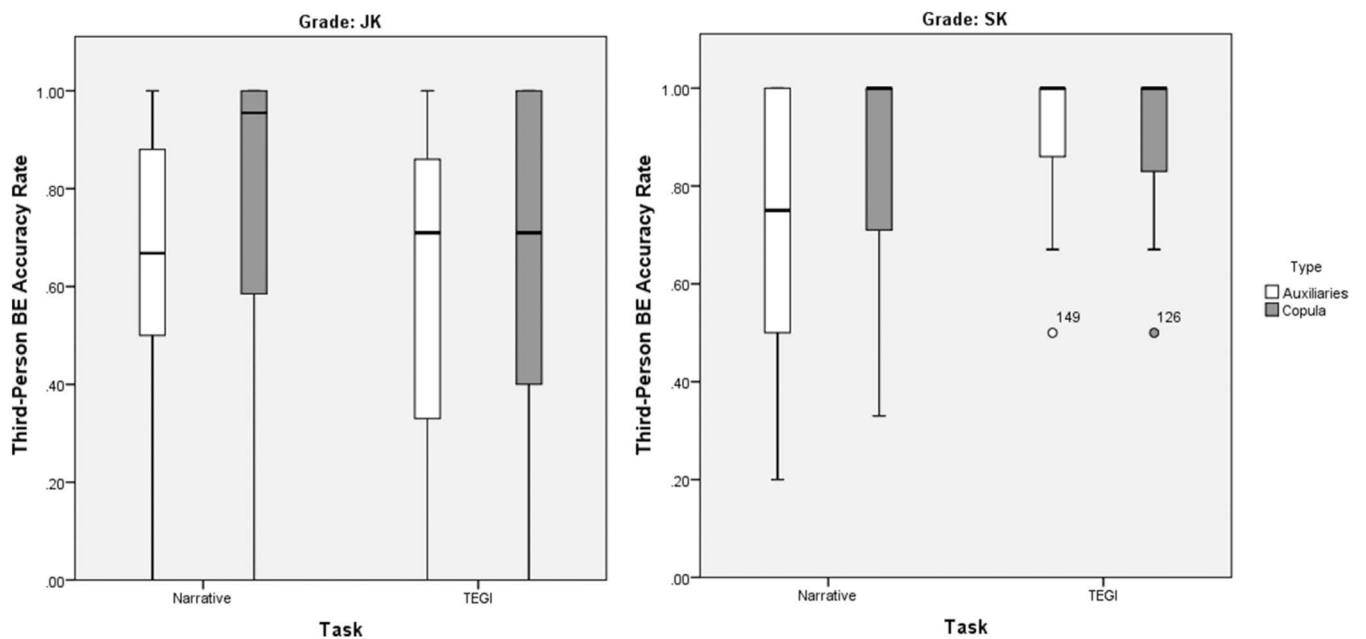


Figure 2. Third-person BE accuracy according to task, grade, and type (i.e., copula vs. auxiliaries). White box plots depict the rate of the grammatical use of auxiliary forms of BE; gray box plots depict the grammatical use of copula forms of BE. The horizontal bold bars indicate the median, top, and bottom edges of the boxes delimitate, respectively, the third from the fourth quartile and the second from the first quartile. JK = junior kindergarten; SK = senior kindergarten; TEGI = Test of Early Grammatical Impairment.



Predictors of Third-Person Singular Verb Accuracy

The third research question investigated the predictors of the grammatical use of verb (regular and irregular forms) in third-person singular obligatory contexts and the grammatical use of regular finite morphology, [-3s] and [-ed]. To understand the within-group variability observed in the data and describe the predictors, the data were analyzed with a mixed-effect binomial logistic regression by using the *lme4* R-package (Bates, Maechler, Bolker, & Walker, 2015). This procedure allows for the assessment of multiple fixed effects (predictors) controlling for participant (child identification) and item (verb) as random effects. The outcome variable was a raw binary variable (accurate vs. inaccurate) tense marking, including all third-person singular present and past tense verbs for both regular and irregular verbs. This set included 1,358 observations. The initial predictors included in the model were grade (JK vs. SK), Language in the Home Score (ALEQ), richness score in English (ALEQ), maternal fluency of English (self-report, ALEQ), maternal education (years of education), English expressive vocabulary (EOWPVT, raw scores), Cantonese receptive vocabulary (Cantonese-PPVT, raw scores), nonverbal reasoning (KBIT-2, raw scores), verbal memory (CTOPP, raw scores), task (narrative vs. TEGI), and lemma frequency¹ (Corpus of Contemporary American English, Davies, 2008). The final model was obtained by using a backward elimination modeling strategy (Blom & Paradis, 2015; Chatterjee & Hadi, 2006). Models were compared on the basis of means of maximum likelihood ratio tests. Where no significant difference between two models was found, the simplest model was retained. The final model reported in Table 2 included grade, expressive vocabulary in English,² task, and lemma frequency. The random factors (verb and participant) were also included in the final model. *C* statistics were used to assess the probability that predicting the outcome was better than chance. A *C* value below .5 indicates that the model is not better than chance, whereas *C* statistics higher than .7 are considered reasonable, and *C* statistics higher than .8 are considered strong (Hosmer & Lemeshow, 2000). The goodness of fit of the final model, evaluated using *C* statistics, was strong (*C* = .89).

To understand better the hierarchical order of the predictors that were retained in the final model above, a binary recursive partitioning was performed with the party R-Package (Hothorn, & Zeileis, 2015) using the significant predictors of the final model (Blom & Paradis, 2015; Blom & Baayen, 2013). This technique splits the sample into two groups on the basis of the dependent variable (i.e., grammatical vs. ungrammatical verbs) and repeats this procedure until it is not possible to create any new groups. Figure 3 shows the tree resulting from this technique. The

tree is composed by ellipses (i.e., nodes), indicating the name of the variable used to create the split, and by lines, indicating the value characterizing the subsample. Each node represents a significant split with an alpha level set at $p = .05$ and corrected with a Bonferroni procedure. Figure 3 reveals the hierarchy of nodes that are significant for determining grammatical vs. ungrammatical use of third-person singular verbs. The first node was the task, indicating higher accuracy scores on the narrative than the TEGI. A secondary node in the narrative line was English expressive vocabulary. Children with a score of over 40 correct vocabulary items on the EOWPVT were more likely to produce accurate third-person singular verbs, particularly when the verbs were frequent. Children who scored 40 or less on the EOWPVT produced more accurate verbs if their score was between 27 and 40, while children who scored less than 27 had low third-person singular verb accuracy levels. On the TEGI, the first secondary node was the distinction according to grade, with younger JK children producing fewer accurate third-person singular verbs. In JK children, frequent verbs were more accurate than infrequent verbs. Lemma frequency also played a role in SK children; frequent verbs were also more likely to be accurate and children with higher expressive vocabulary raw scores were more likely to produce an expected form for infrequent verbs.

To only analyze the use of finite morphology, a second mixed-effect binary logistic regression tested the predictors of third-person singular verb accuracy of a subsample, including only regular verbs (both third-person singular present and past tense inflections). In fact, irregular verbs might be stored in lexical memory (e.g., Pinker & Ullman, 2002), and this could drive the effect of English expressive vocabulary. A second regression excluding irregular verbs allows evaluation of the effect of vocabulary measure on the use of grammatical rules. This second model addressed the question: What predicts the accurate use of finite morphology ([-s] and [-ed]) in Cantonese-English preschoolers? This subset included 672 observations. The same procedure used for the first model was used for this second model. The final model (see Table 2) for regular verbs included grade, expressive vocabulary in English, and task as well as the random factors (verb and participant). Note that the lemma frequency *p* value was .059 in the penultimate model. The final model, without lemma frequency, was retained because a likelihood ratio test revealed that the model including lemma frequency was not significantly better ($p = .054$) than the model without lemma frequency. The *C* statistic for this second model was .88.

To better understand the hierarchical order of the predictors for the grammatical versus ungrammatical use of regular verbs, a binomial recursive partitioning tree (see Figure 4) was calculated using the significant predictors in the final model and lemma frequency. The latter variable was included because the marginal significance deserved to be further explored. Figure 4 revealed the hierarchy of nodes that are significant for determining grammatical versus ungrammatical use of regular verbs. The first node is English

¹To avoid convergence errors, original data retrieved from <http://corpus.byu.edu/coca/> were rescaled, dividing them by 1,000.

²To avoid convergence errors, original data were rescaled, dividing them by 100.

Table 2. Summary of mixed-effects binomial regressions for verb accuracy, regular verb accuracy, and BE accuracy.

Fixed effects	Estimate	SE	z	p	Random effects	Variance	SD
Regular and irregular verbs ^a							
Intercept	-3.011	0.631	-4.772	<.001	Verb	1.396	1.181
Grade	0.859	0.383	2.245	.025	Child ID	1.111	1.054
English expressive vocabulary ^b	4.094	1.390	2.945	.003			
Task	-1.188	0.206	-5.759	<.001			
Lemma frequency ^c	0.266	0.069	3.863	<.001			
Regular verbs ^d							
Intercept	-2.917	0.771	-3.783	<.001	Verb	0.504	0.710
Grade	1.099	0.452	2.428	.015	Child ID	1.259	1.122
English expressive vocabulary ^b	4.906	1.664	2.948	.003			
Task	-1.675	0.295	-5.687	<.001			
BE accuracy ^e							
Intercept	-2.377	0.673	-3.530	<.001	Child ID	1.068	1.033
Grade	1.099	0.386	2.849	.004			
English expressive vocabulary ^b	4.792	1.462	3.278	.001			
Task	0.715	0.199	3.592	<.001			
Number	0.758	0.210	3.610	<.001			
Type	0.645	0.185	3.479	<.001			

Note. SE = standard error; ID = identification.

^aNumber of observations = 1,358; groups: verb = 123; child ID = 47. ^bExpressive One-Word Picture Vocabulary Test-III, raw scores. ^cCorpus of Contemporary American English. ^dNumber of observations = 674; groups: verb = 74; child ID = 47. ^eNumber of observations = 907; groups: child ID = 47.

expressive vocabulary, indicating that children with larger vocabularies (namely, children who scored 42 or higher on the EOWPVT), produced more accurate verbs. For children with higher vocabulary scores, a secondary node was grade, indicating that SK children were more accurate than JK children. Further, both grades were more likely to

produce accurate verbs during the narrative task than during the TEGI. For children who obtained a vocabulary score of 42 or less, a secondary node was the task, indicating higher accuracy on narratives than on the TEGI. In addition, accuracy on the TEGI was predicted by lemma frequency.

Figure 3. Binary partitioning tree for regular and irregular verb accuracy. JK = junior kindergarten; SK = senior kindergarten; TEGI = Test of Early Grammatical Impairment; English_Exp_Vocabulary = English expressive vocabulary; LemmaFreqScale2 = lemma frequency; Ungramm. (dark gray) = rate of ungrammatical use of the verb; Gramm. (pale gray) = rate of grammatical use of the verb.

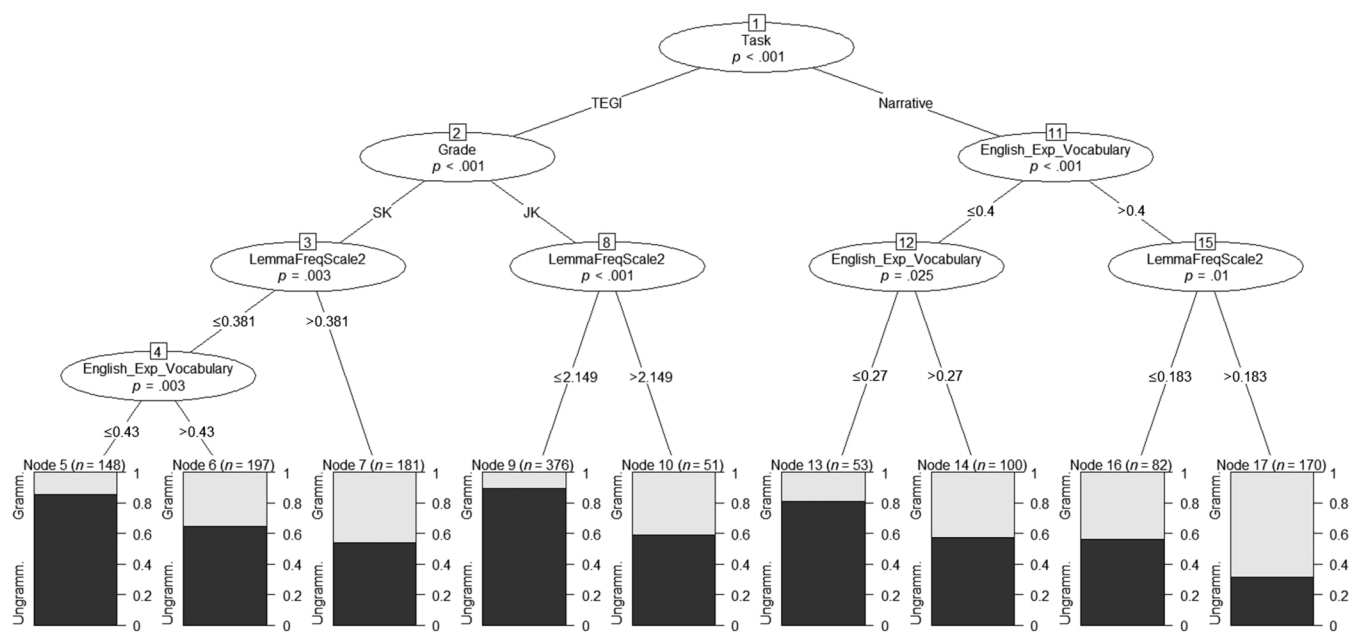
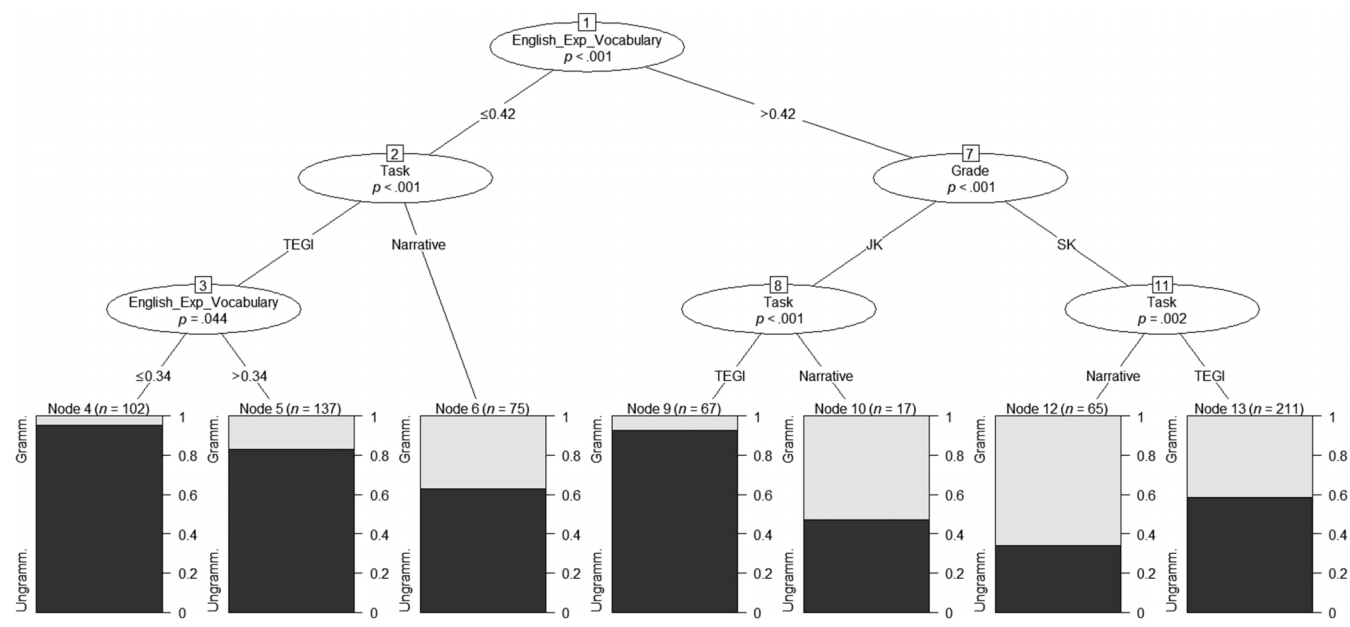


Figure 4. Binary partitioning tree for regular verb accuracy only. JK = junior kindergarten; SK = senior kindergarten; TEGI = Test of Early Grammatical Impairment; English_Exp_Vocabulary = English expressive vocabulary; Ungramm. (dark gray) = rate of ungrammatical use of regular morphology; Gramm. (pale gray) = rate of grammatical use of regular morphology.



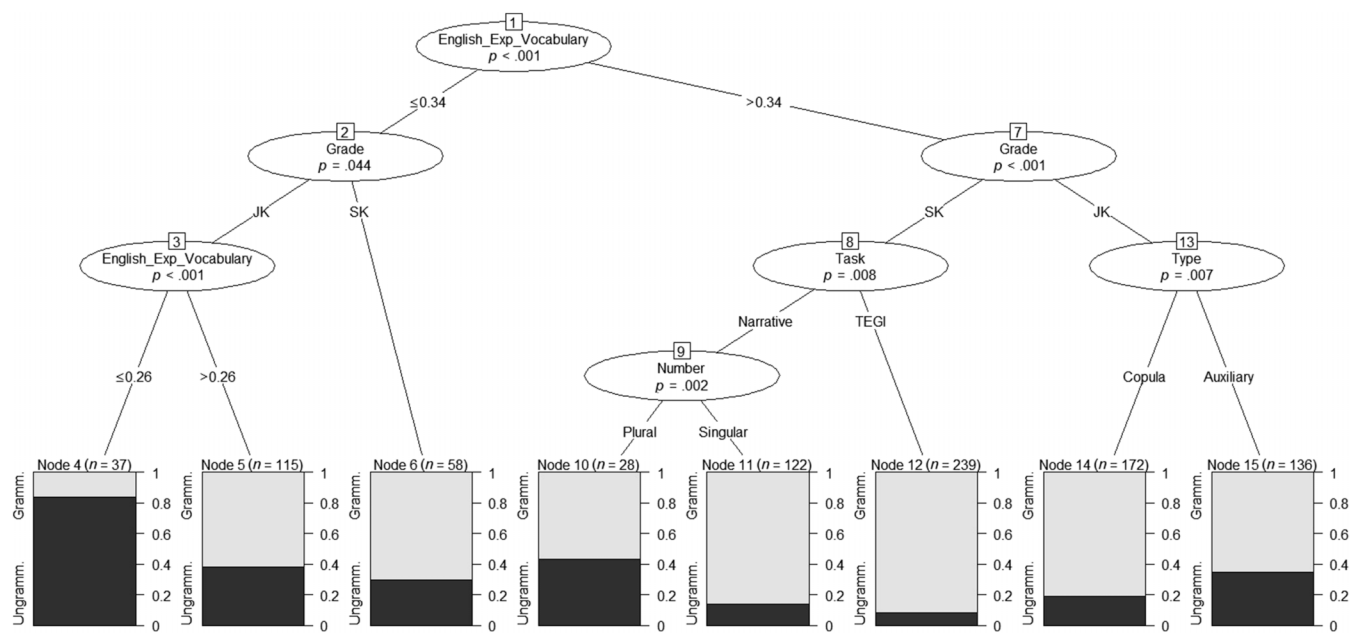
Predictors of BE Accuracy

The fourth research question investigated the predictors of the grammatical use of BE for Cantonese–English preschoolers. Thus, a third mixed-effect logistic regression explored the predictors of the use of BE both as an auxiliary and a copula. In this analysis, in addition to the variables included in the previous regressions, the type of use (copula vs. auxiliary) and the number (singular vs. plural) were also included as fixed effects. The participant was entered in the model as a random effect. The final model (see Table 2) indicated that the task, the grade, the number (singular vs. plural), the type (copula vs. auxiliary), and English expressive vocabulary were significant predictors. The *C* statistic was .82 and indicated that model was strong. Also, a binary partitioning procedure (see Figure 5) indicated that English expressive vocabulary was the first node, with children who scored 34 or higher on the EOWPVT performing more accurately on BE. For children with lower vocabulary scores, a secondary node was grade, indicating more accurate performance in SK than JK. For JK children, higher accuracy on BE was predicted by an EOWPVT score of 26 or higher. For children with vocabulary scores of more than 34, the secondary node was also grade, with SK children performing more accurately. Further, for these SK children, task played a role, with higher accuracy on the TEGI than the narrative task. For narratives, BE accuracy was predicted by the number, indicating that singular forms were more accurate than plural. For children in JK, the final node was type, which indicated that copulas were more likely to be accurate than auxiliaries.

Discussion

The goals of the current study were to describe the verb use of Cantonese–English bilingual children growing up in an English-speaking context and to identify predictors of third-person singular verb accuracy in this population. This study aimed to fill a gap in the literature by using a larger sample size and two language tasks (e.g., Jia & Fuse, 2007; Nicoladis et al., 2012; Paradis, 2008). Overall, the results of the present study corroborate those of previous studies, indicating that Chinese–English bilingual preschoolers present low accuracy for tense morphology. The results showed that generally 5-year-old children (i.e., SK children with 1 year and 4 months of exposure) obtained higher scores than 4-year-old children (i.e., JK children with 4 months of exposure), which may suggest that Cantonese–English bilingual children develop higher levels of verb accuracy over time. Further, a precocious mastery of BE (relative to regular and irregular present and past tense verbs) was also observed. Nonetheless, the majority of children did not reach the criterion score set by the TEGI for their age group. This result corroborates the suggestion that the bilingual path of development is different from the monolingual path (Paradis & Blom, 2016), in which finite morphology and BE are acquired simultaneously. Previous studies suggested that this difference might be related to the fact that it is easier for children to be accurate when the tense is realized with a word than with a bound morpheme (Ionin & Wexler, 2002). In this study, this discrepancy might also have been explained by the different language typology of English and Cantonese. Because Cantonese does not have mandatory bound morphemes to mark tense, no transfer

Figure 5. Binary partitioning tree for BE accuracy. JK = junior kindergarten; SK = senior kindergarten; TEGI = Test of Early Grammatical Impairment; English_Exp_Vocabulary = English expressive vocabulary; Ungramm. (dark gray) = rate of ungrammatical use of BE; Gramm. (pale gray) = rate of grammatical use of BE.



between Cantonese and English is possible for finite morphology. Comparative data of bilingual children speaking English and a language with rich verbal morphology, such as Italian or Spanish, could shed further light on the possibility of transfer or interference between two languages.

Data also indicated a large variability in accuracy among the participants both for tensed verbs and for BE. This important phenomenon has been observed in other studies focusing on verb acquisition (Blom & Paradis, 2015; Paradis & Blom, 2016). To understand this variability, an investigation of the predictors of verb accuracy was conducted. Previous studies on predictors of verb accuracy analyzed children with very diverse language backgrounds (Blom & Paradis, 2015; Paradis & Blom, 2016) or a wide age range (e.g., Jia & Fuse, 2007, studying 10 children 5 to 16 years old). The numerous nonfinite forms used by the children in this study for third-person singular verbs (where a finite form is expected in English) were influenced by the children's exposure to English (grade), the task, and the size of his or her expressive vocabulary. The observed predictors highlighted in this study (namely the English vocabulary score) corroborate previous studies that were based on monolingual children learning languages with rich morphology (e.g., Finnish; Kidd & Kirjavainen, 2011) and bilingual children in mixed-language groups (e.g., Blom & Paradis, 2015). These results support studies suggesting a strong relationship between lexical and grammatical development, including tense morphology (e.g., Kidd & Kirjavainen, 2011; Marchman & Bates, 1994). In contrast to Paradis et al. (2016), this study did not support the

influence of short-term memory on verb accuracy. It is possible that the measure of short-term memory for digits used in this study was not as sensitive as short-term memory for nonsense words (used by Paradis et al., 2016).

The findings of the present study also have practical implications for the evaluation of Cantonese–English bilingual preschoolers. Although a large amount of variability was observed among children regarding verb accuracy, the analyses indicated that English expressive vocabulary played an important role in this variability. For instance, during narrative generation, children with a raw score above 40 on the EOWPVT tended to produce 70% correct accuracy of frequent verbs (such as *go*, *take*, *say*, *want*) and 40% correct accuracy of less frequent verbs (such as *jump*, *climb*, *wake*). Note that children's scores were within 1 *SD* of the mean on the EWOPVT in this sample. For the youngest group, this suggests that children who had just entered school at the time of testing may have been exposed to English at home through television, informal peer play, and other contexts in which their parents used English (e.g., shopping). These results corroborate recent findings by Paradis et al. (2016), indicating that exposure is related to grammatical accuracy. Another important finding was the task effect observed for tensed verbs and, for 5-year-old children only, for BE. Previous studies have found differences between an elicitation task (TEGI) and a grammaticality judgment task (e.g., Chondrogianni & Marinis, 2012) or between the TEGI and a spontaneous language sample. The results of our study indicated a difference in verb accuracy between an elicitation task and a narrative generation task. This

may be explained by the more naturalistic nature of narrative tasks, while elicitation tasks are more decontextualized (Cleave, Girolametto, Chen, & Johnson, 2010). The findings of the present study suggest that clinicians should assess verb accuracy in a narrative task as part of a wider set of evaluation tools. Adding a measure of verb accuracy to microstructure measures of narratives would help reduce the risk of underestimating Cantonese–English bilinguals' skills by conducting an assessment in which the children can use frequent verbs accessible in their lexical repertoire.

Further, the results of this study highlight the importance of English vocabulary knowledge in grammatical acquisition. However, this should not be interpreted as a recommendation to speak English only to bilingual children. The importance of home language maintenance has been largely emphasized in the literature (Guiberson, Barrett, Jancosek, & Itano, 2006; Yeung, Marsh, & Suliman, 2000; Zhang & Slaughter-Defoe, 2009). Although bilingual children may exhibit differences in the development of certain aspects in one or both of their languages relative to age-matched monolinguals, Thordardottir (2014) suggested that this period of difficulty can eventually lead to a significant advantage, namely, mastery of two languages, in addition to sociocultural benefits.

Limitations

This study has several limitations. First, the Corpus of Contemporary American English database was used to estimate lemma frequency. This database may not be the best match for the English input provided to the bilingual children in this study. This may explain why the lemma frequency variable only approached significance in the model exploring regular verbs. To obtain more information about the English input that Cantonese–English preschoolers experience, adult–child interaction data should be collected and analyzed for lemma frequency. However, although lemmas such as *jump* might be more frequent in child language than in general oral English, it is very likely that they will remain less frequent than verbs such as *go*. Second, this study only examined narratives and an elicitation task. Comparing the performance of Cantonese–English bilingual children on different tasks (e.g., metalinguistic skills, emergence literacy skills) would help to explore the specific impact of Cantonese on different aspects of English language acquisition. Third, using samples of children with more years of exposure to English in formal contexts (e.g., preschool and school setting) would permit observations of finite verb morphology acquisition to mastery. Also, the data in the current study can only be generalized to Cantonese–English bilingual children raised in homes in which the primary input is Cantonese and in which the input of school and society is English. Moreover, this study reported a fairly high number of college- or university-educated mothers, and those results may not apply to children from lower socioeconomic backgrounds.

Conclusion

This study corroborates previous studies suggesting that tense-marking morphemes are challenging for Cantonese–English preschoolers. From a clinical perspective, the results of this study may be useful for SLPs who assess oral language abilities in Cantonese–English speaking preschoolers who are at risk for language disorders. With approximately 1 year of formal exposure to English, typically developing children may be expected to show limited production of tensed verbs, while presenting a higher use of BE, particularly when used as a copula. The findings of this study also suggest that, to obtain a broader picture of verb development of Cantonese–English bilingual children, SLPs may consider, in addition to an elicitation task, evaluating the use of verb accuracy during narratives. This will allow them to evaluate the use of finite verb morphology for verbs that are likely to be in children's lexicons. Nonetheless, after 1 year of exposure to English in preschool, Cantonese-speaking children with typical development may frequently omit finite verb morphology, while showing more precocious use of BE auxiliary and copula. This pattern needs to be considered when assessing children from Chinese backgrounds who are being investigated for language disorders.

Acknowledgments

This research was funded by the Social Sciences and Humanities Research Council of Canada (awarded to Luigi Girolametto, principal investigator), and the first author was the recipient of a postdoctoral fellowship granted by the Swiss National Science Foundation. The authors express their gratitude to the parents and children and the Cantonese community in Toronto, Canada, for their active participation in the study. We also thank Katy Ka-Yan Mak, research coordinator, and Stephanie Yap, research assistant, for invaluable help.

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